Improving Women’s Access to Continuum of Maternity-Care Services: A Maternity-Care Model for Rural Sindh, Pakistan

by

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MAppSocRes 2011, MSc Stats 2002

Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

Deakin University

August 2017
Signed Access to Thesis – A

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List of Publications


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Conference presentations

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Dedication

I dedicate this thesis to my husband Muhammad Shahid and my lovely daughters Fatima and Amna, who helped me to achieve my dream of doctoral studies.
# Glossary of Terms

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<tr>
<th>Abbreviation</th>
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<tr>
<td>ANC</td>
<td>Antenatal Care</td>
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<tr>
<td>BHU</td>
<td>Basic Health Unit</td>
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<tr>
<td>CHW</td>
<td>Community Health Worker</td>
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<tr>
<td>CMW</td>
<td>Community Midwife</td>
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<tr>
<td>CoC</td>
<td>Continuum of Care</td>
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<tr>
<td>DDMA</td>
<td>District Disaster Management Authority</td>
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<tr>
<td>DHPMT</td>
<td>District Health Planning and Management Team</td>
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<tr>
<td>DHS</td>
<td>Demographic Health Survey</td>
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<tr>
<td>EmONC</td>
<td>Emergency Obstetric and Newborn Care</td>
</tr>
<tr>
<td>FWC</td>
<td>Family Welfare Counsellor</td>
</tr>
<tr>
<td>FWW</td>
<td>Family Welfare Worker</td>
</tr>
<tr>
<td>IASC</td>
<td>The Inter-Agency Standing Committee</td>
</tr>
<tr>
<td>ICPD</td>
<td>International Conference on Population and Development</td>
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<tr>
<td>LAM</td>
<td>Lactational Amenorrhea Method</td>
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<tr>
<td>LHS</td>
<td>Lady Health Supervisor</td>
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<tr>
<td>LHV</td>
<td>Lady Health Visitor</td>
</tr>
<tr>
<td>LHW</td>
<td>Lady Health Worker</td>
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<td>MCH</td>
<td>Maternal Child Health</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
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<td>MISP</td>
<td>Minimum Initial Service Package</td>
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<tr>
<td>MMR</td>
<td>Maternal Mortality Ratio</td>
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<tr>
<td>MCH</td>
<td>Maternal Child Health</td>
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<tr>
<td>MNCH</td>
<td>Maternal Neonatal Child Health</td>
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<td>NDMA</td>
<td>National Disaster Management Authority Network</td>
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NGO  Non-Government Organisation
NHEPRN  National Health Emergency Preparedness and Response
PDHS  Pakistan Demographic Health Survey
PDMA  Provincial Disaster Management Authority
PHC  Primary Health Care
PNC  Postnatal Care
PP  Private Practitioner
PPHI  People's Primary Healthcare Initiative
PSLM  Pakistan Social and Living Standards Measurement
RHC  Rural Health Centre
SBA  Skilled Birth Attendant
SDG  Sustainable Development Goal
SES  Socio-Economic Status
SPHC  Selective Primary Health Care
SRH  Sexual and Reproductive Health
STI  Sexually Transmitted Infection
TBA  Traditional Birth Attendant
UNDP  United Nations Development Program
UNICEF  United Nations Children’s Fund
VMW  Village Midwife
WASH  Water, Sanitation and Hygiene
WFP  World Food Program
WHO  World Health Organization
WMO  Woman Medical Officer
Executive Summary

In this thesis, I provide a parsimonious maternity-care model which can address the gaps and inadequacies of the current maternity-care structure with few modifications to the existing system. The recommended model would utilise the existing health workforce and infrastructure to provide skill-based maternity care in a place (home or facility) of women’s choice to better manage the health-care needs of the mother and her newborn. Furthermore, the proposed model has an extended version that can be applied in natural disaster and emergency settings, where the existing rural health workers can be used as frontline maternity-care providers.

Background

Reducing the global burden of preventable maternal deaths is a major public health priority. In 2016, 193 countries committed to the 17 Sustainable Development Goals in the areas of health, development, environment, and education (1). The third Sustainable Development Goal is to reduce the global maternal mortality ratio to less than 70 per 100,000 live births by the year 2030 (2). In order to achieve the target, there is a global consensus that every pregnant woman and adolescent girl should receive a continuum of maternity care at all stages of their pregnancy. This includes care at preconception stage, during pregnancy, at the time of childbirth, and in the postnatal period (3, 4) According to Sines et al. (5), a well-functioning continuum of care model of service delivery can save the lives of seven million women and neonates every year. The proposed model will broaden the focus of maternal health from “reducing maternal mortality” to “optimal health and wellbeing of the mother” at every stage of the woman’s reproductive life.

Pakistan is one of the ten countries that accounted for 58% of global maternal deaths between 1990 to 2013 (6). The key determinants of maternal mortality in Pakistan are poverty, marginalised castes, lack of female education, early marriage, high fertility rate, inaccessibility to emergency obstetric care, and poor quality of primary and secondary health facilities (7-9). Findings from the recent Pakistan Demographic Health Survey 2012-13, show that only 27% of Pakistani women received continuum of care services in their last pregnancy (10). Women’s utilization of skilled birth attendants for maternity care was low; 37% of women used skilled birth attendant for antenatal care, 48% for delivery, and 47% for postnatal care services (11).
Moreover, only 26% of currently married women used postpartum family planning services. The level of education, socio-economic index, and residential location (rural versus urban) significantly influence women’s maternity care utilisation in Pakistan.

In the last decade, Pakistan has experienced a number of natural disasters which include earthquake, floods, and drought (12, 13). The unprecedented flooding caused by the monsoon rains in 2010 caused 1,985 deaths, damaged or destroyed 1.7 million houses and 1.4 million acres (557,000 hectares) of agricultural land (13, 14). Approximately 485,000 pregnant women were affected by floods during 2010-13 and 50,000 required specialised obstetric care (15). Since then, there has been at least one event of flooding annually (riverine, flash, coast dam overflow) in various parts of the country. Recurrent natural disasters had been a significant hurdle for the Pakistan Government as it tried to achieve its Millennium Development Goals to improve maternal and child health (Goals 4 and 5) (16). Despite having a decentralised disaster management system in Pakistan, recent evidence suggests that women were not provided adequate maternity-care services during the floods (12, 17).

Miller et al., (18) argue that in countries with high maternal mortality and mobility rates, the burden is concentrated on vulnerable women who are disadvantaged and face significant barriers seeking health care due to age, marital or migrant status, poverty, or resident of remote geographical locations (19-27). By prioritising interventions on these vulnerable populations, the burden of maternal mortality and morbidity can be significantly reduced, thus providing a way for countries to fulfill their commitments to reduce global maternal mortality (18, 28).

Methods

The study was conducted in five flood-affected rural villages of the Tando Muhammad Khan District, in Sindh Province, Pakistan. The villages are located on the river bank of Indus river and are at increased risk to be impacted by annual floods. The study used convergent/parallel mixed-methods design in which data was collected by means of interviews, a face-to-face survey questionnaire, and one participatory workshop. Interviews were conducted with 15 women who gave birth during the floods, 20 health workers who provided MCH services in the study villages, and 25 key informants who are key implementers of MCH program in rural Sindh, Pakistan. I also surveyed 667 women who were pregnant or gave birth during the times of floods.
in 2011, in the Tando Muhammad Khan district. As a convergent mixed-methods study, data was analysed by using “side by side comparison”, in which qualitative and quantitative data was analysed separately and then synthesised by creating inductive themes and descriptive epidemiology.

**Results**

The findings show that only 3% of women living in Katcho villages used continuum of maternity-care care services in their last pregnancy. Preconception care was utilised by women with a history of miscarriages or infertility, or by women who had pre-existing medical conditions such as epilepsy or tuberculosis. About 20% of women started to use at least one contraceptive method in the last five years. During pregnancy, women do not seek maternity-care services unless they have complications such as vaginal bleeding or pain that severely affects their daily routine. Moreover, 53% of women visited a health-care provider at least once during their last pregnancy.

Between 2010 and 2014, 50% of births among women in the study villages were attended by a traditional birth attendant, known as a dai. Cultural preference for a dai, women’s limited understanding about birth complications, lack of emergency transportation, and limited personal funds to pay for travel costs to the health facilities were determinants of home births. In this study, 9% of births occurred in a public health facility. The most common reason why women do not use a public health facility during pregnancy and childbirth is the perceived poor quality of care and an absence of respectful maternity care by health staff. Women’s limited use of antenatal and birthing care services in health facilities translates to their poor utilisation of postpartum services. There were 53% of women who used antenatal care from a health-care professional, of them, only 10% continued to seek SBA care for childbirth and the postnatal care period. Women’s understanding of postnatal care services in their area was limited. Katcho women defined postnatal care as part of the package of domestic care services provided in their home by the dai after childbirth. Women used facility based postpartum services when they had life threatening postpartum complications such as a retained placenta, postpartum haemorrhage, and neonatal illnesses such as pneumonia, jaundice, or sepsis. The cost and availability of transport from the village to the health facility are significant barriers to accessing maternity-care services among Katcho women.
There are five cadres of health workers who deliver different stages of maternity-care services at “community level” and at “facility level”. The Lady Health Workers and community midwives provide maternity-care services at community level, whereas Lady Health Visitors, midwives, and Family Welfare Counsellors deliver reproductive and pregnancy care services at public health facilities. About 30% of women had at least one interaction with a Lady Health Worker during their last pregnancy. On the contrary, the services of community midwives are unknown to most of the women in Katcho villages. The community midwives do not deliver home-based maternity-care services because they do not have the means to travel to sparsely located villages in Katcho. Moreover, the Maternal, Neonatal and Child Health program does not provide community midwives with a travel allowance to deliver services to hard to reach communities. Despite having 56 community midwives in the District and two community midwives closely located to Katcho villages, only 1.5% of women reported using their services for antenatal care, 0.5% for delivery care, and 1.6% for postpartum care. On the other hand, only 14% women used public health facilities for antenatal, 2% for delivery care, and 5% for postpartum care.

Despite the fact that all five cadres of health workers deliver Maternal and Child Health services, there exists no coordination between them. The lack of coordination translates into fragmented maternity-care service provision for women in Katcho villages. Moreover, the poor relationship between the different cadres of health workers hinders their capacity to work together as a team. In every district, there is a committee called the District Health Planning and Management Team, which sets the district’s health target for each year and supervises health workers. However, in the study district, the ineffective District Health Planning and Management Team was a predominant reason behind poor coordination between the health workers.

In recent years, the floods have negatively affected women’s utilization of skilled birth attendants during childbirth. In this study, women who gave birth during the floods in 2011 stated that they did not have control over key decisions about their health and safety. Decisions about the family’s relocation prior to and during the floods were made by male kin, and pregnant women made no contribution to that decision-making process. There were no skilled birth attendants, ambulances, birthing or breastfeeding stations for women to use in the relief camps where they stayed for six to eight weeks during the floods. Of 37 women who gave birth during floods, 34
women (95% CI 78.1-98.2) were assisted by a dai whereas three women (95% CI 1.7-21.9) gave birth in the nearest health facility. Women who gave birth in the relief camps did so in temporary shelters, in unhygienic conditions, because there was no clean physical space for them to birth. None of the cadre of health workers provided maternity-care services for women in the relief camps. The absence of skilled birth attendants and a clean physical space to give birth put women’s and their newborns’ lives at risk.

Conclusion

There is a need to restructure the existing maternity-care services in rural Pakistan. Based on the evidence presented in this thesis, I propose that the five main cadres of health workers can form small health teams, which I call “Health Workers Groups”. I propose that the Health Workers Groups provide maternity-care services from preconception through to postnatal care and ensure continuity of care from home to the health facility at all stages of pregnancy. Each Health Worker Group could be assigned a smaller segment of the population, for example, 1,500 to 3,000 people, which is aligned with the existing population allocation for these health workers. The Health Workers Group may be deployed as frontline maternity-care providers in a natural disaster and emergency settings. In the recommended model, the Health Workers Group would actively participate in the key stages of disaster preparedness, such as providing information during the early warning stage and provide maternity-care services during the flood response. The Health Workers Group could also ensure that every pregnant, birthing and postpartum woman has access to reproductive and maternity-care services during all stages of the natural disaster or emergency.
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Chapter 1: Introduction

1.1 Introduction

This chapter provides an account of the historical evolution of maternity-care systems in resource-poor countries and its influence on the provision of maternity-care services in Pakistan. In the last two decades, natural disasters and humanitarian emergencies have become regular and repeat events in many countries with poor maternal health infrastructure and resources. This chapter also includes the global standards of provision of maternity and reproductive health services in natural disaster or humanitarian emergency settings, with the focus on Pakistan’s disaster response system for pregnant, labouring and lactating women.

1.2 Maternal death – A global perspective

Maternal death is a tragedy that extends beyond the loss of one human life to affect families and the community. A mother’s death significantly influences the health of the newborn and the wellbeing of other children. The older siblings are likely to drop out of school to care for the newborn and participate in domestic and agricultural work beyond their age (29). Maternal death is also associated with an economic burden on families as many of the deceased women were productive workers or the main income earners in the family, and their loss has a direct impact on the financial stability of the family unit (30).

Between 1990 and 2015, there has been a steady decline in global maternal deaths from 543,000 (6) in 1990 to 216,000 in 2015 (6). The lifetime risk of a maternal death in resource-poor counties such as countries in the Sub-Saharan Africa is 100 times higher than in high-income countries (28, 31). Every year, of the 125 million women who give birth, 300,000 women die, 43 million do not deliver babies in a health-care facility, and 21 million do not receive specialised care for obstetric complications (32). In resource-poor countries, one in four women give birth alone or with a relative or neighbour who assists them in childbirth, and this situation has not changed since the early 1990s (33, 34).

Many maternal deaths can be prevented if women are provided with adequate maternity care in a timely manner. An efficient maternity-care system offers women centred, safe, effective, timely, efficient, and equitable care with optimal maternal
health outcomes (35). In the absence of an efficient maternity-care system, many women in resource-poor countries are unable to recognize their fundamental right of survival at the time of childbirth.

1.2.1 Historical evolution of Primary Health Care (PHC)

Between 1940 and 1960 many resource-poor countries sought independence from former colonial powers. Almost all of these countries adapted western health-care models during the period of colonisation which were based on high cost, advanced technology, and urbanised tertiary level health facilities. In the late 1960s, the failure of western health-care models surfaced because they were too expensive to administer for newly emerging economies with limited national health systems and also for countries that were experiencing ongoing geo-political and economic instability. Moreover, western models could not improve rural women’s maternity care utilisation. Most of the health facilities were built in urban locations, and due to limited geographical access and high travel cost to-and-from urban facilities, rural women were unable to utilise those services (36).

In early 70’s, a number of community health worker (CHW) programs were implemented to reduce physical access barriers to health-care facilities (37-39). The key characteristics of these programs were the provision of health education, immunisation to reduce the incidence of communicable diseases, and provision of first-aid care in rural communities (36, 39). The most notable PHC initiatives during this era were the “barefoot doctors” project in China and the “polyclinics” in Cuba (40). The barefoot doctors were trained in basic health education and treatment for common illnesses, and they provided these services to fellow community members (40). In Cuba, the Government placed auxiliary staff and recent medical graduates in rural polyclinics to serve populations that resided in hard to reach mountainous and coastal areas. The polyclinics provided disease prevention programs and basic PHC services to those who could not avail themselves of health-care facilities in urban centres (40, 41). By removing the access barriers, these grassroots health programs substantially reduced the incidence of malaria, gastrointestinal infections and infectious diseases in infants (40, 42).
Alma-Ata Conference

In 1978, the Alma-Ata Conference was held in Kazakhstan where global health leaders from 170 countries declared that access to basic health care was a human right (43). The declaration noted that the goal of PHC was to provide essential care that would be universally accessible at an affordable cost to communities and governments (43). The core values of the PHC approach were social justice, equity, community participation, and disease prevention. Following Alma-Ata, in many resource-poor countries, PHC infrastructure was established to improve access to basic health care. Moreover, CHWs were trained to provide preventative care, health education, and basic curative care at the community level. The proposed Alma-Ata interventions included training of traditional birth attendants (TBAs) and maternal child health (MCH) workers, family planning promotion at community level, and using prenatal risk scoring to manage obstetric complications (44).

Malaysia for example, implemented a PHC approach in 1978, which resulted in the improvement of maternity care access to rural populations (45). Between 1955 and 1975, the Malaysian Government established an extensive three-tier rural health network (main health centre, rural health centre, and midwifery clinic). This was accompanied by a well-functioning MCH program (initiated at the same time) which offered basic MCH care services in all rural facilities (46). During this time, Malaysia’s Gross Domestic Product allocation to health care was 1.7% and the maternal health care allocation of this budget was 0.4%. According to Pathmanathan et al. (47), Malaysia’s maternal health outcomes were exemplary despite a modest financial investment. Following Alma-Ata, the former three-tier health system became two-tier health networks and the midwifery clinics were upgraded to rural health centres. The number of rural health centres and midwives were increased and the midwife-population ratio went from 1:7300 in 1960 to 1:4400 in 1980. To manage the upgraded health services, midwives received additional training on prenatal risk scoring and treatment of common illness and injuries (48). Between 1980 and 1995, the investments resulted in increased skilled birth attendants (SBA) utilisation from 61% to 90%, respectively, a corresponding decline in TBA assisted births from 28% to 6%, respectively, and a reduction of maternal mortality ratio (MMR) from 200 to 37 per 100,000 live births, respectively (46). The results indicated that PHC was not
only a cost-effective health service model but with careful planning, PHC in Malaysia had significantly improved women’s utilisation of maternity-care services.

Challenges to implementing the PHC approach

The PHC approach was a significant shift from curative to preventative health care. Many national governments or health stakeholders took time to process the ‘new’ system and acknowledge its potential benefits, especially in countries where the western health-care model had failed. According to Hall and Taylor, since its inception the PHC approach was criticised for being ‘too idealistic’ and ‘expensive’ or ‘unachievable’ (36). The argument was that PHC was an expensive model and the cost associated with establishing rural health networks, training health workers, provision of essential drugs, and salaries for doctors and midwives working in the rural facilities was unachievable for many economically disadvantaged countries (49). In April 1979, the Rockefeller Foundation held a meeting to explore selective PHC (SPHC) as an interim approach to reach Alma-Ata targets (50). The SPHC largely focused on the most prevalent causes of infant and child mortality and introduced a package of low-cost technical interventions which included growth monitoring, oral rehydration solutions for diarrhoea, breastfeeding, and vaccination to minimise the incidence of diseases in resource-poor countries (36). The vaccination program was the most significant SPHC intervention as its impact to prevent diseases (of high mortality) was higher than other nutrition-specific interventions (such as growth monitoring or breastfeeding). Between 1985 and 1993, these programs claimed to reduce infant mortality by 1.3 million, however around the same time, more than 12 million infants died; 2.4 million of these deaths were related to vaccine-preventable diseases (51). Magnussen et al. (51) critiqued the SPHC approach stating that it was unable to respond to the interrelationship between health and socio-economic development, as after two decades of investment in SPHC, preventable diseases remained a major challenge in resource-poor countries (51).

Reflecting the past failures of the PHC approach, Rohde et al. held the view that local policy makers in many resource-poor countries considered that it was a ‘second class’ health-care service for poor and rural populations (52). On the other hand, some resource-poor countries embraced PHC, more as an opportunity to minimise the national health expenditure, and did not invest in strengthening the
referral system, provision of essential supplies, and equipment in referral facilities (38). In the absence of comprehensive guidelines for community participation in health-care services, community engagement was largely missing from the provision of PHC in resource-poor countries. Hall and Taylor (36) noted that the overly negative attitude towards the community ownership of their health and the lack of political commitment from local and the global health communities to implement PHC inhibited many countries’ ability to integrate a PHC approach into their health system.

The PHC approach was invisible from the global health literature for nearly two decades. In 2007, the new WHO Director, Dr. Margret Chan, called for a renewed emphasis on PHC as an approach to strengthen health systems in resource-poor countries (53). Similarly, the Commission on Social Determinants of Health (2008) highlighted the long-neglected PHC approach and emphasised its inclusion in the health system to address the income and geographical inequity in resource-poor countries (54). This was followed by the notable Lancet series called “Alma-Ata: Rebirth and Revision” which analysed past successes and failures of the PHC approach to improve MCH outcomes (51, 55-58). The key recommendations of the series were improving primary health-care infrastructure, regular provision of essential drugs and equipment, overcoming the shortages of the rural health workforce, strengthening the referral system, and remove user fees for PHC services (51, 55-57).

1.2.2 Historical development towards Safe Motherhood

The international literature remained discreet about maternal mortality until the seminal work of Rosenfield and Maine of ‘Where is M in MCH’? in 1985 (59). The authors critiqued the lack of global commitment towards maternal health and argued that, except for family planning, all MCH initiatives focused on the welfare of the infant, overlooking the needs of labouring and postpartum women. In 1987, the first Safe Motherhood Conference was hosted in Nairobi which proposed universal access to a safe birth and to reduce the global MMR by half by the year 2000 (60). Key elements of the Safe Motherhood Initiative included family planning, TBA training, community-based maternity care, and obstetric care for life-threatening complications. The Safe Motherhood program was soon criticised for being similar to the former MCH initiatives due to its primary focus on ‘safe birth’ as an outcome. The program focused more on the needs and care for pregnant and postpartum women, and less on
the reproductive health needs of women. Later, two seminal conferences, the International Conference on Population and Development (ICPD), Cairo in 1994 (60), and the Fourth World Conference on Women, Beijing in 1995 (61) advocated for access to modern contraception as ‘a legitimate human right’. Women’s reproductive health rights were redefined as having access to contraception, to make informed sexual and fertility decisions, and to receive optimal maternity-care services during pregnancy and childbirth (61).

**Integration of Safe Motherhood Initiative and PHC**

Alma-Ata, Safe Motherhood and the ICPD were the key advocacies that established the foundations for the current maternity-care system in many resource-poor countries. The maternal health targets of Alma-Ata and the Safe Motherhood program were easy to integrate into country-level MNCH programs because of their ideological similarities. In the past, countries with a strong political commitment to both these initiatives were able to improve maternity-care services and reduce maternal mortality. For instance, in Malaysia, the pre-existing well-functioning PHC program was integral to the success of Safe Motherhood Initiative. As noted above, Malaysia was on-track to reduce maternal mortality after adapting the PHC model. Since 1950, the Malaysian Government had a well-functioning MCH program implemented in all rural health facilities. Then in 1990, when Safe Motherhood Initiative was introduced in Malaysia, it was integrated into the existing MCH programs to reach the women who were most in need of safe maternity care. Moreover, during 1990-2010, Malaysia initiated the Confidential Enquiry into Maternal Deaths system, which found that in most of the births assisted by TBAs, postpartum haemorrhage and retained placenta were the main causes of maternal deaths. Between 1985 and 1995, the Confidential Enquiry into Maternal Deaths system, along with an integrated PHC approach, further reduced MMR from 37 to 21 per 100,000 live births in Malaysia.

In Indonesia in 1989, as part of their nationwide Safe Motherhood program, a new cadre of village midwife (VMW) was introduced to improve women’s utilisation of SBAs for maternity-care services (62). Between 1989 and 2000, the program substantially improved SBA assisted deliveries (from 36% to 64%, respectively), however, maternal mortality declined by 37% against the expected rate of 50% (6). According to Shankar et al (63), recruiting, training, and deploying 50,000 midwives
across the country in seven years was rather ambitious, and it resulted in a poor selection of candidates and compromised on the quality of the SBA training program. The VMWs are supervised by the head of nearest health facility; however, since VMWs are not part of the formal health system, their supervisor does not consider that supervising village midwives is aligned with their facility-based responsibilities (63). Titaley et al. state that young and inexperienced VMWs often delay the referral to health facilities as they fear the loss of a fee for case referrals and being judged on their birthing skills by the facility-based staff (64). The evaluation of the VMW program suggests that while the program was successful in improving women’s SBA utilisation, there is a need to improve the supervision and strengthen the referral process to reduce maternal and neonatal mortality. The examples of Malaysia and Indonesia reinforce the fact that in resource-constrained settings, integration of maternal health initiatives and PHC services is mandatory to ensure the success of a maternal health project.

**TBAs’ exclusion as birth attendants**

Training TBAs was one of the most crucial elements of maternity-care programs in resource-poor counties as it improved access to safe birthing care for women living in remote and impoverished regions. However, a number of studies found that while training TBAs can improve the number of referrals to health facilities and contraceptive counselling, it does not reduce postpartum infection (65), minimise maternal mortality (66), or alter a TBA’s traditional beliefs and cultural practices of childbirth (67). In three rural districts of India, nearly half of the trained TBAs continues to use non-sterilised blades or bamboo splinters during the delivery (68). The failure of TBAs to adhere to the practices they were taught during TBA training programs in different settings meant that TBA training was an ineffective strategy to reduce maternal mortality. Having said that, in Ghana (69) and Bangladesh (70), trained TBAs self-reported undertaking complicated deliveries, as women refused to seek health care from SBAs in facilities due to financial limitations, lack of transportation, or perceived quality of health facilities. What is important to note is, most TBA training programs were evaluated based on pregnancy outcomes, number of referrals, or neonatal outcomes. The evaluations compared these indicators between trained and non-trained TBAs and overlooked the conditions under which TBAs
operated or made decisions. For example, in Ghana (69) and Bangladesh (70), it was women who chose not to go to the health facility to give birth because they did not trust the health provider. Most of the TBAs were relatives of the birthing woman. In situations where the family decided against a hospital birth, the TBAs were often the only person in the community that could manage the delivery, thus their role as a birth provider is imperative in such settings.

Prata et al. argued that the reason that many TBA trials to provide safe birthing care in the past were unable to demonstrate significant reduction in maternal deaths was because the evidence-based community interventions were excluded from the trials (71). In Bangladesh, Ethiopia, Pakistan, and Tanzania, where TBA utilisation was high, the interventions of oral misoprostol and soaking mats (kanga/birthing mat) to measure the blood loss have shown significant reductions in obstetric complications and maternal mortality when used by TBAs (71-74). The examples suggest that in conservative societies TBAs play a significant role in childbirth and therefore their role in maternity care needs to be maintained if global maternal mortality is to be reduced.

In 1997, on the 10th anniversary of the Safe Motherhood Conference in Colombo, the Safe Motherhood Inter-Agency Group recommended that the single most compelling intervention to reduce maternal mortality is to ensure that every birth is attended by a SBA such as a doctor, midwife, or nurse (75). Having a health worker with midwifery skills present during childbirth, backed up by transport in case of emergency referrals to a health facility, can substantially reduce the risk of pregnancy-related deaths. At the conference, the strategy of TBA training was overturned because trained TBAs were not adhering to the medical practices that they were trained to perform and their skills did not meet the essential skills required to manage obstetric complications. Another action message delivered at the conference was to “improve access to quality maternal health services”, which emphasised the importance of both clinical and interpersonal aspects of maternity care, including the capacity to provide emergency obstetric care.

Targets for Safe Motherhood (reduce global maternal mortality by half by the year 2000) and Health for All by 2000 (universal access to basic health care) were not achieved. However, by the year 2000, there had been a reduction in maternal mortality in resource-poor countries, which was a significant achievement. It was agreed that
knowing ‘what did not work?’ was insightful and would assist policy makers and national governments to develop maternal health-care policies for the next decade (36).

Millennium Development Goals

In 2000, the UN Millennium Development Goals (MDGs) were developed. Eight international goals were declared, and the improvement of maternal health was one of the eight MDGs. The target of MDG 5 was to reduce the global MMR by two-thirds by 2015 and ensure universal access to contraception (1). To reach to this target, all 189 countries who were signatories to the MDGs made a commitment to ensure that there was universal access to reproductive health. Between 2000 and 2015, MDG 5 remain the benchmark for all MNCH programs in resource-poor countries. In 2004, the World Health Organisation (WHO), International Confederation of Midwives, and International Federation of Gynaecology and Obstetrics produced guidelines on the critical role of SBA s to make pregnancy safe in resource-constrained settings (76). It defined an SBA as:

a skilled attendant is an accredited health professional — such as a midwife, doctor or nurse — who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns. (Source: WHO, page 1, (76))

The guidelines emphasised the provision of SBA care at different stages of pregnancy under a functional health system and stressed the importance of women’s timely transfer for care from the community to facility level. Previously, the referral system was only specific to the patient transfer between health facilities and that transfer from community to facility was not part of it. However, recognising that any delay at the first level would be detrimental to women’s survival, the guideline recommended that ensuring a swift transfer from the community to a facility is essential to prevent obstetric complications that can be caused by delayed care (31, 77). It also proposed the change in the role of a TBA from a birth attendant to a birth companion, as TBAs remain in high demand in culturally conservative and resource-poor communities. Moreover, the SBA will need to collaborate with other cadres in the community such as TBAs, social workers, or community workers who can help
the SBA build linkages in the community and counsel women to have SBA assisted births (76).

1.3 Continuum of care (CoC)

The mid-term evaluation of the MDG “Countdown to 2015” showed that of the 68 countries that were responsible for 97% of the global maternal and child deaths in the year 2000, only 14 were on track to achieve the MDGs related to MCH (78). A poor functioning health infrastructure, health worker shortages, and slow adoption of evidence-based health policies were noted as reasons for the slow progress in meeting countries’ MDG targets (50). Lawn et al. (79) estimated that of the four million neonatal deaths between 1996 and 2005, three quarters of them occur in the first week of life due to the poor provision of neonatal care. Furthermore, the “World Health Report 2000: every mother every child” (80) showed that adolescent pregnancies and unsafe abortions amongst adolescent girls are significant contributors to maternal deaths. Adolescent girls are highly vulnerable to malnutrition, early marriages, forced sex, and unplanned pregnancy, and the global burden of maternal mortality cannot be reduced without addressing the reproductive health needs of adolescent girls (80). Women’s health before pregnancy was also recognised as an important phase of maternity care and an essential Maternal Neonatal Child Health (MNCH) intervention which has long-term benefits for maternal and neonatal health.

To address the gaps in the standard maternity-care approach (antenatal to postnatal care), the concept of continuum of care (CoC) was introduced as an alternate strategy to reduce maternal and neonatal mortality as well as ensure optimal maternal health during the course of women’s reproductive lives (79, 81, 82). According to Kerber et al. (83) and Johnson et al. (84), an effective CoC connects essential MNCH services throughout adolescence, pregnancy, childbirth, postnatal, the newborn period, and into childhood, on the basis of their natural interactions with health services throughout the lifecycle (82). For instance, access and ability to utilise contraception to delay pregnancy can have a life-long impact on adolescent girls who are vulnerable to forced sex and early marriage (see Figure 1.1). Similarly, utilisation of essential antenatal care (ANC) services leads to optimal health at childbirth and increases the likelihood of utilisation of SBA care for birthing and postpartum period. The linkages between different stages of pregnancy and a timely transfer of women with obstetric
complications from the community to the facility results in more lives saved at less cost and builds a more integrated and efficient maternity-care system (83).

*Figure 1.1 The CoC approach*

![Diagram](source: Kerber et al. p. 1360, (83))

As stated by Sines et al. (5) a well-functioning CoC can saves the lives of seven million women and neonates every year. What is significant about the CoC approach is that it broadens the focus of maternal health from “reducing maternal mortality” to “optimal health and wellbeing of the mother” at every stage of her life. Stenberg et al. (85) state that well-targeted investments along with the CoC approach can respond to a fundamental human right; the right to health. The authors noted the economic and social benefits of the CoC approach and argued that while this approach may increase national Gross Domestic Product due to women’s increased participation in the workforce and higher productivity, the social benefits of saving a mother’s life to raise her child and the life of neonate are the most valuable outcomes of this approach (85).

### 1.3.1 Components of CoC

The CoC approach has two important dimensions: 1) time and 2) space (see Figure 1.1). The **time dimension** suggests that every woman must attend all essential pregnancy care services including preconception care, and each level of care facilitates woman’s use of another level of care (83). For instance, ANC visits from a health-care provider not only prevent the incidence of obstetric complications or birth defects by early screening, they also encourage pregnant women to seek birthing care from an
SBA. The **space dimension** suggests that the provision of evidence-based reproductive, maternal, neonatal and child health services at home vis-à-vis at the facility level, with the ability of a rapid transfer of care from the community to facility or between facilities. The CoC approach assumes that combining effective care in health facilities, healthy behaviours at home and seeking early care for illness will have the biggest impact on a mother, newborn and a child’s health (86).

### 1.3.2 Key stages of discontinuation of care

The care that a woman receives at each stage of her pregnancy has an impact on her pregnancy and health-seeking behaviour for the next pregnancy. It is important to identify the stages where women are likely to drop-out from seeking health care and to recognise factors that cause the discontinuation of care. A multi-country Demographic Health Survey (DHS) analysis by Singh et al. (87) reported that of 92% women who attended at least one ANC visit from a health professional, 43% continued to attend more than four ANC visits, 33% continued to seek SBA assistance for childbirth, and 19% continued until postnatal care (PNC). However, only 10% of women received postpartum family planning services, thus receiving all components of CoC. The CoC dropout from one ANC visit to postpartum family planning service was 87% to 16% in South Asia and 93% to 9% in Sub-Saharan Africa. The authors highlighted that women living in an urban area, with secondary school education, who have more than four children and being from the wealthiest socio-economic status are predictors of women’s completion of CoC (87). In another multi-country DHS analysis from 12 Sub-Saharan African countries, Owili et al. (88) showed that a joint family structure and women’s limited autonomy have a negative impact on women’s utilisation of essential maternity-care services.

In a cross-sectional study in Ghana, Yeji and colleagues (89) found that 8% (out of 1,500 women) received the full CoC services. Of the 75% of women who received SBA care, half of them were unable to visit a health facility for the PNC due to the difficult geographical terrain and poor availability of transportation. On the contrary, in Cambodia, Wang and Hang reported the dropout from delivery to PNC was only 11% (90) due to a higher rate of SBA assisted home births and effective counselling from the SBA at the time of childbirth about PNC utilisation. In Tanzania, Mohan et al. (91) identified that postpartum women’s visit to health facilities was not
to receive PNC services but to obtain a free immunisation card for the baby. While Mohan et al. noted that a woman is likely to meet with a doctor to receive the immunisation card, however, the study does not provide details about the content of care a woman might receive in such visits (91).

The literature on CoC is limited and is mostly based on DHS data. The studies that used DHS data noted the limitation of using DHS data such as poor framing of a DHS question [Q: did anyone check on your health after delivery?] (90) and self-report bias (88). Moreover, the definition of CoC varies across all studies, specifically to measure PNC, which in some studies was noted as “within 24 hours” (87) some used “within 48 days” (90) and some used the recommended four PNC visits (89). Preconception care is largely absent from the CoC literature except for one study from Pakistan (10) which noted postpartum family planning utilisation within one year after delivery. The literature on CoC shows that prospective cohort studies should be conducted to avoid recall bias. For retrospective studies, a mixed-methods approach would be more beneficial to identify and explain gaps in continuation of maternity-care services.

1.3.3 Interventions to support CoC

In CoC, the continuation occurs from one stage to another and is substantially influenced by income, geographical access to services, and socio-cultural beliefs about pregnancy and childbirth. Recent evidence suggest that home-based maternity-care services (92-95) and demand-side financing (96-99) could improve the continuity of maternity-care services in resource-poor settings. Conversely, the quality of facility-based care has improved through training of medical staff about emergency management of obstetric and neonatal complications and to deliver respectful maternity care to pregnant and postpartum women.

Quality of home-based maternity care

Home-based maternity care is an integral part of CoC as most of the factors that inhibit utilisation of essential maternity care start from home. The essential components of home-based maternity services include counselling for self-care during pregnancy, danger signs during pregnancy, and SBA care during childbirth and in the postpartum period. In addition to counselling services, in some countries health
workers also provide clean delivery kits, prenatal vitamins, vaccinations, essential newborn care packages, and bed nets for malaria prevention during and after pregnancy (100, 101). Kikuchi et al. (102) stated that home-based ANC and PNC services by CHWs bridges the gap of health care utilisation between different stages of pregnancy and also facilitates a smooth transfer of care from the community to the facility.

In an intervention study from Bangladesh, CHWs were trained to provide counselling about danger signs during pregnancy and in the postpartum period, use of SBA services for delivery and PNC, family planning, and the benefits of exclusive breastfeeding (93). The intervention resulted in a 36% decrease in perinatal mortality and a 40% increase in ANC utilisation (93). In Ghana, additional training of health workers and frequent group supervision meetings between health workers and supervisor resulted in women’s improved preparedness for childbirth, increased use of SBAs, and early initiation of breastfeeding (95). In a case-control study from Pakistan, Bhutta et al. (101) provided additional training to Lady Health Workers (LHWs) in 315 villages to improve the quality of home-visits and also link the LHW and TBA to penetrate the communities who were reluctant to use SBA services for cultural reasons. This intervention resulted in an increase in utilisation of public health facilities (from 18% to 30%) for childbirth, reduced still births by (from 65.9 to 43.1 per 1000 births) and neonatal mortality (from 57.3 to 41.3 per 1000 live births) in the intervention group. The aforementioned interventions show that with effective training and supervision, CHWs cannot only deliver home-based maternity care, but they can also ensure CoC in hard to reach communities.

However, implementing home-based care by SBAs has its challenges. In Bangladesh, Blum et al. (103) showed that families pressured community midwives (CMW) to induce labour by using oxytocin at home without medical indication to hasten the labour progress. Furthermore, CMWs also criticised the unhygienic environment at women’s homes for birthing purposes. Since the birthing process is considered to be polluted, CMWs often have to conduct deliveries outside the living area (still within house) in a dark and damp room in the absence of family members (103). On the contrary, in Pakistan and Indonesia, communities do not trust the skills and knowledge of young and unmarried female birth attendants (104, 105). However, older women often have minimal or no formal education which means that young
unmarried females generally attend the training programs and then after training work at community level.

The CMWs are often required to travel long distances to sparsely located villages and may not be provided with transportation or a travel allowance to cover their transport costs. Hatt and colleagues (106) noted that community midwives in Bangladesh are provided with a cash incentive to do home births, however, the amount is not adequate for the services they provide at night in geographically remote areas when regular transport is unavailable. In Pakistan, Mumtaz et al. (107) highlighted that the gender restricted mobility of young unmarried CMWs affects the services they can provide in their communities. The recent evaluation of the CMW program in Afghanistan by Turkmani et al. suggest a need to incorporate a hardship allowance for CMW who work in geographically or culturally challenging locations (108). Looking at the recent evidence, an additional allowance for CMWs and transportation service to allow them to perform after-hours care is considered best practice.

**Demand-side financing**

The adverse impact of geographical barriers and financial inequities on women’s health care utilisation is well documented. The mid-term evaluation report of “Countdown to 2015- tracking progress in maternal, newborn & child survival” recommended that health services need to be available and affordable for all and that this can be achieved through free maternal health-care services or financing strategies, based on the needs of the population (109). Similarly, the World Health Report 2005 (80) highlighted that poor access to facilities was a barrier to CoC and emphasised the need for universal health coverage to remove the access barriers for health care utilisation. Rwanda’s innovative health financing strategies for vulnerable segments of the population is considered to be one of the best health care financing models in resource-poor countries because it is embedded in grassroots initiatives and institutions. Rwanda’s financing model constitutes three prominent reforms; health micro-insurance (“mutuelles”), performance-based financing (PBF) and fiscal decentralization (110). The health financing policies positively influence public facility utilisation which increased from 8% to 19% between 2000 to 2005(110). Maternity care utilisation amongst the poorest quintile was substantially improved, as between 2000 to 2007, the SBA utilisation at birth rose from 12% to 42%, modern
contraception utilisation from 1% to 22% and women attending ANC visits in the first trimester increased from 57% to 94% (110, 111). Sekabaraga et al. suggest that not only it had improved health care utilisation, it had also reduced out-of-pocket payments for health care of people from the lowest SES index. Another good example is Cambodia, which is amongst the few resource-poor countries who were able to meet MDG 5 targets. Liljestrand and Sambath (112) stated that using health equity funds to deliver free maternity care services to women from the lowest SES was instrumental to reduce maternal mortality rate in Cambodia. The government in collaboration with donors reimburse the facilities to provide free services to poor women, provide free transport and food for women and caretaker who stay with the person who is hospitalized, and provide monetary incentive for every live-birth to facility-based midwives(113).

Since 2005, a number of countries initiated cash transfer and voucher scheme as demand-side financing schemes to minimise the burden of the cost of care on the most disadvantaged communities, who would otherwise not be able to use the services (114, 115). Under the voucher scheme, women from the lowest Socio-Economic Status (SES) status are provided with a set of vouchers to avail themselves of all maternity-care services including health facilities (public or private) or at home by SBAs, often with a transportation allowance for each visit (115). Vouchers are sometimes distributed free of cost by CHWs (106), and in some projects, women purchase a set of vouchers from CHWs or from a health facility (116, 117). In cash transfer schemes, pregnant women are provided with a cash incentive so that they can eat well during pregnancy and in the postpartum period, and/or receive maternity-care services from the nearest health facility and/or at home by SBAs. In the conditional cash transfer scheme, women are provided cash incentives upon providing a receipt as evidence that they used a maternity-care service. In contrast, unconditional cash transfer schemes provide cash support to pregnant women regardless of their health care utilisation. Some conditional cash transfer schemes provide monthly cash support to pregnant women throughout their pregnancy, whereas others provide short-term payments on the basis of the number of ANC visits made during the pregnancy (118).
Cash transfer schemes

In Mexico and Indonesia, conditional cash transfer schemes showed minimal increase in women’s utilisation of SBAs and no significant difference was noted in women’s ANC and PNC utilisation (118). Conversely, the short-term cash payment schemes demonstrated some improvement in women’s maternity care utilisation (118). For instance, in India, the Janani Suraksha Yojana provide a cash incentive to women if they use SBA assistance at home or at public or selected private health facilities. The scheme substantially improved SBA assisted deliveries, but facility-based delivery care remained low due to the continuation of poor quality maternity care in public facilities (119). In Nepal, the Safe Delivery Incentive Program offers incentives to women and to SBAs if the delivery is conducted at home, or in a public health facility (120). The focus on public facilities allowed women to switch their preferences from private to public health facilities. Similarly, women who preferred a homebirth, or those, who because of their geographical location could not travel to health facilities, could utilise community-based SBAs for childbirth (120).

The cash incentive of China “CHIMACHA” did not successfully improve women’s utilisation of ANC and PNC services. According to Hemminski (121), the poor reimbursement mechanism and low cash value (US$3.0 for eight ANC visits) resulted in the intervention being ineffective. In India, Lim and colleague (119) noted that cash incentives do not always reach the poorest populations. The authors gave examples of Muslim women who, due to religious discrimination, are systematically excluded from receiving the Janani Suraksha Yojana payments regardless of their income status. Conversely, in Nepal, Jackson et al. (120) stated in rural or remote towns, the Safe Delivery Incentive Program was not well-promoted, which is why 25% of women in the study possessed no knowledge about the program. Furthermore, delays receiving international funding as well as bureaucratic interruptions between the central and district governments were noted to adversely impact the cash incentive program’s effectiveness (98, 106).

Voucher schemes

Poel et al. (98), argue that voucher schemes can be effectively implemented in resource-poor countries to ensure CoC where women’s maternity care utilisation is subject to financial and geographical constraints. Demand-side financing schemes
show improvement in women’s maternity care utilisation, e.g. in rural districts of Bangladesh, where voucher schemes and a cash incentive scheme were in place. A case-control study from Bangladesh showed that women’s utilisation of ANC (55% vs. 34%), delivery care with SBA (64% vs. 27%) and PNC (36% vs. 21%) was significantly higher in districts where a demand-side financing scheme was in place as compared to those without such scheme (106). In Cambodia, the voucher scheme improved public health facility utilisation for delivery care by 10% and PNC by 5% (98), however, improvement in ANC utilisation was only noticed in districts where voucher reimbursement was subject to women’s utilisation of all components of maternity care (122).

There are benefits and implications associated with voucher schemes; for example, when they are available to public and private practitioners, vouchers allow women to choose their preferred health-care providers which may result in an increase in competition between health-care providers to attract more patients (123, 124). As voucher schemes often target selected populations, the equitable distribution of vouchers to eligible women is administratively challenging. The scheme requires extensive human and financial resource management at community, facility and district level which may not be sustainable without the support of international donors (106). In Bangladesh, the provision of transportation vouchers was inadequate, as many women reported that they were unaware of transportation assistance and in some cases facility staff denied women the reimbursement for their travel costs due to limited funds in the facility. In some cases, women were reimbursed for the transportation cost along with the cash incentive at the time of delivery. Moreover, Hatt et al. (106) noted that facility staff were over-worked and did not possess the skills to manage the financial aspects of the voucher scheme, therefore, reimbursement at the facility level was a problem. The opportunity costs associated with the voucher scheme, such as being away from home or work, or care for dependents is another barrier to health service utilisation (125). Women from the poorest quintile or those who work as seasonal laborers are particularly vulnerable and more likely to use vouchers for facility-based care. Under the Tanzanian National Voucher Scheme, Mulligan et al.(126) estimated the out of pocket cost of $0.76 for an agriculture worker to redeem the voucher. This includes loss of an hourly wage and travel costs to and from home to the voucher distribution center. Moreover, time required by health
facility staff to provide the voucher, explain the scheme to women, maintain records for the district health office would cost around five minutes per voucher distributed. Hunter and Murray (125) recommend to combine the voucher a cash incentive to offset some of the financial costs associated with access to maternity care services.

In a systematic review of demand-side financing schemes in resource-poor countries, Hunter et al. suggest that voucher schemes are better at ensuring continuity of care compared to the cash transfer schemes (118). The costs associated with the voucher scheme can also be controlled if it targets public health facilities and not the private sector. In Cambodia for example, maintaining the voucher scheme in the public sector was an effective way of improving public health facility utilisation (98). Furthermore, the private sector is not regulated in most resource-poor countries, therefore, monitoring voucher schemes can become challenging. There is also evidence that in countries such as Cambodia (98) and Bangladesh (106), adding home-based birthing care by CMW to the voucher scheme would be advantageous. As Gupta notes, a voucher scheme can be an innovative financing scheme, but it should only be used as a short-term strategy until such time that a comprehensive national health insurance (including outpatient and transportation support) is universal (115).

**Quality of facility-based care**

The 2016 Lancet series reinforces the need for institutionalised maternity care noting that it is the best option, and in many situations, it may be the only option to reduce preventable maternal deaths in resource-poor countries (18, 28, 127-129). Koblinsky and colleagues noted that rural women (especially those who live in remote regions) often reach the nearest health facility after the onset of labour and therefore governments need to organise transportation to the facilities for these women (130). Between 1970 and 1980, primary health-care infrastructure was built in most of the resource-poor countries to bring care closer to the community, however, in many countries, it remains underutilised due to the poor quality of services, unavailability of doctors and essential medicines at facilities (131-133).

To improve the availability of staff and essential medicines, contracting out primary rural health facilities to the private sector has been successful in Cambodia, Afghanistan and Pakistan. In Cambodia, Bhushan et al. (134) notes that between 1997 and 2001, the contracting agency removed the user fee from health-care services which
resulted in increased utilisation of reproductive and maternity-care services. In Pakistan (135-137), the contracting agency was able to hire (providing slightly higher salaries) and retain medical staff in rural villages and ensured their availability to provide care during office hours. Moreover, in Pakistan, they established basic laboratory facilities in the health unit and regularly updated their medicines and equipment to avoid shortages (25). The staff were paid on time, which was critical to keeping their motivation level high while working in a rural environment (137). In Afghanistan, while the contracting agency improved facility-based utilisation, Palmer and colleagues raised concerns over the weak public health system administration which may have difficulties controlling and monitoring the performance of the NGO contracting agency (138). According to Palmer et al. contracting out health facilities is a good intervention to improve service utilisation, but it needs to be cautiously planned and implemented by the national government to avoid possible corruption and poor quality of services (138).

The fear of discrimination during facility-based delivery is the strongest predictor of poor service utilisation in resource-poor countries (139). In Cambodia (140), Burkina Faso (141), Nigeria (142), and India (18) the facility staff was reported to show aggressive behaviour towards labouring women, being unresponsive to their needs (143), and ridiculing women’s poverty, illiteracy, smell, hygiene, and desire to remain clothed during labour (33). The seven areas of disrespect and abuse that women frequently face during labour and childbirth are physical abuse, non-consented care, non-dignified care, non-confidential care, discrimination, abandonment of care, and detention in facilities (144). Mistreatment and quality of care are interlinked and if women are not treated with respect in health-care facilities, they are unlikely to return to the facility for future births (18). Reis et al. recommend that strong advocacy is needed by governments, civil society, community, and individuals to ensure that women have a respectful birthing experience. Women need to know that they have a right to receive respectful care and that they should be well supported at all stages of pregnancy, especially during their labour (145).

Within the CoC approach, every woman should be able to access and utilise quality reproductive and maternity-care services at every stage of her life. This may be a challenge for countries with a weak health-care system and where socio-cultural values, income inequalities, and geographic diversity inhibit women’s health care.
utilisation. Sines et al. (5) estimated that every year, seven million maternal and neonatal lives can be saved if the evidence-based maternity-care services are offered under the CoC approach. This reinforces the importance of developing country-specific maternity-care models/strategies which ensure universal access to CoC. Successful implementation of integrated CoC packages within health systems will depend on systematic efforts to address this constraint, especially to improve human resources and remove financial barriers for integrated delivery of maternity-care services (146).

In 2015, 193 countries committed to implement the Sustainable Development Goals (SDG) “to end poverty, protect the planet and ensure prosperity for all” (147). The SDG 3 target is to “ensure healthy lives and promote well-being for all at all ages”. The goal is further translated into 13 sub-targets of “reproductive, MCH; communicable, non-communicable and environmental diseases; universal health coverage; and universal access for safe, effective, quality and affordable medicines and vaccines” (147). Pettigrew et al. (148) argue that PHC is central to achieving SDG 3 as provision of preventative care (e.g. health education, immunisation, adopting a healthy lifestyle), and readily accessible curative care to the most disadvantaged population is only possible through a PHC approach. The authors critiqued the previous underfunding of PHC research and emphasised the need for country-specific studies to understand how best the existing health human resources and infrastructure can be used to improve the PHC system to deliver national and global health targets to achieve the SDGs (148).

1.4 Pakistan – A struggling country

With an estimated population of 203 million, Pakistan is the sixth most populous country in the world, and the third largest country in Asia (149). At present, Pakistan has a total geographical land area of 796,095 square kilometres and it shares its borders with China, India, Afghanistan and Iran. Pakistan is divided into four provinces Sindh, Punjab, Baluchistan and Khyber Pakhtunkhwa (KPK), two semi-autonomous federally administered regions (FATA and FANA), and Islamabad is the capital territory (150).

In 2015, Pakistan was ranked 147th out of 187 countries in the global Human Development Index. The life expectancy in Pakistan is 66.2 years and the average
years of schooling is seven years (151). About 61% of the total population lives in rural areas and 12.7% live below the international poverty line of US$1.25 a day (151). Rural-urban inequity is high; rural populations possess lower levels of literacy compared to their urban counterparts (71.1% vs. 46.3%) (152), inequitable average daily income levels (US$18.4 vs. US$5.2), and poor access to clean drinking water (95.7% vs. 89.1%) and sanitation facilities (71.8% vs. 33.6%) (153). The inequity between the rural and urban populations translates into poor health outcomes for rural dwellers, such as an increased incidence of infectious and communicable diseases which include acute respiratory infection, viral hepatitis, malaria, diarrhoea, dysentery, and tuberculosis (154). Given the fact that more than half of the country’s population lives in rural areas, there is an urgent need for the health-care system to provide accessible, affordable and equitable health care to the rural population.

1.4.1 Health system evolution in Pakistan

Pakistan, as part of the Indian sub-continent, sought independence from the former British Empire in 1947. Pakistan inherited a semi-functional health-care system with critical shortages of health workers to meet the population’s needs. Since its inception, national health plans have been formed every five years. The first (1947-1955) and the second national health plan (1955-1960) aimed to improve the health human resources and to achieve this goal the Pakistan Government made a significant investment to establish six national level medical colleges and associate nursing colleges (155). In 1955, a health-care cadre of “Lady Health Visitor” (LHV) was introduced, in addition to the pre-existing midwife cadre, who had a qualification in nursing and midwifery (156). The LHVs were placed in the Rural Health Centres (RHC) which were developed as part of the second and third (1965-1970) five-yearly national health plans. Disease prevention programs such as BCG vaccination, malaria eradication, Tuberculosis Control Program, and Small Pox Eradication program were integrated as part of changing global health priorities (155).

In 1970, the public health infrastructure (especially in rural areas) were strengthened to provide free access to health care for populations who live in remote regions of Pakistan (157). After the Alma-Ata Declaration, the fifth and sixth five-yearly plans (1978-1993) included a rural development program that had Basic Health Units (BHU), including laboratory facilities in rural villages and training for female
laboratory technicians (157). In 1989, the Safe Motherhood projects in Pakistan largely focused on capacity building of facility-based staff (158), however, use of public health facilities remained low due to a lack of women’s trust in the public health system and the absence of surgical and emergency obstetric services in tertiary public health facilities (157).

In 1992, the World Bank funded a seven-year (1992-1997) Family Health Project to train TBAs in rural Sindh and strengthen linkages between TBAs and health facilities. While the project demonstrated that women had a greater satisfaction with TBAs’ improved birthing practices at home, the quality of care at health facilities and the unavailability of medical staff for emergency obstetric care remained challenging (159). The evaluation of the Family Health Project suggests that without strengthening the referral system and linkages between TBAs and the health facility, TBA training would not be an effective intervention to reduce maternal mortality in Pakistan (159).

The Family Planning program was first introduced in 1965 in Pakistan. According to Robinson (160), in the first ten years (1965-1975), the impact of the program was negligible, as the average number of children per woman was seven with the stagnant annual growth rate of 3.0 (161). In 1978, after the Alma-Ata Declaration, the Family Planning Program was strengthened as part of the “new beginning initiative” where the focus of the Family Planning Program changed from supply side services to demand driven initiatives (160). The Family Planning Program was renamed as the “Family Welfare Program”, and as the name suggests, it was more inclusive of the cultural values of the conservative Pakistani society. The program aimed to change people’s perspectives about family planning and contraceptive utilisation. To do so, the program engaged religious leaders, conducted community-based information sessions for male members (of all age groups), and used an electronic media campaign at the national level. After the ICPD Conference in 1994, the Prime Minister of Pakistan initiated the National Program of Family Planning and Primary Care. The program is commonly known as the “Lady Health Workers” (LHW) Program, with a focus on improving contraceptive prevalence rates among married couples, providing home-based ANC and PNC visits, immunisation, and promoting healthy behaviours in the community (162).
1.4.2 Post MDGs – The National MNCH Strategic Framework of Pakistan

Pakistan was amongst the 193 countries which committed to MDG 5 in 2000, with the goal of reducing maternal mortality by 75% by 2015. The mid-term evaluation report of MDG 5 suggests that Pakistan was far behind reaching maternal mortality targets. In 2005 the MMR was 320 (95% CI: 99-810) per 100,000 live births (163), only 22% of reproductive aged women (both married and unmarried) were using modern contraceptives, 31% of births were attended by a SBA and a third of the women used ANC and PNC services in health facilities (163).

In 2005, given the poor state of maternal health, the first “National MNCH Strategic Framework of Pakistan” was developed with the vision that “no family should suffer the loss of a mother or newborn due to preventable causes” (164). This program focused on strengthening the district health system, improving the provision of emergency obstetric and newborn care (EmONC) services, and delivering integrated MNCH services at the district level (164). The same year, a new cadre of community midwives (CMW) was introduced to provide home-based maternity-care services in the women’s house or in a CMW house/clinic, which is located in the community. The services provided by CMWs include ANC, delivery care (normal), PNC, and essential newborn care. From 2006 to 2012, about 12,000 CMWs were trained and deployed in various locations (mostly rural) in Pakistan (164).

In 2009, the Pakistan Government contracted out a number of primary health facilities (BHUs and RHCs) to NGOs in two provinces, Sindh and Punjab, to improve the quality of care in these facilities. A number of studies suggest that contracting out public health facilities resulted in improved health care utilisation in rural Sindh and Punjab (165-167). However, Zaid and colleagues argue that contracting out facilities can only be fully utilised by its catchment population for maternity care purposes if the service fee is minimised or completely waved, transportation cost is compensated, and the demand is created for skilled delivery, PNC, and neonatal care (137).

The demand-side financing for MNCH care did not receive as much attention in Pakistan as it did in India, Cambodia, and Bangladesh (see Section 1.2.4). The Benazir Income Support Program offers a cash transfer to women who have a family income less than PKR3,000 (AUS.38), regardless of their pregnancy status. In 2007, a USAID funded project, Pakistan Initiative for Mothers and Newborns introduced a
voucher scheme in two rural districts of Pakistan (168). Women purchased a voucher at a one-off cost of US$1.25 that included services for three ANC visits, normal delivery or referral for a caesarean-section, one PNC visit, and basic laboratory tests and ultrasound examination from private providers. The voucher scheme also covered transportation costs to and from the health facility (168). A similar intervention was supported by Population Services International in which women can purchase voucher at the same cost US$1.25, but that service includes a family planning consultant for family planning services. Both interventions showed significant increases in women’s maternity-care utilisation, especially by women who belonged to the poorest wealth quintile (116). Unlike in Bangladesh and Cambodia, to date, the voucher scheme was never scaled up to the national level.

In 2011, under the 18th Constitutional Amendment, seven federal ministries including the Ministry of Health were abolished and their power transferred to other federal ministries, divisions, and the provinces (169). This was an ad hoc exercise, which was not detailed in any plan of action between the respective provincial and federal ministries. Due to the lack of planning and preparation, many provincial health activities were suspended for more than a year (170). In each district, the District Health and Population Management Teams (DHPMT) were formed in anticipation that they would prepare an annual district health plan and manage the financial and health human resources (170-174). According to Sarfraz et al. (175), given the limited capacity of District Health managers it was unrealistic to expect them to take the lead on District Health matters without any technical support from the provinces. MNCH vertical programs were particularly affected as the provinces had to incorporate them into their annual budget, which was not increased after the 18th Amendment. This administration glitch resulted in significant delays in the disbursement of salaries for health workers and halted the provision of essential medicines and vitamins to women and children in the community (176).

Pakistan failed to meet their MDG 5 target to reduce their MMR by three-fourths, however, between 1990 and 2015, MMR did decline from 320 to 176 per 100,000 live births. Furthermore, between 2006 and 2015 there were critical improvements made to the existing maternity-care system, with the introduction of CMWs, privatisation of health facilities, and empowerment of the district health
authorities to develop their own health plans, all of which were positive steps towards strengthening the health system.

With the introduction of the SDGs in 2016, Pakistan committed to improve MNCH care by strengthening the primary health-care system and ensuring universal access to health care. One notable example was the introduction of the national health insurance scheme for underprivileged communities. In 2017, the Government of Pakistan launched the Prime Minister’s National Health Program in 23 priority districts to ensure that families from the lowest socio-income status (earning less than US$2 a day) are provided with a health insurance card. Eligible families are entitled to receive inpatient care under a secondary care treatment package (worth PKR50,000) and priority treatment (worth PKR250,000) each year from all public and selected private health facilities (177). The maternity-care services under the insurance package include normal delivery and Caesarean section and all antenatal and postnatal complications which require hospitalisation. The health insurance scheme covered the costs of transportation from the home to the nearest health facility for up to three visits per year per family. Having said that, this may also imply that in large families, a pregnant woman may not necessarily be able to utilise the transportation cost for pregnancy-related visits. Moreover, the health insurance does not cover the routine ANC and PNC visits to the health facility, which suggests that this insurance scheme may not be effective to ensure continuum of maternity care in rural Pakistan.

1.4.3 CoC and potential role of rural health workers in Pakistan

In 2017, Iqbal and colleagues (10) examined women’s utilisation of continuity of care by comparing the DHS data from 2005-06 to 2012-13. The authors stated that the CoC completion rate (women receiving services from pregnancy to postpartum family planning) has increased from 15% in 2005-06 to 27% in 2012-13. Having said that, still two-thirds of Pakistani women discontinued using maternity-care services at one point during pregnancy. In 2013, the highest dropout was noted between ANC and delivery services where, from 38% of women who attended the recommended four ANC visits, only 20% used SBA services for childbirth. The dropout was relatively smaller between delivery care to PNC services (20% to 15%) from SBA. About 64% of rural residents did not complete the CoC and more than half the women noted that long geographical distance and transportation unavailability are key barriers to CoC.
This means that rural women, especially those who live in hard to reach areas, are less likely to utilise the CoC services for maternity care.

Pakistan is amongst the 57 countries across the globe which has a shortage of skilled health workers (178). In Pakistan, there are only 11.6 skilled health professionals (7.8 physicians and 3.8 nurses) per 10,000 compared to the minimum global threshold of 23 skilled health professionals per 10,000 people (179). The role of rural health workers is significant in the context of Pakistan, as there are approximately 130,000 MNCH workers who work at a facility and community level. At present, there are five cadres of health workers which provide maternity-care services at various stages of pregnancy. Table 1.1 describes the role of health workers at different stages of pregnancy.

Table 1.1 Overview of health workers engaged in maternity care in rural Pakistan

<table>
<thead>
<tr>
<th>Cadres</th>
<th>CoC-support</th>
<th>Place of care</th>
<th>Job description (in relation to maternity care)</th>
<th>Total numbers</th>
<th>Pop covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lady Health Visitors</td>
<td>All stages</td>
<td>BHU, RHC, and District Health facilities</td>
<td>All maternity-care services in health-care facility Cater for family health needs. Council for family planning Organise and conduct health promotion activities.</td>
<td>6,741</td>
<td>10,000-15,000</td>
</tr>
<tr>
<td>Family Welfare Workers</td>
<td>Preconception and PNC</td>
<td>Community</td>
<td>Home visits to counsel women during pregnancy about modern contraceptives Providers of oral contraceptives and condoms</td>
<td>4,195</td>
<td>7,000-10,000</td>
</tr>
<tr>
<td>Family Welfare Counsellor</td>
<td>Preconception and PNC</td>
<td>Facility</td>
<td>Counselling for modern contraceptives Family planning services, implants and contraceptive surgery</td>
<td>2,853</td>
<td>7,000-10,000</td>
</tr>
<tr>
<td>Lady Health Workers</td>
<td>Pre-conception, ANC and PNC</td>
<td>Community</td>
<td>Antenatal and postnatal home-visits Referral to health care facility Pregnancy vaccination Immunisation Common childhood illness</td>
<td>110,000</td>
<td>1,500-300</td>
</tr>
<tr>
<td>Community midwives</td>
<td>All stages of CoC at home</td>
<td>Community</td>
<td>Conduct normal delivery Identify pregnancy complications and make referrals to the hospital where appropriate Counselling for family planning Maintain a database for deliveries and referrals</td>
<td>11,268</td>
<td>5,000-7000</td>
</tr>
</tbody>
</table>

1.4.4 Challenges faced by rural health workers

Despite having a reasonable workforce which can provide preventative and curative MNCH services, Pakistan’s maternal health indicators remain poor. There is a strong presence of health workers in communities which ideally should make the provision of home-based maternity care easy, however, the challenges these community based workers face at a programmatic and community level inhibit their effectiveness. The literature on health workers in Pakistan is largely focused on LHW and CMW, the two community based workers. There are two published articles about LHV's in Pakistan and both discuss LHVs’ participation in community based activities. Both articles note the positive influence that LHVs have on women’s maternity-care-seeking behaviour; however, LHVs do not work outside the public health facilities (183, 184). The literature on FWWs and FWCs is scarce and what is known comes from program reports which focus on the services FWWs and FWCs provide in the community.

Despite the success of the LHW program, there are several challenges that impede the effectiveness of this program at the grassroots level. The LHWs still face discrimination in communities on the basis of their caste, marital status, and age (176, 185). In many communities, an LHW’s work is considered as disrespectful for females because it involves visiting women in their homes and interacting with people in the community who may not be family members. Mumtaz et al. (186) argue that in many rural villages of Pakistan, LHWs do not provide services in selected areas in their neighbourhood because of the caste differences. Instead, the LHWs prefer to walk two to three miles to provide services in villages of a similar caste. Apart from the community level challenge, LHWs are part of almost all MNCH interventions carried out by the Government or International NGOs. A significant portion of an LHW’s workload goes to polio campaigns, which happens at least two to three times every year. The LHWs are paid additional allowance to participate in other activities, however, their additional commitment greatly compromises the delivery of maternal health tasks in community (176, 185).

Khan et al. note that rural women make poor judgements about the birthing knowledge and skills of young and unmarried CMWs (176, 187). Rural Pakistani women consider that unmarried or young females are inappropriate for the role of maternal or reproductive health-care providers because they lack personal experience.
of pregnancy and childbirth. Gender restricted mobility is another challenge for CMWs as females are not allowed to travel unaccompanied to unfamiliar and distant locations (26, 187, 188). This affects the ability of CMWs to provide maternity-care services because they are often required to travel alone, at night time and to geographically isolated areas to assist women in childbirth, and the travel costs are borne by the CMWs (176, 187). According to Sarfaraz and Hamid (105), the cultural issues associated with travel and community acceptance negatively influence CMWs’ decisions to provide home-based maternity services.

The CMW program has faced many implementation challenges since its inception (189). First of all, the selection criterion of finding educated girls from rural areas who were willing to study and live in a hostel was challenging. Secondly, at the time of CMW deployment in communities, CMWs were not introduced to the already existing health workers such as LHW, FWW and LHV/midwives by the MNCH program (187). The poor introduction resulted in poor coordination between the workers, and lack of clarity about their individual roles (189). At the community level, the LHWs were meant to introduce CMWs in their respective communities, and refer patients to the CMWs. Unfortunately, this did not happened in many districts, and instead of LHWs referring patients, the LHWs discouraged women from using CMWs (188). According to Sarfraz et al (188), the poor referral rate by LHWs is due to job insecurity, as many LHWs perceive that CMWs might take their jobs. The LHWs have been working in the community for many years now, therefore women trust the LHWs more than they trust the CMWs. TBAs are another competitor of the CMWs because they too provide home-based birthing care; the promotion of CMWs in the community has the potential to negatively affect the TBAs’ clientele (105).

The five cadres of health workers in Table 1.1 are the key maternity-care personnel in rural Pakistan. Substantial investments have been made towards their training, deployment, and professional development. Due to intermittent coordination between the existing cadres of health workers, the investment had not been able to improve the state of maternal health care as per the expected level in rural Pakistan.
1.5 Historical development of reproductive and maternity-care services during conflicts and disasters

In 1993, for the first time, a Lancet editorial identified the lack of inclusion of sexual, reproductive, and maternity-care services for disaster or humanitarian emergency affected populations (190). In the same year, the seminal report on “Refugee Women and Reproductive Health Care: Reassessing Priorities” was published by the Women’s Refugee Commission (WRC) (191). The report was critical of the limited availability of SBAs in relief camps, the unavailability of emergency and long-term contraceptives, and the lack of reproductive health counselling for rape victims or victims of gender-based violence, and the survivors. In 1994, the ICPD-Cairo Conference declared that access to contraceptives was a human right (see Section 1.3) in all settings, including during humanitarian emergencies. Advocacy effects that commenced at the conference resulted in the formation of an Inter-Agency Working Group on Reproductive Health in Crisis, a consortium of NGOs, donors and United Nations (UN) agencies, to provide reproductive health assistance in humanitarian settings. The Inter-Agency Working Group developed an Inter-Agency field manual on reproductive health in humanitarian settings to provide technical and program guidance to field staff (4). One of the sections in the Inter-Agency Working Group manual detailed the Minimum Initial Service Package (MISP) which targets the most pressing reproductive health needs, such as “maternal and neonatal deaths”, “gender based violence”, and sexually transmitted infection (STI) among conflict and disaster-affected populations (192, 193).

In 2004, a global review of reproductive health services for refugees and internally displaced persons found that the availability of reproductive health services are higher in stable refugee settings compared to disaster, internally displaced and non-camp populations (194). The report also highlighted that adolescents’ reproductive health needs were under-served, and safe abortion and gender-based violence were not being addressed. In 2005, the Hyogo Framework (2005-2015) (195) declared five priority areas to reduce disaster-related mortalities by 2015 which include: integrate disaster risk reduction strategies into national and local priorities, strengthen early warning system, engage communities to design disaster mitigation and response strategies, and improve the culture of disaster prevention and resilience. Furthermore, the framework highlighted the important role of PHC as a first line response strategy.
in disaster settings. It is essential to improve staffs’ capacity in the area of disaster management and response, pre-position stock of essential drugs, kits and supplies, and ensure the availability of vehicles to be used for the referral of patients with complications.

The use of the PHC approach was further highlighted in the Sendai Framework (2015-2030) (196), which supports the SDGs, and recommends that disaster risk management be integrated into primary, secondary and tertiary health-care systems. It specifically highlights the potential role of community-based health worker in mitigation strategies and recommends training community and facility-based health workers as frontline disaster response providers. The Sendai Framework suggest that advanced gender-sensitive disaster risk reduction planning at district, provincial and national level is essential to reduce disaster related mortality.

1.5.1 Minimum Initial Service Package

In 2005, to improve the global humanitarian response to any humanitarian crisis or a disaster situation, the Health Cluster approach was introduced by the WHO to ensure equitable access to preventive and curative health care as quickly as possible and in a sustainable manner (197). Key partners involved in the Health Cluster approach, are WHO, UNFPA, UNICEF, and the International Federation of Red Cross and Red Crescent Societies (IFRC).

During natural disasters or humanitarian crises, the Health Cluster (led by WHO and its main partners UNFPA and UNICEF) collaborate with the national government to ensure equitable access to preventive and curative health care as quickly as possible and in a sustainable manner (197). To ensure women’s and girls’ access to reproductive health care in times of emergency or natural disasters, the Inter-Agency field manual on reproductive health is used as a guide to provide technical and program guidance to humanitarian-response staff across the world (4).

According to the MISP guidelines (198) concerning reproductive health-care needs in emergency settings, every pregnant woman should have access to a health facility where they can access an assisted vaginal delivery (vacuum or forceps delivery), surgery under general anaesthesia (caesarean delivery, laparotomy), and safe blood transfusion. A functional referral system should be in place to assist women
access the health facilities, and adequate transportation in relief camps should be provided to ensure that women can access the health services.

In resource-poor settings where SBAs are scarce, and women rely on TBA services for childbirth, the Inter-Agency Field Manual about reproductive health recommends that TBAs should be trained to be potential birth attendants. The training should include the identification of danger signs during pregnancy such as heavy bleeding, severe headache, blurry vision, swelling of face/hands, convulsions, and prolonged labour, so that they can make timely and informed decisions about seeking maternity care (193).

1.5.2 Pakistan’s maternity-care response during disaster

In the last decade, Pakistan has experienced recurrent natural disasters (such as earthquake, floods, and drought) and since 2010 the natural disasters have become annual events (199). The unprecedented flooding caused by monsoon rains in 2010 caused 1,985 deaths, and damaged or destroyed 1.7 million houses and 1.4 million acres (557,000 hectares) of agricultural land. Approximately 485,000 pregnant women were affected by floods during 2010-13, and 50,000 required specialised obstetric care (15). Since then, there has been at least one event of flooding (riverine, flash, over banking) annually in various parts of the country.

Pakistan has a decentralised functioning national disaster management system where the district is responsible for the development and implementation of preparedness, mitigation, and disaster management plans with the technical and financial support of provincial and national disaster management authorities (200). The Provincial Health Ministry and District Health Department manage health emergencies in disaster settings. The province organises the funds, liaising with the Health Cluster and other international development agencies and the district to provide health services to the disaster affected populations in relief camps and in rural health facilities (200).

The District Disaster Management Authority (DDMA) is a planning, coordinating, and implementing body for the purpose of disaster management. Led by the District Commissioner from the Revenue Department, the core members of this Department include the District Health Officer, District Police Officer (ex-officio) and
other district-level officers that are appointed by the district government. The Revenue Department strategizes and implements mitigation strategies, provides pre-disaster warnings, evacuates the population at risk, ensures the population’s access to basic facilities while temporarily residing in disaster relief camps, and, at the rehabilitation stage, it supports the provincial government to provide relief funds to the affected population. The DDMA receives funds and technical guidance from the Provincial Disaster Management Authority (PDMA). The DDMA also collaborates with the non-governmental organisations (NGOs) and voluntary social-welfare institutions for the disaster management.

The National Health Emergency Preparedness and Response Network (NHEPRN) is a sub-department of the Ministry of Health, which was designed to provide technical support to the Ministry of Health to execute Contingency Health Plans during the times of Disaster at national, provincial and district levels. The NHEPRN works in close coordination with local and international partners to develop their disaster risk reduction plan and prepare district disaster management committees for effective response (199). On paper, the MISP guidelines are implemented through district health infrastructure. Pregnant and labouring women are referred by the medical staff in a relief camp to these facilities for maternity-care services (201). However, in reality, due to the poor condition of the road networks, lack of transportation, and a shortage of human resources at rural health facilities, women are not provided with the obstetric care they need in accordance with the national and international recommendations of humanitarian assistance (17).

In a study with earthquake victims in Iran, pregnant women did not have access to emergency obstetric care and contraceptives because they were unavailable to women of reproductive age (202). Limited or absence of ANC, PNC, and psychological counselling for pregnant women was reported in other studies (203-209). In the absence of psychological care, social support from the immediate family members was used as a coping strategy by postpartum women in Thailand (210). Similarly, during Hurricane Katrina, pregnant, birthing, and postpartum women praised the incredible social support provided by their parents and partner, and quoted instances where family member starved themselves just to ensure that pregnant women did not remain hungry (203). Ganpati and colleagues noted that in the absence of
adequate psychological support the social network plays a therapeutic role for disaster affected populations, in particular for women (211).

Few studies have documented the challenges faced by women during natural disasters or humanitarian emergencies in Pakistan (12, 17). Bukhari and Rizvi’s review on the impact that the floods had on women’s physical and emotional health highlighted the poor living conditions for women in relief camps across Pakistan (17). Sadia et al. found that during floods, pregnant women’s utilisation of private healthcare facilities was reduced due to poor road conditions, whereas utilisation of rural public health facilities (within 5km) and CHWs increased (12). The authors noted that during the times of a natural disaster, women’s utilisation of facility-based care declines due to poor road conditions, lack of transportation, and the shortage of human resources at rural health facilities (12, 17).

1.5.3 Demand-side financing scheme in humanitarian emergencies

During humanitarian crises, the disease pattern can be intense, and the costs of care can be unpredictable. Pregnant and lactating women and the newborn are at significant risk of mortality if cannot seek health care in a timely manner. The demand-side financing scheme during humanitarian crises largely focuses on food and shelter support for the residents, however, the UNFPA have initiated voucher schemes for maternity-care services in Syria and Yemen. In Syria (212), partnered with 21 public and private health facilities, the UNFPA provided access to reproductive health and emergency obstetric care to 18,000 Syrian women through the voucher scheme. In Yemen (213), an NGO (Yamaan Foundation) developed a Safe Motherhood voucher scheme that provides access to a subsidised package of reproductive and maternity-care services for poor women including money for transportation and to purchase food for labouring women. In Yemen, vouchers increased women’s utilisation of SBAs by 17%, facility-based birth by 24%, more than three ANC visits by 24%, and one PNC visit by 32%.

The voucher scheme in Syria and Yemen reduced the financial and other barriers to accessing care by channelling funds to contracted public and private service providers who managed the maternity-care services. A voucher scheme has not been tested in disaster settings in Pakistan, but given the recurrent incidence of natural
disasters in Pakistan it may be advisable to implement the scheme in disaster affected regions.

1.5.4 Potential role of CHW during disaster and humanitarian emergency

In recent years, the potential role of CHWs as front-line disaster response providers is gaining international attention. In Bangladesh, the post-cyclone diarrhoea epidemic claimed many lives each year until 2007, when the CHWs were prepared as front-line health-care providers during disaster. As per the WHO estimates, between 1940 and 2007 the incidence of post-cyclone diarrhoea epidemics was reduced by 100 times, which was predominantly due to the efforts of CHWs (214). In addition to that, improved early warning systems, cyclone shelters, evacuation plans, coastal embankments, reforestation schemes, and increased awareness and communication contributed to the reduction in disaster related deaths (215).

In 2002 in Afghanistan, after the exit of the Taliban regime, the Government of Afghanistan initiated the ‘Basic Package of Health Services’ under which 3,000 community midwives were trained to deliver basic preventive, promotive and curative health services (216). According to Viswanathan et al. (217), the program resulted in a high SBA utilisation for childbirth, and an increased use of ANC services and modern contraceptives. Similarly, with a long history of internal conflict in Eastern Burma, a large internally displaced population was left with a poor MNCH status (218). In 2005, a three-tier CHWs’ network was tested to improve women’s access to SBA care during pregnancy and childbirth (218). The three tiers were TBA, Health Worker and Maternal Health Worker; TBAs assist women in normal births, while Health Workers and Maternal Health Workers assist women in normal and complicated pregnancies. The interventions increased women’s ANC and PNC utilisation, and improved provision of essential ANC services at a community level (10).

In the light of recent literature and global recommendations, the potential of CHWs in disaster or conflict settings needs to be tested in resource-poor countries. Given the extensive interaction between CHWs and the community, it is expected that they have the potential to play a vital role in disaster reduction strategies provided they are trained and supported to work in disaster and conflict situations.
1.6 Theories guiding the study – Human Rights Theory

This thesis is guided by the principle of “human rights theory” for maternal health. Rosenfield was amongst the pioneering maternal health experts who in 1985 (59) brought global attention to women’s right of survival at the time of childbirth. This was followed by the ICDP declaration in 1994 (43), which added women’s right to use reproductive health care to make informed sexual and reproductive health decisions. The Universal Declaration of Human Rights states that “motherhood and childhood are entitled to special care and assistance” (219). In 2005, maternity-care rights were further strengthened by the inclusion of continuum of care, an approach which envisions women’s health beyond woman’s survival at birth. It ensures that woman should be able to conceive in an optimal state of health and receive safe, effective, timely, efficient and equitable care during pregnancy, at the time of childbirth, and in the postpartum period (35). Furthermore, in 2011, the Universal Rights of Childbearing Women suggests that every pregnant woman has a right to information, informed consent, refusal to certain medical treatment, companionship during labour, dignity, respect, and non-discriminating care (182).

Pakistan is amongst the few countries which in addition to having a high maternal mortality rate are also at increased risk of natural disasters, often on an annual basis. Enarson (220) recommend that protecting women’s right to access reproductive health care (e.g. abortion, emergency contraception) should be the dominant priority of disaster management authorities because women and girls’ safety are at increased risk in such situations. My thesis also proposes gender sensitive strategies to ensure that girls and women’s reproductive health needs are met at all stages of the disaster by optimal utilisation of the existing workforce.

1.7 Rationale of the study

Pakistan has a substantial rural population (60%), most of whom lives in areas such as mountainous regions, flood plains, and barren deserts. Often such areas have a limited number of outreach health facilities which are inaccessible due to poor transportation systems or the lack of financial means to access those facilities. To improve access of the rural population to health-care services, the Government of Pakistan established a giant structure of primary health-care facilities along with a big
network of community health workers to ensure that pregnant woman have ready access to all stages of maternity care.

The evidence presented in this chapter suggests that the continuum of care approach is an efficient way to improve maternal health and reduce health inequity and maternal deaths. In Pakistan, five cadres of rural health workers (see Table 1.1) play a substantive role in the provision of maternity-care services in the community and in facilities. To date, no study has explored how the five cadres of MNCH workers can best be utilised to deliver maternity care using the CoC approach and within the existing health system. Moreover, rural communities in Pakistan, experience natural disaster events on an annual basis that substantially interrupt the regular provision of maternity-care services. It is important to identify a sustainable way to ensure a mechanism that least interrupts the provision of maternity-care services during times of disaster.

In my study, I will investigate the potential role of existing cadres of health workers to provide a continuum of maternity-care services for rural women in Pakistan. Furthermore, I will also propose strategies where the same workforce can be used as a frontline maternity-care workforce in times of natural disaster and in emergency settings. The research question and objectives are as follows:

**Main research question**

“How can rural health workers be optimally utilised to provide continuum of care services for maternal health in rural areas of Sindh, Pakistan in regular circumstances as well as during disaster or emergency situations?”

**Sub-research questions and objectives**

**Qualitative research question:** How is maternity care being delivered to rural women in Sindh, Pakistan during floods and in regular circumstances?

**Qualitative objectives:**

1. To explore the current maternity-care services for women in rural Sindh during floods and in regular circumstances.
2. To examine the role of all cadres of rural health workers in maternity care in rural Sindh during floods and in regular circumstances.
3. To explore women’s lived experiences of being pregnant and giving birth during the floods in 2011.
4. To suggest approaches for improved maternity care for women in rural Sindh, Pakistan during floods and in regular circumstances.

**Quantitative research question:** Has the existing rural health workers' model for maternity-care services addressed women’s maternity needs in flood-affected villages of rural Sindh in the past five years (2010-2014)?

**Quantitative objectives:**

1. To determine women’s utilisation of maternity-care services in flood-affected rural villages of Sindh Pakistan.
2. To evaluate the availability and utilisation of maternity-care services to women during the floods in rural Sindh, Pakistan.

### 1.8 Summary

This chapter provides evidence from around the world that CoC is an effective strategy to reduce maternal mortality and improve women’s reproductive health during the course of their life. In Pakistan, maternity-care services are delivered through large network of community and facility-based workers, however, there exist no coordination between to ensure continuity of care. The available literature (albeit limited) suggest the inadequacy of maternity-care services during natural disaster and emergency settings in Pakistan. To address the gaps, I recommend a maternity-care model which can be used in regular circumstances as well during disaster and emergency settings in rural Pakistan. The next chapter provides details of research methods, data collection process, and data analysis techniques which have been used in this study.
Chapter 2: Research Methodology

2.1 Introduction

This chapter describes the methods employed to investigate the provision and utilisation of maternity-care services by women in Tando Muhammad Khan (TMK) district, in the province of Sindh, Pakistan. The chapter will provide a detailed account of theoretical paradigm guiding the study, its rationale for use, and description of the data collection methods used, and data analysis processes undertaken to generate the findings.

2.2 Pragmatism as a methodological paradigm

Pragmatism is a contemporary theory of knowledge, which embraces two dominant research paradigms: positivism and constructivism. As found in experiments, positivism identifies causes which influence the outcomes (221). It supports the deductive logic that research begins with a theory or a hypothesis from which the consequences are then deduced; i.e. if the hypothesis is true, it must be logically observed (222). The knowledge that develops through a positivist lens is based on careful observation and measurement of the objective reality that exists ‘out there’ in the world (222, 223). On the contrary, the constructivists’ view of reality is subjective, and every individual develops subjective meaning from their experiences and seeks to understand the world in which they live (224). Constructivists make sense of and/or interpret the lived experiences of individuals related to their historical and cultural setting (225). These two paradigms have existed for decades, but the dichotomy between positivism and constructivism still generates a philosophical debate among social and behaviour science researchers.

Pragmatism is a relatively new paradigm which allows integration of perspectives and approaches of positivism and constructivism paradigms to answer the overarching research questions. It also “connects issues at the abstract level of epistemology and the mechanical level of actual methods”(Morgan, p.68, (223)). The philosophical stance of pragmatism is that knowledge produced through research is relative and not absolute and even if there are causal relationships they are “transitory and hard to identify” (222). This requires pragmatic researchers to be curious and adaptable to a variety of methods and the emergence of unexpected data (226, 227). It
also emphasises that a pragmatic researcher should be well versed with the use of multiple methods, worldviews, and different means of collecting data and also conducting data analysis (221).

Morgan has outlined the philosophical notion of pragmatism by contrasting it with qualitative and quantitative research paradigms (223). He argues that pragmatism seeks a middle ground between the two leading methodological frameworks based on its three principles; abduction, inter-subjectivity and transferability.

**Abduction:** Abductive reasoning moves back and forth between induction and deduction. i.e. first converting observation into theories and then transferring theories into action. It is a process of inquiry that evaluates the results of prior inductions through their ability to predict the workability of future lines of behaviour. A pragmatist researcher has the opportunity to seek out a useful connection of knowledge under the separate banners of qualitative and quantitative research.

**Inter-subjectivity:** Inter-subjectivity represents the pragmatic response to issues of incommensurability. In a pragmatic approach, it is acceptable to assert that there is a single “real world” and that all individuals have their own unique interpretations of that world. The pragmatist’s emphasis is on creating knowledge through lines of action and points to the kinds of “joint actions” or “projects” that different people or groups can accomplish together.

**Transferability:** Transferability is the extent to which the research finding that uses one type of method in a specific setting is transferred to another setting. It also investigates the factors that influence the transferability of the research finding from one context to another.

### 2.3 Mixed-methods research

Mixed-methods research is a systematic integration of quantitative and qualitative methods in a single (or a program of) study (228). It allows adaptation, alteration and synthesis of qualitative and quantitative methods in a way that ensures that the originality of structures and procedures followed in each method are not compromised. It is an approach used to investigate the social world by means of more than one methodological tradition to better understand the research phenomena (229). Some of the leading experts of mixed-methods research state that this form of research
methodology focuses on philosophical assumptions of abduction, inter-subjectivity and transferability (230) whereas others see mixed-methods research as a tool or technique for data collection and analysis (228, 231).

Johnson (229) described that mixed-methods research lies somewhere in the middle of pure qualitative and pure quantitative research. A purely mixed-methods design holds equal components of qualitative and quantitative design. The Qualitative dominant provides a “constructivist-poststructuralist-critical” view of the research process, whereas the dominant quantitative research designs rely on a “quantitative, post-positivist view” of the research process, while concurrently recognising that the addition of qualitative data and approaches are likely to benefit the research process” (229).

2.4 Research design

Leading mixed-methods design specialists use different typologies for mixed-methods research design (222, 228, 232-235). Of those, six prototypical versions exist on which most mixed-methods experts agree are: convergent parallel, explanatory sequential, exploratory sequential, embedded, transformative, and multiphase design (222, 236, 237). Each design refers to the researcher’s choice of mixing qualitative and quantitative methods in terms of their interaction, priority and timing. Given the flexible and adaptable nature of mixed-methods research, specialists have left the choice to the researcher to select the most appropriate typology and design for their study. Figure 2.1 provides an example of convergent parallel mixed-methods design.
In this study, I used convergent parallel design also known as ‘convergent design’ (236), ‘concurrent design’ (237), or ‘parallel mixed designs’ (222). This design is useful to gain a holistic understanding of a research topic by synthesising complementary qualitative and quantitative data (236). This design is also recommended when the researcher has limited time and financial resources for data collection in the field and when the researcher wants to collect qualitative and quantitative data at approximately the same time in the field (237). The proportion of qualitative and quantitative strands is debatable in convergent parallel design. While Creswell (238) suggests that the quantitative strand should be given equal weight, Teddlie & Tashakkori (222), Morgan (239), and Padgett (237) were more flexible in using qualitative or quantitative dominant strands, based on the research phenomena. In concurrent design, qualitative and quantitative data are collected and analysed separately. The separate qualitative and quantitative analyses is then integrated to generate the meta inference that answers the overarching research question (222).

I chose qualitative dominant parallel mixed design to ensure that the findings from the survey added a population perspective to the findings from the qualitative data that I gathered through interviews and a participatory workshop (see Figure 2.2). As a student researcher, this approach was economical because I was able to collect most of the qualitative and quantitative during the same field visit. I conducted all of...
the interviews and workshops and my research assistant helped to administer the survey questionnaire.

There were four stages in the research design. The first two involved data collection and—as shown in the diagram—data collection from qualitative and quantitative sources were conducted simultaneously on pre-defined research instruments; that is, the interview guidelines (Appendices 1-3) and the survey instrument (see Appendix 4). Data integration was carried out in the third stage and meta-inference in the final stage. In Figure 2.2 I present the research design used in this study.

*Figure 2.2 Convergent Parallel mixed-methods design - data collection stages*

![Figure 2.2 Convergent Parallel mixed-methods design - data collection stages](image)

2.5 Study site – Tando Muhammad Khan (TMK)

The study was conducted in the rural villages of Tando Muhammad Khan (TMK) district in the province of Sindh. The TMK district is 199km from Karachi city and bordered by the districts Tando Allah Yar to the north, Hyderabad to the south, Badin and Thatta to east and west (Figure 2.3). The River Indus flows in the North West. The total population of the district is 605,821 of which 94% are rural dwellers (240). There are three talukas (main district administrative divisions), 16 union councils (UC), and 160 villages/settlements (deh).
After the power devolution in Pakistan in 2001, the TMK district became an independent district in 2005 (170, 171). The Sindhi language is widely spoken throughout the district and other languages are spoken which include Urdu, Punjabi, Pushto and Beharavi (240). The Pakistan Social and Living Standards Measurement (PSLM) Survey of 2015 found that the literacy rate among the population 10 years and older in the TMK district is 45%, and the female literacy rate in the rural areas of the district is 12% (242). The TMK district was adversely affected by the floods in 2011 causing damage to 2,835 settlements/small villages and 78,083 acres (55%) of agricultural land, which is the main source of income for the district population (240). Among the affected population, 12,298 were pregnant and lactating women. Most of houses and crops were damaged in the villages located on the riverbank during this flood.

2.6 Entering the field

In Pakistan, Katcho is a local name used when referring to the riverine area, floodplain or riverbed land located between protective embankments and the River Indus. They are primarily farmers, agriculture labourers and/or belong to the fishing community (243). The area is not densely populated thus people (from the same extended family) live in clusters called para. A para is an area within a boundary wall
in which extended families live as a nuclear unit or joint family system. Each para is comprised of 20-25 households with 80-120 residents.

Katcho women from this study had never participated in any research project, therefore, it was difficult for them to understand the nature of the research, and especially the fact that a student researcher needed to visit rural communities to conduct a study. When I made my initial visits to the study villages, the villagers were reluctant to talk to me as they thought that I was an NGO staff member who was visiting the communities to provide relief assistance to the flood affected population. They considered that I was an NGO staff member because I was using a white hi-roof van, and this is the type of vehicle commonly used by many NGO staff in that area. They were reluctant to talk with me because an incident had occurred prior to my arrival; a group of people who claimed to be NGO workers visited those communities and claimed that they had come to rebuild their houses. The villagers were asked by the visitors to provide a security deposit prior to commencing work on their house. Furthermore, the visitors asked the villagers to sign or thumb stamp a document (presumably a contract, as the villagers could not describe the type of the document) as evidence that they had provided the security deposit so that the NGO would build their house as part of the relief assistance program. The group took the money deposit from the villagers, but they never returned to the village to do the work they committed to. After three or four months had passed, the villagers realised that it was a scam; this incident occurred in two of the five study villages.

Due to this incident, people were not ready to trust me or provide me with information about their experiences of the floods. Men were more apprehensive to talk than women and, given that Pakistan is a patriarchal society, women were not usually allowed to talk to an outsider without the consent of a male household member. To resolve this issue, during my preliminary visits to the study villages I requested a key informant who was well-known in Katcho villages due to his relief work during floods, to accompany myself and my research assistant, to introduce myself to the community. This strategy was successful, and I was able to move around in the villages with ease and conduct data collection activities.
2.7 Selection of villages

Enarson, et al. (244) argued that disaster risk is highest amongst populations which are socially vulnerable in pre-disaster situations, such as females, the poor, the elderly, the very young or very old, minority populations, and people with a disability. Of the 160 villages in TMK district (240), I selected five villages located on the riverbank. These villages were selected for two reasons; firstly, they are located on the floodplain and were severely damaged during the floods in 2011, and secondly, the poverty rate is higher in those villages compared to the rest of the district population. Even in the non-flood times, villagers’ access to health and education facilities is limited due to their limited financial resources and poor road networks.

There were no comprehensive lists of the village population or maps available in the UC offices which could be used to estimate the village population. Therefore, I sought the assistance of the local population to map the villages and provide a best estimate of the population according to the number of houses and families in each village. The mapping exercise was conducted with a group of male community members living in the Katcho area who were actively involved in disaster relief activities during the 2011 floods. During the interviews, women were also asked about the population in their village and the expected number of women of reproductive age in their village. This information was used to estimate the population in order to calculate a sample size for the study.

2.8 Data collection methods

In mixed-methods research, Guest et al. (172) highlighted that in most studies (in health and social science research) in-depth interviews and focus group discussions are the most common qualitative methods used, along with surveys to expand the scope or breadth of the research. The combination of in-depth interviews with selected survey participants is the most popular approach because the interviews provide context to the outcome data and an explanation of participants’ thoughts and behaviour patterns measured through the quantitative methods (245). In a study of social influences on fertility, Bernardi, Keim, and Lippe used semi-structured interviews with a demographic survey and network chart and network grid to obtain data in their mixed-methods study (246). These authors argued that the use of interview data provided people’s subjective perceptions which, when combined with quantitative
information, revealed their interdependence of the structural condition of their social context (246). On the contrary, in a study about the impact of an entertainment education program on para-social interaction, Kawamura et al. used in-depth interviews (n=18) to triangulate findings from path analysis (n=105) and obtained divergence in the results. The authors emphasised that the integration of methods are vital for a theoretical explanation of complex social phenomena and open possibilities for further empirical testing (247).

In this study, I used in-depth interviews (group and individual), surveys, and a participatory workshop to obtain qualitative and quantitative data. Gonzalez et al. (248) recommended that in order to calculate a sample size for a mixed-methods study, researchers should consider the broader integrative perspective that balances the qualitative (smaller sample focused on data saturation) and quantitative (larger sample size to achieve statistical significance) consideration of sample size. Therefore, in my study, I used sample size calculation strategies according to qualitative (interview, workshop) or quantitative data (survey) collection methods. I conducted interviews with 15 women who gave birth during the floods, 20 health workers (LHV, midwives, LHW, CMW, and family planning specialists) who provide services in the Katcho region, and 26 key informants, which include experts from Ministry of Health, UN organisations, private NGOs and community leaders. Given the scope of the study which is based on existing health system strengthening, I did not interview dais because they are not part of current health structure of Pakistan. In Table 2.1, I present the data collection matrix used in this study along with the associated number of research participants. The details of sample size calculation and selection of participants is provided in the Sections 2.8.4.

*Table 2.1 Data collection methods’ matrix*

<table>
<thead>
<tr>
<th>Participants/Methods</th>
<th>Interviews</th>
<th>Survey</th>
<th>Participatory workshop</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Women</strong></td>
<td>15</td>
<td>667</td>
<td>One workshop with 10 health workers</td>
</tr>
<tr>
<td><strong>Rural Health workers</strong></td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Key informants</strong></td>
<td>21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.8.1 Interviews

Interviews were conducted with women, health workers and key informants. However, as the three participant groups differed greatly in terms of their literacy and socio-demographic status, I used two different interview techniques; for women, I used group-based discussions about their birthing experiences during floods, and for health workers and key informants I used in-depth interviews.

Group based interviews with women

Liamputtong suggests that group based discussions are particularly effective for use in research with vulnerable groups, such as the poor, women, immigrants, refugees, minority ethnic groups, or those affected by HIV/AIDS, as the group sharing experience enables people with similar characteristics to feel comfortable discussing their problems as a collective rather than doing it individually with an outsider [the researcher] (Liamputtong, p.77, (249))This was similarly noted during the preliminary field visits when I found that women were more comfortable talking to me, as an outsider, in a group than in an individual interview context. Given their preference, I gave the women the option of being interviewed individually or as a group. All women opted for a group discussion as they felt more comfortable and emotionally supported sharing personal experiences of pregnancy in the presence of their companions.

Badakhsh (250) explored women’s lived experiences of giving birth after Hurricane Katrina, in which she emphasised women’s vulnerability to recall their birthing experiences during the hurricane. As a researcher, I recognised the implications of women recalling their sensitive experiences and I chose a trauma-informed research method because it is a therapeutic way to collect information from trauma victims (251-253). In the United States, Sandy (253) used group discussions to collect data from homeless populations and Foy (252) used a similar technique with female and children sexual assault survivors. Both authors emphasised that the presence of ‘fellow strugglers’ who have experienced similar situations enables the participants to feel comfortable and less pressured to respond to any questions (252, 253).

In a group interview, each woman was given the option to select three to four fellow participants who lived with her in the relief camp, and, preferably, someone
who was with her at the time of childbirth. The interview companion/s helped the interviewee to recall experiences by suggesting connecting stories that had happened to them during the floods. The group interviews added richness to the data because all members contributed their knowledge on the subject and provided their perspective on one story or to the woman’s childbirth experience during the floods. All interviews were audio recorded with the consent of the women.

The interview guidelines (see Appendix 1) were carefully developed to ensure that the participants knew that they did not need to answer questions which they might have considered to be embarrassing in a group setting. As the conversation during semi-structured interviews can stray away from the research agenda, Whiting (254), and Rose (255) suggested that a well-prepared interview guideline (including the questions and prompts) saves researcher’s time, enabling them to keep the discussion contained and focused only on eliciting participants’ opinion on the research objective as accurately as possible (256, 257). Interviews covered topics such as women’s social and demographic characteristics, their pre-floods maternity-care practices, risk perceptions, and migration decisions during floods, ANC and PNC, birthing experiences, and social support during the floods. I pretested the interview guidelines with two urban TMK women, who gave birth during floods to ensure that the questions flow, to probe selections, and identify questions which may be emotionally distressing for women (258). All interviews were audio recorded.

**Sample size for group interviews with women**

Purposive sampling is widely used in qualitative research to identify ‘information-rich’ (259) participants about a phenomenon of interest (238). Palinkas et al. argue that purposive sampling emphasises ‘similarity’ and ‘variation’ between the cases under some predetermined criteria (260). Purposive sampling is often combined with the data saturation technique to calculate the number of research participants required to investigate the phenomena (261, 262). Data saturation is a technique or a stage when the researcher concludes that additional participants are failing to add new information on the analysis and at this point the recruitment of new participants should stop (263).

Women who gave birth during the floods were selected as per the selection criteria. In this study, 34 women who matched the criteria and were identified as
potential research participants during the preliminary visits to the community were recruited. Data saturation was employed to calculate the sample size required for interviews with women. I conducted a preliminary analysis after conducting 10 interviews where I identified initial codes for analysis. I continued to interview women and decided to stop after conducting 15 interviews as I had reached data saturation. Table 2.2 presents the demographic information of women participants for the interviews.

Table 2.2 Demographic characteristics of participants (n=15)

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age at the time of floods (years)</strong></td>
<td></td>
</tr>
<tr>
<td>20-25</td>
<td>06 (40.0%)</td>
</tr>
<tr>
<td>26-34</td>
<td>07 (46.6%)</td>
</tr>
<tr>
<td>≥ 35</td>
<td>02 (13.4%)</td>
</tr>
<tr>
<td><strong>Number of children (mode = 4)</strong></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>03 (20.0%)</td>
</tr>
<tr>
<td>3-5</td>
<td>11 (73.3%)</td>
</tr>
<tr>
<td>6 &amp; more</td>
<td>1 (6.7%)</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>15 (100.0%)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>No schooling</td>
<td>15 (100%)</td>
</tr>
<tr>
<td><strong>Employment</strong></td>
<td></td>
</tr>
<tr>
<td>Agriculture labourer</td>
<td>12 (80.0%)</td>
</tr>
<tr>
<td>Housewife</td>
<td>(20.0%)</td>
</tr>
<tr>
<td><strong>Villages</strong></td>
<td></td>
</tr>
<tr>
<td>Bashir Machi</td>
<td>2 (13.3%)</td>
</tr>
<tr>
<td>Ali Malah</td>
<td>3 (20.0%)</td>
</tr>
<tr>
<td>Tando Jhark</td>
<td>5 (33.3%)</td>
</tr>
<tr>
<td>Fatah Samepota</td>
<td>1 (6.7%)</td>
</tr>
<tr>
<td>Syed Peerani</td>
<td>4 (26.7%)</td>
</tr>
</tbody>
</table>

Reflexivity – Women’s interviews

In qualitative research, the researcher and research cannot be meaningfully separated; the researcher both influences and is influenced by the process of engaging in research (256, 264). Reflexivity is the engagement of the researcher’s self within
the research process, and a researcher’s ongoing self-awareness analysis helps to increase the integrity and reliability of qualitative research (265). As a researcher, I was aware that pregnant women were vulnerable during the floods and that it was likely that the adversity of this experience or outcome had had an impact on their existing utilisation of skilled birth attendants. Therefore, it was important for me not to judge their beliefs, knowledge, and practices during the data collection process and to be an empathetic listener to their stories. It was also difficult to manage the power imbalance between the researcher (though local but more educated) and participants while dealing with women who had less control over their lives. However, being a local woman, and mother of two young children, helped me to develop interpersonal relationships with the women participants. I also noticed that sharing my own pregnancy and birthing stories made the participants feel more comfortable talking with me and enabled them to openly share their stories; this was helpful as it bridged the communication gap between myself and the participants (266).

2.8.2 In-depth semi-structured interviews with rural health workers

An in-depth interview is a systematic approach to collecting data by means of a ‘special conversation’ in which the individuals provide their perspectives about their lives (267) and the social world they live in (249). The information obtained through the conversation is then used to construct knowledge about the reality of the participant (249). In-depth interviews are useful to explore undefined domains, identify new domains, and break down domains into components, factors, and sub-factors (268, 269). They provide an ‘insider perspective’ and the researcher can make sense of the multiple meanings and interpretations of a specific action, occasion, location, or culture practice through the dialogue or conversation (267). In-depth interviews have been widely used in feminist research as well, and are referred to as a ‘female style of knowing’ or the ‘stand point of women’ (249).

I choose to use in-depth interviews with health workers because they facilitated the female research participants to discuss their perspective on the effectiveness of the existing maternity-care system, and, on the basis of their field experiences dealing with rural women, they suggested ways to improve the existing programs. I also wanted to explore their recent interaction with other cadres of health workers, and how that coordination or lack of coordination facilitates or hinders their work in rural
communities. The interview guidelines (see Appendix 2) were semi-structured and included key questions about health workers’ motivations and decisions around their chosen career, current issues and challenges related to their role and responsibilities, and their recommendations on how to improve their role in the delivery of MCH services in the local health facilities. Given the multiple cadres of health workers with various levels of experience (from 0-3 years to 15 years and more), I adjusted my interview guidelines to their level of experience and job description (see Appendix 2 Interview Guidelines with Health Workers). To ensure the flow of questions, identify probes, and avoid questions that may be uncomfortable for participants (258), I pretested the interview guidelines with one LHW and one CMW from urban TMK. The pretesting identified that there was identify perceived lack of coordination between the two cadres, so I responded by adding a question about this issue in the health workers’ interview guidelines.

**Selection criteria and key characteristics of rural health workers**

The health workers interviewed included six LHVs, eight LHWs, four CMWs, and one FWC from the TMK district (see Table 2.3). There were a small number of Family Welfare Workers (FWW) who provided services to a limited geographical region, but since no villages in Katcho were part of their service coverage, FWWs were not included in the study. Similarly, private doctors and midwives were not interviewed because the study focused on the existing cadres of CHWs employed in the public health system. However, when women and other research participants mentioned about ‘private practitioner’ and ‘FWW’, this was incorporated in the findings (see Chapters 4 to 8). One family planning specialist from an NGO was included because she conducts reproductive health camps for women who want a tubal ligation in Katcho villages. The sample was diverse in regard to age, professional experience, academic qualification, and professional experience.
Table 2.3 Demographic characteristics of health workers (n=20)

<table>
<thead>
<tr>
<th>Demographic variables</th>
<th>LHW (n = 8)</th>
<th>CMW (n = 4)</th>
<th>Family Planning Consultant (n=2) *</th>
<th>LHV and midwife (n = 6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>1 (12.5)</td>
<td>1 (25.0)</td>
<td></td>
<td>1 (16.6)</td>
</tr>
<tr>
<td>25-31</td>
<td>2 (25.0)</td>
<td>2 (50.0)</td>
<td></td>
<td>2 (33.4)</td>
</tr>
<tr>
<td>32-38</td>
<td>4 (50.0)</td>
<td>1 (25.0)</td>
<td>1 (50.0)</td>
<td>1 (16.6)</td>
</tr>
<tr>
<td>39 &amp; more</td>
<td>1 (12.5)</td>
<td>0 (0.0)</td>
<td>1 (50.0)</td>
<td>2 (33.4)</td>
</tr>
<tr>
<td>Professional experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-3 years</td>
<td>0 (0.0)</td>
<td>2 (50.0)</td>
<td></td>
<td>1 (16.6)</td>
</tr>
<tr>
<td>4-6 years</td>
<td>6 (75.0)</td>
<td>2 (50.0)</td>
<td></td>
<td>1 (16.6)</td>
</tr>
<tr>
<td>Demographic variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-9 years</td>
<td>1 (12.5)</td>
<td></td>
<td></td>
<td>2 (33.4)</td>
</tr>
<tr>
<td>10 &amp; more years</td>
<td>1 (12.5)</td>
<td>2 (100.0)</td>
<td></td>
<td>2 (33.4)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unmarried</td>
<td>4 (50.0)</td>
<td>3 (75.0)</td>
<td></td>
<td>4 (66.7)</td>
</tr>
<tr>
<td>Married</td>
<td>4 (50.0)</td>
<td>1 (25.0)</td>
<td>2 (100.0)</td>
<td>2 (33.3)</td>
</tr>
<tr>
<td>Academic qualification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 8</td>
<td>5 (62.5)</td>
<td></td>
<td></td>
<td>1 (16.6)</td>
</tr>
<tr>
<td>Matric</td>
<td>1 (12.5)</td>
<td></td>
<td></td>
<td>1 (16.6)</td>
</tr>
<tr>
<td>Intermediate/Bachelor</td>
<td>2 (25.0)</td>
<td>4 (100.0)</td>
<td>2 (100.0)</td>
<td>4 (66.7)</td>
</tr>
</tbody>
</table>

* including one private family planning consultant

Recruitment of health workers

I met with the respective supervisors of all cadres and briefed them about the study. The supervisors discussed the project with the health workers and—with the health workers’ permission—provided me with their names and contact numbers. I sent all health workers a text message to request their participation in the study, as requested by their supervisors. It was interesting to note, that the five cadres of health workers who provided services in the study villages consented to be interviewed at a location of their choice. Except for two LHWs, who were interviewed during a workshop at a TMK district hospital, and a CMW who were interviewed in her CMW clinic, all LHWs and CMWs were interviewed in their homes. The LHVs/midwives and FWCs preferred to be interviewed in a private room in their workplace.
2.8.3 Reflexivity – Health workers’ interviews

During semi-structured interviews, Helen argues that prior knowledge on the subject matter and the experiences in the field can influence the interview process. She shared her own example that while interviewing teachers and tutors who had failed nursing exam, her own experience of being a nursing graduate had influenced the interview process (264). I did not have experience working with health workers and had not worked as a health worker which helped me to reduce researcher’s bias during interview. My research questions were also framed in a way that allowed health workers to ‘talk freely’ and my position as a researcher was only to guide the interview process. Moreover, I deliberately conducted the key informant interviews at a later stage of data collection because I did not want to influence my views about the health workers from the people who were experts in the field. In addition, I conducted interviews with women and health workers simultaneously to help me focus on the recurrent themes and remove any bias I had towards either participant group.

In-depth interviews with key informants

In community research, key informant or expert interviews provide a top down insight which is useful to bridge the gap between participants’ views and the existing literature (237). Padget emphasises that there is a need to develop interview guidelines for key informants that are tailored to their background and the research objectives in order to gain maximum use of the interview time (237).

The interviews followed a semi-structured open-ended interview guideline (see above), which were adjusted according to key informants’ field and area of expertise (see Appendix 3 Interview guideline with key informants). The length of key informant interviews varied from 60 to 90 minutes. All interviews were audio recorded. Table 2.4 shows the demographic characteristics of key informants.
Table 2.4 Demographic characteristics of key informants (n=21)

<table>
<thead>
<tr>
<th>Key Informants</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>35-45</td>
<td>10 (47.6%)</td>
</tr>
<tr>
<td>45-55</td>
<td>11 (52.4%)</td>
</tr>
<tr>
<td><strong>Qualification</strong></td>
<td></td>
</tr>
<tr>
<td>Grade 10-12</td>
<td>4 (19.1%)</td>
</tr>
<tr>
<td>Bachelors</td>
<td>2 (9.5%)</td>
</tr>
<tr>
<td>Master</td>
<td>13 (61.9%)</td>
</tr>
<tr>
<td>PhD</td>
<td>2 (9.5%)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>13 (61.9%)</td>
</tr>
<tr>
<td>Female</td>
<td>8 (38.1%)</td>
</tr>
</tbody>
</table>

**Recruitment of key informants**

**From community:** Key informants from the rural villages were identified during interviews with women and health workers and then I telephoned them to ask if they would agree to participate in the study. All community key informant interviews were conducted face-to-face at their place of residence.

**Policy makers and MCH experts:** Key informants were sent an email invitation along with the plain language summary and consent forms (see Appendix 3). The participants could then elect to be interviewed via Skype, telephone, or face-to-face. Of the 21 interviews conducted, four interviews were conducted on Skype and 19 were conducted face-to-face in the key informants’ offices.

2.8.4 **Survey**

Surveys are considered to be the most widely used form of systematic data collection in health and social research. Hillier et al. (270) emphasised that door-to-door surveys have long been undervalued due to their associated travel time and cost, despite the fact that their response rate is higher than for telephone or mail surveys. Hillier and colleagues further added that it is especially useful in settings for populations who are living in compounds or block settings (270). Similarly, Davies (271) argued that door knocking improves researchers’ engagement in the research process and enhances their ‘ethnographic imagination’. In addition, it enables the
researcher to understand their participants according to their wider social, physical, and sensory environment (271).

In Katcho villages, each para is comprised of 20-25 households (see section 2.6) so a door-to-door survey was the most appropriate data collection method. It also provided me with the opportunity to observe and analyse women’s daily life, enhance my interaction with the community, and learn about the cultural beliefs that influence their health-care choices.

Inclusion criterion

Women who were pregnant or gave birth between July 2010 to September 2014 were invited to participate in the study. Those, who were pregnant or who gave birth during floods were identified as flood participants, whereas, others were identified as non-flood-participants.

Snowball sampling was employed to recruit women for the survey, based on the selection criteria (see section 2.6). Snowball sampling has been widely used in ethnographic research, because it enables participants who share similar characteristics, share a similar kind of experience, or who are unlikely to participate without referrals from their own network to be involved in the research process (249, 272). In most paras, there were one or two women who were well known in the community. To assist me with the survey logistics, these women invited all their neighbours to one house, so I could meet them and seek their assistance to identify suitable research participants who met the inclusion criteria.

Sample size for survey

The sample size was calculated to detect a 10% difference between births that were attended by TBAs (known as dai) comparing the flood and non-flood seasons in villages along the river in the TMK district. Sample power was calculated to achieve 80% power with a 95% confidence interval. I used the proportion of births (p=0.29) attended by non-formal birth attendants (dais and family members) in the TMK district (273). Table 2.5 shows the actual sample size of this study.
Table 2.5 Actual sample size for each village

<table>
<thead>
<tr>
<th>Village</th>
<th>Total population</th>
<th>Women’s age (15-49)</th>
<th>Non-flood</th>
<th>Flood</th>
<th>Sample size</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ali Malah</td>
<td>4,000</td>
<td>627</td>
<td>71</td>
<td>74</td>
<td>145</td>
<td>10%</td>
</tr>
<tr>
<td>Bashir Machi</td>
<td>2,000</td>
<td>314</td>
<td>64</td>
<td>64</td>
<td>128</td>
<td>10%</td>
</tr>
<tr>
<td>Tando Jhark</td>
<td>6,000</td>
<td>941</td>
<td>74</td>
<td>74</td>
<td>148</td>
<td>10%</td>
</tr>
<tr>
<td>Syed Peerani</td>
<td>3,500</td>
<td>549</td>
<td>69</td>
<td>66</td>
<td>135</td>
<td>10.4%</td>
</tr>
<tr>
<td>Fateh Samepota</td>
<td>1,500</td>
<td>235</td>
<td>59</td>
<td>54</td>
<td>113</td>
<td>10.7%</td>
</tr>
<tr>
<td>Total</td>
<td>17,800</td>
<td>2,790</td>
<td>339</td>
<td>339</td>
<td>669</td>
<td></td>
</tr>
</tbody>
</table>

Sample size was calculated based on the assumption that I was able to find an equal number of women (1:1) who were pregnant or who gave birth during the floods and during non-flood time (e.g., for Ali Malah, the numbers were 71–flood vs. 71–non-flood). Since the number of pregnant women was thought to be less during the flood season (July to September) compared to the non-flood period (the rest of the year) I included women who were pregnant, gave birth during floods, and who gave birth within six weeks after the floods. There were, however, two villages, Syed Peerani and Fateh Samepota, where I could not match the number of women (flood vs. non-flood), but the difference between actual vs. calculated was not large, therefore it did not impact on the analysis.

Survey instrument

The survey questionnaire (see Appendix 4) consisted of four sections: 1) Socio demographic information; 2) Place of birth and birth attendants of all pregnancies; 3) Utilisation and satisfaction with rural health workers, and 4) Pregnancy and delivery during floods July 2010 to September 2014. In the first section of socio-demographic information, participants were asked questions about themselves and their family. In section 2, women were asked questions about the number of pregnancies they had had, and the place of delivery and birth assistant for each birth. In section 3, women were asked about their utilisation of rural health workers during pregnancies. Finally,
section 4 focused on the availability and women’s utilisation of maternity-care services during the floods. Key characteristics of survey women are presented in Table 2.6.

Table 2.6 Demographic characteristics of survey participants (n = 669)

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Percent (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Bachelors/Master</td>
<td>0.6 (0.2-1.6)</td>
</tr>
<tr>
<td>Matric/Inter</td>
<td>1.8 (0.2-1.6)</td>
</tr>
<tr>
<td>Middle</td>
<td>0.3 (0.1-1.2)</td>
</tr>
<tr>
<td>Primary</td>
<td>5.1 (3.7-7.0)</td>
</tr>
<tr>
<td>Never attended school</td>
<td>92.2 (89.9-94.0)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>16-25</td>
<td>17.6 (14.9-20.7)</td>
</tr>
<tr>
<td>26-34</td>
<td>51.3 (45.7-55.1)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>31.1 (27.7-34.7)</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
<td></td>
</tr>
<tr>
<td>Housewife</td>
<td>53.7 (49.9-57.4)</td>
</tr>
<tr>
<td>Agriculture labourer</td>
<td>43.5 (39.8-47.3)</td>
</tr>
<tr>
<td>Tailor</td>
<td>2.8 (1.8-4.4)</td>
</tr>
<tr>
<td><strong>Housing structure</strong></td>
<td></td>
</tr>
<tr>
<td>Mud house</td>
<td>87.3 (84.5-89.6)</td>
</tr>
<tr>
<td>Semi concrete</td>
<td>12.7 (10.4-15.5)</td>
</tr>
<tr>
<td><strong>Toilet facility</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>75.0 (71.6-78.2)</td>
</tr>
<tr>
<td>Yes</td>
<td>25.0 (21.8-28.4)</td>
</tr>
<tr>
<td><strong>Number of Children</strong></td>
<td></td>
</tr>
<tr>
<td>1-3</td>
<td>41.1 (37.4-44.9)</td>
</tr>
<tr>
<td>4-6</td>
<td>39.6 (36.0-43.4)</td>
</tr>
<tr>
<td>7 &amp; more</td>
<td>19.3 (16.5-22.5)</td>
</tr>
</tbody>
</table>

Pre-testing of survey instrument

Pre-testing a survey instrument is an important research step to ensure that all questions are adequately framed in local language and the response categories are relevant and understandable to research participants (274). Pre-testing also identifies
issues related to translation, skip patterns and comprehension, which—when addressed beforehand—will result in robust data (272). It also provides the researcher with an opportunity to establish themselves in the field before the formal data collection begins, learn culturally appropriate language (e.g. idiomatic expressions) in relation to the research topic, and incorporate local terminologies in the questionnaire (272).

The survey questionnaire was pre-tested with two groups of women from village Tando Jhark. Each group was constituted of six women who were local, married, available on the day of the pre-testing activity, and who were willing to participate in an hour-long pretesting exercise. The first group discussion focused on the content and language of the questionnaire and the women were asked if they understood each question in their local language. This group identified a number of terms that were not commonly used by the local residents which were later added to the questionnaire. In the second group discussion, the questionnaire was checked again for comprehension, language adequacy, skip pattern, and the time required to complete a questionnaire. As a result of the group discussions, I moved the women’s age from Q1 to Q8, and I then moved the question about the number of years married to Q1. I also noted that starting with a question about the years of marriage was a good way to engage women in conversations about their life after marriage, children, work, and their reproductive health practices.

Most rural women were not aware of their age, so asking the first question about a topic that women were unfamiliar with made them feel awkward. Occupation titles were revised for men and women, for example ‘mill worker’ and ‘shop keeper’ were added as new categories, and for agrarian women categories for ‘agricultural labourers’ who work on a seasonal basis and ‘agricultural workers’ who work on their own land were added. Similarly, responses from Q15 to Q17 were also improved. When the final changes were incorporated into the questionnaire it was pilot tested with 10 women (three urban and seven rural women) to ensure the flow, comprehension, timing, and adequacy of language. One of the major issues that occurred during pre-testing was identifying someone in the Katcho villages who could type the questionnaire in the Sindh language. From the time the typist was identified until the survey questionnaire was typed, it took four weeks for this process to be completed. During this time, we continued to conduct interviews with women and health workers in the study villages.
2.8.5 Participatory learning workshop with health workers

Participatory learning is a unique data collection technique which allows local people to share and analyse their knowledge of life in order to facilitate a learning, planning, or a monitoring process (275). Kumar argues that poor and marginalised people have a better understanding of their own problems, and if provided a platform, they can provide more practical solutions to their problems (275). Workshops of this nature are an effective way to engage the community to participate in issues and interventions that can positively influence their lives (276).

I organised a participatory workshop with health workers from different cadres to discuss their issues and challenges, identify maternity service distribution in the study villages and women’s uptake of services, and to explore health workers’ willingness to work as a community health team. It was a ‘first-of-its kind’ workshop in these communities where health workers working in the community, as well as at a facility, interacted with each other in a workshop setting. The workshop was designed to have a combination of LHW, LHV and CMW participants, according to their representation in Katcho village. To manage the group discussion and achieve cohesion in the group (277), I invited 10 health workers (six LHWs, one LHV, one midwife, and two CMWs) and split them into two groups with three LHWs, one midwife/LHV, and one CMW in each group.

Logistic challenges to organise the workshop

The workshop was organised at the BHU, Tando Jhark, as it was the most accessible place for all health workers. I gained permission from the PPHI management to use their training room for 90 minutes for this activity. The workshop was conducted on a Friday because the BHU opens from 9:00am to 12:00pm on Friday. The workshop ran from 11:30am until 1:00pm.

Organising this workshop was a challenging task because each health worker was engaged in their respective programmatic activities. LHWs were busy working in the polio eradication campaign and they had limited free time during the campaign. Therefore, the workshop was conducted after the polio eradication activities were completed. The LHVs and midwives had rotating rosters, so they were not willing to join the workshop after their shift hours. Since Friday was a half day and the workshop
was conducted at the BHU, the LHV's and midwives agreed to work for an extra hour. All health workers were provided with a travel allowance of PKR200 (US$1.91) to attend the workshop.

**Workshop guidelines**

A group of consultants from the ‘herHealth’ project, a factory-based women’s health education project in Kenya, developed consolidated guidelines for a ‘participatory workshop’ which can be used in different settings for data collection as well as monitoring and evaluation purposes (278). I used the same guideline to inform the participatory workshop activity of this study.

The activities of this workshop were designed according to the preliminary findings from women’s and health workers’ interviews. For instance, the findings from health workers’ interviews showed a limited understanding about the role of other cadres, thus the workshop was designed to explore the reason behind their limited understanding, and their willingness to work with each other. I also used information about existing maternity care providers of Katcho villages from women’s interviews. This information was used in the social mapping exercise.

- **Activity 1**: Write down at least five motivational factors and challenges related to your work as health workers.
- **Activity 2**: Draw a map to identify maternity service distribution in the Katcho villages and women’s uptake of services.
- **Activity 3**: Develop a plan of how maternity care utilisation may be provided with the help of three cadres during floods and non-flood seasons.

**Activity 1: Motivation vs. challenges factors**

In the first activity, health workers were asked to write motivational factors as well as challenges that they faced as health workers. They were given the choice to write their thoughts in their local language, Urdu, or English. Most of the LHWs found this activity challenging because of their low literacy levels. The activity was estimated to take 20 minutes, but it took 35 minutes for everyone to complete the task. Being flexible about the time needed to conduct this exercise was essential to ensure that the health workers had the confidence to participate in such an interactive session.
Activity 2: Social mapping exercise

A social mapping exercise provides information about important trends or patterns about individuals or social groups who may live in a particular area or community (279-281). Mapping generates a lot of enthusiasm among the local people and acts as a good icebreaker. This exercise can be done with people regardless of age, literacy level, or familiarity with research methods (282). The mapping exercise was included in the workshop as an ice breaker activity to engage health workers in a group task since it was the first time they had worked with other cadres (281). It also provided the health workers with an opportunity to visualise and reflect on the existing maternity-care system when they were drawing the map and to make culturally appropriate recommendations to improve the maternity-care services by using the existing cadres of rural health workers.

Participants were divided into two groups with each group comprised of one LHV/midwife, one CMW, and three LHWs. I used this group formation because I anticipated that in the future there would be this kind of composition of health workers working together in rural communities to improve maternity care for women. When making these groups, I ensured that the health workers who worked in close geographical proximities or in similar villages were placed in the same group. In rural areas of Sindh, people from the same caste tend to live together. Therefore, grouping health workers from such locations provided diverse information about the inhabitants of their villages as well as tradition and culture in relation to pregnancy and childbirth. Appel et al. also suggests that the grouping in participatory workshops should mirror the existing interactions and relationship within the participants (278). Figure 2.4 provides a pictorial view of the workshop.
During the workshop, participants drew a map of their respective villages and identified health facilities and providers (see Figure 2.5). I made flash cards with the names of private midwives, dais, LHV's and midwives identified by the women during interviews. In each map, the flash cards were used to point to the location of the facility or provider, distance from villages, modes of transportation and socio-demographic characteristics of villages. This activity generated valuable discussion about the distance women travelled to facilities, cultural practices in relation to pregnancy and childbirth, women’s preferences of health workers, and challenges that health workers face in relation to their respective communities.

Figure 2.5 Social mapping exercise
Activity 3: Annual plan

In the third activity, both groups were given a case study about poor maternal health conditions in two villages (pseudonyms were used) and they were asked to develop an annual work plan for all cadres of health workers to improve the access and utilisation of maternity-care services in those villages. The scenarios described in this activity were similar to the real situation in the villages to ensure that health workers could imagine the situation and provide context specific recommendations (278). Each group presented their findings that led to a robust discussion between the participants and myself.

The common activities that health workers included in their annual plans were community mobilisation, awareness raising sessions for women, provision of maternity care at home and health facilities, and ways to ensure women’s access to public health-care facilities. The health workers gave positive feedback about the workshop. The findings of the workshops are presented in Chapters 3 to 7.

2.9 Data entry

All interviews were audio recorded and transcribed in full by the Research Assistant and myself. The Research Assistant, who was fluent in speaking and writing the local languages, transcribed the interviews with community women, which were conducted in regional languages other than Urdu. After the Research Assistant completed the transcription in Urdu, I reviewed the transcript together with the Research Assistant to ensure there were no errors in the verbatim transcription. The Research Assistant transcribed six out of 20 health workers’ interviews, which were in Urdu, and then I rechecked the transcripts against the audio recording to ensure accuracy. I transcribed the remaining health workers’ and key informants’ interviews.

Survey data was manually entered into MS Excel and all entries were double-checked at the time of data entry. Ten percent of the surveys entered were randomly-checked for inaccuracies, and missing values and coding errors were corrected as needed. The cleaned data set was stored as a master file on a Deakin University server and data analysis was performed on the copies of data sets. The final data analyses were conducted using Stata 14.0 software (283) and open-ended responses were entered in a Word document and were analysed as qualitative data.
2.9.1 Data analysis

In a mixed-methods convergent study design (see Section 2.3), qualitative and quantitative data are analysed separately by using appropriate analysis methods relevant to the respective strand. Merging of the two analyses occurs in the second stage of analysis through ‘side by side comparison’ or by ‘category theme display’ (225). Category theme display analysis method is useful in studies where sample sizes of qualitative and quantitative data are equal, whereas side by side comparison is used in studies with unequal sample sizes of the two strands, and where the less dominant strand is used to compliment or explain the findings from the dominant strand (225) (see Section 2.3). The most common presentation of side by side comparison analysis involves integrated data from qualitative excerpts complemented by descriptive statistics in results section, followed by the meta inference in the discussion sections (172, 222, 284). I used a similar approach, and the data chapters (Chapters 3-7) provide integrated findings. Meta-inference is drawn on the basis of findings from the mixed-methods study and this is supported by the contemporary literature (see Chapters 8 and 9).

2.9.2 Qualitative analysis

Thematic data analysis technique is applied to identify, analyse, and report repeated views and accounts across all data (285-287). It is a process of encoding qualitative information under a theme and presenting the repeated information in a systematic way that increases its sensitivity and reliability to answer the research phenomena (173). Guest et al. described ‘applied thematic analysis’ as a best combination of all the traditional methodological frameworks, and it can be used to build theoretical models of real world problems (172). The systematic and flexible nature of thematic analysis makes the integration of quantitative and qualitative data much easier. In addition, it is suited to data analysis methods for mixed-methods studies (174).

A theme can be inductively produced from data (288) or deductively identified by previous knowledge or theory (173). In this study, I used an inductive strategy to code the transcripts for all participants’ groups (women, health workers, and key informants). According to Liamputtong’s (249) recommendation for inductive coding, I read at least five transcripts from each participant group to identify recurrent themes.
emerging from data and develop a coding structure. In the second stage, I used Nvivo software to code the transcripts according to the coding structure, and where appropriate I added new codes and themes to the coding structure which emerged from the data. As the study was conducted as part of my Doctoral Degree research project, I was the only person who coded the data.

Following the identification of main and subthemes, I provided interpretation of themes by including information from the quantitative data to elaborate each theme. The key excerpts from the interviews and workshop were included throughout the analysis chapters, which are supported by graphs and tables. I also made use of field notes and information in my reflective journal, which helped me to personally relate to the participants and the research phenomena (289). Figure 2.6 shows the coding tree model created in Nvivo that plots women’s birthing experiences during floods (right block) and in regular circumstances (left block).

*Figure 2.6 Coding tree model – Nvivo*

![Coding_tree_model_Nvivo](image)

**2.9.3 Quantitative analysis**

For the quantitative analysis, I obtained descriptive statistics (frequencies and percentage) within 95% Confidence Interval to compare women’s utilisation of health workers across study villages. I also used a chi-square test to determine women’s maternity care utilisation according to age, villages, number of children, relocation stages during floods, relocation places during floods, and birth attendants during floods.
2.9.4 Integration

Creswell stated that integration of qualitative and quantitative data can occur at one or more phases of a mixed-methods study (284). The possible stages of integration are ‘data collection’, ‘data analysis’, and the ‘result section’ (284). In convergent parallel mixed design, integration refers to merging data whereby the qualitative and quantitative components are compared, and areas identified that complement each other.

In my study, integration of qualitative and quantitative data occurred after it was analysed separately. After conducting a separate qualitative and quantitative data analysis, I synthesised the data by creating inductive themes and descriptive epidemiology. The qualitative and quantitative findings were combined to answer the overarching research question, which together produced rich data that describes the availability and women’s utilisation of health workers and maternity-care services, and practical solutions to improve the maternal health status in rural Sindh Pakistan during floods as well as in regular circumstances. Figure 2.7 shows the analyses techniques used for the meta-inference of this study.
2.10 Ethical consideration

The study received ethics approval from the Deakin Human Research Ethics Committee (DU 2014-181) (see Appendix 5) and the National Bio-Ethics Committee, Pakistan (NBC-161) (see Appendix 6). All participants provided consent (verbal or written) to participate in the study. In this thesis, participants’ names and identity are confidential and pseudonyms are used to protect their identity.

After obtaining the aforementioned ethics approvals, I obtained approval from the District Health Officer, the MNCH Program Manager in Sindh, the Population Welfare Department Officer, and the PPHI District Manager to recruit health workers from their relative programs and departments. All the managers were provided with a copy of the plain language statement, interview guidelines and consent form.

All women who agreed to participate in the study provided verbal consent, as most of them were unable to read and write. Most of the villagers were not willing to provide thumbprints or sign any document out of fear that their signatures could be
misused for fraudulent activities. As an outsider, I respected their views, and with the permission of the women, I recorded their consent as part of the ethical requirements. All the health workers and key informants provided written consent to participate in the study.

2.11 Summary

The study used mixed-methods design as an appropriate choice to integrate participants’ perceptions, experiences, and utilisation of maternity-care systems in Pakistan. Data was collected from multiple sources (women, health workers, key informants) by means of interview, survey, and participatory workshop. This chapter has presented the rationale for using a mixed-methods design, and for the process of collecting data and analysing it. The next chapter explores the health workers’ role to deliver continuum of maternity care services in Katcho villages.
Chapter 3: Maternity-Care Services Delivery by Rural Health Workers in the TMK district

3.1 Introduction

This chapter presents the information about existing roles of different cadres of health workers as maternity-care providers in the TMK district. The focus is on five cadres of health workers who provide maternity-care services at home, at community level, and at public health facilities in different stages of pregnancy. The chapter draws on data from health workers’ interviews, key informants’ interviews, and a participatory workshop with health workers.

3.2 Poor functioning District Health Program Management Teams (DHPMT)

Pakistan has a decentralised health-care system, and in every District the PHC is led by a team called the DHPMT (see section 1.4.2). It is a consortium of health stakeholders which includes District Health Department, MNCH program, Population Welfare Department, National Program for Family Planning and Health Care, and local NGOs. Figure 3.1 shows the existing structure of MNCH services in the TMK district.

*Figure 3.1 District health departments and programs*
The DHPMT sets annual health targets, develops the operational health plans and budget, manages and supervises human and financial resources, and monitors the progress of the district health plan on a quarterly basis (290). The DPHMT is responsible to ensure the delivery of continuum of maternity-care services by optimally using district’s health human resources, infrastructure, and financial resources. In the TMK district, the DHPMT only became functional in 2013, when the members started meeting on regular basis. According to a number of DHPMT members in the TMK district, the communication gaps between maternal health stakeholders have significantly reduced since the inception of the DHPMT. Every quarter, the team meets to discuss the progress of MNCH indicators against the annual targets stipulated in the district health plan. The MNCH indicators are developed based on health workers’ monthly progress reports which includes the number of women who have used ANC services, neonates who have received immunisation, deliveries attended by SBAs, and so on. Table 3.1 lists the members of DHPMT, their associated organisation, and their role as maternal health stakeholder in the TMK district.

*Table 3.1 Maternal health stakeholders in the TMK district*

<table>
<thead>
<tr>
<th>DHMPT members</th>
<th>Department/Program</th>
<th>Responsibilities related to MNCH care</th>
<th>Rural Health Workers</th>
</tr>
</thead>
</table>
| District Health Officer | District Health Department | Manages all secondary and tertiary care rural health facilities, and the following vertical MNCH programs  
- National Program for Family Planning and Primary Care (commonly known as the LHW program)  
- Community midwives (CMW) Coordinates with Provincial Ministry of Health on a regular basis and with Provinical and District Disaster Management authorities during the event of a natural disaster | LHW, LHV and CMW |
| District Coordinator | MNCH program | Implements the CMW program, which includes hiring, training, and deploying CMWs in their local villages. It also provides a stipend, technical support, and logistic support to the CMW for the first two years after deployment. | CMW |
| Population Welfare Department Officer | Population Welfare Department | Manages family welfare centres which deliver family planning services. Implements district-level population welfare events which are designed by the provincial teams. The activities include: | FWW and FWC |
DHMPT members | Department /Program | Responsibilities related to MNCH care | Rural Health Workers
--- | --- | --- | ---

- Family planning counselling at home community by Family Welfare Workers (FWW)
- Organising community based awareness raising sessions for men and women by male and female FWWs
- Organising tubal ligation camps in the community, supervised by Family Welfare Counsellors (FWC)

District Manager | P PHI | Manages all BHUs which have been contracted out by the Ministry of Health. The PPHI manages facility-based staff, medicines, and equipment. | LHV Midwives

Local NGOs representative | | Participates actively with the aid of foreign donors to deliver MNCH services. At the time of the study, villagers identified an active presence of the ACF organisation which distributes high energy biscuits to malnourished children, lactating, and pregnant women | Not applicable

The MNCH records are compiled by the District Health Department to present at the DHMPT quarterly meeting. However, according to two DHPMT members, while data presented in the meeting can be useful to assess the district’s health progress against the indictors, the information is seldom use for strategic health planning of the district. Zeeshan (DHPMT member) further stated that while the DHPMT has improved interactions between members, however, it has not improved the process of developing annual health plans based on the evidence presented in the quarterly meeting. Each year the same annual health plan is presented to Provincial Ministry of Health only with slight modifications to the budget.

With DHPMT, the tension between maternal health partners [stakeholders] have been minimised, but, I do not see a lot of benefit to this team when it comes to district health planning. The annual plan is mostly updated only on the basis of budget, and there is nothing ‘new’ that we propose every year on the basis of available MNCH indicators. Similarly, the meetings are not very productive either, as we only discuss the increase or decrease in percentage of MNCH indicators, and no tangible actions are taken on the basis of that. (Zeeshan, DHPMT member).
The participants described a poor relationship and lack of coordination between key DHPMT members (see Figure 3.1). For instance, every time the Population Welfare Department organises tubal ligation camps, they need to seek written approval from the District Health Department to use a rural health facility. The Population Welfare Department team complained that the bureaucratic nature of approval negatively affects their performance to meet their quarterly targets of reproductive health. He further added that the delay in approval is mainly due to the unavailability of the District Health officer, who due to his ongoing official commitments is mostly out of office.

We organise two health camps every week. These camps are organised in far flung areas where there are no Family Welfare Centres, so we need approval from the District Health Department to use a BHU or an RHC. Well, they let us use the facilities, but every single time it gets delayed in the absence of the District Health Officer. (Key informant, Population Welfare Department)

As part of the CMW training program, the CMWs had to attend 12 weeks work placement in any public health facilities, preferably in their own Union Councils. However, the CMW program management spoke about the difficulties in negotiating with the PPHI about organising work placements for CMWs in PPHI managed BHUs as PPHI were discrete about not having any interference from either MNCH or the District Health Department in PPHI managed health facilities.

In contrast, while the MNCH program management teams and the District Health Department works in close coordination, their respective health workers (CMW and LHW) have poor collaboration in the communities.

3.3 Rural health workers and their role in the different stages of pregnancy

The PHC in rural Pakistan is delivered through three-tier rural health facilities, CHWs, community-based SBA, and family welfare services (see Section 1.4.1). The present primary health structure provides a unique opportunity for women to receive CoC services through all stages of pregnancy (including preconception care) via a combination of home and facility-based care. At the time of data collection, there were eight LHV, 440 LHW, 58 CMW, 10 FWC and 10 FWW, who were delivering
different component of maternity care services in the TMK district. In Appendix 7, I have summarised these health workers’ maternal health tasks along with their academic qualifications, professional training, and professional responsibilities. In this thesis, the table will be used as a quick guide to be referred to for the MNCH tasks of each cadre.

Figure 3.2 describes the location of public health facilities available in the TMK. The majority of health facilities are clustered in the city TMK, as compared to the rural UCs. The red box of Figure 3.2 shows the geographical location of study villages. According to the study participants, the most utilised maternity-care facilities include Midwife Nuzhat’s clinic who is also a FWC, CMW Sadaf’s clinic, BHU Tando Jhark, and the TMK district hospital. CMW Sadaf’s house is only 500 metres away from the BHU Tando Jhark, whereas FWC clinic is about three kilometres away from the BHU Tando Jhark.

Figure 3.2 Health-care facilities at TMK

Map source: (USAID, 2014, (291))
3.4 Preconception care services

Preconception care is a combination of family planning counselling and services, nutritional counselling, prevention and management of infectious diseases, and screening and managing chronic conditions. Preconception care is not delivered as a package of maternity-care services in Pakistan. However, these services are available individually either at a health facility or at the community level. Table 3.2 shows the distribution of these tasks amongst the existing rural health workers;

Table 3.2 Provision of preconception care services by rural health workers in Katcho villages

<table>
<thead>
<tr>
<th>Preconception care</th>
<th>Place of service delivery</th>
<th>FWC (n=1)</th>
<th>FWW (n=0)</th>
<th>LHV (n=5)</th>
<th>LHW (n=17)</th>
<th>CMW (n=3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home-based services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reproductive health education</td>
<td>Home</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutritional counselling</td>
<td>Home</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility-based services</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reproductive health education</td>
<td>BHU/RHC/ District hospital/C MW clinic</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevention and management of infectious diseases</td>
<td>BHU/RHC/ District hospital</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screening for and managing chronic conditions</td>
<td>BHU/RHC/ District hospital</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nutritional counselling is not provided to Katcho women before pregnancy, however, according to LHWs, they do counsel lactating women to eat well, as the infant relies on the mother’s nutritional intake. Until 2011, pregnant women and women who wish to fall pregnant were provided iron and folic acid supplements by the LHW. But as noted in Section 1.4.2, the LHW program underwent massive funding cuts after the Federal Health Ministry was devolved, and the supply of medicines at community level by the LHWs was also stopped. At present, women are not routinely provided with micronutrients before or during pregnancy.

The facility-based health workers provide nutritional counselling when women who wish to fall pregnant visit the health facility; this generally occurs when
women have pre-existing chronic medical conditions or infectious diseases. In this study tuberculosis, epilepsy, anaemia, and malaria were noted to be the most common maternal illnesses that resulted in women accessing preconception care. Conversely, LHWs also provide preventative care for malaria at home and make referrals to women with pre-existing maternal conditions.

3.4.1 Home-based reproductive health services

In Katcho villages, reproductive health education is provided at home as well as in the community. During home-visits, family planning counselling is provided to Katcho women by LHWs and FWWs. In every village, there is a separate room “called health house” which is used by the LHWs to deliver community-based awareness raising sessions on health and hygiene, exclusive breastfeeding for at least the first six months postpartum, contraceptive utilization, the importance of the childhood immunization and how to care for their infants and young children. For men, reproductive health education sessions were organised by male FWWs at the community level.

Challenges to implement home-based reproductive health counselling

In Katcho villages, the home-based reproductive health services are not offered by the female FWW. There is only one female FWW assigned to 50,000 people in Tando Jhark and Katcho villages. The public transport is scarce in Katcho villages, and the FWW is not provided with the transportation allowance or a vehicle to access the sparsely located, hard to reach communities. The only time an FWW is provided with transportation is when they organise reproductive health camps in Tando Jhark and on these occasions the FWWs are provided with official vehicles, so they can visit the geographically isolated villages and motivate people to attend the reproductive health camp.

The FWWs (female) visit the remote sites when we organise health camps when a vehicle is provided. It is not possible for one FWW to go to remote villages like Ali Malah on foot. These workers are not compensated for travel, so they only go on a needs basis. (Sajida, FWC)
The LHWs either live in the same village or reside to a closer geographic proximity and are therefore the most accessible health workers for rural women. Each LHW is assigned to a population of 1,500 to 3,000 people. In Katcho villages the LHWs are often women’s first source of information (apart from the family and peers) about reproductive health services. This means that a well-informed and trained LHW is vital to women’s utilisation of reproductive health services in Katcho villages. However, this was not in case in Katcho villages, as the LHWs possess limited knowledge of contraceptives to counsel women about family planning services. According to LHW Shaista, during home-visits, there were many occasions when she was unable to respond to women’s queries about the side effects of modern contraceptives. The existing in-service training program of LHWs placed great emphasis on polio training. On average, every year, the LHWs attend at least six to eight polio training sessions and hardly one training/refresher course on family planning. The lack of training results in LHWs being unprepared to counsel rural women to use modern contraceptives. Rural women have heard of many myths and side-effects associated with the use of modern contraceptive methods and the current LHW’s in-service program is unable to respond to such queries with culturally appropriate and medically correct answers.

We mostly get polio training; like almost every second or third month we have a session about polio vaccination. In this year [January 2014–October 2014], I think we attended six sessions about the polio campaign and none on family planning or other maternity care services. Women ask difficult questions about family planning methods and sometimes we are not able to answer them. (Shaista, LHW)

Male community mobilisers from the Population Welfare Department organise and conduct awareness-raising sessions about family planning with male adolescents as well as with married men in the community. In the awareness raising sessions, the mobilisers inform the men about the different methods of birth control, STI, and the benefits of birth spacing for their family. The male mobilisers also engage the religious leaders in the community in the sessions, so they have an opportunity to answer any concerns the men have about contraceptive use and religious beliefs associated with contraception.
Male workers play a significant role to raise contraceptive awareness among men. For cultural reasons, our female workers cannot talk to men, especially on family planning matters. Male community mobilisers organise small or large sessions called ‘kachehri’, at local community spaces, where they inform men about different birth control methods. As you know that a lot of people think it’s religiously forbidden, the male mobilisers also invite Molvis [religious leaders] who explain birth spacing from religious point of view. (Key informant, Population Welfare Department)

During home-visits, FWWs and LHWs do not provide contraceptive methods to unmarried women, because it is culturally unacceptable. In Bashir Machi, the LHW Shazia said that it is shameful to talk to young girls about their sexual health, or engage them in reproductive health discourses; talking to unmarried women or girls about sexual health is prohibited. While this practice deprives unmarried women from having access to home-based reproductive health services, they are able to access confidential family planning in the Family Welfare Centres.

It is a conservative village; the elderly women say mother or grandmother wouldn’t allow you to talk to young girls or unmarried females about reproductive health services. (Shazia, LHW)

FWWs go house-to-house to distribute condoms and oral contraceptive methods to married women, very similar to LHW services for family planning. They cannot distribute them to unmarried females; it’s not culturally acceptable. Her safety can be at risk if her family finds out that she is using contraceptives. The unmarried females may come to the centre as that’s probably safer for them. (Sajida, FWC)

The LHWs and FWWs provide condoms and oral contraception to women during their home-visits. Women who wish to use an intrauterine device, Depo-Provera injections, or have a tubal ligation are referred to the nearest Family Welfare Centre or to the private health providers in TMK City. The closest Family Welfare Centre to the Katcho villages is at Tando Jhark, which is 20 to 25 kilometres away (see Figure 3.2). According to LHW Shaista, one of the reasons that Katcho women do not
visit the Family Welfare Centre is because they do not have enough money to travel to the Centre. Shaista said tubal ligation is popular among women with high parity or those who do not wish to have more children. Women who choose tubal ligation are paid a cash incentive for the procedure and they are provided with a transportation allowance to and from the health facility. Moreover, the LHW who refers women for a tubal ligation also receives a cash incentive and transportation allowance which motivates health workers to refer women to the services. To date, such incentives (cash and transportation allowance) are not offered if a woman chooses temporary or reversible contraceptive methods.

**Facility-based reproductive health services**

The Population Welfare Department established the Family Welfare Centres to provide women and men with access to counselling and services for most types of modern contraception, except the contraceptive surgeries (tubal ligation or vasectomy) which are carried out at a Family Health Centre at District hospital. The LHV's and midwives said that they do not provide contraceptive services to women, instead, the Woman Medical Officers (WMO) provide counselling to pregnant and lactating women about modern contraception and refer women to Family Welfare Centres or Family Health Clinics.

According to FWC Sajida, the poor contraceptive prevalence in Katcho villages is due to cultural beliefs and lack of access to the Family Welfare Centres. Physical access to FWCs is particularly challenging for women in the Katcho region, where public transport is scarce and women’s financial capacity to afford transportation is low. Sajida stated that there is a need for more Family Welfare Centres which are located within walking distance to Katcho villages. She also added that women were taking an interest in modern contraception, and with effective counselling and improved access contraception use can increase.

**3.5 ANC services**

In Katcho villages the ANC services are provided through a combination of home-based and facility-based services. Home-based services include ANC counselling, provision of prenatal vitamins, and tetanus vaccination, whereas ANC screening and services for women with obstetric complications is provided at rural
health facilities. Table 3.3 shows the existing provision of home-based and facility-based services by health workers in Katcho villages. Table 3.3 Provision of ANC services by rural health workers in Katcho villages

<table>
<thead>
<tr>
<th>ANC services</th>
<th>Place of service delivery</th>
<th>LHV (n=5)</th>
<th>LHW (n=17)</th>
<th>CMW (n=3)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Katcho villages (sample)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Home-based services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANC counselling</td>
<td>Home</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prenatal vitamins</td>
<td>Home</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus vaccination</td>
<td>Home</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><strong>Facility-based services</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANC counselling</td>
<td>BHU, CMW clinic</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prenatal vitamins</td>
<td>BHU, CMW clinic</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus vaccination</td>
<td>BHU, CMW clinic</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essential ANC screening</td>
<td>BHU</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management of obstetric complications e.g. pre-eclampsia, gestational diabetes</td>
<td>BHU/RHC/district hospital</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

3.5.1 Home-based ANC services by LHWs

Home-based ANC by LHWs is an appropriate way of ensuring that every woman, regardless of caste, SES, working status, and geographical location can access ANC services. During home-based ANC visits the LHWs provide prenatal vitamins, administer tetanus toxoid vaccines, and counsel women to use SBA services during pregnancy, childbirth and at the postpartum period. In providing home-based ANC, the LHWs ensure that women who may be at risk of developing pregnancy complications or have signs of early pregnancy complications are identified and referred to the health facilities without a delay. LHWs also maintain detailed pregnancy records of all women in their communities in a “Family Register” provided to them by the District Health Department.

Home-visits are valuable in villages where women do not utilise ANC services due to cultural or family values or poor risk perception about pregnancy care. The average length of the ANC home-visit is between 15 and 45 minutes. During the visit the LHW speaks with family members such as the mother-in-law, or any elderly
female family member, to ensure that women receive pregnancy care from the SBA. The inclusion of other family members, especially the elderly women in the house, to be the part of the ANC home-visit is an important consideration in the Pakistani context, where elderly women have a significant influence on women’s maternity-care-seeking behaviour.

There is no exact length of the ANC home-visit; it truly depends on what the women likes to discuss with us. Sometimes it’s only 10 minutes, sometimes more than half an hour. I also talk to the mother-in-law or a grandmother in the house, as they are likely to decide the place of delivery or birth attendant for pregnant women. (Sakina, LHW)

Furthermore, the LHW do not provide counselling on danger signs, as they do not have sufficient knowledge about prenatal complications. According to LHW Shazia, identifying or counselling about obstetric complications to pregnant women is not the LHW’s task because they are not trained to do so.

I counsel women to space between birth, eat well during pregnancy and visit a BHU for maternity-care services. I am not trained to counsel women about obstetric complications, so all I do is to recommend women to visit a health facility. (Shazia, LHW)

**Challenges to deliver home-based MCH services**

*Discontinuation of prenatal vitamins*

According to LHWs, women did not like the program’s decision to discontinue prenatal vitamins. LHWs felt that they were more respected as health providers in their community when they were giving ‘something’ to the pregnant women in addition to counselling. Women frequently told LHWs that they could not afford to purchase the prenatal vitamins and they felt that the LHWs should provide them free of charge, as they had done previously. The nearest pharmacy that sells prenatal vitamins is at least 20 kilometres away from their home, and in the absence of financial support to travel and purchase the vitamins pregnant women are unable to take the vitamins during pregnancy. According to the LHWs, the program should reinstate the provision of prenatal vitamins as the majority of pregnant women are not using the essential
prenatal vitamins. In Katcho villages, where a large number of women are malnourished, health workers suggested that the LHW program should reinstate the provision of prenatal vitamins free of charge to improve the health of pregnant women.

*Lack of acceptance from community*

In many rural communities of Sindh, community work is still considered an unsuitable or disrespectful job for women. According to the LHWs, their work is not considered to be dignified work for women because it involves door-to-door home-visits. The unmarried LHWs experience more problems with acceptance than married LHWs because they need to seek permission from the household head (father or brother) to go outside of their house and to work long hours. Generally, married women start working as LHWs after they have had two or three children when the family is in need of paid employment. LHWs’ husbands allow them to work, which means that they do not face criticism from other family members (such as brother or father), as occurs with unmarried LHWs.
3.6 Birthing-care services

Birthing care is provided in all rural health facilities by trained midwives, LHV, and doctors, and at home by the CMW. Having said that, private midwives and dais are still the preferred birth attendants in Katcho villages (see Chapter 5). In TMK district, when women require a caesarean section, they are referred to the civil hospital in Hyderabad as there is no gynaecologist available in the TMK district hospital. For caesarean sections, some women use a private tertiary care hospital in the TMK district; this option is utilised by women who can afford to pay for private health care. Table 3.4 shows the provision of birthing care by rural health workers in Katcho.

Table 3.4 Provision of delivery services in Katcho villages

<table>
<thead>
<tr>
<th>ANC services</th>
<th>Place of service</th>
<th>LHV (n=5)</th>
<th>WMO (n=1)</th>
<th>CMW (n=3)</th>
<th>Dai</th>
<th>Private Doctor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home-based services</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal birth</td>
<td>Home</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facility-based services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal birth</td>
<td>BHU, CMW clinic</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Assisted birth</td>
<td>BHU, CMW clinic</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caesarean section</td>
<td>Private tertiary care hospital</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.6.1 Home-based birthing care

At the time of data collection, 56 CMWs were delivering SBA services in the TMK district. Two CMWs were allocated to Katcho villages, and only one was providing maternity care services to community, through her CMW clinic. In this study, not one home birth was attended by a CMW in Katcho villages.
Challenges faced by the CMW Program

Poor recruitment strategy for CMWs

According to one key informant, the CMW program had problems recruiting women to be trained and deployed as CMWs from the outset. The minimum education criterion for a woman to be selected to be trained as a CMW was to have completed at least grade 12 and to have studied science subjects in grade 12; they should also preferably be married and be motivated to work as an SBA in their village. The majority of females who met the selection criteria were young, unmarried, and lived in urban areas of the TMK district. As a result, after their CMW training, these young women returned to their city or town and provided CMW services there and not in the rural villages. Moreover, coming from conservative family backgrounds many young CMWs did not get permission from their families to travel to the remote villages for work, therefore, they only provided maternity-care services in their own village. Consequently, women living in remote locations such as Katcho villages did not see the benefits of the CMW training program, which was the impetus for the program in the first place.

There was a big push from the Provincial Ministry on the MNCH program to chase the target number of CMWs by the end of 2010. Also, the selection criterion was very strict, I mean, there is no way you will find a Matric pass (Grade 10) female in rural TMK district, rather than finding an Inter-pass (Grade 12) girl, who is also willing to work in remote locations. We managed to get quite a few girls fulfilling the education criterion, but then they never worked in rural villages due to family restrictions or not being able to visit remote villages (Key Informant, MNCH program)

Conversely, CMWs who were recruited and trained stated that the district CMW program management team did not explain their roles and responsibilities to them at the time of recruitment. Most of the CMWs interviewed were under the impression that after training they would be able to work as midwives in the district hospital, or at any other health facility. It was only during the training course that the women realised that they may have to work in a rural community. The lack of clarity around their work in the community was disappointing for them and for their family
members. CMWs stated that if they had known that they had to work in the community they might not have joined the training program because of conservative family values.

All CMWs expressed a desire to work in a facility-based environment, which they considered to be more ‘respectful’ and ‘dignified’ compared to working in the community. The CMWs mentioned that working at home was an option for them, and if a CMW could set up her own clinic then she wouldn’t need to go to the woman’s house. According to CMWs, providing home-based maternity care is more akin to the care provided by the dai, who has limited or no formal education and is not trained as a SBA.

I and my family thought that I would work similar to midwives at rural health facilities, not like a dai who delivers a baby at home. But I learned after the first six months that this is more like a dai job.

(Shabana, CMW)

Other factors that influence CMWs’ decisions not to attend home births include cultural perceptions that women cannot go to a stranger’s house to provide a service or travel at night time. Culturally, in rural villages, accompanied travel is a norm for female, and is applied if a female (especially young and unmarried) is going outside her house to school, hospital, meet family, or even for work. Most of the CMWs recruited for the training program were unmarried, and given the aforementioned reasons, they could not visit the pregnant women to attend home births.

CMWs’ salary

The CMWs are trained as fee-for-service birth attendants. The expectation is that the fee charged to the client includes their service charges and travel costs to and from the woman’s home. During a health workers’ workshop, CMWs stated that women who need the assistance of a SBA in their home (or who use a dai) are likely to be the women who do not have money to travel to the health facility or to pay the fee for a private midwife. The CMWs felt that it was unreasonable to think that women would pay the CMW fee (service fee plus travel costs) because if the women had money, they would elect to give birth in a health facility. What remains a challenge for CMWs is they are not provided with a salary by the Ministry of Health, as occurs with
the LHWs, LHV, s, and FWWs, and their patients (poor women) are unable to pay for their services.

We are here to replace the dais. Had these women had money to go to health facility, they would not use a dai, or us [CMW] for birthing, they would simply go to their preferred private practitioner. Why cannot we [CMW] be on salaries as are the LHWs, LHV, s, or midwives? (Health workers’ workshop)

CMW Sadaf said that many women who come to her clinic to give birth do not have money for the costs of return travel and they have to walk miles to return to their home after giving birth. On many occasions CMW Sadaf gave women money so that women could use public transport to return home; she said she could not do this for every patient.

I know that these women are unable to pay my fee. Many times, when women visit my clinic, I give them transportation money for return travel from my pocket, as I know they do not have money to do so.

(CMW Sadaf)

The CMWs argued that the CMW program focuses on developing a workforce to support poor rural women receiving maternity care, without considering the financial implications it has on CMWs. The CMWs said that the reason why so many CMWs do not offer home-based maternity care is because they are not paid for their services. They also noted that it is unreasonable and unfair for the Ministry of Health to assume that CMWs will provide maternity services to women and not have the full costs of the services covered by the program.

We [CMWs] all know that we won’t be paid for home-based birthing care because of women’s financial status. Now you tell me, without being paid for the service, is it fair that we deliver home-based care?

(CMW health workers’ workshop)]

**Lack of transportation support**

While CMWs preferred to provide maternity-care services in a health facility, they are willing to provide home-based services if they are provided with transport to visit women’s homes. Katcho villages are sparsely located, and to get from one village
to another on foot takes 30 to 35 minutes, and many villages are in deserted locations. Travelling alone in these areas is not considered to be safe for a woman. In a health workers’ workshop, all CMWs raised their concerns over the unavailability of transportation services and the Ministry of Health’s expectation that they deliver home-based care nonetheless. Not only are the villages sparsely located, when there is an emergency situation at night transport is not available.

**Poor infrastructure support from the MNCH program**

The MNCH department facilitates trained CMWs to establish CMW clinics by providing essential medicine and basic infrastructure to the CMWs who have a separate space in their house to be used as a CMW clinic. However, the four CMWs who were interviewed said that the CMW program management team informed them that due to the Ministry of Health’s budgetary constraints, the MNCH department could not facilitate CMWs to establish CMW clinics.

There was an example of a public-private partnership in Tando Jhark village, where a private organisation called DKT International (292), in collaboration with the CMW program, refurbished a few CMW clinics across rural communities in Pakistan. The DKT Foundation\(^1\) provides affordable and safe options for family planning and HIV/AIDS prevention in developing countries by social marketing and entrepreneurship. In Pakistan, the DKT Foundation is engaging CMWs to provide couples family planning counselling and access to modern contraceptives. For this purpose, in TMK the DKT Foundation chose CMW Sadaf’s clinic being the only functional CMW clinic near Katcho villages. The DKT International provided her with some furniture and a toilet, and they painted the clinic inside and outside. Moreover, DKT International offered Sadaf a place in their family planning training course, which she could attend free of cost. In return, Sadaf would provide family planning services in her clinic, and keep the DKT International logo on her clinic (see Figure 3.3). However, due to Sadaf’s busy schedule, she could not participate in the family planning training program.

\(^1\) named after D.K. Tyagi, an early pioneer of family planning in India
3.6.2 Facility-based birthing care

The LHV s and midwives provide facility-based maternity care in the BHU, RHC, and district hospitals. The LHV s provide nursing and midwifery services, whereas midwives provide maternity-care services only (see Appendix 7). The LHV s and midwives described their key maternal health tasks as conducting clinics for ANC and PNC, assisting and performing normal deliveries, providing immediate newborn care, and counselling women to access SBAs for childbirth, nutrition, breastfeeding, care of infants and children. They also provide family planning counselling to women and refer women to the Family Welfare Centre for advanced contraceptive methods (see Section 5.2.7).

The BHU Tando Jhark is the closest rural health facility for women in the Katcho region, and one WMO and four midwives in the BHU provide 24-hour maternity-care services. The WMO works on Monday to Friday between 9:00am and 2:00pm, and midwives work on 12 hour shifts for seven days a week.

Challenges to deliver facility-based birthing services

The health staff mentioned that the pregnant women who come from rural areas do not understand the instructions they provide to them during ANC visits and at the time of labour and delivery. According to LHV Natasha, there is no value in educating
rural women about pregnancy care, safe birth practices, or family planning because she feels that the women do not want to follow their advice. Natasha stressed that poor women from Katcho villages do not understand the benefits of birth spacing for their own health and the health of their infants.

They simply do not understand. It doesn’t matter how many health education sessions you organise with them or organise the health camps. All they do is to give birth to as many children as possible. Can you believe that these women have eight to ten pregnancies in their reproductive life and they hardly manage to eat two decent meals in a day? (LHV, Natasha)

Midwives also noted that women from the rural villages do not eat before they arrive at the hospital to give birth. The midwife Saleema emphasised that a hungry woman cannot do well during labour. She added that women expect the hospital staff to provide them with food, which she felt was an unreasonable expectation for a rural public hospital. She considered that health staff are employed to provide skilled birth assistance free of charge and the women need to make their own arrangements for food and water.

They often come hungry to the facility. If you ask them if they have eaten anything at all, their response will be no. How can they deliver a baby after 12-13 hours of labour on an empty stomach? And no, we do not provide them food. Isn’t it enough that the government hospitals offer a free birthing facility? They should make their own food arrangements and not expect hospital to provide them food. (Saleema, midwife)

3.7 PNC services

Similar to ANC services, the provision of PNC services is available to women in their home and at a health facility. In Katcho villages the LHWs provide home-based PNC services, whereas CMWs, LHVsmidwives, and WMOs provide facility-based services. At home, LHWs visit women within one week of giving birth to ensure that the neonate receives immunisation, to check on the postpartum woman’s health
status, and when necessary to refer the women to a health facility. Table 3.5 shows the available PNC services by rural health workers in Katcho villages.

*Table 3.5 Provision of PNC services in Katcho villages*

<table>
<thead>
<tr>
<th>PNC visits</th>
<th>Place of service delivery</th>
<th>LHV (n=5)</th>
<th>WMO (n=1)</th>
<th>CMW (n=3)</th>
<th>Private Doctor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home-based</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check for danger signs of postpartum complications</td>
<td>Home</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counsel for exclusive breastfeeding</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contraception counselling</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Facility-based</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check for danger signs of postpartum complications</td>
<td>BHU, CMW clinic</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Counsel for exclusive breastfeeding</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contraception counselling</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment of postpartum complications</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition counselling</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.7.1 **Home-based PNC services**

During home-visits, LHWs counsel women about family planning services, provide neonatal immunisations, and counsel women about exclusive breastfeeding and the importance of eating nutritious food during the postpartum period. The LHWs do not counsel women about the early signs of postpartum complication considering that the midwives would have informed the postpartum women about it, and also since they do not possess adequate knowledge about the postpartum complications. The
LHW, however, discusses about the essential neonatal care or the importance of neonatal vaccine as part of the PNC services.

On the other hand, CMWs from Katcho villages do not provide home-based PNC services to women because they think it is not part of their role. For instance, CMW Sadaf noted that lactating women are provided counselling by LHWs, whereas in situations where there is a postpartum complication, the woman see either a private midwife or visit a public health facility. She added that CMWs’ primary role is to provide assistance to women during childbirth, and therefore home-based PNC is not the CMW’s role. This contradicts the CMW program policy which states the CMWs should provide home-based maternity-care services in their respective villages.

I mainly assist them in birthing; that’s the reason the pregnant women mostly come to my clinic. For PNC services, most of the Katcho women prefer private doctors at city TMK. The LHWs provide home-base PNC education. The CMWs are only meant to provide birthing care, not the other parts of maternity-care services. (Sadaf, CMW)

**Challenges to deliver home-based PNC**

*Power knowledge about PNC services*

The LHW and CMW show lack of knowledge about essential PNC services and their benefits to postpartum women. The number of PNC visits (recommended six visits), timing, and purpose of the PNC visits were not fully understood neither by LHW or by CMW. This is comparable to LHW Shaista’s statement above about the poor focus of LHW’s in-service training program on maternal health. The lack of in-service training and refreshers for LHWs on maternity care and LHWs poor knowledge on essential ANC and PNC are the barriers to implement effective home-based maternity care services in Katcho villages. As well, CMWs (who took part in the study) do not see them more than a birthing assistant, which compromised the provision of delivery of home-based PNC services in Katcho villages.
Lack of coordination between home-based workers

There is limited to no coordination between rural health workers in the TMK district. The LHWs and FWWs deliver similar family planning services in the same locations, but they never meet to discuss their program, issues and challenges, or the success stories or to learn from each other. Similarly, in the CMW program model, the LHWs and CMWs are required to work together in the same communities. The LHWs are required to introduce the CMWs to their communities because LHWs are already well-established in the communities. However, this has not occurred in Katcho villages, because according to LHWs, they are unaware of the CMW programs and do not possess information about the local CMWs in their area.

The CMWs stated that they work in the same communities as the LHWs without any support from them. One reason that helps explain the current situation is the CMWs’, LHWs’, and women’s poor understanding of the CMWs’ expected role in the community. Secondly, the program management staff of both programs have not paired CMWs with LHWs so that the LHWs can introduce CMWs in their communities. Thirdly, after the introduction of the CMW program in 2006, no effort was made to change the LHW program to coordinate the LHWs’ and CMWs’ activities in the community. Similar to LHWs, the CMW program does not coordinate activities with the FWW to deliver home-based family planning services. The absence of coordination between the different cadres of health workers and their program activities shows a significant gap in the existing maternity-care system to deliver home-based maternity-care services in Katcho villages.

The lack of communication between LHW, CMW and BHU staff also results in poor delivery of home-based PNC in Katcho villages. For instance, the LHW do not deliver an essential component of PNC counselling ‘early signs of PNC complications’, assuming, that would be delivered by the midwife, and the same response was from CMW, who think that the LHW would deliver that part of counselling. As a result, postpartum women do not receive the essential PNC counselling in Katcho villages.
3.7.2 Facility-based PNC services

The LHVs and midwives provide PNC services to postpartum women who deliver at the health facility or who visit BHU for postpartum complication such as retained placenta and postpartum haemorrhage. Other components of PNC services, such as counselling for family planning, nutrition, immunisation, and care for the newborn are offered by the WMO at the health facility when women return for PNC, which is not a regular practice.

The WMO interviewed stated that the normal procedure is to keep women in the facility for at least 24 hours after giving birth. Once a woman is discharged they recommend that she returns to the health facility for PNC within 48 hours of discharge. The WMO said that the first 24 hours postpartum are critical for women and for this reason they request that women stay in the health facility as they can observe women and identify obstetric complications early.

Women are discharged at least after 24 hours after a normal delivery from BHU. In the first 24 hours, we ensure that there are no visible signs of postpartum complications or neonatal illness. (WMO, BHU Tando Jhark).

The WMO’s statement contradicts the midwife’s, who noted that they discharge women from the health facility within three to four hours of delivery if there are no signs of postpartum complications.

Mostly, after a normal labour, women are discharged in three to four hours, if there are no obvious postpartum complications e.g. postpartum haemorrhages or early signs of infection. (Shazia, LHV)

In Chapter 6, where I will discuss women’s experiences of giving birth in a health facility-based, women provided accounts of being discharged from the health facility within one or two hours of giving birth and they did not return to the facility for PNC. Therefore, the women’s and midwives’ accounts giving birth in a health facility and returning for PNC are in agreement and they contradict the WMO’s position.
Challenges to deliver facility-based PNC services

Lack of understanding about essential PNC services

Similar to LHW and CMW, the knowledge of BHU staff also showed limited understanding about essential PNC services. As noted by midwives during the interviews, midwives are not required to counsel women at the time of childbirth to visit a health facility for PNC. According to LHV Shazia, most of the women do not have money to return to the health facility for PNC the day after they are discharged from the facility. She further added that it costs money to travel to the health facility for PNC and it is inconvenient for postpartum women to travel in a bus or rickshaw with their newborn. According to LHV Shazia, if there are no visible complications, it is preferable for postpartum women to stay home and avoid unnecessary mobility.

They [women] do not have enough money to travel back and forth from their home to the facility after delivery. It costs money, and also travelling with a newborn is not easy when you do not have an adequate mode of transportation. I think if there are no complications, it’s probably safer for postpartum women to stay home with their baby. (Shazia, LHV)

Lack of coordination between home and facility-based care

The lack of coordination between the different cadres of health workers results in few referrals of women from their home to the health facility. During home-visits, LHWs recommend that women visit BHUs for pregnancy care. However, no record is kept of the number of referrals that the LHWs make to the BHUs to monitor the effectiveness of the referrals. Similarly, when CMWs refer women with obstetric complications to the BHU, there is no follow-up information about the referral from the BHU. The referral slip is very basic and does not provide specific details about the case summary, or the care the patients received pre- or post-referral. According to CMW Sadaf, she makes obstetric referral to well-equipped public or private health facilities on the basis of patient’s affordability of health-care services.

I do refer women with complications to the BHU, district hospital, or private hospital if they can afford it, not because it is the referral system requirement; that doesn’t exist. I refer patients to a better
health facility, which has more equipment and staff. The CMW program works independently to the PPHI and there is no coordination between myself and the BHU staff [BHU management]. (Sadaf, CMW).

All health workers felt strongly about the urgent need for them to work as a team, where they could share the workload with their colleagues. During the health workers’ workshop, the group highlighted a number of situations where a team of health workers could deliver better results than when they work as individual health workers. For example, LHWs thought that if the FWCs conducted joint contraceptive awareness-raising sessions with LHWs in the community then more women would attend the sessions and the result would be an increased number of women visiting the FWC. Similarly, if LHVs and midwives could facilitate community-based awareness raising sessions on key issues such as ‘care during pregnancy’, or the ‘danger signs and symptoms during pregnancy’ then it would benefit women who did not use facility-based maternity-care services. The LHWs considered that this strategy would encourage rural women to seek facility-based care.

Women respect the facility-based worker more than us. They think the LHVs, midwives, and FWC have more knowledge and experience; therefore, if these health workers could attend some of the awareness-raising sessions with us in rural villages, it might increase women’s attendance to the BHU or FWC. (Health workers’ group workshop)

As mentioned before, the CMWs are trained to provide home-based maternity-care services but they can also work in a CMW clinic set up in their house. During the workshop, the BHU staff (midwives) suggested that if the CMWs were able to provide home-based care in geographically remote villages it would minimise the workload of facility-based workers. While LHVs and midwives were willing to work with CMWs, they were not sure how the PPHI (BHU management) could liaise with the CMW programs.

I do not know if it’s possible that CMWs and midwives can work together, as they are from different programs. But I am sure that if anything like that happens and CMWs are able to provide home-
based care, then it can also reduce our workload so that we might be able to do some health promotion activities, as we did in the past. (Midwife, health workers’ workshop)

3.8 Conclusion

The existing health workforce is not being optimally utilised to deliver a continuum of maternity-care services for women in Katcho villages. The reasons for the sub-optimal utilisation of maternity services include poor administrative support from their respective programs and lack of coordination between health workers. The health workers are motivated and have the potential to improve the quality of maternity services if they are provided with relevant in-service training, resources to work in their stations or community, travel support to access villages in geographically challenging areas and have a coordinated system in place so they can work together as one team. The next chapter provides an overview of women’s lives and how this affects their maternity-care-seeking practices.
Chapter 4: Women’s Lives in Katcho Villages, Rural Sindh

This chapter describes women’s lives in Katcho villages. Findings are based on women’s interviews and demographic information from survey questionnaire. It was important to understand the context in which women live and make decisions on daily basis because that affects their maternity care utilisation. Demographic information of women participants is available in Chapter 2 table 2.2.

4.1 Geographical landscape of Katcho villages

This study was conducted in five villages of the Katcho area, which, as described in Section 2.6, Katcho is the riverine area located between protective embankments and the River Indus. According to Masood (male, key informant), the total Katcho area in the TMK district is approximately 200 square kilometres. The protective embankment comes under the authority of two Union Councils, Tando Jhark and Allah Yar Turk in the TMK district. The five study villages are about 20 to 25 kilometres from the nearest town Tando Jhark and 45-50 kilometres from the main TMK city. Figure 4.1 shows the Katcho region in the TMK district.

*Figure 4.1 Katcho villages in the TMK district*

Source: Government of Sindh, (293)
Katcho villages are connected through unmade roads to Tando Jhark town, whereas Tando Jhark and TMK city are connected through metallic (crushed rock) roads. Commonly, villagers commute by walking to the nearby villages or by using motorbike, chinchi (a motorbike rickshaw which takes five to seven people), bull cart, and donkey carts to travel outside the Katcho area.

In order to travel to TMK city, the most common mode of travel is to take a motorbike ride or three-wheeler to Tando Jhark and then take a bus from Tando Jhark to TMK city. The bus from Tando Jhark operates every day from 6:00am to 2:30pm, however, due to load shedding or planned closure of compressed natural gas by the Government authorities, the bus schedule experiences disruptions three out of seven days a week. The poor road conditions and limited public transport in this area inhibit villagers' mobility, so they tend to live, do business, and socialise around their local township. Table 4.1 provides information about the characteristics of the study villages.

Table 4.1 Study villages and their important characteristics

<table>
<thead>
<tr>
<th>Villages</th>
<th>Survey sample (n)</th>
<th>Main castes</th>
<th>Characteristics of the villages</th>
<th>Mud houses in the village (%)</th>
<th>Women never attended school (%)</th>
</tr>
</thead>
</table>
| Syed Peerani    | 135               | Malah, Dal, Peerani, Soomro, Khaskheli, Shora, Rawra, Gambir | • The closest health facility is BHU Syed Peerani, which is three to five kilometres away from the village Syed Peerani.  
• Government primary school, and one school run by a not-for-profit organisation. The closest primary school is within two kilometres of the village.  
• Agriculture is the main | 89.6            | 94.8                           |
<table>
<thead>
<tr>
<th>Location</th>
<th>Population</th>
<th>Occupation for men and women</th>
<th>Health Facilities</th>
<th>Other Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ali Malah</strong></td>
<td>145</td>
<td>• Village Syed Peerani is close to the link-road of TMK city</td>
<td>BHU Tando Jhark</td>
<td>The closest health facility is BHU Tando Jhark, which is 25 kilometres away from the village.</td>
</tr>
<tr>
<td>(N= 4,000)</td>
<td></td>
<td></td>
<td></td>
<td>The closest primary school to Ali Malah is five kilometres.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The link road to travel to Tando Jhark is about three kilometres from the village.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Fishing and agriculture are the main occupations of Malah women.</td>
</tr>
<tr>
<td><strong>Malah, Brohi</strong></td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tando Jhark</strong></td>
<td>122</td>
<td>• Most of the women in this village are housewives or work as seasonal labourers.</td>
<td>BHU Tando Jhark, CMW clinic and a private midwifery clinic are based at Tando Jhark.</td>
<td>Most women included in the study resided within three kilometres of</td>
</tr>
</tbody>
</table>
health facilities.

- There is one girls’ and one boys’ primary school and one secondary school within one to two kilometres of the village.

<table>
<thead>
<tr>
<th>Fatah Samepoto (N=6,000)</th>
<th>Malah, Samepota, Noorani, Hingora, Lakha, Da, Rind, Peerani,</th>
<th>The closest health facility is BHU Wasi Malook Shah, which is about eight to ten kilometres from the village.</th>
</tr>
</thead>
<tbody>
<tr>
<td>113</td>
<td></td>
<td>The closest school is about seven kilometres from the main village.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The link road to travel to Tando Jhark is about three to four kilometres from the village.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It is an agrarian village, and all women work as agricultural labourers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bashir Machi (N=2,000)</th>
<th>Malah, Solangi,</th>
<th>This village was the most isolated village of the study sites.</th>
</tr>
</thead>
<tbody>
<tr>
<td>128</td>
<td></td>
<td>There is no road network and no electricity or gas connection to this village.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>People use torches,</td>
</tr>
</tbody>
</table>
lanterns, or candles at night time. There is also no water tap within two kilometres of this village.

- The closest health facility is within 25 kilometres.
- The link road to travel to Tando Jhark is about five kilometres from the village.

4.2 Access to basic facilities in Katcho villages

Since most of the education and health facilities are based at Tando Jhark, women from other villages have to travel at least 15 to 25 kilometres to reach the health facilities (see Table 4.1). In the absence of adequate road networks and because of the poor availability of public transport, reaching a ‘free’ health facility is expensive. Moreover, since link roads are far from the actual villages, reaching a link road in itself is a big challenge, especially at night time. The villagers avoid leaving their house after sunset and use battery lights at night. Stray dogs and snakes are very common in the villages, so walking or riding on a motorbike is not considered a safe option. Moreover, public transport does not operate after 6:00pm; thus, families often prefer to wait until the morning to visit a health facility. Aisha, a mother of four children described it this way:

After sunset, we do not go outside the house. There are stray dogs and snakes which does not make it safe to go outside at night time. Even if someone gets sick at night time we have to wait until morning, as there is no transport to go to the city. (Aisha, 35 years, Haji Buksh)

There is no natural gas supply to the study villages and the population relies on wood and charcoal fires for cooking. Electricity connections exist in three villages—Tando Jhark, Syed Peerani and Ali Malah—however, there is no electricity for 12 to
14 hours every day. Villages without electricity are more isolated, and generally, they are located a distance from the main roads. The main sources of drinking water in these villages are hand pumps and dug wells. Women are responsible for fetching water from these points, which are 500-2000 metres away from their para. Bashir Machi is isolated as there are no direct road networks to this village; walking is the only way to access the roads. Women from this village mentioned that sometimes they walk more than two hours from their house to the nearest water tap to get water for domestic use and for the cattle. At the water source, there are one or two taps available to supply multiple paras in each village with water. One woman described the challenge of getting drinking water:

To get drinking water we have to walk for an hour or sometimes two hours. And even at the tap after walking for two hours, sometimes we have to wait even more because the tap is not functional. (Zubia, age 30 years, Bashir Machi)

The literacy rates in the TMK district are low. According to the PSLM survey, the literacy rate in the TMK district is 27%, and 58% and 19% in urban and rural areas, respectively (294). Only 18% of females in the district have ever attended school (294). The government has built several primary and secondary schools, health facilities, and some police checkpoints in the Katcho area but the facilities and services available to the population remain limited and less accessible compared to services available to villagers who live closer to the city or towns.

Of the 669 survey participants, 92.3% of the females had never attended school. Only two of the five villages have a primary school that is within two kilometres walk from the children’s home. There are no transportation available and young children cannot walk this distance to school on their own. Young children play all day in the village while their parents work in the agricultural fields. In Ali Malah, the only primary school is about five kilometres from the villages. In order to reach to that school, children have to cross other paras, which according to Noora (key informant) is not safe for children. In addition to that, Noora stated that if a child passes primary school, he/she cannot transition into secondary school. The secondary schools are located in Tando Jhark town which is 15 to 20 kilometres away from her village. The majority of families cannot afford to send their children to secondary schools that far from the village especially when the public transport system and security conditions
are so poor. She also thinks that teachers in those government primary schools never come or even they do, they do not teach well.

What is the point of sending our children to school? The schools are not good, and the teachers never come. Even if they pass primary school, they can’t go to secondary school which is at Tando Jhark. The school is also close to [the other] caste’s para. We do not feel safe to send our children there. (Noora, age 75 years, Ali Malah)

The hygiene conditions in the study villages is poor. Children regularly play with animal manure and then eat food without washing their hands; hand washing is not regularly practiced by women or children. Nearly two thirds of the study population do not have toilet facilities at home. In each para, an NGO built one toilet to be used by para people, but they were rarely used by community members because they preferred to defecate in the bush. However, some of the women said that they use the toilets for bathing purposes as the toilets are more private than bathing at the para hand pump.

4.3 The para system

In the Katcho area, extended families live together in a compound, called a para. The para system symbolises the togetherness and strength of the family. About 10 to 50 small family units live in a para, which are usually from the same extended biological family or belong to the same caste. They live in patriarchal units, which are headed by a male, and subordinate females and children with unequal power distribution and status. Women are heads of a household only when they are divorced or widowed.

Each para has a management committee, which consists of two to three mostly older male members (head of the family). In small villages, there is only one management committee. The committee makes decisions on behalf of the para residents, such as who can live in that para. If someone wants to build their own mud house they need to seek permission from the committee. Figure 4.2 provides an example of a mud house and para in the study villages.
Houses within the para are generally made from mud and dung cakes, and house construction is the responsibility of the women. Girls learn to make mud houses when they are very young as they help their mothers, or sometimes they learn by making their own mud play-houses. Families with more than two children tend to live in separate mud houses, firstly because these houses are not large enough to house the increasing number of family members and secondly because of the increased household expenses. However, a separate family house is still part of the same para.

The para is not only a confined geographic space where people live together and share similar values, but people in the para make decisions together. Collective decision-making is one of the core values of the para system. It gives strength to the family when they are facing hardships and assists them develop solutions in times of crisis. Major decisions such as migration, financial, or legal matters are taken by men, and women do not take part in such matters. With respect to health issues, women usually seek advice from elderly or experienced women, and men do not engage in these issues. People who share the para have many things in common such as family, caste, profession, and similar socio-economic status; they relate to each other with a strong sense of connection. These commonalities shape their collective beliefs about
the world. For example, people from the same para are likely to share a similar belief about political or religious leaders, the education system, or health-care facilities. Women in the same para have a common doctor, a dai, and a midwife. If one woman is dissatisfied with the services of a health provider and terminates treatment, other women from the para will follow suit and discontinue using the service; this pattern also applies to the use of public hospital services.

4.4 Women’s domestic and work commitments

Agriculture is the main source of income for 43.5% of study participants and 65.6% of their husbands (see Table 2.6). The regular crops grown in Katcho are sugarcane (November to March), rice (May to November), wheat (December to April), cotton (May to November), and seasonal crops such as soya beans, barley, and green chillies. Men and women work hard as agricultural labourers or sharecroppers to meet their basic needs. Women are mostly involved in cotton picking and seasonal activities such as picking and drying the green chillies. Agricultural workers earned from PKR15,000 to 25,000 (AU$189-315) picking cotton for three months in a year—the highest remuneration they get in any season. When women work away from their para their children are looked after by other family members (such as a mother or mother-in-law). The para system is considered to be very secure, and children are not allowed to go unaccompanied to another para.

The majority of the Katcho population work as agricultural labourers. Only 4.3% of the survey participants reported that their husbands own agricultural land. Their annual income was between PKR50,000 and PKR100,000 (AU$630 to AU$1,261). Sometimes farmers received payments in the form of rice and wheat, stock, or money from the vadera (landowners) in exchange for their services. When Aasia, a mother of 11 children was asked about her income, she replied,

We are paid once a year, usually towards the end of the year. The vadera gives us PKR50,000 to 100,000 per year depending on the crop and profit. (Aasia, age 49 years, Haji Buksh)

Livestock is an alternative source of income for most families in the study villages. In every para, there is a separate place to raise animals (goats, sheep, cows, and buffalos). The livestock are used for daily farming as well as being sold in the city
market for meat during the season of Eid ul Azha (the Islamic festival when animals are sacrificed). Some families also raise mules and camels to use as transportation. Women play a lead role in looking after and raising cattle.

Women living in Katcho are engaged in agricultural activities, cattle rearing, and domestic responsibilities. Women eat two or three meals per day consisting of rice bread (rice flour, water, and butter) with black tea or butter and sometimes with vegetables (mostly potatoes). Women eat yogurt or milk tea when milk from their cows is available and occasionally they eat fish and chicken. Their dietary intake is insufficient considering the type of physical work they do; in the cotton-picking season, women generally carry heavy weights (between 20 and 80kg) on their shoulders and back:

We eat rice bread and tea at breakfast and lunch and have vegetables, mostly potatoes, for dinner. Chicken, meat, or fish are very expensive. We occasionally eat that. This is the same food women eat when they are pregnant. Where are we going to get additional food from? (Haseena, age 39 years, Ali Malah)

As seasonal labourer, women’s chances of getting agricultural work depends on the crop productivity. In Katcho villages women often face long spells of unemployment due to poor crop productivity. This was similarly noted by Memon et al. (295) in the Mirpur Khas district, Sindh, where the seasonal nature of agriculture work resulted in women being unemployed for 34-35 weeks every year. During this time, women from Mirpur Khas district mostly work as construction and tile factory workers. Unfortunately, in Katcho villages women do not have alternative employment opportunities. Due to the remoteness of the Katcho villages, lack of transportation facilities, ongoing livestock management, and domestic responsibilities, women cannot go outside their village for work. Even men from these villages have limited alternate work options e.g. fishing or construction labourers. There are many sugar mills in the TMK district, but they only employ people from urban TMK, or people from other districts.
4.5 Women’s lack of autonomy

As a patriarchal society, men in Katcho make the key social and economic decisions. Women cannot make independent decisions about education, marriage, or employment on their own. Unmarried girls who choose to study or work outside the village need to obtain approval from their parents, older brother, and sometimes elderly members of the extended family. After marriage women are not allowed to work outside the house without the permission of their husbands and in-laws. Zahida, a mother of three children said that she was the eldest daughter in the family and was raised in the city of TMK. She completed 10 years of education and worked as a part-time nurse in a nearby private clinic, which was run by a female doctor. Zahida wanted to continue her job as a nurse because it was financially rewarding, and it gave her a sense of purpose. But after she got married she was asked to stay home. She was passionate about nursing and looking after people of her community but her maternal family, husband, and in-laws did not let her do so. Zahida says that her husband thinks that women who work are not of good character, and a good woman must stay at home:

I wanted to be a doctor. But poor families like us cannot afford to study medicine, so I voluntarily joined a nearby lady-doctor’s clinic. I did matriculation [10th grade], so the doctor trained me to administer injections, take blood pressure, and provide medicines given to the patients from the clinic. After training, I used to get PKR100 every day, and I was very happy about it. But then after I got married, my husband said he didn’t like working women. So since then, I stayed home, looking after my children. I really wanted to continue to be a nurse, but what can I do: my mother-in-law and my husband do not like working women. (Zahida, age 38 years, Tando Jhark)

Zahida gave birth to three children, but her relationship with her husband has always been strained. She felt that he treated her badly and did not respect her. After the birth of their third child, she left him and has stayed with her mother’s family for the last two years. Zahida wants a divorce but her family will not allow her to do so. She said,
I felt suffocated living with him. He would always be unhappy with me, yell at me, and make fun of me in front of others. I tried my best but then there comes a time when one can’t tolerate any more. My mother didn’t want me to get divorced, it is a bad sign for woman. (Zahida, age 38 years, Tando Jhark)

Marriages are arranged between family members and females are not allowed to choose a partner on their own. It is considered shameful if a girl chooses her own husband. Cousin marriages are preferred; if there is no match within a family then parents may look for someone outside the family but still within the same caste. The majority of marriages in the para are arranged by parents with the consent of all the elderly people of the para. Hamida described marriage as follows:

We only marry our daughters within family as we do not trust people from other castes when it comes to marriage. If there is no perfect match in the family, then we will find somebody who is from the same caste. Otherwise, we marry her either with someone younger or a much older person than her, or she remains unmarried for the rest of her life. (Hamida, age 65 years, Ali Malah)

Arranged marriages also occur when young boys are involved in immoral or illegal activities such as adultery, drugs, or drinking alcohol, which are all prohibited by law and religion in Pakistan. It is a popular belief in urban and rural Pakistan that after marriage males become more responsible, focus on their family, and take life more seriously. Another woman Jamila shared her story that she had an arranged marriage at the age of 14 with her cousin who was 25 years old at the time. Since he was a chronic drinker and did not work, his family decided to arrange his marriage to Jamila to make him more responsible and serious towards life. For that purpose, a young female first cousin is the best option because she is younger than him, she is from the same family, and she will adjust to the marriage according to his and his family’s needs. In such cases, the girl’s parents are less likely to raise any concerns about any mistreatment towards their daughter by her husband or in-laws because the girl is keeping the honour of the family by marrying such a man from their own family. Young girls are preferable in these situations because they are naïve and more accepting, compared to mature girls. When Jamila married her husband at 14 years of age she had no idea about pregnancy, childbirth, and contraceptives. She said:
My husband was a chronic drinker; he still is. He used to get drunk and when he came back home he used to beat me. My mother-in-law thought he would be fine after marriage. But he wasn’t. I am now divorced because I couldn’t handle it any more. My children are with me; I will make sure that my girls get enough education that they do not suffer the way I did. (Jamila, age 34 years, Allah Dino)

Jamila had no idea how to deal with a chronic drinker who beat her every night after coming home. Following a popular belief, her mother-in-law thought that after some time her son would be all right. Jamila became pregnant at the age of 15 and had two subsequent pregnancies, albeit quickly. At the age of 20 she had three babies but there was no change in her husband’s attitude and behaviour. All three births occurred at home, and she did not attend any ANC visits to the doctor. Her mother-in-law was of the view that since Jamila’s husband did not work Jamila should not go to the hospital to give birth or for any ANC visits as they would cost money; either her parents should have given her money to pay for the maternity care or she should use a dai’s services and birth at home. Jamila said,

I was pregnant at the age of 15 and I couldn’t go to the doctor because my husband was unemployed. My mother-in-law said that since my husband doesn’t work, I could not afford the luxury of going for antenatal check-ups. I delivered all the babies at home. (Jamila, age 34 years, Allah Dino)

Initially her parents forced her to live with her husband but after the birth of the third child she asked her parents if she could stop living with him. Her father took Jamila and the children to her parent’s house and demanded a divorce, which was granted a few months later. Jamila now lives with her parents and works from home as a tailor. Her children go to school because she wants them to be educated so they do not suffer as she did.

The majority of women in Katcho villages have lived in extreme poverty like their ancestors. A woman’s autonomy increases with age, marital status, and with the number of children she has. Married women with three or more children are more likely than unmarried young girls to be allowed to travel anywhere on their own. Young and newlywed women have almost no control over their reproductive health.
The lack of control over women’s reproduction and access to services is due to the presence and input of elderly women in the house, a woman’s husband’s role as the primary decision-maker, and women’s limited knowledge about human reproduction and services.

4.6 Summary

Rural women in Pakistan live a challenging life mainly due to poverty and poor access to basic health facilities. In rural Pakistan, there are small pockets of population, like in the Katcho villages, where the vulnerability is high. These areas have poor access to roads, a lack of education and health facilities, and fewer alternative employment opportunities other than agricultural work. Patriarchal values deprive women of the ability to exercise their basic human rights (health, education, marriage of choice), which later has an immense impact on their reproductive lives. The following chapter explores women’s utilisation of maternity-care services and the factors that influence their decisions about the maternity-care providers.
Chapter 5: Maternity and Reproductive Health Care

5.1 Introduction

This chapter explores the factors that facilitate or inhibit utilisation of continuum of care of Katcho women. The chapter is structured in four sections; preconception, antenatal, delivery, and PNC. Women’s decision making about maternity or reproductive care is multifaceted and is based on socio-demographic factors, access to health-care facilities, and cultural practices. In this chapter, data from surveys were used to explore women’s utilisation of maternity-care providers in different stages of pregnancy. Interview data is simultaneously presented with the quantitative findings to describe women’s perceptions and experiences with different maternity-care providers in study villages. This study considered pregnancy records of 669 women and their 2,944 births (see Table 2.6).

5.2 Phase 1: Preconception Care

Accessibility and utilisation of preconception care includes access to reproductive health education as well as contraception for women to plan pregnancy or prevent unwanted pregnancy. It also includes women’s access to treatment of STI or safe-abortion care in countries where abortion is permissible. In my study, I noted that Katcho women do not use preconception care due to ‘negative perception about modern contraception, ‘poor access to reproductive health education/counselling’ and ‘desirable family size’.

5.2.1 Negative perception about modern contraception

Katcho women have mixed opinions about contraception. Elderly women or women who are from the Syed and Peerani castes (considered to be more pious than others) believe that contraception is religiously forbidden. On the contrary, many middle-aged women (who have three or four children) from the Malah, Khaskheli, and Rind castes avoid contraception because of the side-effects associated with modern methods, which include contraceptive pills, Depo-Provera, and intrauterine devices (IUDs). Children are considered as a gift from God who bring fortune and luck in one’s
life. Hence, women believe they should not try to space or restrict the number of pregnancies as it is against God’s will.

A common belief among all village women is that if a woman uses modern contraceptives then her other children will die. Haseena from Ali Malah said that she doesn’t want to risk the lives of her children by using modern contraceptives. God punishes woman who use contraception, and for that, God will take back her other children. As an example, Haseena shared a story about a woman who had used the implant method (Implanon) for birth spacing. Unfortunately, she had severe bleeding as a side-effect of Implanon and she was on bed rest for two months. Her young children also became very sick at the same time. Although it is possible that the children got sick because their mother was sick and she was unable to look after the children, Haseena believed that the children’s sickness was a punishment from God:

Shumaila lives in our neighbourhood. She has two young babies: the first one is two years old and other one is six months. She wanted to space the babies. Our village LHW suggested to her to use Implanon, and she did. After she did, she had severe bleeding so that she couldn’t get out of her bed. Her children were so sick that they almost died. It was nothing but God’s curse on her action. That’s why none of us use contraceptives as then God will take away our children. (Haseena, age 32 years, Ali Malah)

5.2.2 Poor access to reproductive health education/counselling

Young girls who are married in their teenage years have no knowledge about any type of modern contraception methods and rely on the information provided by other women in their para. Using modern contraceptives at an early stage of married life is also believed to cause long-term infertility. Older women from the community strongly disapprove of the use of modern contraceptive methods for birth spacing because they believe it will make young women unfertile. As elderly women have a lot of control over their young peers they recommend that young women do not use modern contraceptive methods until they have reached their desirable family size. The older women also share contraceptive failure stories to discourage women from using modern contraceptive methods in the early years of marriage.
Absolutely no! Women should not use contraceptives in their early years of marriage. It will limit their tendency to bear more children. I have seen women who have used contraceptives, such as oral pills and injections; almost all of them had severe cramps, bleeding, and pain. (Noora, age 75 years, Ali Malah)

As noted in Section 3.4.1, discussing reproductive health issues with young girls and unmarried women or inviting them for reproductive health counselling sessions, is culturally unacceptable. During home-visits, only married women can consult or receive contraception (oral or condoms) from an LHW.

5.2.3 Desirable family size

The desirable family size reported was five or six children. Tubal ligation is increasingly popular among women with high parity, so when a woman has reached her desired family size and her youngest child is, for example, three or four months old then she will undergo tubal ligation. The concept of birth spacing is non-existent, and due to the fear of contraceptive driven infertility, women do not use modern contraceptive to space between births. Due to the short-spaced pregnancies and poor nutritional status of women, the number of miscarriages and stillbirths is common. Numerous miscarriages, stillbirths, or pregnancy complications are considered normal in a women’s reproductive life and these events do not change women’s perceptions of birth spacing or utilisation of modern contraception.

The survey finding shows that the average number of children of Katcho women is 4.45 (range 1-16) which is aligned with their preferred family size. However, there were 129 women in the sample who have had more than six children. When the rate of adverse outcome was compared between the two groups (less than six children vs. more than six children), it was noted that the rate of adverse outcome was significantly higher in women who had more children (41.1% vs. 23.7%, p value = 0.000), whereby the adverse outcome was defined as still birth, intrauterine death, or miscarriage (Table 5.1).
Table 5.1 Association between more than six children and adverse outcomes

<table>
<thead>
<tr>
<th>Adverse outcome</th>
<th>More than six children</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes n (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No n (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total n (%)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>412 (76.3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>128 (23.7)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>540</td>
<td>0.000</td>
</tr>
<tr>
<td>No</td>
<td>76 (58.9)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>53 (41.1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>129</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>488 (100)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>181 (100)</td>
<td></td>
</tr>
</tbody>
</table>

($\chi^2$ test; p=0.000, 95% CI).

The use of contraceptives was protective against the event of adverse outcome. The rate of adverse outcomes was higher amongst women who had never used family planning services as compared to those who had used some kind of contraceptive protection (29.0% vs. 19.6%) (see Table 5.2). The chi-square test shows a significant association between family planning utilisation and the incidence of adverse outcomes amongst women.

Table 5.2 Association between contraceptive utilisation and adverse outcomes

<table>
<thead>
<tr>
<th>Adverse outcome</th>
<th>Contraceptive utilisation</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes n (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No n (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total n (%)</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>27 (19.6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>154 (29.0)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>181 (27.1)</td>
<td>0.026</td>
</tr>
<tr>
<td>No</td>
<td>111 (80.4)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>377 (71.0)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>488 (72.9)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>(100.0)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>531 (100.0)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>669 (100.0)</td>
<td></td>
</tr>
</tbody>
</table>

($\chi^2$ test; p=0.026, 95% CI).

Women start seeking options for contraception only after they reach their desirable family size. To choose the appropriate contraceptive methods women tend to rely more on the experiences and opinions of their family members than the advice of health workers who are trained to provide family planning counselling and make referrals when needed. Living in para, talking to the next-door neighbour in privacy is more convenient than talking to the LHW in front of the elderly women in the house, who are likely to be against using contraception. Similarly, the decision to visit reproductive health camps for contraception care is often made by two to three women.
from the same para. This reinforces the importance of peer influence on women’s reproductive health decision making

5.2.4 Availability of family planning services

In Katcho villages family planning services are provided at home by the LHW and FWW and at the Family Welfare Centre by an FWC. The midwives and LHV at BHU only provide contraceptive and refer women to the Family Welfare Centre for Depo-Provera, IUDs and Implanon, and to District Hospital for contraceptive surgeries. In TMK city, a number of private clinics offer family planning services.

Only 20.6% (95% CI -17.7-23.8) of women have ever used modern contraception in last five years. In the qualitative interviews, most of the women said they did not receive effective family planning counselling from any health workers. The survey results show that out of 669 women, 9.4% of women received family planning counselling from LHWs, 3.6% were from LHV, and 10.1% from private practitioners and 6% from FWC. Figure 5.1 shows the proportion of women in each village who mentioned that they had received family planning counselling.

*Figure 5.1 Family planning counselling by rural health workers (n=669)*

![Family planning counselling by rural health workers](image)

Women who said that they received family planning counselling did not always utilise the method recommended by the counsellor. Women were more satisfied with family planning counselling provided by private practitioners compared to those provided by LHWs and LHVs. The private practitioners are health-care professionals,
and women considered that their knowledge level about family planning was higher than the health workers.

Of the 669 women surveyed, 27.6% (n=138) used family planning counselling from LHWs, LHV, or privately practicing health professionals. The rate was highest in Tando Jhark (27.6%) because it is a central hub where the BHU, private clinics of midwives, and CMWs are located. Due to better access to family planning counselling, the rate of family planning counselling was higher in Tando Jhark compared to the other villages (27.8% vs. 18.2%-19.5%). The lowest was reported in Fatah Samepota (18.2%), which did not have a private health-care facility within 15km. Figure 5.2 shows women’s utilisation of family planning counselling from different cadres of health workers.

*Figure 5.2 Family planning counsellors’ utilisation across villages (n=669)*

The family planning counselling rate from LHWs was higher in Ali Malah and Fateh Samepota and lowest in Syed Peerani. The LHW of this Syed Peerani was a young unmarried girl, who felt embarrassed to talk about contraceptive methods, as culturally the reproductive health matters are only meant to be discussed among married women. Women also felt that as she was unmarried, and she had not experienced pregnancy or childbirth, she was not an appropriate person to provide contraceptive counselling. In Bashir Machi LHW utilisation as a family planning
provider was also poorly rated because this village was least covered by the LHWs due to its remoteness.

Family planning counselling from the LHV s was more evident in Tando Jhark, Syed Peerani, and Fateh Samepota because these villages are within three kilometres of the BHUs. The FWC were more popular among women of Ali Malah, Bashir Machi and Tando Jhark. It is important to mention that the FWC of Katcho villages also provide a private midwife who is well known for her midwifery services and family planning services. Women who seek care from her receive family planning counselling as part of her delivery care services, therefore the FWC utilisation was higher in these villages. Although her clinic was in Tando Jhark her patients travelled from almost all the study villages to receive midwifery services and family planning counselling.

5.2.5 Contraceptive methods

Every research participant who was interviewed and who participated in the survey possessed knowledge about contraceptive methods, which can be categorised as natural methods and modern methods. Table 5.3 shows the name of contraceptive methods and the most common source of knowledge about the methods.

<table>
<thead>
<tr>
<th>Contraception methods</th>
<th>Methods</th>
<th>Source of information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural methods</td>
<td>Breastfeeding and withdrawal</td>
<td>Family members, other women from the same para</td>
</tr>
<tr>
<td>Modern contraceptive methods</td>
<td>Daily contraceptive pills, injection (Depo-Provera), Implanon, intrauterine devices (IUD), tubal ligation</td>
<td>Other women from the same para, LHW, Family Health Officer, who was a midwife as well.</td>
</tr>
</tbody>
</table>

5.2.6 Natural contraceptive methods

Method: Natural spacing is the preferred birth method for women in the study villages. Natural spacing is defined as a combination of Lactational Amenorrhea Method (LAM) and withdrawal. Women who breastfeed exclusively and have not started menstruating are very unlikely to get pregnant during the first six months after
they give birth (296). The withdrawal method requires men to ejaculate outside the vagina keeping semen away from the woman’s external genitalia (296). Recent studies about the failure rates of withdrawal method have demonstrated that women face difficulty negotiating its use with partners because this method is predominantly under male control (172, 173, 297).

In Muslim traditions, this method is “allowed, or permissible” (298). Historically the Prophet Muhammad allowed this method to space births for the betterment of the mother and child. Similarly, breastfeeding for two years is also recommended in the Quran for every mother (unless a mother has health issues). Due to the LAM, a woman’s chance of another pregnancy is low, hence combining LAM with withdrawal reduces the risk of an unwanted pregnancy. This natural combined method is mainly used by young couples (with one or two children) because it is recommended and less harmful compared to modern contraceptive methods.

Exclusive breastfeeding is the norm until four months after childbirth, but it is generally continued until the baby is two years old. Weaning normally starts at four months. Breastfeeding is on-demand and is almost always exclusive breastfeeding if the mother doesn’t work. Aisha from Haji Buksh said that most working women leave their young babies at home to be looked after by an elder woman in the house (in most cases this is either her mother-in-law or her mother). Aisha’s baby was being looked after by her mother-in-law when she was at work. Her husband (who doesn’t work) brought the baby to her field site to be fed once during the day, generally before lunchtime. Then Aisha returned to her house at lunchtime and fed the baby. If the baby gets hungry outside these two breastfeeding events, the baby will be given water, honey, or black tea.

I do not take my baby to work. It’s very hot out there. I leave him with my mother-in-law. She looks after him, and when my baby gets hungry my husband brings him to my workplace. I also feed him when I go home for lunch. But sometimes when he cries a lot in my absence then my mother-in-law gives him sweet water or black tea.

(Aisha, 35 years, Haji Buksh)
5.2.7 Modern contraceptive methods

Women included in the study possess knowledge about modern methods such as condoms, daily contraceptive pills, implants, intrauterine devices, and tubal ligation. LHWs provide condoms and contraceptive pills free of charge to married women. LHWs also offer referrals to family planning consultants (public hospitals or family planning clinics) for Depo-Provera injections and IUDs which are available at a nominal rate in public and private family planning centres. Tubal ligation is free of charge in the public and private sectors. Below are findings about women’s views and utilisation of modern contraceptives in the Katcho area.

Condoms

Male condoms were recognised as a contraceptive method by all the study participants. Condoms are provided free of charge and distributed by LHWs to women in the community. However, only two out of 15 interviewees mentioned that they had used condoms, and then only occasionally, after the birth of their third or fourth child. Women said that their husbands were not comfortable using condoms. Shakila from Allah Dino (mother of four children) said that most men prefer not to use condoms, which is the reason this method is not commonly used. During sex, the man is in charge and if he prefers not to use a condom then no condom is used. She also added that while LHWs provide condoms to the community women free of cost, rarely are they used.

Yes, Nagina [the LHW] does provide us condoms, but to be honest I doubt if anyone uses them. Men are in charge of the sex activity and they are not very cooperative to use condoms. (Shakila, age 32 years, Allah Dino)

Oral contraceptive pill

Health workers who work in the study villages provide contraceptive pills to women who are interested in birth spacing. However, according to LHW Hamida, the oral contraceptive pill is the most unreliable method for the women because their daily routine is very hectic, and they tend to forget to take the pill every day. Due to non-compliance woman often end up having an unintended pregnancy and when this occurs they consider that it is a failure of the method:
In my 15 years of service as a health worker, I found this to be the most ineffective method for village women. They are very busy in their daily routine, and can’t follow up with their medicine schedule. As a consequence, when they get pregnant they often blame the contraceptive for being ineffective. (Hamida, LHW)

Nishat, a mother of four, used the contraceptive pill provided by the LHW after her third birth for about two months after the postpartum period. She found the oral pill to be ineffective as she became pregnant again. She believed that the oral contraceptive pill provided by the LHW had expired, therefore it was not effective in preventing pregnancy. Most of the Katcho women did not trust the quality of oral contraceptive provided by LHW or the public hospital facility.

That LHW must have given me expired pills. I used them but I still got pregnant. Another woman in the para used them and had severe abdomen cramps. (Nishat, age 31 years, Syed Peerani)

When I asked Nishat if she had taken the pill every day then she said that she was not completely sure about taking it every day. This is similar to the LHW Hamida’s views about women’s non-compliance and how that can potentially lead to an unwanted pregnancy. LHWs are the regular suppliers of oral contraceptive pills to the women who are interested in using this method. Nishat mentioned that when her supply of the contraceptive pill was finished she had to wait for the LHW to give her more of the drugs as there was no family planning clinic nearby. The time lag between women running out of condoms/pills and the LHW providing them contraceptives could cause unintended pregnancies. The nearest supply outlet, Tando Jhark, is about 15 kilometres away from Nishat’s village, and she does not visit Tando Jhark very often. While her husband goes to Tando Jhark he would not collect the contraceptive pills for her. Men in her community do not take responsibility for any form of family planning; it is the women’s responsibility to organise family planning if she wants to space her births.

Sometimes I had to wait until the next LHW visit after I finished my medicine pack. We do not have any family planning outlet nearby and my husband would never go and get one for me. Birthing and birth spacing is women’s responsibility in our community. Husbands
do not take responsibility for reproductive matters in our society.
(Nishat, age 31 years, Syed Peerani)

The cost of modern contraceptive methods is another factor. Women are provided with condoms and oral contraception pills free of charge by health workers through the Population Welfare Department and the Ministry of Health. For Nishat, it was unwise for her to go out of town to procure a modern contraceptive method which she can get free of charge in her village. She was happy to wait for the LHW’s next visit to obtain her personal supply of the oral pill if she ran out of the stock.

A private family planning counsellor said that in her experience women in urban TMK prefer contraceptive pills because it makes their periods regular. She also added that having regular menstrual cycles is a sign of fertility and women who want to bear more children are generally very concerned about the regularity of the menstruation cycle. A woman is likely to continue using any form of contraception as long as it does not affect her menstruation cycle.

Having an irregular menstrual cycle is the major concern for most of the women who seek reproductive health care. Any changes, major or minor, in menstrual cycle makes them worry that they have lost their fertility. (Family planning consultant).

This is in contrast to rural women, who think that taking any medicine for reproductive health problems or to prevent pregnancy will negatively affect their fertility. One such example was Shakila from Katiar who initially used contraceptive pills which was provided by LHWs during home-visit. However, after a couple of weeks, two women from her village who previously used this method told her the side effects of lighter periods and abdominal cramps; which is why she immediately stopped using oral contraceptive. Shakila did not discuss the discontinuation plan with the local LHW, stating that she did not want to harm her body.

I started taking those pills after my second baby, as the LHW of our village gave them to me. In a couple of weeks two of my family members from my para shared their stories about the side effects and then I immediately stopped using them. On the next visit of LHW, I simply told her that I did not want to use those pills. (Shakila, age 39 years, Katiar)
Intrauterine devices (IUD)

The copper IUD was mentioned by three women during interviews. The hormonal IUD had not been used by any of the women in the study. IUDs are available in the family planning centres in the TMK district. In Ali Malah, women from one para no longer use the copper IUD as a method of contraception because one of the women in the para experienced severe bleeding while using the method. Thereafter, women in the para (especially older women) advised younger women not to use the IUD as it is dangerous for their health.

Copper IUDs are available in family planning clinics in TMK. Dr Asma (a family planning consultant) mentioned that copper IUDs are not preferred by women in the TMK district due to their perceived side effects. She also added that another reason for poor IUD utilisation was because sometimes IUDs are expelled from the uterus into the vagina after the first few months of use, and in such cases, the male partner would feel discomfort during sex. Thus, women are reluctant to use it.

Oral contraception is preferable to IUDs because keeping something in their body is very frightening for them. Copper IUDs also tend to interfere with a couple’s sexual intercourse because of the long threads, hence their partners would not like that. (Dr Asma, Family planning consultant).

In some villages, women believe that the copper IUD can cause uterine cancer. Because it is a metal, it can poison a women’s uterus in the long run. It can make women infertile for their lifetime or it can cause uterine cancer and subsequent death. This belief is common among the elderly women, who advise other young women not to use the copper IUD:

The doctors place a metal object inside a women’s body which is very dangerous. I do not think that women should use that. The metal can poison the uterus and ovaries, and a woman may die after that. (Noora, age 75 years, Ali Malah)

Women with low parity were afraid of using IUDs especially because they have witnessed many women suffering from the side effects of IUDs such as an irregular or lack of menstrual cycle, back pain, interference in sexual intercourse, and their assumed association with uterine cancer.
Depo-Provera injection

None of the study participants mentioned having ever used the Depo-Provera injection despite its availability through LHWs, family planning clinics, and family health workers. One of the key informants mentioned that Depo-Provera is one of the safest contraceptive methods for village women because it is more private and LHWs can administer it at home or at their health centres. For women who find it hard to comply with the oral pill’s schedule or in situations where their husband refuses to use condoms, Depo-Provera provides the best protection for an unwanted pregnancy. It allows women to space their births and it is not a permanent contraceptive method.

I would rate Depo-Provera as the most reliable contraceptive method in the village context. Firstly, unlike oral pills, women do not have to remember to take it every day. Secondly, it is more private, so a woman can have it at their home, health centre, or family planning clinic without informing other people in the house or para. Thirdly it is also easy for women who wish to have a space between pregnancies, but their husbands are not willing to use condoms, which is very common in rural Sindh. (Hamid, age 49 years, key informant)

In private family planning centres staff offer Depo-Provera injections to women, but it is mainly used by women in urban areas. Rural women prefer not to use this method because it is hard for them to attend family planning clinics in TMK city to access the method. Travel time, cost, and mode of travel were the reasons that women gave for not travelling to the sites to obtain the Depo-Provera injection.

Implanon or birth control implant

Implanon is another unpopular contraceptive method among women because of the associated side effects such as heavy menstrual bleeding, pain at the site of implant insertion, nausea, and dizziness. The procedure is done by either a doctor or a nurse at a health facility. Women from Ali Malah mentioned that their LHW informed them that the method is the one with the least number of side effects. Following the advice of the LHW, Hina went to the nearest reproductive health camp organised by the Population Welfare Department with other para women. The Family Welfare
Counsellor along with FWWs provided services in the camp. The FWW was taking obstetric records and the FWC was inserting the Implanon. Hina said that she was pregnant at the time when that the Implanon was administered, and she was unaware of that.

When I went for the contraceptive method, I had periods in that month. After that, I saw two moons and there was no sign of periods, but after three months I found out that I was pregnant. (Hina, age 38 years, Ali Malah)

Like many rural women, Hina also used the lunar cycle to keep track of her menstrual cycle and at the time of implant, she was unaware about her pregnancy. Using a pregnancy test kit to confirm a pregnancy is not a common practice among rural women. Women generally calculate their pregnancy due date using a combination of the modern calendar and the lunar cycle. A similar story was shared by Haseena from Ali Malah who had Implanon on the advice of the LHW after her fourth child was born. According to her, the nurse who performed the procedure did not confirm her pregnancy before inserting the Implanon. She further added that women in rural areas are unlikely to know about the pregnancy until they are eight to ten weeks pregnant. She also thought that it was the nurse’s role to perform a pregnancy test on the woman before inserting Implanon to ensure that the woman was not pregnant beforehand.

Don’t you think it was the responsibility of the doctor to ensure whether I was pregnant or not? We are rural women; we normally know about the pregnancy in the second or third month, unlike women in urban areas who do pregnancy tests in labs or clinics. (Haseena, age 32 years, Ali Malah)

When Haseena did not menstruate after Implanon she thought it was the side effect of the method. After five months with an enlarged abdomen, she called a dai to check to see if she was pregnant. The dai confirmed that she was about five months pregnant. After she found out she immediately went to the doctor and asked to have the Implanon removed.

The doctor at the clinic knows this really well, but she just did not do her job well. It was me who had to suffer in the end. I won’t use this
method again in my life. It was so painful and unreliable. (Haseena, age 32 years, Ali Malah)

She was very disappointed by this as her reason for using contraceptives was not fulfilled. She also added that she knew two other women who went with her in that camp, and they had to go off to the Implanon later because of heavy vaginal bleeding. Women from the same para were very upset about Haseena’s situation and the poor practices of the doctor who administered the Implanon. Now they all are strongly opposed to the use of Implanon and said that they would never use it.

**Tubal ligation**

Tubal ligation is the preferred contraceptive method amongst older reproductive-aged women. In cases where couples do not wish to have more pregnancies, women undergo tubal ligation because it is reliable and permanent. Women prefer this method because there are no reported side effects after the procedure. In Katcho it is widely accepted for women to undergo tubal ligation after having five or six children as it is a desirable family size.

I think tubal ligation is the easiest way after completing a family, say after five or six children. It is permanent, and it does not have any side effects. It is also cheap because we do not have to pay anything for it. (Hamida, LHW, Tando Jhark)

In the last five years, tubal ligation has gained popularity among older women because the procedure is free of charge in a public hospital, plus women receive a financial incentive from the hospital or family planning clinic once they undergo the procedure. Women who wish to undergo a tubal ligation are identified by LHW, or sometime women contact the LHW to organise the procedure. The LHW will then communicate with the public hospital and organise the date for the procedure. Travel costs to and from the health facility for the procedure are either reimbursed by the health facility, or the LHW organises an ambulance to take a woman to the hospital. After the procedure, a woman is given the transportation cost (return fare) if she has not used the ambulance service—a monetary incentive of PKR200-400 (AU$3 to AU$5), and light food after surgery (generally juice and biscuits). The LHW also receives PKR200 per referral.
The same procedure is also offered free of charge at private family planning clinics in the TMK district. The private clinics are in the district centre so many women from nearby villages attend the private family planning counsellor rather than going to the public hospital at Hyderabad. In an interview with a doctor at the private family planning clinic, she reported that she performs 50-60 tubal ligations each month for women in all the districts. She said that tubal ligation is in high demand for women of Katcho village especially among Hindu women. According to the doctor, Hindu women are poor and most of them work as agricultural labourers. They cannot afford to have more children, and there is no religious implication in relation to contraceptive methods, so they prefer tubal ligation once they feel that they have their desired family size.

I have worked here since 2008. I have noticed that women from rural areas prefer tubal ligation more than any other contraceptive method. In Katcho region, it is more common in Hindu communities, because in the Hindu religion birth spacing is not forbidden. (Dr Asma, Family planning counsellor)

Tubal ligation is convenient for village women because it does not require follow-up appointments as is the situation for women who take the oral pill and Depo-Provera injections. Other positive aspects of tubal ligation are that the services are provided free of charge in a public hospital and that there are no adverse side effects reported by women. CMW Sadaf from Tando Jhark mentioned that tubal ligation is the best way to limit family size, especially for poor women in rural areas. She herself had had a tubal ligation and she was very happy with her decision.

FWC Nuzhat mentioned that women tend to delay using any kind of contraceptive methods unless they have reached their desirable family size. Due to their poor nutritional status and lack of utilisation of contraceptive methods, they tend to have short-spaced pregnancies, recurrent miscarriages, severe iron deficiency, and adverse birth outcomes. Tubal ligation is an efficient contraceptive method, but by the time they decide to have a tubal ligation, their physical health has been significantly compromised.
While tubal ligation is a safe contraceptive method, the delay of seeking reproductive health care affects women’s bodies before they decide to take control of it. (Nuzhat, FWC)

Nuzhat’s point of view was validated by the survey participants who underwent tubal ligation after many unwanted pregnancies, miscarriages, stillbirths, or neonatal deaths. Nazia from Fatah Samepota said that after she gave birth to 12 children and suffered three miscarriages she went to the reproductive health camp organised by the private family planning centre for a tubal ligation. Nazia was an agriculture labourer and had all births attended by a dai.

Nazia thought that due to the lack of effective contraception counselling and utilisation of appropriate family planning methods, women like Nuzhat end up having unwanted pregnancies and miscarriages. Another woman, Saima, from the same village, mentioned that she had 11 births and five of the births resulted in adverse outcomes (three miscarriages and two stillbirths). She went to the private family planning clinic and was given a copper IUD. After the side effects of the IUD, she had the IUD removed. Saima then asked the LHW in her village to organise a tubal ligation for her.

I had 11 pregnancies which included six live births, three miscarriages, and two stillbirths. After that, I got an IUD inserted from a private family planning clinic. However, soon after the IUD insertion, I had heavy bleeding as a side effect of the IUD and I had to discontinue it. Now I am thinking of using tubal ligation; I have already discussed that with the LHW and she will organise that for me. (Saima, age 32 years, Fatah Samepota)

Myths and beliefs around contraception and its real side effects are the biggest barriers causing a lack of utilisation of contraception. Neelam (mother of five children) from Syed Peerani had two miscarriages after four live births. She was advised by the doctor to use a contraceptive method for a few months to prevent an unwanted pregnancy. The doctor suggested that she use Depo-Provera injections and she agreed, however, she soon experienced unexplained bleeding and so she decided to stop having the injections. After two months, Neelam consulted Nuzhat the midwife at Tando Jhark who recommended a copper IUD which resulted in bleeding, so she
stopped using that method. So Neelam decided to stop using any kind of contraceptive method because they did not suit her body.

The private doctor recommended that I have injections, and FWC Nuzhat recommended that I use IUD. None of them suited me so I left both. (Neelam, age 32 years, Fatah Samepota)

Amongst Katcho women, a method’s failure has significant implications not only on the woman’s future reproductive decisions but also on other women who are associated with her, such as her neighbours, relatives, and other village women because they all hear about each other’s reproductive health experiences. Conversely, both study participants and community health workers (LHW and CMW) think that since there is no side effect of tubal ligation, which is why the method is gaining popularity among Katcho women.

5.3 Phase 2: Antenatal care

During pregnancy, every woman should be provided with essential ANC services which include identification and management of pregnancy induced hypertension, iron deficiency anaemia, HIV and AIDS, syphilis, and other STIs. Counselling about breastfeeding, healthy eating, early PNC, and planning for optimal pregnancy spacing is integral to the ANC services (83).

5.3.1 Lack of knowledge about pregnancy complications

In study villages, pregnancy is considered to be a normal event in a woman’s life which comes with pain and discomfort. Every woman interviewed in this study said that swelling, night blindness, and dizziness are normal events that occur in pregnancy. Pregnant women with vitamin A deficiency are at increased risk of night blindness, however, with an adequate dose of vitamin A, the severity of maternal night blindness can be reduced (299). In the study villages, night blindness was reported by many women, however, none of these women consulted a doctor for this problem.

In pregnancies which are not progressing normally, for example, if a woman has severe cramps, abdominal pain, spotting or vaginal bleeding, then she would seek professional care from doctors or private midwives as they are considered to be more resourceful and knowledgeable about pregnancy complications. Private practitioners
were the most utilised providers (46.2%) amongst the study participants. This antenatal consultation from private practitioner can occur from early in the first trimester right up until the childbirth.

If the pain is unbearable, or a woman has bleeding or abdominal pain only then would she visit the doctor. In our para, we usually go to Dr Alishba at TMK city for complicated cases. She is a very wise doctor, and very experienced as well. (Zubia, age 31 years, Bashir Machi)

5.3.2 ANC providers in Katcho villages

ANC is provided by the LHVs, midwives, and CMWs in health facilities, whereas dai occasionally visit pregnant women’s homes for ANC services. Figure 5.3 shows the utilisation of ANC providers in the Katcho region.

*Figure 5.3 Women's utilisation of ANC providers in the Katcho region (n=669)*

Nearly a third of women (29.9%) said that they received home based ANC services from an LHW. However, women think that these visits by LHWs to provide ANC are not very effective; they consider that they are just a record-keeping activity. According to Khurshid, LHWs collect information about the pregnant women (e.g. month of pregnancy, due date, planned birth attendant) and administer the tetanus toxoid vaccination. She also compared the LHWs with other local NGO workers who provide nutritional supplement and energy biscuits to the malnourished population.
Women feel that the NGO workers provide ‘something’ to women which is different from the LHWs who just come and talk.

The LHW comes during pregnancy to keep a record of it on her register, and to administer the pregnancy vaccination [TT vaccination]. They do not provide medicine or anything like that. The other lady from NGO provides biscuits [energy biscuits] and medicine [nutrition supplement] but the LHWs do not. (Khurshid, age 32 years, Syed Peerani)

Only 1.5% of women had used CMW services during pregnancy. The CMWs had been providing pregnancy and childbirth services for 10-12 months prior to the study, compared to the LHWs and LHV who had been providing home-based and facility-based ANC services respectively for many years in Katcho villages. There were two CMWs responsible for the Katcho region; one CMW was running a functional clinic, and most of the women sought her services for delivery care only, whereas the other was waiting for MNCH assistance to establish her CMW clinic and is not providing home-based services.

Only 20.3% of women received ANC services from a dai during pregnancy. Dais visit women and perform a routine check-up late in the third trimester to check baby’s movement and position to inform mother and the family whether a normal delivery is possible. Women do not make earlier routine antenatal check-ups with the health professional (such as a midwife or private doctor) because it involves travel costs, time, and a person has to accompany the women to the facility and they too are required to take a day off their agricultural work (see Appendix 8 for ANC cost breakup). Some women, however, prefer to have at least one antenatal check-up with an SBA in the second and last trimesters to ensure the health of mother and baby. This practice was more common among housewives (56.5%) as compared to agricultural workers (41.6%) or those who worked as a tailor at home (1.9%).
LHV utilisation was noted among 14.2% of women. ANC utilisation at BHU was more common among women who live within two kilometres of the BHU as in the case of Fatah Samepota, Syed Peerani, and Tando Jhark (see Figure 5.4). Women from Fatah Samepota and Syed Peerani also spoke highly about the LHV s who work in the BHU at Syed Peerani and said they were very diligent and polite and felt that their behaviour encouraged a lot of women in the villages to seek care from the LHV in the BHU.

### 5.3.3 Prenatal vitamins

According to Dr Rehmat at the Tando Jhark BHU, the FWC and private midwife Nuzhat, and the CMW Sadaf, pregnant women in the study villages suffer from iron deficiency anaemia, and vitamin A and D deficiency. Women considered dizziness, rapid heart rate or palpitations, shortness in breath, and night blindness as normal conditions associated with pregnancies that do not require medical treatment. Prenatal vitamins such as iron, calcium, or folic acid supplements are not taken by women at any stage during their pregnancy because they are expensive and are considered not useful for the normal conditions of pregnancy. In Pakistan, a private doctor’s consultation fee includes some medicines (e.g. pain relief medications) which are provided by staff in the clinic. However, doctors prescribe medicine (e.g.
antibiotics or vitamins) which the patient needs to buy from the pharmacy. Women considered that these medications are extras, a waste of money, and of limited value during pregnancy, and therefore they do not buy them from the pharmacy.

I do not buy those additional medicines from a pharmacy. I think they are very expensive and not very useful. We just take those that the doctor gives from her clinic. (Hina, age 38 years, Ali Malah)

Women who used ANC from the BHUs are prescribed prenatal vitamins by the doctor. These medicines are freely available from the public dispensary (pharmacy) which is one kilometre from the BHU Tando Jhark, and not directly accessible by public transport. To get there, women have to pay an additional travel cost. The public dispensary is located in a very quiet location and, for safety reasons, women prefer not to go there despite the medications being free of charge.

The pharmacy is free but it’s far from the BHU. No public transport goes there. To get to there we have to pay extra money for a rickshaw. It’s in a very quiet area too, and I do not think it is safe for any women, even if we go in a group. It is not very safe. (Hina, age 38 years, Ali Malah)

5.3.4 Blood transfusions

Iron deficiency anaemia is prevalent in the study villages. Of the 15 women interviewed, three women mentioned that they had received a blood transfusion in at least one pregnancy and all transfusions had taken place in private clinics in TMK city. These women did not take any prenatal vitamin supplements (such as folic acid, iron, iodine, or calcium) during pregnancy. Nishat from Syed Peerani mentioned that she had received a blood transfusion in the last trimester of pregnancy because she was anaemic. She said that the doctor told her about the abnormalities that the baby may acquire if she did not take prenatal vitamin supplements. Aisha, who had 10 pregnancies and five live births, had two babies delivered by a dai, and the following five pregnancies resulted in three miscarriages and two stillbirths. All three miscarriages occurred in the third trimester of pregnancy. Following a stillbirth, in her ninth pregnancy, she went to a private doctor to find out why her previous pregnancies had adverse outcomes. The doctor told Aisha that she had severe anaemia
and needed a blood transfusion. The blood transfusion resulted in a subsequent healthy pregnancy.

After losing five babies I went to the doctor. The doctor told me that I was anaemic and required a blood transfusion. That pregnancy resulted in a live birth and also the next pregnancy, but both times I had a blood transfusion. (Aisha, age 35 years, Haji Buksh)

However, there were also women who could not afford the cost of a blood transfusion. Hina from Ali Malah was recommended to have a blood transfusion along with prenatal vitamins, but she did not follow her doctor’s orders because it was very costly.

Every time I went for antenatal check-ups the doctor said that I was very anaemic and should have a blood transfusion. I am very poor; I could not afford the pharmacy medicines and also the blood drip. I just continued my pregnancy without them. (Hina, age 38 years, Ali Malah)

Hina was an agricultural worker who worked long hours in the fields. She was severely anaemic, and her dietary intake was not sufficient to rectify her iron deficiency anaemia. Hina was poor and unable to seek the essential ANC recommended by the doctor. Her non-attendance at the ANC clinic and not taking prenatal vitamins resulted in Hina having a miscarriage.

5.3.5 Ultrasound

Providing women with multiple ultrasounds during their pregnancy is a recent trend in which is increasing in popularity among rural women as well. Ultrasound facilities are available in both BHUs at Syed Peerani and Tando Jhark. Sonographers are available at the facility once a week. The doctors working in these BHUs mentioned that they had more patients presenting for ANC on Saturday as it is the ‘ultrasound day’. Women believe that ultrasound is the best way to identify any problems with the foetus and the mother during pregnancy. Women consider ultrasound is more than a diagnostic test and can cure their pregnancy problems. It is considered as a means to diagnose and treat complications during pregnancy.
I had three or four ultrasounds in my last pregnancy. Whenever I have pain I go to the doctor and she does an ultrasound and tells me what is wrong. (Nishat, age 31 years, Syed Peerani)

In my observation, women who recalled having more than four scans during a pregnancy were not the women with pregnancy complications but the ones who happened to visit the doctors who had an ultrasound machine in their clinics. Moreover, according to the women interviewed, private doctors who have an ultrasound machine in their clinic have more clients and are considered to be more thorough and experienced than those doctors without ultrasound services. Their fee for service is also higher compared to the doctors who do not have an ultrasound machine.

I go to Dr Naila who is a private doctor. She checks blood pressure, weight, and ultrasound on every ANC visit. She is very thorough and experienced. I feel more comfortable about my pregnancy after an ultrasound. (Haseena, age 32 years, Ali Malah)

The use of ultrasound during pregnancy may be a good diagnostic tool for early identification of fetal abnormalities, however, its medical use in only recommended under certain conditions. Since interviewing private midwives and obstetricians was out of the scope of my study, I cannot say with certainty the conditions under which women were asked to undergo more than four scans. Having said that, given the growing trend of having ultrasound for every ANC visit, there is a need to investigate whether the use of ultrasound in private clinics is according to the medical standards.

5.3.6 Tetanus toxoid (TT) vaccinations

The WHO (2006) recommends that pregnant women have two doses of tetanus toxoid vaccination if it is their first pregnancy and a booster vaccination in every following pregnancy. According to the recommended guidelines, the two doses in the first pregnancy should be four weeks apart, however, some health providers prefer to provide the vaccine in the first and second trimester (300).

The LHWs are responsible for administering the tetanus toxoid vaccination and maintaining records of every pregnant woman and their immunisation status. There were a number of women who had refused to have a tetanus toxoid vaccine because they considered that it was not useful; in their earlier pregnancies, they did not have
the tetanus toxoid vaccine and the pregnancy was uncomplicated. Women were not aware of the efficacy and benefits of the vaccine.

I never had the TT vaccine during pregnancies as I do not find it useful. I had four children and all of my pregnancies went well without having a TT vaccination. I had no complications at all during and after delivery, so what is the point of having these injections which will only cause pain and swelling afterwards? (Zahida, age 34 years, Tando Jhark)

Another reason woman gave for declining the tetanus toxoid vaccine was because it sometimes caused temporary swelling or pain at the site of the injection. Women from Fatah Samepota and some from Tando Jhark said that they didn’t want to have the tetanus toxoid vaccine because it causes swelling of the arm and therefore they are unable to use their arms to perform their domestic and agricultural work. Women also believe that the LHWs are not adequately trained to administer injections.

The LHW comes but my para women are afraid of syringes and needles. They believe that the tetanus vaccination causes swelling in the hands, which will disrupt them from taking on their daily routine. (Zubia, age 31 years, Bashir Machi)

One of the LHWs said that they do not administer the tetanus toxoid vaccine until a woman is seven months pregnant because if a woman has a complication after the vaccination that has nothing to do with the vaccine, they would consider it to be a side effect of the vaccination.

We would not administer the TT vaccination until a woman is five to six months pregnant, because, God forbid, if anything happens to them, they would start blaming us and the vaccine for that. (Shakila, LHW)

5.4 Delivery care

As part of the continuum of every birth must be attended by a SBA who have access to essential supplies and medicine required for normal pregnancy management. In cases of obstetric complications, women should be immediately transferred to higher level of care.
In Katcho villages there were five types of birth attendants mentioned by women: doctors from public hospitals, LHV, community midwives, private practitioners (include private doctors and midwives), and dais. Figure 5.5 shows the overall birth attendant utilisation in study sample which include 2,944 births from 669 women.

Figure 5.5 Women’s utilisation of birth attendants in the Katcho region (n = 2944)

Dais (54.6%) and private practitioners (36.9%) were the main birth attendants utilised by women and they attended 91.5% of all births. Doctors in public hospitals, LHV, and CMW attended less than 10% of the births. In qualitative interviews, women from all villages said that they would only seek assistance from a doctor, LHV, CMW or midwife if their birth was complicated. Women defined a complicated birth as one when the baby is overdue, prolonged labour when induction becomes necessary, and placenta previa issues. In cases where labour progresses well the birth is attended by a dai. The utilisation of doctors in public hospitals was very low (0.78%–8.47%). Women reported that they sought care in two hospitals; one in TMK city, which is a secondary care hospital, and the other hospital was the Civil Hospital Hyderabad, which is a tertiary care hospital 100km away from TMK city. Only complicated births were referred to these hospitals. The utilisation of LHV and CMW at birth was very low across all the villages. Figure 5.6 shows women’s utilisation of birth attendants in the Katcho region.
Nearly half of the total births (n=2,869) in each study village were attended by a dai, followed by private practitioners (private doctors and midwives) who attended about a quarter of births in the study sample. Bashir Machi has the highest utilisation of dais (67.1%) at delivery and the lowest utilisation of private practitioners (29.5%). This village is the most remote among all the study villages and is far from the main city; there is no proper road network connecting this village. On the contrary, women from Tando Jhark had the second highest utilisation of dais at birth and this village is where the BHUs, private clinics, and CMW clinics are located within walking distance from the village.

### Home births and the role of dais

As in many rural villages in Pakistan, birthing at home is a tradition of women in Katcho villages. Young girls grow up observing their mother, sisters, and other women in the para birthing at home and consider that it is convenient and safe as did their mothers and grandmothers before them. A dai is considered to be the most knowledgeable and the primary source of information about childbirth. Young girls grow up knowing their village dai and share a connection with her, knowing that she will be someone who will help them in childbirth in the years that follow. This
familiarity makes women comfortable to share their feelings with the dai and ask for help when needed.

When I was a young girl, I knew that this woman [dai] was going to help me to become a mother. She is familiar to all of us and known for her work. (Sara, age 23 years, Haji Buksh)

When a woman is in the early stage of labour, elderly female kin will be called and asked their opinion on the woman’s progress and will advise the woman and her family when it is time to call the dai. The mother is instructed to walk and drink castor oil, and in some families, the women are given warm milk with raw egg to accelerate labour naturally. The dai will then examine the stage of labour and also if the woman can have a normal birth. If the dai thinks that the delivery is not possible at home, then she refers the woman to the skilled birth attendant. The dais in the study villages were considered to be very reliable when detecting birth complications and making referrals for women to seek emergency obstetric care.

Of my 10 children, nine were born at home. I am very satisfied with my dai. At the time of birth of my seventh baby, he was not engaging in the pelvis. The dai waited for three hours, but then she asked my husband to take me to the hospital. (Aasia, age 39 years, Haji Buksh)

When I asked Aasia whether she had any role in deciding the place of birth in case of complications, she replied that such decisions are taken jointly by the woman, dai, and other family members, considering their financial resources, the time (day or night), and the women’s health condition. If they decided to refer women to the BHU the dai accompanied her to the hospital and explained her situation to the health staff at the BHU.

The dai took me to the BHU and described my condition to the doctor there. The dai understands more about labour and birthing and can easily communicate with the doctor. I find it really hard to explain myself to the doctor, especially when I am in immense pain. (Asia, age 39 years, Haji Buksh)

A dai also works as a communication agent between the woman and the health staff. She describes the woman’s condition to the doctor or midwife on arrival and may share her opinions about the progress of the woman’s labour. She navigates the barriers
between the women and doctor/LHV. For example, women like Aasia felt that it was hard for them to communicate with the health staff or doctor at the health facility especially during labour, so having a dai present was helpful to explain the progress of the labour, enhance communication between the doctor and dai, and assist during the birth. In public hospitals, normal delivery is free of cost. There is either an LHV, midwife, or a doctor who will supervise the delivery. Post-delivery care like the removal of the placenta, cleaning the woman, and the birthing site is done by the dai. According to Nida, if a woman brings her own dai then her dai will deliver the placenta and clean the birthing site. If there is no dai then the hospital staff will do the post-delivery care. However, having their own dai provides a sense of satisfaction and comfort to the birthing women.

If a dai comes along with me to the facility she is supposed to assist in placenta delivery and clean the birthing site. If I had gone by myself to facility, the facility staff would have done that. (Nida, age 28 years, Haji Buksh)

5.4.2 Accessibility of the dais

As mentioned in the previous chapter, Katcho villages are located far from the main roads, and the villagers have limited access to transport during the day and no public transport is available at night. In most of the villages, the bus stop is about 30 to 40 minutes’ walk from the main village. When a woman is in labour, the family members request that someone else in the para who owns a bull cart or motor bike takes the woman to the nearby bus stop so that they can catch the bus to the health facility. This was one of the main concerns women had about accessing transport at the time of labour. Dais generally live within walking distance from the woman’s house and are available 24 hours a day. Zahida from Tando Jhark said that dai in her village come at all hours of the night to assist women in childbirth.

I had four babies delivered by our village dai. The great thing about having your babies with a dai is that you do not have to worry about arranging transport and a doctor’s fee. A dai will come to your house even at midnight or 2:00am to deliver the baby at nominal cost. (Zahida, age 34 years, Tando Jhark)
Zahida also added that dais are especially useful in emergency situations such as rains, floods, public holidays, or strikes, and for women who live in remote villages. She remembered when one of her children was born during the heavy monsoon rains, which occurred on a public holiday. Zahida said that it was impossible to organise transport to take her to the health facility to give birth because of the bad weather and the public holiday. Fortunately, a dai lived 100 meters from her house, which allowed her husband to bring the dai to their house. The weather conditions were so bad that her husband had to use a donkey cart to bring the dai to their house because it was too difficult for the dai to walk outside in that weather.

My third child was born during the 2012 monsoon season. It was Ashura [10th Muharram, a public holiday]. It was not really flooding in our village, but the rain was so heavy that I couldn’t have imagined stepping out from my house in labour. My husband informed our neighbour, a dai, and she came with my husband on a donkey cart. She was only 100 meters away, but due to puddles, it was impossible to walk at that time. It was a public holiday as well, so public transport was also unavailable. Had I decided to go to the health facility instead of using a dai, my baby would not have survived.

(Zahida, age 34 years, Tando Jhark)

Zahida had immense respect for her dai as she believed that the baby would have died if the dai had not come to assist her in childbirth. Due to the poor weather conditions, it was impossible for her to reach the health facility where there may not have been enough health staff on duty as it was a public holiday.

5.4.3 Affordability of maternity care

Another important factor the women consider when choosing their birth attendant is affordability. Dais in the Katcho area accept between PKR200-500 per delivery, in contrast to PKR1500-2500 by private practitioners (see Appendix 8). Depending on a family’s financial circumstances, a dai might be given a new dress, sweets, or raw food items (such as some flour, rice or sugar) as a gift of appreciation for her services.
In most childbirths that I explored in Katcho villages, the dai was related to the woman either through her maternal family or because she was an in-law. In situations where the dai is the mother-in-law or mother of the woman birthing then her services are provided free of cost. But when a dai is not a close relative she will still consider a woman’s financial status and charges them accordingly. In many cases, dais assist women in childbirth free of cost when the woman is from a very poor family. Aisha from Haji Buksh admires dais because they help women regardless of their financial status, unlike the private facilities which do not discharge woman until they pay their account.

5.4.4 Behaviour of staff at public health facilities

Dais and private practitioners are the main delivery-care providers in the study villages. One of the main reasons that women did not utilise the public health-care facilities was because of the behaviour of medical staff. In Ali Malah Brohi para women said that they would prefer to die at home rather than to go to the public hospital because of the staff’s attitude in the hospital. According to the women, the doctors do not pay attention to poor patients and give patients the same medicine for every illness they treat. Some women said that they went to the public hospital because it is free and close to their village, but the staff behaviour was so rude that they decide not to go to the facility again. During labour, the LHV and midwives scream and yell at a woman to push, and look down on a woman’s wisdom in pregnancy and birthing matters.

We scream and shout in the hospital, but they [facility staff] won’t pay even a little bit of attention to our problems. The staff at the BHU are very rude. They would not care if the woman is complaining about something, and they look down on our knowledge of pregnancy and birthing. (Wajiha, age 28 years, Ali Malah)

It was also similar for those who had a birthing experience at a secondary-care hospital. Rahat mentioned that she was slapped by one nurse in the labour room because she was unable to push the baby out and because she was screaming due to the intense pain. The nurse also told Rahat that she was illiterate and did not understand and follow the instructions given to her by the nurse. Rahat was distressed by this
altercation and decided that she would never return to this district hospital again to give birth or to seek any kind of medical services.

She slapped me really hard. I couldn’t control my tears; she asked me to behave nicely or she wouldn’t attend the delivery. She thought that I was not cooperating with her. (Rahat, age 36 years, Ali Malah)

Unlike public health staff, the private midwives and doctors are well liked by the women because of their polite attitude and pleasant personality. Women from Ali Malah had an immense respect for a private midwife Nuzhat, known as Baji (which means elder sister) because she treated them well regardless of their caste and financial status. Rahat from Ali Malah added that midwives in private clinics are friendlier and are nicer towards the woman during birth. Midwife Nuzhat remains very calm when the women are in labour and shares jokes about labouring and birthing so that labouring women remain stress free. She would also allow other women from family into the birthing room and tried to make the woman happy and comfortable during the birth.

You know Baji [the private midwife] told me funny stories about other woman during labour to keep me calm and worry less about birthing. This is very different to going to the public hospitals, where the medical staff would scream and shout. (Rahat, age 36 years, Ali Malah)

5.4.5 Unsafe practices associated with labour augmentation

In Katcho villages there is a traditional belief that if pregnant women with prolonged labour travel to a health facility in a bull cart it will accelerate the woman’s labour. In the study villages, it is a common practice for women in labour to be taken to the health-care facility on a bull cart if she is not progressing well. She takes with her the baby bag, a bed sheet, water bottle, and razor blade or scissors in case she delivers along the way to the health facility.

At the health facility, the LHV, midwife or the doctor (public or private) induces labour using a Syntocinon intravenous therapy. In most cases, women remain in the facility until childbirth. However, there were situations when women could not afford a private practitioner’s fee or they did not wish to give birth in a public hospital setting. On these
occasions, women asked for a Syntocinon intravenous therapy to induce labour, and upon completion of the intravenous therapy, they returned home. The births were then attended at home by the same dais who accompanied the women to the health facility. This practice is against the WHO protocol of labour induction which states that induction should only be performed when there is a clear medical indication and the expected benefits are higher than the potential harms (301). It should only be done by medically trained personnel (such as doctors or midwives), and it is best if it can be conducted in a facility so that the patients can be looked after in cases of failed induction, which leads to an emergency caesarean section (301).

Nishat said that if a doctor or a nurse performs a labour augmentation drip (Syntocinon IV therapy) and does not conduct the delivery then they will charge much less than the delivery package which includes hospitalisation charges, doctors’ fees, and the cost of medicines. In private clinics, an induction costs women PKR800 (AU$10) compared to the normal delivery package which is between PKR1,500-3,000 (AU$19-38) with a private doctor and PKR1,000-2,500 (AU$13-32) with the midwife (see Appendix 8).

Induction and normal delivery is free in a public hospital. But most of the women preferred not to wait in the hospital facility after induction; they wanted to return home. As mentioned above, women prefer to give birth at home with a dai. Also, after giving birth in a health facility they want to reach home in daylight hours as there is limited transport to their village at night. Finally, they avoid staying in the public health facility due to the behaviour of the staff. While some women were fortunate enough to reach their home before giving birth, other women gave birth on their way home. Nishat from Syed Peerani had six children. She mentioned that her third baby was born on the roadside. She was induced by a private midwife in a health facility and was returning home to give birth with a dai. But then she went into active labour along the road they stopped and the dai attended her delivery.

I was coming back home after being induced. We thought that I had enough time that I could reach home, but then the baby was coming out. So we stopped the bull cart and my dai took me to the roadside where I delivered my baby. (Nishat, age 31 years, Syed Peerani)
According to Nishat, women who have an induced labour in the health facility with the intention of delivering at home, know that the delivery can occur on the way home so they go well prepared. I asked Nishat whether she knew about the risks associated with leaving the health facility after an induction and she said she didn’t know of any risks. Nor could she recall receiving any instructions from the LHV after induction or in preparation for her return trip home.

Nishat felt that having an induction in a health facility and then returning home to give birth was a cost-effective and time-saving option. She considered that there were no associated risks or harm to the mother and baby if the delivery occurs at the roadside. However, she did mention feeling embarrassed to deliver this way. Women consider birthing to be a private matter, so having a roadside birth would place all birthing woman in an awkward position.

I do not find it risky or unsafe. The dai will look after me anyway, be it home or the roadside. But of course, no one wishes to deliver this way, it’s very embarrassing. (Nishat, age 31 years, Syed Peerani)

Another woman, Zubia from Bashir Machi, mentioned that her labour was not progressing well and the dai referred her to the health facility. Bashir Machi is, as mentioned earlier, the remotest of all villages in the study site and had limited transport. The only option available to her at that time was her husband’s motorbike, but she said that she was so tired because she had been in prolonged labour that she could not travel on the motorbike. Her husband went to the CMW clinic in Tando Jhark which is 15 to 18km from her house. The CMWs who work in Tando Jhark were responsible for looking after all the women who birth in the Katcho area. The CMW can conduct the delivery either in the CMW house/clinic or at the woman’s house, whichever place is most convenient for the woman. In this case, the CMW was a Syed woman, who was not allowed to go into another caste’s para. She could only look after people of that caste in her own clinic. So instead of the CMW, her husband Mr Hussain, who was not a trained male nurse, went with Zubia’s husband and he administered the Syntocinon intravenous therapy. Mr Hussain, a primary school teacher, had learned to administer intravenous therapy and injections from his CMW wife. He went with Zubia’s husband on his motorbike to their house and administered Syntocinon to Zubia who was in established labour.
I had a prolonged labour and after 12-14 hours my dai said that I needed to be induced. My husband called CMW Sadaf but since Syed women are not allowed to go in others’ paras, her husband [Mr Hussain] came to administer the drip [Syntocinon] instead. He took PKR1,000 [AU$12.25], which include PKR800 for medicine and PKR200 for his return travel. After that my dai helped me with the delivery. (Zubia, age 31 years, Bashir Machi)

There are four important issues in this case. Firstly, the dai’s delayed identification of the severity of the situation put Zubia in a position that she couldn’t travel on the available vehicle. Secondly, the remoteness of her village and lack of transportation: the only option available to her was the motorbike and she didn’t want to travel on the motorbike because of her condition. Thirdly is the caste system which restricted the CMW’s access to her patients in their house. The Syed caste is the most religiously conservative caste and the Syed women mostly remain in their house unless there is an emergency. Despite the fact that a CMW should assist woman in childbirth in their home, she could not do so because of cultural barriers. The fourth issue to note is the administration of the drug Syntocinon by a school teacher who was not trained to attend a childbirth, induce labour, or provide emergency obstetric care if women have childbirth complications. As Zubia did not have access to transportation she was placed in a situation where she and her baby were at significant risk of death.

5.5 Postnatal care

Once the baby is born, the essential PNC services should be provided to prevent the incidence of postpartum haemorrhage or sepsis. In addition, women should be counselled for breastfeeding and maternal-appropriate nutritional intake in terms of food and multi-vitamins (83). Family planning is recommended as an essential counselling service at the postnatal phase, and providing knowledge and access to contraception will protect women against unwanted pregnancy.

Women considered PNC as post-birth care by a dai, which includes massaging of woman and the baby as well as domestic help. A dai does this for women in postpartum for seven to ten days. Depending on a woman’s financial condition, a dai would be paid PKR50-100 for these services. This is an additional benefit of having a dai as a birth attendant because women can have additional support at home after childbirth.
A dai will come for five to seven days post-delivery to massage and help in some household chores. Sometimes when she is busy massaging the baby I will tidy up my house and kitchen. That’s a great help. (Aansa, age 32 years, Tando Jhark)

As described in Chapter 4, women with more than two children are more likely to live as nuclear families. In such cases, the dai provides additional domestic support such as washing clothes and cleaning the house, which is valuable for these women during the postnatal period. Rasheeda from Tando Jhark who lives 500 meters away from the BHU and about the same distance from the skilled midwife’s house, said that her first two babies were delivered by the midwife in her clinic and the third baby was born at home with the support of the village dai. She thought that birthing at home was more convenient especially when there is limited extended family support to look after the older children.

I do not live in a joint family system where I will get family support to look after the kids. The best thing about home birth is that you get extended support from a dai in terms of looking after the baby, massaging, and some help in domestic chores. (Rasheeda, Tando Jhark)

Rasheeda was living in a nuclear family and she didn’t have family support during childbirth and the postpartum period. A dai helped her with the domestic chores for the first five days after the birth. She considered that the dai’s post-birth support was immensely helpful, and she was able to return to her routine domestic chores on the fourth day after childbirth.

Women did not see the necessity to receive professional counselling or PNC services after childbirth. Those who visited the doctor after childbirth did so because of postpartum bleeding, painful stiches, or abdominal pain. Healthy postpartum women do not consider that they need to attend PNC with any health-care professional such as doctors or midwives as it would require time and money. It is also difficult for women to take their newborn to the health facilities because of a lack of transport in Katcho villages, travel costs, and the doctor’s fee.
What you think of as prevention is a cost to a poor woman. Getting to a hospital facility—that too with a newborn is not an easy thing. (Zahida, age 34 years, Tando Jhark)

5.5.1 PNC providers across villages

Of 669 women, 44% of women used PNC services from LHWs, LHV s, CMWs, and Private Practitioner (PP). A dai is the most preferred PNC provider (53.5%) who provides domestic support, followed by an LHW (23.2%) who conducts home visits to postpartum women. The choice of PNC providers was, like the choice of ANC providers, determined by access, cost, and the reason for seeking care (such as extraordinary bleeding or sickness of mother or baby). As listed above, if the women felt a need to seek medical care because of certain complications such as abnormal postpartum bleeding, painful stiches, or abdominal pain, they would choose the PNC provider on the basis of accessibility of the provider. Figure 5.7 shows women’s PNC utilisation on the basis of providers.

*Figure 5.7 Women's utilisation of PNC providers in the Katcho region*

![Chart showing percentages of women received PNC by providers]

Similar to the ANC findings, dais and private practitioners were mostly utilised by women for PNC. Due to its remoteness, Bashir Machi had the highest utilisation of dais compared to other villages, as indicated in Sections 5.2-5.4. This was followed by LHWs, who conducted PNC home-visits. In the qualitative interviews, women reported that the PNC visits by an LHW were only for the purpose of record keeping; LHWs take records about a woman’s birth attendant, duration of pregnancy, and the vaccination record of babies.
The utilisation of LHWs for PNC was highest in the Tando Jhark, which is a town area covered by six LHWs. The LHWs’ visits are also higher in this area because the Lady Health Supervisor (who supervises the LHW teams) was based in Tando Jhark and regularly conducts visits to the surrounding villages. CMW utilisation was very low in all villages, whereas LHV care was sought for PNC in villages where the BHU was within walking distance (Tando Jhark, Syed Peerani, and Fatah Samepota). Figure 5.8 shows women’s utilisation of PNC providers across all study villages.

Figure 5.8 PNC across villages (n=669)

5.6 Continuum of maternity-care services in Katcho villages

The concept of CoC is non-existent among Katcho women. To measure CoC services, I used women’s utilisation of SBA services for ANC to PNC and included postpartum family planning services as part of the preconception care. To avoid recall bias, I only focused on 1,022 live births that occurred to Katcho women between 2009 to 2014. Figure 5.9 shows the CoC utilisation in 1,022 births from Katcho villages.
The findings show that in only 3% cases (i.e. 34 births), women received CoC services from ANC to postpartum family planning services in Katcho villages. The SBA utilisation was 54% for ANC services, which declined to 36% for childbirth and 11% for the PNC services. In only 3% of cases, women continue to use postpartum counselling from any rural health worker.

Table 5.4 shows the CoC utilisation in last five years, across all villages. The CoC utilisation pattern was similarly noted in most of the village, except for Ali Malah, where the CoC completion rate was 5.3% as compared to 3.3% of overall CoC completion rate. The higher utilisation of private midwives in Ali Malah for maternal complications during and after pregnancy was noted in earlier sections. On the other hand, Ali Malah, Tando Jhark, and Syed Peerani have high ANC utilisation, but that does not translate to high SBA utilisation at birth. This aligns with the qualitative
findings which suggest that in cases of obstetric complications, women visited the private midwives during pregnancy. However, after the care, if the women perceived that they do not need the care, she would not continue to use the private midwife services for delivery. The continuation of SBA care from childbirth to PNC is also very poor due to women’s poor understanding about the importance of the preventive PNC services and also the health workers’ limited understanding about the core components of PNC (see Section 3.7.1). The lowest continuation of care was noted from PNC services to postpartum family planning counselling. Despite having home-based and facility-based family planning services, women’s utilisation of postpartum family planning services remains extremely low. In earlier Sections 5.2.1 to 5.2.7, I have discussed the reasons for poor utilisation of family planning counselling and services.

Figure 5.10 compares women’s maternity care utilisation by private midwives to public health workers (BHU staff and CMWs). The findings show that while there is a wide gap between ANC utilisation from private vs. public health providers, women who uses ANC services from public health workers are much likely to continue to use delivery care from them, as compared to those who used private providers for ANC services.

*Figure 5.10 Public vs. private health workers’ utilisation for COC (n=1,022)*

As noted earlier, during pregnancy Katcho women use private practitioners when there is a complication, or when they just want to make sure that the pregnancy is
normal. The higher drop out from private practitioners is associated with women’s low-risk perception about pregnancy complications, higher doctors’ fees, travel costs, or dai preference. The SBA utilisation from public health workers is low as compared to private providers (47.9% vs. 11.4%), but more consistent between ANC to delivery services (11.4% to 10.4%). Here it is important to note that the CoC completion rate is only measured from 2010 to 2014, which is the same time that BHU facilities were improved under PPHI management. Thus, women’s improved maternity-care practices can be due to the improved quality of services. Moreover, the services at BHU are free, which is why women who were satisfied with rural health workers’ ANC continued using them for delivery care services. Having said that, the continuation was seriously disrupted between delivery to PNC services and further postpartum counselling.

5.7 Summary

During the course of pregnancy, women make varied choices about maternity care on the basis of their financial resources, access to a health facility, costs, and feedback from their peers about maternity-care providers. ANC, delivery, and PNC from health professionals is only sought in cases of obstetric complications. Living in an extended family system plays a crucial role in a woman’s decision making about maternity and reproductive health. Dais and private practitioners carry a significant burden of maternity care as compared to public and community health workers who provide maternity-care services. The next chapter will explore pregnant women’s experiences during floods in 2011 in Katcho villages.
Chapter 6: Women’s Experiences of Floods in 2011

6.1 Introduction

This chapter describes Katcho women’s experiences of relocation, evacuation, and living in the relief camps during the floods in 2011. The key findings reported in this chapter are based on in-depth interviews with key informants and Katcho women who gave birth at the time of the floods. It also uses quantitative data from a survey component (Section 4; Appendix 4) which focused on women’s utilisation of maternity-care services during the times of the floods.

6.2 Women’s lives during different phases of floods

I explored women’s experiences during the times of floods in three phases; first when women received early warning of the pending floods and were relocated to the relief camps; referred to as the ‘early warning and relocation phase’. The second phase occurred when women were living in make-shift houses in relief camps; referred to as ‘life in the relief camp’. The third phase was when women gave birth in unhygienic conditions in the camps; referred to as ‘birthing in unhygienic conditions’, which will be discussed in Chapter 7 (see Figure 6.1).

Figure 6.1 Women’s lived experiences in different stages of disaster
6.3 Phase 1: Early warning, relocation, and evacuation

6.3.1 Early warning

As indicated in Section 1.5.2, the DDMA delivers early warnings to the population which is at risk of affecting by the disaster. In the 2011 floods, according to 86% of women, the flood relief officers (male) delivered early warning messages door to door, at least two weeks before the flooding. The officers provided information about the alarming situation of rising water levels and the risk of inundating Katcho villages to the male household heads and para heads. Women were not the direct recipients of early warnings since all flood relief officer were males, and due to cultural reasons, these officers only spoke with the male members of villages. Some women also said that the same officers also provided a letter/flyer from the DDMA which stated the same information in local (Sindhi) language. However, as noted in Section 2.8.1, 92.2% of Katcho women never attended school so they were unable to read the content of the letter/flyer.

A government officer came and met with all male members of the village. He told them about the rising water levels and that we should vacate this area immediately. (Shazia, age 28 years, Syed Peerani)

Another 9.1% of women who were unaware about the flood relief officers, said that male household heads informed them about floods. The major mobile networks of that area also sent the text message to their subscribers as mentioned by 2.1% of women. Generally, in Katcho villages, women do not possess mobile phones, thus, here too, women were unable to receive first-hand early warning from a reliable source. Moreover, the early warning messages were on air on national television as well as through radio at the same time and were mentioned by 3.0% of the women. This was the only way that the early warning reached directly to women. Table 6.1 shows the sources of the pre-flood warnings mentioned by the study participants.
Table 6.1 Sources of pre-flood warnings (n=332)

<table>
<thead>
<tr>
<th>Sources of information about floods</th>
<th>Percentage (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flood relief officers</td>
<td>85.6 (81.6-89.4)</td>
</tr>
<tr>
<td>Male family members</td>
<td>9.1 (6.1-12.6)</td>
</tr>
<tr>
<td>Radio/TV announcement</td>
<td>3.0 (1.4-5.4)</td>
</tr>
<tr>
<td>Mobile SMS alerts</td>
<td>2.1 (0.8-4.3)</td>
</tr>
</tbody>
</table>

Relocation decisions

According to women, despite the early warnings, most of the Katcho residents did not relocate to safe locations because they neither had the financial means to travel with their families nor did they have a place to live in outside their villages. Only 8.1% women who said they have close relatives living in the nearby villages were able to relocate on early warning. About 83.7% of them were evacuated during the 2011 floods and another 8.1% chose not to relocate or evacuate (see Table 6.2). Relocation decisions were only taken by male members of the para community and there was no involvement of women in making this decision.

Table 6.2 Relocation during floods (n=332)

<table>
<thead>
<tr>
<th>Relocation during floods</th>
<th>n=332</th>
<th>Percentage (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Migrated after pre-flood warning</td>
<td>27</td>
<td>8.15 (5.4%-11.6%)</td>
</tr>
<tr>
<td>Migrated during floods to the relief camps</td>
<td>278</td>
<td>83.7 (79.3-87.5%)</td>
</tr>
<tr>
<td>Didn’t migrate during the floods</td>
<td>27</td>
<td>8.15 (5.4%-11.6%)</td>
</tr>
</tbody>
</table>

In addition to the lack of financial means to safely relocate, other reasons for non-relocation on early warning were 1) low risk perception, 2) holding cattle or livestock, and 3) fear of losing agricultural work.

Low risk perception

Low risk perception was more common in fishing communities where houses are located close to the river because of the nature of their work. People assumed that the rise in water level was temporary and that after some time water would return to its normal level. In the past, after every monsoon season, the water level tended to increase but it had always returned to the normal level a few weeks after the rains had
stopped. In the 2011 floods, most of the villagers experienced flooding for the first time. Like Aisha, other villagers thought that the rising water level was temporary and within a few days, the water level would return to its normal level.

We did not realise it could be that dangerous and we did not rely on government notification. We have always lived in front of the river, and every year the water level increased after the monsoon rains but then it went back to normal levels too. (Aisha, age 35 years, Haji Buksh)

**Holding cattle or livestock**

Another barrier for safe relocation was identified by women as holding cattle or livestock. As discussed in Chapter 4, livestock is a secondary, albeit an important, source of income for Katcho families, and they could not be left unattended at the time of the floods. Women respondents said they did not know where to take the cattle, and neither had they the financial means to transport the cattle to safe locations. Furthermore, many families were still paying off loans that they took out to buy the cattle; thus, they could not leave them behind without anybody looking after them. According to a key informant from DDMA, there was a cattle camp next to the relief camp along with a veterinarian to care for cattle. However, the information about the cattle camp was not provided by the flood relief officers at the time of early warning, which was the reason many villagers could not relocate to the relief camp after receiving the warning.

**Fear of losing agricultural work**

Women also indicated that since most of the villagers worked as agricultural labourers under the control of vaderas (land owners), it was mandatory to obtain the vaderas’ consent before relocating to a safer place. Haseena from Ali Malah said that one of the reasons that they didn’t relocate when they received the early warnings was because they were afraid that the vadera would hire someone else and they would lose their employment. Women thought that if the vaderas had given the flood warning, the villagers would have taken it more seriously and have left earlier.
We didn’t go because we thought that Sain (vadera) would have hired someone else and we could have lost work (Haseena, age 32 years, Ali Malah).

**Families deciding against relocation or evacuation**

There were 8.1% (CI 5.4%–11.6%) (see Table 6.2) of women who said that their families did not migrate during the floods. In Katiar village the entire population of one para choose not to relocate to the relief camps. The para consisted of 50 houses, some made of concrete whereas others were of mud. Shakila, a resident of Katiar village, mentioned that the mud houses in their para collapsed during the floods. Those who had concrete houses shared their houses with those whose houses were damaged. When I asked one woman why their para members did not go to the relief camps, she said that if they had gone to the relief camps no one would have looked after their land, cattle, and agriculture sites.

According to Shakila, the male members of her para committee decided that they should not go to the relief camp because it would be very crowded and unsafe for children and women. She also thought that it was a wise decision not to have relocated to the relief camps because later they learned about the problems people faced who lived in the relief camps and they felt relieved that they had decided to stay in their para.

Our para members decided that we would not go to the relief camps. We heard that hundreds of people were relocating there. The committee consisted of wise people; they knew what kind of arrangements would be there. That’s why we did not go there. (Shakila, age 39 years, Katiar)

**6.3.2 Evacuation**

The DDMA coordinated the evacuations with the local landowners and other resourceful and influential people who could organise human resources and vehicles to transfer people from their homes to the relief camp at short notice. The vehicles were made available free of cost to the villagers. In flood inundated areas, the Pakistan Army being the most resourceful and capable in rescue operations rescued flood affected populations to safer locations.
We involved the vaderas and other influential people who have resources for relocating the villagers. They have tractors, trailers, and also manpower which can be used in an emergency situation. In more critical situations the Pakistan Army did helicopter searches and rescued people. (District official, key informant)

Women remembered that the evacuation process at the times of floods was a daunting experience. Aisha recalled that it was night and she was sleeping when she heard the siren and announcement from the mosque loud-speakers telling villagers to evacuate the village immediately. When she heard this, she rushed barefoot with her children and other family members towards the bus stand where a bus was waiting to take the villagers to the relief camps.

That night was horrible. There were people screaming to leave as the water started entering our houses. We left in a hurry, barefoot! I ran to the nearest relief camp with other people from the para, which was set up by the Government. (Aisha, age 35 years, Haji Buksh)

According to Shazia, at the time of evacuation, there was not sufficient transport means available to transfer the evacuated population from villages to the relief camps. As a result, many private rental-car owners took advantage of the situation and asked for double or triple the rate to transfer people to the relief camp. Since it was an emergency situation, people were obliged to pay the exorbitant rates so that their families could safely reach the relief camps. However, those who couldn’t afford the private car rental rate did not obtain transport and they were obliged to walk to the camps. This included pregnant women and women with young children who walked through the floods.

There were hundreds of people who left their houses and very few trolleys or tractors available to relocate them. It was dark. We were not sure about what to do. Those who could afford private rental paid money to get to the relief camps. (Shazia, age 28 years, Syed Peerani)

Hina from Ali Malah stated that in each para at least three to four male members stayed in their houses to look after household items and to care for the safety of cattle when the other villagers were evacuated to the relief camps.
At least one male member from each family stayed back in our houses to look after our belongings. It was very important, otherwise, where we would have taken our cattle and important household things? (Hina, age 38 years, Ali Malah)

6.4 Phase 2: Response – Experiences of relief camp

The range of women’s residence in a relief camp was six to eight weeks. There were three flood relief camps in the TMK district that housed residents from flood affected villages: Sain Takkar, Allah Rakha Jabal, and Hasan Jat. Women reported that Sain Takkar was the largest camp where between 20,000-50,000 flood-affected people lived from one week to three months. In Allah Rakha Jabal there were approximately 250 residents, whereas in the Hasan Jat relief camp there were approximately 80-100 residents who resided in the camp for two weeks. The Hasan Jat relief camp, the smallest camp, was set up in a primary school and was known as a well-managed camp compared to Sain Takkar and Allah Rakha Jabal. Women who resided in the Hasan Jat camp said that the food and water supply was regular in this camp because, in addition to the DDMA supplies, a local vadera provided additional food to that camp.

Most of the study participants resided in the Sain Takkar relief camp. Sain Takkar is located on a 14-mile (nine kilometre) limestone range that runs parallel to the Indus river and is 66 metres above the river level. The area was arranged as a designated relief camp or a tent city and it was managed by the Government of Pakistan. Of the 20,000 people who lived there during the floods, the majority of the residents were from Katcho villages. The District Commission Office organised tents, food, water, and sanitation facilities for the camp residents and established a cattle camp for their cattle.

The District Commission Office considered that they had met the food and shelter needs of all the families who lived in the Sain Takkar camp. The tent city was well planned, and each family who lived there was given a tent and enough food for the duration of their stay in the camp. One of the key informants from the District Commission Office mentioned that there were several philanthropists, voluntary organisations, and local NGOs which supplied cooked food to camp residents. They also organised a cattle camp next to the relief camp along with a veterinarian.
We also organised a cattle camp with fodder and a veterinarian. As most of the villagers have cattle, we considered it was an important part of the relief camp. (Ali Khan, Key informant)

6.4.1 Temporary shelter

When the villagers reached the relief camps there were no tents available for their families. Then, after three or four days when no tents had arrived, families made their own temporary shelters. Hasan, the husband of Sajida, shared his experiences of living in the relief camp. He mentioned that the relief officers kept telling them that there were not enough tents, so he bought wood and built a temporary shelter for his family.

At the time of the floods, the price of wood increased and it was in short supply. After two to three days male camp residents travelled to Tando Jhark to purchase wood. The price of wood in regular circumstances is approximately PKR50 per kg, but during the floods, it increased to PKR150 per kg. The villagers bought the wood to make temporary shelters, a kitchen, and toilets. One of the study participants, Sajida, and her husband Hasan, both said that they couldn’t wait for the government to provide them with a shelter so they decided to spend their own money and buy wood to build their own shelter and utilities. Hasan also added that many flood-affected families made their own temporary shelters in the Sain Takkar relief camp.

After we found that there were not enough tents for every family, we arranged wood to build a temporary shelter. It cost us PKR150 per kg of wood to build a temporary shelter. It was not easy to get wood during such weather; everything became so expensive. But we couldn’t afford to wait for government assistance in such challenging weather. Many flood-affected families in the tent city did the same. (Hasan, Key informant)

The temporary shelters were semi-open and not appropriate for women who observe purdah (wear the veil). Purdah in rural Pakistan means that women cover their head and sometimes cover both head and face in the presence of men other than their husband, brother, or father. These women also have limited or no interaction with men
outside their family. Figure 6.2 shows an example of a temporary shelter in a relief camp as constructed by the flood-affected families in a rural district of Sindh.

*Figure 6.2 Example of temporary shelters during floods in rural Sindh*

Source photo Ghani (302)

Sara from Haji Buksh mentioned that the relief camp Sain Takkar was densely populated and people from different villages and castes lived there. The Sain Takkar camp residents built their temporary shelters away from the main tent city. Most of the women in Sara’s para observe purdah and have no interaction with men outside their para. To avoid or minimise women’s interaction with strangers, the para members decided to build their shelters and live away from the main camp.

Our family lived slightly away from the tent city. We were in Sain Takkar but did not live in the tent city because there were many strangers. (Sara, age 23 years, Haji Buksh)

Nishat from the village of Syed Peerani said that women in her para strictly adhere to purdah and as a result, they were extremely uncomfortable living in an open space with many male residents living nearby.

As you can see most of the women in this para do hijab. They do not go out in front of men other than their family members. It was very difficult for them to live in an open space with hundreds of strangers. (Nishat, age 31 years, Syed Peerani)
6.4.2 Irregular food supply

The DDMA officer said that they organised cooked food three times a day for 30 days for the families living in the relief camps. The cooked meal packs were distributed to each camp on the basis of the number of people who lived in that camp. After 30 days the camp residents were provided with raw food items for another two weeks, as most of the families returned to their villages after one month in the camp. In addition to the food provisions supplied by the Pakistan Government, international NGOs, philanthropists, and local NGOs made a significant contribution to food provision for the families in the camps.

This is in contrast to the women saying that the food supply in relief camps was irregular and insufficient. Due to the irregular food supply, many families who lived in the relief camps for more than one week brought food from their houses to the camps. According to Aisha cooked food was only provided for two to three days, contrary to the DDMA statement of 30 days, and thereafter they were provided with uncooked foods such as rice, floor, oil, and some lentils. She further added that there were only three food distribution points set up by the DDMA, which was insufficient for thousands of people. Relief staff worked at each food distribution point, but they were unable to organise a food distribution system for the masses who were waiting for their food rations. There were no queues for men and women at food distribution points and, as a result, the masses of hungry people frequently became frustrated when they could not get food for their families. Many women reported incidents where men got into physical fights or were verbally abusive at food distribution points.

There were only three stalls where food suppliers came after two to three days. Imagine a mob of thousands of hungry people being catered for by only a few individuals in emergency situations. The mob often got agitated. There was no proper distribution mechanism.
(Aisha, age 35 years, Haji Buksh)

Aisha said that it was difficult to obtain food in the first few days in the relief camp. Male family members queued for the family’s food rations while their wives, the widows, and single women waited in the makeshift shelters for the men to return with the food supplies. Figure 6.3 shows an example of the crowd waiting for cooked food during the floods in a relief camp in the 2011 floods (302).
6.4.3 Access to drinking water

A water tanker visited the camps three times a week. Women mentioned that they could not access the drinking water because the water points were far from their tents and on the days when the water tankers arrived in the camp there were hundreds of people in line to receive their family’s water quota. It was particularly difficult for young mothers because they could neither queue at the water points for hours with their children nor leave the children in temporary shelters in the company of strangers. It is not culturally acceptable for women to wait in queues in the presence of men. Some of the women said that their family drank contaminated water from a stream near the cattle camp, knowing the health risks of drinking the water.

We drank rain water because we couldn’t get access to the water tank point. It was far, and we had to walk past men. It is shameful for us to queue up with strangers and we didn’t feel that safe as well. (Zubia, age 30 years, Bashir Machi)

The mismanagement associated with the distribution of food and water caused the masses of hungry people waiting for their food allocation to become frustrated. Many women reported incidents where the supplies were plundered by people in desperate need of food and water.
6.4.4 Sanitation conditions

Sanitation conditions were reported to be extremely poor in the Sain Takkar relief camp. Relief camp communal toilet blocks were located a distance from the women’s temporary shelters. Zubia from Bashir Machi said that they either defecated in the bushes (slightly away from the relief camp) or they waited until dark and then groups of women walked to the toilet block together.

There was no toilet facility at camp so we used bushes. We waited until it got dark and then left as a group of three women together. (Zubia, age 30 years, Bashir Machi)

Zubia also added that the poor sanitation conditions increased the risk of water-borne diseases such as diarrhoea, wound infections, dermatitis, and ear, nose, and throat infections. A malaria epidemic was also mentioned by many women because the camp residents had increased exposure to mosquitoes while sleeping outside without mosquito nets. According to the women, cases of snake bites among women and children were very common in relief camps because the women and children slept on the floor inside or outside the tents.

During interviews, women who gave birth in relief camps mentioned the poor sanitation conditions in the camp. In their postpartum period, due to the unavailability of toilets, many postpartum women had to wait until night to use toilet facilities. This was noted as the main reason that postpartum women migrated from the relief camps within a week of giving birth.

6.5 Summary

During the floods, Katcho women were unable to make decisions about their life and safety owing to long standing patriarchal values and poor disaster management practices by the DDMA. Women were not the direct recipients of early warning strategies, and in all cases, male household heads or para heads took decisions on the behalf of their family. Except for a small population, the majority of Katcho resident did not relocate to safe places on early warning. This resulted in forced evacuation, for which the DDMA was not well-prepared. Access to basic facilities such as shelter, food and water was challenging for women, especially those with young babies. The
next chapter focuses on phase 3, pregnancy and birthing experiences of women during the time of the floods.
Chapter 7: Maternity Care Response During the 2011 Floods in Katcho Villages

This chapter describes the third phase (of the two phases discussed in the Chapter 6) about women’s birthing experiences during the floods. The key findings reported in this chapter are based on 16 in-depth interviews and survey data which describes women’s utilisation of maternity-care services during the floods. I also used key informants’ interviews to identify the gaps between the policy and provision of maternity-care services in relief camps during the 2011 floods.

7.1 Health-care response during floods 2011

Women’s interviews indicate that during the floods the provision of maternity-care services was not according to the international humanitarian response guidelines of MISP. This included a poor referral system, the absence of SBA in relief camps, the unavailability of clean delivery kits, the absence of a women friendly space, and the unavailability of reproductive health services. Conversely, the key informants highlight that the poor provision of maternity-care services was due to the lack of humanitarian response training for the District Health Officers, funding shortages to manage health emergencies, and poor coordination with local partners and the Health Cluster.

7.1.1 Training of District Health Officers on humanitarian response

The District Health Officer supervises and manages all health human resources and health facilities in a district. As part of the District Disaster Management Plan, the District Health Officer is responsible for developing a contingency health plan to ensure the accessibility of health care for displaced as well as general populations during the times of disaster and humanitarian emergencies. The contingency health plan includes the optimal utilisation of existing health human resources and infrastructure, linkages with local NGOs and private hospitals, and coordination with the Humanitarian Health Cluster to ensure the continuity of health-care services during crisis. At the national level, the “NHEPRN” (see Section 1.5.2) builds the capacity of District Health Officers to prepare and implement contingency health plans according to the needs and resources of the districts.
According to a key informant, coming from a medical background, most of the District Health Officers from rural Sindh had no prior knowledge of disaster management, neither had they received training on emergency health preparedness from the NHEPRN. Before the 2011 floods, the NHEPRN did not organise trainings for District Health Officers or other district health staff because they did not receive funds from the Ministry of Health. In the absence of such training, the District Health Officers were unable to effectively implement contingency health plans, which resulted in the under-utilisation of public health facilities and workforce, and the poor referral system from relief camps to health facilities. The key informant further added that natural disasters like floods are overwhelming situations and should be managed by a team who is trained to manage the health care needs of disaster affected and/or displaced populations.

Most of the District Health Officers are MBBS doctors with no prior knowledge and experience of public health, and then you put them in an overwhelming situation like the 2010 and 2011 floods; of course, they are not able to manage that. There was no training of District Health Officers before 2011 by NHEPRN, since NHEPRN had no funds to manage such large-scale activities. (Key informant)

7.1.2 Insufficient district funds for humanitarian emergencies

The financial limitations of the Ministry of Health to manage health care during times of emergencies was highlighted by a number of key informants from the district and provincial Health Ministries. According to a key informant, the NDMA put more emphasis on evacuation, food, and shelter, and less on the provision of health care. The Ministry of Health, which is the main emergency health provider, has always struggled to secure funding for basic health services, therefore, when natural disasters occur the Ministry of Health is placed under additional pressure to fund emergency health care, which, according to one disaster relief specialist, is not justifiable.

All provincial Ministries of Health are short of funds, and this includes Sindh. Adding the burden of health management in an emergency situation solely on the Ministry of Health is not a good strategy, given the fact that there are floods every year. (Key informant)
There are no special funds available to implement emergency health management strategies at district level and the district health authorities are required to request financial and human resource support from the provincial departments for every activity. According to a key informant, the current process of obtaining health funding during disaster situations is very complicated and involves multiple layers of approval. The bureaucratic processes required to secure relief funding and approvals often take two to three months to secure. A key informant referred to the recent floods in 2014, saying that she received a request for additional funding for medicines from a rural district of Punjab. According to her, it took three months to obtain the approval from the provincial health authorities; approval was granted at approximately the same time that the displaced population were returning to their homes. She raised concerns over the undue delay to obtain approval from health authorities during a humanitarian crisis. She suggested that given the recurrent natural disasters, such as annual floods in Pakistan, the government should allocate funds specifically for natural disasters, with comprehensive and expedited procedures for approval.

When I forwarded the request for additional medicines required for a health camp in a rural district to the Ministry of Health it took more than three months to get it approved. By that time the population in the relief camp had returned to their homes. At least in the times of crisis, we should have fewer levels of approval. I think there should be some arrangement for separate funds for health during a disaster situation. (Key informant)

7.1.3 Coordination with the Health Cluster

According to a key informant, during the floods in 2011, the Health Cluster (see page 52) was more active in the provinces of KPK and Punjab than in Sindh. For example, the UNICEF worked actively in selected flood affected areas in KPK, where they provided vaccinations, vitamin A supplements, and high energy biscuits for malnourished children and pregnant women, mosquito nets, clean delivery kits, and newborn kits. Both UNICEF and UNFPA established mobile delivery camps and health camps in flood affected areas, however, they were only concentrated in a few districts across Pakistan. Support from the Health Cluster could not reach many severely flood affected villages in Sindh because of a lack of coordination between the
provincial Ministry of Health and the Health Cluster. This was more common in Sindh because the Ministry of Health had not been very active in pursuing the Health Cluster support for disaster affected populations.

The UN organisations work collaboratively during the floods. UNICEF and UNFPA are the main partners of Government of Pakistan for maternal and child health. These organisations only work if the request comes from the Government. And yes, I admit that many severely flood affected populations in Sindh remained unserved due to lack of attention from Ministry of Health, Sindh. (Key informant, Health Cluster)

Another key informant stated that before the floods of 2010 and 2011 in KPK, the UNICEF, UNFPA, and USAID were actively engaged with local communities, NGOs, and the district government to rehabilitate earthquake victims and the internally displaced population as a result of military operation in South Waziristan. So, at the time of floods, it was easier for the INGOs and UN agencies to continue working in the same areas; therefore, floods response was much more advanced in KPK and Punjab as compared to Sindh.

Both KPK and Punjab experienced large-scale emergencies before the floods. Between 2005 and 2009, UNFPA, UNICEF, and USAID had closely worked with the local government of KPK and Punjab for the rehabilitation of earthquake victims as well as of the IDPs. Thus, at the time of flood, the UN agencies found it easier to extend their work in the places where they were well-established. (Key informant)

The key informants from the TMK district stated in the relief camp health care was solely managed by the district Health Department. There was no coordination between the Health Cluster or private NGOs with the District Health Department. He gave the examples of the UNFPA initiative of mobile birthing camps and a general

2 Known as a refugee crisis in Pakistan, in 2009 about 2.2 million people were internally displaced after a military operation in South Waziristan. Over 30,000 people sought refuge in UNHCR-supported camps.
health camp by the HANDS organisation (a private NGO); neither initiative was coordinated with the District Health Department. On the other hand, none of the study participants had knowledge about the UNFPA or HANDS’s health camps.

7.1.4 District health resources during floods

The records from the District Health Department showed that in 2011 there were 13 BHUs, four RHCs, and the TMK district hospital. There were 44 SBAs (16 facility-based and 28 community-based) and 421 LHWs. The facility-based staff include nine WMOs who were EmONC trained and seven LHV s and midwives. In addition, there were two ambulance drivers based at the RHCs and the district hospital. Table 7.1 shows the maternity-care facilities at the times of floods.

Table 7.1 District health resources during floods in 2011 (N=605,821)

<table>
<thead>
<tr>
<th>Health-care facilities</th>
<th>Services</th>
<th>(n = 17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Health Units (BHU)</td>
<td>13</td>
<td>Primary level care.</td>
</tr>
<tr>
<td>Rural Health Center (RHC)</td>
<td>4</td>
<td>Secondary care hospital.</td>
</tr>
<tr>
<td>Skilled birth attendant (n = 44)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women medical officers</td>
<td>09</td>
<td>EmONC trained.</td>
</tr>
<tr>
<td>LHV and midwives</td>
<td>7</td>
<td>Skilled birth attendants who conduct normal deliveries at facility level.</td>
</tr>
<tr>
<td>CMW</td>
<td>28</td>
<td>Completed community midwifery training at the time of floods and could have been used under the supervision of an experienced birth attendants.</td>
</tr>
</tbody>
</table>

Community-based workers

| LHW | 421       | Provide ANC, reproductive health education. |
| Ambulances and drivers | 2       | Based in RHCs and district hospitals. |

Source: Executive TMK District Health Department records

None of the health workers who were interviewed in this study had ever received training on humanitarian response. According to the LHV and midwives who worked during the floods in 2011, patient flow was not as unusually high during the floods as might be expected. One of the main reasons was that the roads from the relief camps to the BHUs were damaged, so even though the patient might have been referred by the medical staff in relief camps, the patients were unable to go to the BHUs. There
was no transportation to and from relief camps to the BHU, therefore only those people who were residing close to the BHU used the services during the floods.

On the other hand, the community midwives, who were trained to provide home-based SBA care, were not asked to provide services in the relief camps. This was similarly noted for LHWS, who did not provide any services in relief camps. According to LHW Rabia, the Lady Health Supervisor of her area called her during the floods and told her that the LHWs might be assigned duties in the relief camps. Rabia decided to work in a relief camp for four days; she did not receive further instructions from her supervisor about her ongoing duties in the relief camp, so she left. Rabia moved to live with her relatives in another district and did not return to work in the relief camp. Another LHW, Sameera from Tando Jhark, said that she and her LHW colleagues did not receive a call or instructions from their supervisors about working in the relief camps or health camps.

My supervisor told me once during the floods that I might need to work in the relief camps. Then I did not receive any other call; after four days I moved to my relatives in another district. (LHW, Rabia)

7.1.5 Health facilities in the relief camp

There were three relief camps in the TMK district (Section 6.3), and “Sain Takkar” was the biggest camp, accommodating about 20,000 displaced people during the floods in 2011. The site was the official relocation point for the flood affected population in 2010 and 2011, where all the relief assistance was provided by the DDMA. In this study, I only focused on the Sain Takkar camp, because it not only accommodated more people than the other two relief camps, it also was the only camp which offered basic health services to its residents. The services offered at the health camp included basic medication for common colds, coughs, influenza, diarrhoea, snakebites, skin infections, and so on. For obstetric matters, women were referred to the BHU at Tando Jhark, a district hospital, or a public hospital in another city (such as in Hyderabad).

Women described the health camp as a tent with two or three chairs, a table, a stretcher, and some essential medicines. It had one entrance door, which was always crowded by men. Most of the female participants said that they did not visit the health
camp for two reasons. Firstly, most of the women observed purdah and therefore did not feel comfortable going to such a crowded place and being surrounded by men. So when their children were sick, a male family member visited the health camp to get medicine for the child. Secondly, there were few female staff members working in the health camp. Women were not allowed to visit male doctors in the health camps even when their children were sick because it was not culturally acceptable to do so.

We [females] did not go there [the health camp] as there were too many males around that area. My husband brought medicine for my child. I could not go to that camp because there were male doctors. (Shazia, age 28 years, Syed Peerani)

According to Mariam, the health camp was not started until the third day after the evacuation. There were two male doctors and one female doctor generally available from 11:00am until 4:00pm each day in relief camp. Participants reported that the doctors’ consultations in the relief camps were irregular. Four women said that doctors came to the camps for two to three hours each day, while five women said that the doctors usually stayed in the camp from 11:00am to 6pm, after the sunset. Bilquess from Haji Buksh mentioned that a female doctor provided basic health-care services once a week, whereas the female nurses provided health-care services three to four times a week for one to two hours at a time. The women mentioned that the staff working at the health camp were not available at night time.

I think the health camp was started the third day after people were evacuated from their villages. There were four to five doctors who used to come in a car, stay for a couple of hours and then leave. It was not like a doctor was available all the time in the camp. (Mariam, age 28 years, Haji Buksh)

There was one female doctor who used to come once in a week or once in 10 days. Her junior nurses should have been there every day but they only worked for one to two hours a day, three or four days a week. (Bilquess, age 34 years, Haji Buksh)

There was one nurse, but she only worked in day shifts, not at night time. (Aisha, age 35 years, Haji Buksh)
The health camp did not provide birthing services. When Zubia visited the health camp during labour she was told that the staff were not skilled or trained to deal with obstetric matters and the camp was too small to accommodate birthing women. Zubia was provided with a referral to the Civil Hospital in Hyderabad to give birth there.

The female nurse said that she could not conduct a delivery because there were no obstetric staff and the camp was too small for birthing purposes. People were coming to the camp for all kinds of illness so it was already very crowded. The nurse recommended that I go to the Civil Hospital in Hyderabad. (Zubia, age 31 years, Bashir Machi)

7.2 Phase 3: Reproductive and pregnancy care during floods

7.2.1 Inaccessibility of reproductive health services

In this study, none of the flood-affected women knew of a place where they could access contraception in the relief camps. As women rarely visited the health camp due to the presence of male doctors and the crowd outside the camp they were not familiar with the availability of reproductive health services provided in the health camp. Although the District Health Officer stated that the health camp provided the condoms, this claim could not have been validated by any women. However, given the fact that there were no family friendly centres which could offer reproductive health services, nor were the flood affected women informed about the availability of reproductive health services in the relief camp, it can be argued that reproductive health services (if there were any) were not easily accessible for flood affected women. Another fact confirming the lack of availability of contraceptives in the relief camp was the fact that the community-based reproductive health workers did not work in relief camps. Thus, it is unlikely that flood-affected women were provided with reproductive health services in the camp.

7.2.2 Referral system for obstetric care in the relief camp

There was no birthing facility in the health camp, therefore all labouring women in the Sain Takkar relief camp were referred to nearby health-care facilities such as the BHU, TMK district hospital, and the Civil Hospital in Hyderabad. The
relief camp was eight kilometres away from the BHU, 15 to 20 kilometres from the TMK district hospital and 40 to 50 kilometres from the Civil Hospital in Hyderabad. Heavy rains worsened the local road conditions within the TMK district, thus district health facilities became inaccessible especially for women residing in relief camps. Most of the flood affected population, including labouring women, thus used health facilities in the Hyderabad district, as the link road from the relief camp to the Hyderabad district was more accessible than the local road going towards the TMK district. The poor road condition was the predominant reason for poor public health facilities utilisation during the times of floods in the TMK district.

The staff working in the health camp provided women with referral slips so they could seek obstetric care at the nearest health facility, but they did not provide transport for the women to travel to the facility. Women were obliged to organise their own transport if they want to seek SBA care for childbirth.

7.2.3 Women’s birthing experiences during floods

During women’s stay in the relief camps, pregnant women in the first or second trimester did not visit the health camps because they only stayed there for about four to six weeks. In contrast, women in the last stages of pregnancy or those in early stages of labour visited the health camp for obstetric care. One such case was Aisha, who was pregnant for the ninth time, and who had previously had five miscarriages. Aisha was full-term with twins while living in the relief camp. Aisha had iron deficiency anaemia and had received a blood transfusion in the past from a private practitioner during the pregnancy. In the week before giving birth she went to the female doctor in the health camp. The doctor told her that she needed specialised care because of her poor obstetric history and complications with her current pregnancy. Aisha was then provided with a referral slip and asked to find her own transport and go to the Civil Hospital in Hyderabad for delivery care.

The doctor at the health camp said that it was a complicated case because of my history of pregnancy complications. The doctor recommended that I go to Civil Hospital in Hyderabad without transportation arranged. My husband borrowed money from our relatives to organise the hospital and transportation costs. (Aisha, age 35 years, Haji Buksh)
Another woman Bilquess was referred to the Civil Hospital in Hyderabad for delivery care. However, Bilquess presented at the referral hospital with a case of prolonged labour. The duty doctor informed Bilqueses that she could not manage obstetric complications. She referred Bilquess to a private doctor nearby who could manage obstetric complications. Bilquess’s family then had to organise another transport to transfer her from the Civil Hospital to a private clinic in Hyderabad. The delivery was conducted by the private doctor; while the mother and baby were safe, the referral process was distressing for Bilquess and her family. Bilquess were disappointed with the unavailability of trained staff in referral hospitals to manage obstetric complications. She also highlighted the poor referral system which did not provide the patient with transportation. The unavailability of transportation was very challenging, especially for the displaced population, who had to find money and transportation to be able to seek birthing care.

When I reached the Civil Hospital, one of the on-duty doctors asked me to go to the private doctor because she could not manage prolonged labour. Why did they [the health camp staff] refer me to the place where doctors could not handle complicated cases? […] We had to pay double the transportation cost, as we went from the relief camp to the Civil Hospital in Hyderabad and then from the Civil Hospital to a private doctor’s clinic in Hyderabad. Our money and time were wasted. (Bilquess, age 34 years, Haji Buksh)

Of 278 pregnant women who migrated to relief camps during the floods, 37 women gave birth during this time; 34 women were assisted by a dai (95% CI 78.1-98.2) and three women (95% CI 1.7-21.9) were referred to the hospital and were assisted by an SBA. Women considered that giving birth in the relief camps during the floods was one of the most challenging times of their lives. Zubia went into labour during the night and was referred to the district hospital by the health camp staff. However, Zubia did not have enough money to pay for private transport to take her to the hospital so her mother, who was a dai, assisted her to give birth in the relief camp. She was satisfied with her decision to stay in the camp and be assisted by a dai, as going to the hospital would have cost her money and caused a delay in seeking birthing care, which could have placed Zubia and her baby’s life at risk.
How could we have gone to the Civil Hospital in another city without any transport? I did not have enough money to go on my own. It was night-time. In the end, my mother helped me to deliver the baby. She is a dai as well. Thank God, I made a good choice and did not waste time to go to the health facility. (Zubia, age 31 years, Ali Malah)

Similar to Zubia, Haseena also gave birth in the relief camp because she could not afford to go to the Civil Hospital in Hyderabad. She was in labour for more than two days so the dai recommended that she give birth in a health facility. The doctor at the health camp gave Haseena a referral slip to take to the Civil Hospital, Hyderabad, but without transport support. Haseena did not have enough money to organise transport so she decided to stay in the camp and use a dai’s assistance for birth. Haseena’s family did not receive a tent so they lived in a temporary shelter. She described her experience of birthing in the camp as embarrassing. She gave birth outside their temporary shelter, with no privacy, because the shelter was small and other family members such as her children and in-laws were living there. To maintain Haseena’s privacy, seven or eight women from her para formed a circle around Haseena and her dai. The women used thin quilts (called rillis) or bedsheets as a barrier so that no one from outside could see Haseena giving birth. Four more women shared the similar stories and said that they did not have a bed to lie on to give birth, so they gave birth lying on the ground under the open sky.

I gave birth outside our shelter house, as our other family members were living there as well. Seven to eight women from my para covered myself and the dai with bedsheets and rillis to maintain the privacy of birthing. It was very awkward because birthing is a very private matter for any woman. (Haseena, age 32 years, Ali Malah)

According to the NDMA disaster response policy and MISP guidelines for pregnancy and childbirth care during natural disasters, pregnant women (in their last trimester) must be provided with clean delivery kits, especially in areas where health-care facilities become inaccessible as a result of disaster (303, 304). However, this was not the case in Katcho villages, as none of the study participants received clean delivery kits from the health camp. Women who were assisted by a dai used local birthing kits which they made prior to coming to the relief camp. As part of their cultural practice, every pregnant woman prepares a bag (I would refer to it as a local
birthing kit) when she is about 28 to 32 weeks pregnant. The kit includes baby clothes, oil for massage, soap, water bottle, blade (to cut the umbilical cord), and some extra clothing for the mother. The reason for preparing the birthing kit is that if a labouring woman is unable to access the maternity-care facility or a skilled birth attendant, and the delivery is conducted by a dai or family members, all the necessary birthing equipment is in a bag for the labouring woman and her birth attendant to use. All women who gave birth in the relief camp stated they used local birthing kits at the time of labour.

### 7.2.4 Choice of birth attendants at different phases of floods

Of the 332 flood-affected women included in the study, 4.22% (95% CI 2.32-6.97) gave birth one week before the river bank flooded, 49.7 (95% CI 44.1-55.2) gave birth within four to six weeks before the river bank flooded, and 46.1% (95% CI 40.6-51.6) gave birth after the floods.

The dais’ utilisation was highest immediately in this phase because there were heavy monsoon rains, so women gave birth in their homes with the help of a dai. During the floods, the utilisation of doctors slightly increased, as some of the women were able to organise transport to reach the referral centres. However, all the births that took place in relief camps were assisted by a dai. The proportion of births assisted by an SBA (doctors, midwives, and LHVs) increased after six to eight weeks of flooding when women returned to their homes and road conditions became better. Figure 7.1 shows women’s utilisation of birth attendants in different phases of the floods.
7.2.5 Challenges faced by pregnant and postpartum women in the relief camp

There was no separate, private, and safe place allocated for pregnant and lactating women in the relief camp. Nishat from Syed Peerani, whose family was not provided with a tent, said that they lived in the relief camp without any shelter at all. Nishat was seven months pregnant and did not have a place to sit or rest, which she found difficult. After staying in the relief camp for two days she decided to return to her semi-damaged house in the flooded village as her health was deteriorating in the relief camp.

I came back after spending two days at the camp. We were sitting without any shelter. I was seven months pregnant. There was no place to sit or rest, I had to sleep on the floor. At least pregnant women should have access to a place where she can have a little bit of rest. (Nishat, age 31 years, Syed Peerani)

Ten of the 15 women who gave birth in the relief camp left the camp within a week of giving birth. Postpartum women stated that they felt too embarrassed to breastfeed their infants in the company of others, especially in front of men who were generally strangers. Zubia said that it was very hard to breastfeed babies in the relief camp. The shelter that Zubia’s family constructed did not have a private space for her
to breastfeed her newborn, as other family members of both sexes also shared the living space. She considered that lactating women should have been provided with a private area to breastfeed their infants as well as additional support to establish breastfeeding.

After the baby was born the hardest thing was to breastfeed the baby. The shelter we made was not private and other family members were sharing the same space. It was especially hard during the day when everyone was around. I felt embarrassed to breastfeed in the presence of other men from our family. There should have been some separate place for lactating women so that they can breastfeed easily during the day. (Zubia, age 31 years, Ali Malah)

Moreover, postpartum women found it hard to go to the toilet during the day because the temporary toilet block was far from their temporary shelters, they were not private, and were overcrowded. Moreover, women reported cases of snakebite and malaria, which heightened their concern for their newborn’s health and wellbeing, in addition to the health challenges they faced in the postpartum phase, as noted above. Newborn babies slept with their mothers either on the charpai (a lightweight bed frame) or on the floor. Aisha, who returned to her home after her birth for a similar reason, said there were mosquitoes and she was unable to find a mosquito net for her newborn baby as well as her other children. She did not want to put them at risk of malaria or any other contagious diseases, so she left with her five-day-old newborn.

7.2.6 Social support

All the women who gave birth during the floods said that they received considerable family support during the floods. As mentioned earlier, Aisha’s family organised and paid for her travel and hospitalisation costs after being referred to the Civil Hospital in Hyderabad with obstetric complications. They did not have money for transport or the hospital fee so her husband collected money from his relatives, who were also poor, to cover the costs. Nida said that her mother and sisters helped to care for her children and prepared food and washed their clothes during the postpartum period.
My relatives were also very poor, but they helped us as an act of kindness. That’s why family matters. (Aisha, age 35 years, Haji Buksh)

My sister looked after my young children. I rested for about a week after the delivery with my baby. She made me food and washed my clothes. (Nida, age 28 years)

Samina from Syed Peerani said that her family were not given a tent to live in but her brother’s family were. At the time of her birth, Samina’s brother shared his tent with her and she continued to live in his tent after the baby was born.

My family didn’t get a tent, but my brother who lives in a different para got one. At the time of childbirth, there was no covered space, so his family shared their tent. I also lived in his tent after the childbirth as well. (Samina, age 32 years, Syed Peerani)

Summary

During the floods in 2011, the District Health Officers were not trained and well-prepared to manage health care for the flood affected population. In the relief camp, community or facility-based health workers were not used to deliver pregnancy or reproductive health services. District health facilities such as the BHU and RHC were underutilised because the road conditions from relief camp to the district health facilities were worsened by the floods. Moreover, the referral system from health camp to health-care facility did not include transportation, which resulted in many women using a dai’s assistance for childbirth. In the relief camp, women gave birth in unhygienic and unsafe conditions with the help of family members and/or a dai. There was no female friendly space for pregnant, breastfeeding, and postpartum women. The next chapter discusses the study findings (Chapters 3 to 7) with the contemporary literature to propose maternity-care model during floods and in regular circumstances for women in rural Pakistan.
Chapter 8: Discussion

8.1 Background

Pakistan is one of the ten countries that account for 58% of global maternal deaths, and 9.1% are women of reproductive age (6). As a signatory to the SDGs, Pakistan has committed to reducing the global MMR to less than 70 per 100,000 live births by the year 2030 (1). To reach this target, the SDGs recommend that every woman and adolescent girl should receive CoC from a healthcare provider prior to conception, during pregnancy, at the time of childbirth, and during the postnatal period, so that no women or adolescent girls die of preventable conditions and all newborn infants can grow into thriving children (3, 4). In 2017, Iqbal and colleagues used the PDHS 2013 to measure CoC utilisation in Pakistan and stated that only a quarter of women utilised all components of CoC across Pakistan (10).

A key finding of this study is that 3% of women from Katcho villages utilised CoC in their last pregnancy; women had no expectation that they would receive a continuum of maternity care services. The referral system required to support CoC already exists in Pakistan’s health system, however, there is a lack of direction provided to the rural health workers from their respective programs to deliver continuum of maternity-care services. Health workers showed a willingness to work together as a team to deliver the evidence-based maternity care at the community level, but the existing system does not support them to do so.

I argue that in the presence of a well-structured primary health-care system and an extensive network of health workers, little transformation is required for the existing system to implement CoC, especially in rural Pakistan. Thus, I propose a parsimonious maternity-care model which can address the existing gaps and inadequacies of the existing structure with minimal changes to the original health-care system. The model would utilise the existing health workforce and infrastructure to provide skill-based maternity care in a place (home or facility) that is of women’s choice, and that best manages the health-care needs of mothers and their infants. Furthermore, the proposed model has an extended version for natural disasters and in emergency settings, where the existing rural health workers could be used as front-line maternity-care providers in settings such as relief camps.
The chapter is divided into six sections. From sections 8.1 to 8.4, I describe the study findings along with the evidence-based literature on four stages of maternity care in the light of a CoC approach. In sections 8.5 and 8.6, I will describe the recommended maternity care model at different stages of pregnancy and its application in regular circumstances as well as in natural disaster and emergency settings.

8.2 Preconception care – Reproductive health services

In the CoC model, preconception care is a combination of interventions which are essential to ensure healthy transition of women from preconception stage to pregnancy (305). At the preconception stage, every girl and woman should be able to access reproductive health services to be able to prevent against unwanted pregnancy or space between births. Ahmed et al. estimated that if every girl and woman was able to access and utilise contraception, the global MMR could be reduced by 44% (306). In Pakistan between 2006 and 2013, only a third of women of reproductive age had ever used modern contraception (11). Cultural barriers and side effects are the key barriers of modern contraceptive utilisation by women in Pakistan (11, 307).

Poor contraceptive utilisation was also noted in this study, as only 20% of women had ever used modern contraceptives in last five years. The fertility rate was higher among Katcho women, and women do not use modern contraceptives to space between births. The major reasons for poor contraceptive utilisation include lack of reproductive health education for young females before marriage and poor communication between family planning providers and married women.

8.2.1 Lack of reproductive health education for young girls

In conservative societies where early marriages are common, adolescent pregnancies are amongst the leading cause of maternal deaths(9, 308). Girls from conservative societies often do not receive sexual and reproductive health education from their parents because it is considered taboo (309), or from school as most of the girls have never been to school (310). This was similarly noted in Pakistan, where Qazi (311) highlighted the lack of knowledge of adolescent females about contraception, pregnancy, and menstrual hygiene (312). In Pakistan, limited sexual and reproductive health (SRH) education is taught at school level. In a qualitative study, Hennink et al.
(313) showed that young females both married (married for less than two years) and unmarried have inadequate knowledge about sexual and reproductive health, which often comes from mothers, peers or married sisters. At schools, information about the reproductive health system is introduced in grade six in the Biology subject. However, information about menstruation, sex, contraception, and STD are not taught either at primary or secondary school to young adolescent girls and boys in public and private schools (313). As part of the LHW and CMW program policy, home-based contraceptive counselling, or provision of contraceptive is only offered to married women. However, unmarried women or young girls can access contraceptive services from family welfare centres. A number of resource-poor countries used adolescent-friendly centres to provide sexual and reproductive health to adolescent boys and girls; comprehensive guidelines to establish adolescent friendly centres are available through the WHO document centre (314). Both Bangladesh (315) and Egypt (311) tested a similar approach to deliver reproductive health education to out-of-school rural female adolescents who belong to the lowest SES. The adolescent-friendly centres were established with the consent of communities after rigorous awareness-raising sessions of parents and community leaders by community health workers. Both studies reported girls’ increased knowledge about contraception utilisation, age-appropriateness for marriage and child bearing, and a greater level of trust towards health education providers (311, 315). Buchmann et al. (316) conducted a two-arm control trial in Bangladesh; in one arm parents were encourage to postpone daughter’s marriage until 18 years and received cooking oil as an incentive on monthly basis (for the project duration), whereas girls from the second arm received a functional literacy program including a reproductive health component in adolescent friendly centres (referred as safe space in the study). The findings showed that girls who received incentives were 22% less likely to be married before the age of 18 and 14% more likely to be in school between 22 to 25 years of age; whereas the functional health literacy program improved girls’ knowledge about contraception but had no significant impact on advancing their marital age. To date, adolescent friendly centres have not been established in Pakistan, therefore, there is an urgent need to address the lack of sexual and reproductive health education for the adolescent population.

In Katcho villages the combination of poverty, early marriage, limited knowledge about reproductive health, and poor access to modern contraception, make
young girls vulnerable to adolescent pregnancy. The limited reproductive health education opportunities for young girls before marriage were noted as a barrier by the LHWs. The LHWs highlighted that the reproductive health awareness-raising sessions target married women because discussing this issue with young or unmarried women is culturally inappropriate. Similarly, unmarried women are not allowed to participate in community awareness-raising sessions delivered by the LHWs about modern contraception or family planning. The lack of pre-marital contraceptive counselling and young girl’s limited knowledge of sexual and reproductive health (SRH) are key determinants of high fertility rates, anaemia, and poor pregnancy and birth outcomes.

As discussed above, in Pakistan, SRH education is not taught in schools, therefore, adolescent-friendly centres provide an alternate way to provide SRH education to young adolescents. The adolescent-friendly centres in rural areas have shown successful results in culturally-conservative countries like Bangladesh and Egypt (311, 315) where school teachers delivered SRH education. I recommend that a similar approach can be replicated in Katcho villages, where LHWs and FWWs can provide reproductive health education to the adolescent population since the number of female teachers are limited in Katcho villages. The existing community health workers (LHWs and FWWs) can be the best alternate to the school teachers (as used in Bangladesh and Egypt model), because they are local, trained, trusted, and well-known in the community for reproductive health services, which makes them a good choice to deliver reproductive health services to adolescent, young, and unmarried women. For the space to conduct these educational sessions the LHWs can use the LHW Health House, which is dedicated to reproductive health community-based sessions for married women (see section 3.4.1). Moreover, CMW clinics and Family Welfare Centres can also be used for the same purpose in areas where the two facilities are easily accessible by female adolescents.

8.2.2 Poor communication between women and family planning providers

According to Dehlendorf et al. (317), effective communication between family planning providers and women is vital for the adaption and continuation of contraceptive methods. Effective communication is described as the provision of information about available contraception methods and their side effects, emergency
management of side effects, and understanding and addressing women’s cultural values and personal preference (temporary vs permanent) (318). In 2010, the Jordanian Health Communication Partnership (JHCP) initiated a national level, client-centred family planning program called ‘Consult and Choose’ (319). The intervention adapted WHO’s guidelines of “Contraceptive Use and Family Planning: A Global Handbook for Family Planning Providers” (320). The program focused on improving family planning counselling techniques and developing culturally sensitive counselling content for use by Jordanian family planning physicians. The physicians were provided pictorial cue cards which comprehensively explain contraceptive methods, side effects, and management of side effects in the local language. The physicians used the cue cards during consultations as well as giving them to women to keep for future reference. Findings of the study suggest that women’s satisfaction was significantly higher with the physicians who attended the Consult and Choose training and who used the pictorial cue cards during counselling sessions. Similarly, in Egypt, Tawab and Roter (321) compared the effectiveness of ‘client-centred’ vs ‘physician-centred’ family planning counselling models and suggested that the client-centred model increases women’s satisfaction with the contraceptive methods by three-fold and contraceptive continuation by seven months.

According to Katcho women, health workers (in the community and health facilities) provide information about various contraceptive methods but do not clearly describe their side effects. The side effects (both perceived and diagnosed) have a significant influence on women’s discontinuation of modern contraceptives. Furthermore, there have been situations when health workers have mistakenly administered birth control implants (inserted in the upper arm) to women who were already pregnant, which has created a lack of trust towards health workers. Conversely, health workers argued that it is women’s poor contraceptive compliance and their pre-existing beliefs about contraception that inhibit their uptake and continuation of modern contraception. The consequence of poor communication between women and physicians is discontinuation of modern contraceptive, poor birth spacing, and a high fertility rate. The different perspectives of women and health workers suggest poor health communication between both parties.

To deliver client-based reproductive health counselling to Katcho villages, the pre-tested Jordanian model of ‘Consult and Choose’ (319) can be used as a reference.
by family planning providers in Pakistan. As the Consult and Choose model was tested for women from a conservative culture and with a low literacy level, it is expected that the use of culturally sensitive counselling material and a client-centred counselling model would improve the contraceptive utilisation rate in Kacho villages. Table 8.1 shows how the proposed recommendation can be integrated into the existing system of maternity-care services in Pakistan.
Table 8.1 Recommendations for preconception care in Katcho villages

<table>
<thead>
<tr>
<th>Providers</th>
<th>Service delivery</th>
<th>Existing practices</th>
<th>Proposed practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>LHW and FWW</td>
<td>Community</td>
<td>• Provide oral contraceptives and condoms at community level.</td>
<td>• Provide nutrition counselling to married women with the intent to get pregnant.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide nutrition counselling to married women with the intent to get pregnant.</td>
<td>• Conduct reproductive health sessions for unmarried females in a health house.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Ensure provision of micro-nutrients to women before pregnancy.</td>
<td></td>
</tr>
<tr>
<td>FWC</td>
<td>Family Welfare</td>
<td>• Provide oral contraceptives and condoms at facility level.</td>
<td>• Use client-centred contraceptive counselling approaches, and help women to choose contraceptive suitable to their needs.</td>
</tr>
<tr>
<td>Centre</td>
<td>Welfare Centre</td>
<td>• Provide unbiased contraceptive counselling and care regardless of marital status, age, and socio-economic status.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Use improve counselling content materials during contraceptive counselling.</td>
<td>• Provide unbiased contraceptive counselling to unmarried women, regardless of age, marital status, and caste.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Counsel women on the benefits of birth spacing.</td>
<td>• Provide genetic consultations before pregnancy.</td>
</tr>
<tr>
<td>LHV/midwife /BHUBMO</td>
<td>BHU</td>
<td>• Treat pre-pregnancy maternal diseases.</td>
<td>• Refer women to Family Welfare Centres and tertiary hospitals for preconception care screening.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Counsel women on the benefits of birth spacing.</td>
<td>• Provide consultations on nutrition and genetic counselling before pregnancy.</td>
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<tr>
<td>CMW</td>
<td></td>
<td>• Counsel women on the benefits of birth spacing.</td>
<td>• Refer women to Family Welfare Centres and tertiary hospitals for preconception care screening.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Provide consultations on nutrition and genetic counselling before pregnancy.</td>
</tr>
<tr>
<td>Management</td>
<td>Organisational</td>
<td>Provide technical, logistic and financial to Family Welfare Centres and FWWs.</td>
<td>• Identify funding resources to establish adolescent-friendly centres in rural villages.</td>
</tr>
<tr>
<td>Family Welfare</td>
<td>level</td>
<td></td>
<td>• Train FWWs and FWCs to deliver adolescent reproductive health education for rural girls from conservative backgrounds.</td>
</tr>
<tr>
<td>Program</td>
<td></td>
<td></td>
<td>• Implement ‘Consult and Choose’ model to provide culturally-sensitive and personalised contraceptive counselling to girls and women.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Train FWWs and FWCs to use counselling material for improved reproductive health counselling.</td>
</tr>
</tbody>
</table>
8.3 Pregnancy care – ANC utilisation

In the CoC model, ANC brings multiple advantages to pregnancy; for example, it encourages women to seek skill-based care during and after pregnancy, increases the early identification of obstetric complications, improves the utilisation of SBAs for birth, and provides an opportunity for contraceptive counselling to space following births (322). In Pakistan, rural health facilities offer comprehensive ANC services free of charge, which include ANC education, basic laboratory services, and management of obstetric complications (136, 166). Nisar et al. identified that in addition to poverty and lack of physical access to health facilities, women’s perceived absence of disease during pregnancy is a significant barrier to ANC utilisation in Pakistan (323). This was also reflected in the PDHS 2006, that found that three in four women who did not seek ANC services did not do so because they did not find them necessary (324). Agha and Tappasi stress the need to advocate for rural women to seek ANC services by an SBA as early as possible in their pregnancy so that preventative measures can be taken (325).

In Katcho villages 54% of women visited health-care facilities at least once during pregnancy and only 33% of them used an SBA’s services for childbirth. The WHO recommended practice of attending four or more ANC visits with health professionals is not practised (326). Women believe that ANC services are only required for women who have pregnancy complications such as vaginal bleeding, extreme headaches, abdominal pains, dizziness, and weakness. Under such circumstances, the number of visits depends on the improvement in a woman’s medical condition after the visit. Katcho women’s poor ANC seeking behaviour and limited contact with the health system results in many obstetric complications not being identified until the end of the pregnancy, many of which result in adverse maternal and neonatal outcomes. Moreover, women’s delayed uptake of ANC means that women are unable to utilise all components of ANC.

The study findings identified three critical gaps in the existing provision of ANC services; poor quality of home and facility-based ANC services, and limited attention given to the economic barriers that women face accessing health-care facilities.
8.3.1 Home-based antenatal counselling

In resource-poor countries where ANC utilisation is low, home-based ANC education by CHWs has been used as an effective strategy for many years. To improve the quality of home-based ANC counselling the widely used interventions are one-time additional training and monthly refresher courses to improve content knowledge and communication/counselling skills of health workers, incentivising pregnant women to seek ANC from SBAs and organising community-based awareness-raising sessions on the benefits of ANC utilisation. In Tanzania and Pakistan additional training of health workers significantly improved women’s ANC utilisation from health facilities (92, 327). In Bangladesh, a quasi-experiment trial by Rahman and colleagues (328) used community volunteers to provide home-based ANC counselling in addition to CHWs home-visits. The trial showed that ANC visits were significantly higher in the intervention district (89%) than in the control (69%). This similar intervention was implemented in Uganda for two years, which showed an 11 fold increase in women’s ANC utilisation from health facilities (329). Having said that, both in Uganda and Bangladesh the use of volunteers was accompanied with health workers’ training, incentivising pregnant women, and provision of clean delivery kits.

In this study, about 49% of women indicated that LHWs do not visit them during pregnancy despite having LHWs stationed in the villages. Although women preferred to receive some elements of ANC at home, women were not satisfied with the home-based ANC counselling by LHWs. According to women, LHWs focus on completing pregnancy records and they provide repetitive information about pregnancy care which most women do not retain. LHWs have stopped distributing iron and folic acid supplements and now women are not interested in home-based ANC because they are not ‘getting anything’ from the LHW. On the contrary, LHWs stated that in addition to providing pregnancy care information they also counsel other family members to allow pregnant women to use SBA services for maternity care.

Home-visits by LHWs are a great opportunity to encourage pregnant women to use SBA services during pregnancy. I recommend that the existing in-service LHW program include monthly refresher courses to improve LHWs’ communication and counselling techniques. Moreover, the provision of folic acid and iron supplements for pregnant women should be reinstated by the LHW program. Instead of using
community volunteers to deliver home-based ANC education, investment should be made to train the existing cadres of LHWs who are local, trained, and have been working in rural communities for more than two decades in Pakistan.

8.3.2 Quality of ANC services

In a multi-country DHS analysis, Hodgins and Agostino (330) showed a significant quality-coverage gap of ANC in resource-poor countries. This implies that not only women from resource-poor countries do not attend at least four ANC visits, but also that those who do so do not receive the complete pack of essential ANC services. To ensure the quality of ANC services, three contemporary interventions have resulted in improved ANC outcomes: the training of health workers improved coordination between community and facility-based workers, and group-based ANC education.

The first intervention, health workers’ training, is often used as a supportive intervention to implement the main intervention. For instance, in Ethiopia Villadsen et al. (331) used a multi-stage intervention in which health physicians’ received training on WHO-Focused Antenatal Care Services (332), health supervisors received training on ‘job-supervision’, and health facilities received laboratory equipment and medicine supplies from the project for two years. This intervention increased women’s knowledge about essential ANC services, self-care during pregnancy, and improved satisfaction with the ANC providers.

The second intervention is to improve coordination between community and facility-based health workers to ensure continuity of care from home to community. In Pakistan Bhutta et al. propose a regular monthly meeting of LHWs with BHU staff to ensure the CoC from home to community. In 2013 Ayisai et al. (333) conducted a randomised community intervention trial in which village health teams were provided with mobile phones to enable them to make regular telephone consultations with doctors or midwives during their home-visits for ANC education. The study showed a significant improvement in women’s pregnancy and new-born care seeking behaviour and delivery with SBAs.

The third intervention, group-based ANC education, is a rather contemporary intervention in the context of resource-poor countries. For group-based ANC, eight to
twelve pregnant women at a similar gestational stage meet a midwife, nurse, or a doctor for a 90 to 120 minutes group consultation. Every woman receives the routine ANC assessment (measuring blood pressure, weight, foetal heart rate) which is followed by a group discussion on all aspects of pregnancy care such as healthy eating, childbirth preparation, contraception, and breastfeeding (334). According to Mirazo et al., (335) women who attended group-based ANC have lower rates of preterm birth, fewer Caesarean sections, and higher breastfeeding rates as compared to those who attended traditional ANC visits. Limited studies from resource-poor countries tested the group-based ANC approach. In Iran, Jaffri and colleagues (336) tested this approach in seven public health facilities with 320 women and found that use of group-based ANC is associated with greater cliental satisfaction and ANC utilisation. In Turkey (337), the antenatal health education program (similar to childbirth classes) for first-time expectant mothers showed increased rates of vaginal birth, early initiation of breastfeeding, and higher utilisation of postpartum contraceptives as compared to the women who attended routine ANC services. Currently, Sultana and colleagues have been implementing a clinical trial to see the potential of group-based ANC to improve the quality of ANC in rural and poor communities in Bangladesh (338). The cost-benefit analysis of the group-based ANC model in Bangladesh also suggest that it is a cost-effective model which can be easily adapted to the existing health-care setting in Bangladesh (339).

There were two BHUs and one CMW clinic located close to Katcho villages, however, only 43% of Katcho women sought ANC services from an SBA (Section 5.3.2). Women were not aware of the need for essential screening procedures during the first and second trimesters of pregnancy, neither were they were provided with first-trimester pregnancy screening at a BHU. The WMO performed the routine clinical assessment for pregnant women and provided medication for high blood pressure and iron deficiency anaemia. Facility-based health workers recommended women seek SBA assistance for delivery, however they do not discuss birth plans, cost of delivery, funds to travel to the facility, and provision of emergency transportation with women. Conversely, facility-based health workers stated that women’s delayed ANC seeking behaviour is a significant barrier to providing essential ANC services. Many pregnant women attend ANC once during pregnancy, usually in late second or third trimester, so they miss out on early screening opportunities. Since the PPHI
started regulating BHUs, they have ensured the punctuality of medical staff and the availability of essential medicines at the BHUs, however, the PPHI lack the focus on improving their staff capacity to strengthen their clinical skills.

I recommend that all cadres of health workers need refresher training on WHO-Focused ANC Services (332) which currently is part of the in-service training for WMO, LHV and midwives in Pakistan. To improve the coordination between LHWs, FWWs, and BHU staff, I recommend that they should work in small health teams who will meet every month to discuss the progress of pregnant and postpartum women from the health workers’ respective communities. The details about these small health teams and their coordination is discussed in Section 8.4. Sultana and colleagues (338) argue that despite the potential effectiveness of group-based ANC in lower SES and culturally conservative settings, the approach has not been tested in resource-poor countries. I recommend that group-based ANC services should be tested in a community-setting by the CMW in Pakistan. The para-setting provides an ideal place to deliver small groups-based ANC services, and CMWs, as community-based SBAs, are the perfect choice to deliver this model. This would also be a cost-effective approach because instead of providing door-to-door home-based ANC, a CMW can deliver the similar services in one place for more women.

8.3.3 Improving geographical accessibility for ANC services

There is substantial evidence that rural women who live in geographically hard-to-reach areas are unable to ANC services due to high travel costs to and from home to facilities (322, 340, 341). In the past decade, there was a rise in demand-side financing schemes to address economic barriers to accessing maternity-care services (106, 115, 116). Voucher schemes which include free maternity-care services and a transportation allowance have been successfully tested and implemented in Bangladesh and Cambodia to improve women’s maternity care utilisation from SBAs (98, 106). The only difference between these two programs was that in Cambodia vouchers could only be used in public health facilities. The evaluation reports of two large scale projects ‘Pakistan Initiative for Mothers and Newborns’ and ‘Social Franchising – Marie Stopes International’ provided evidence that targeted vouchers can improve utilisation of facility-based maternity care and are particularly effective for women from the lowest wealth quintile, however, to date, the voucher scheme had
not been scaled at a national level in Pakistan (116, 168). In 2016 the Government of Pakistan offered health insurance to families from the lowest SES (family income less than PKR6000), however, the program only allow women to use birthing care from an SBA (public or private), and does not include utilisation of ANC services (177).

In this study, geographical inaccessibility was a major barrier to accessing all maternity services. The nearest public health facility for women in Katcho villages was 20 to 25 kilometres away and most of the private providers were based in TMK city. Depending on the mode of transportation, women have to pay PKR30-500 (US.30 cents to US$5) for transportation from their homes to a health-care facility (see Appendix 7) which is unaffordable for most of the women. ANC was utilised more by women who lived within two kilometres of the BHU (refer to Section 5.3.2). Due to the remoteness of the village, poor road networks, and a lack of public transportation travel using private transport was the only option for many women when seeking maternity care. Until the time of data collection, there had been no demand-side financing schemes or health insurance schemes offered to Katcho residents to utilise ANC services.

In addition to the existing health insurance program in Pakistan, there is a need to address the geographical access barriers for women who live in remote areas. The Cambodian model of a voucher scheme is best-suited to the free public health system in Pakistan which offers free maternity care services, medicines, and basic laboratory services through BHUs. This implies that if a voucher scheme is implemented for the underprivileged population in Pakistan, it only has to provide transportation costs to and from health facilities for the number of times a woman visits a rural health facility for pregnancy care. Moreover, as Jawahar recommended, a pregnant woman should be provided with the transportation money before their scheduled visit to ensure that they have sufficient money for use on the day of an ANC visit (342). The voucher scheme can either be funded by the provincial Ministry of Health or become the part of the national health insurance program (see Section 8.6). LHWs in each village can help identify eligible women and deliver maternity-care vouchers to them. In addition to other maternity care services, vouchers also be used to reimburse CMWs’ transportation and service costs to deliver group-based ANC in rural communities if the group-based ANC model is tested in Pakistan.
### Table 8.2 Recommendations for ANC services in Katcho villages

<table>
<thead>
<tr>
<th>Providers</th>
<th>Service delivery</th>
<th>Existing practices</th>
<th>Proposed recommendations included in the new model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Continue</td>
</tr>
<tr>
<td><strong>Health workers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LHW</td>
<td>Community</td>
<td>• Conduct home-visits.</td>
<td>• Provide folic acid and iron supplements.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Administer TT vaccinations.</td>
<td>• Counsel all women on early presentation for ANC services and to attend all four visits at the nearest BHU.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Collect pregnancy records.</td>
<td>• Educate women about danger signs during pregnancy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Counsel women to attend at least four ANC visits during pregnancy.</td>
<td>• Keep a detailed pregnancy record by using a ‘pregnancy health card’.</td>
</tr>
<tr>
<td>CMW</td>
<td>Community</td>
<td>• Provide ANC visits at CMW houses.</td>
<td>• Visit communities with LHWs to introduce themselves and encourage them to seek ANC services from an SBA.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Keep a detailed pregnancy record by using a ‘pregnancy health card’.</td>
<td>• Counsel for SBA utilisation for childbirth and postpartum care.</td>
</tr>
<tr>
<td>LHW/midwife/WMO</td>
<td>Facility</td>
<td>• Prescribe prenatal vitamins and administer TT vaccinations.</td>
<td>• Provide personalised counselling to women.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Identify obstetric complications through ANC screening.</td>
<td>• Provide all components of ANC services.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Manage complication or refer to next level facility.</td>
<td>• Educate women about danger signs during pregnancy and explain stages of labour.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Counsel for SBA utilisation for childbirth and postpartum care.</td>
<td>• Keep a detailed pregnancy record by using a ‘pregnancy health card’.</td>
</tr>
<tr>
<td><strong>Management</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LHW program</td>
<td></td>
<td>• Ensure provision of folic acid and iron supplements in the budget.</td>
<td>• Train LHWs on the revised counselling content</td>
</tr>
<tr>
<td>District Health</td>
<td></td>
<td>• Organise in-service training for WMO, LHW and midwives to deliver focused ANC services(332)</td>
<td>• Act as an approval authority for maternity care vouchers</td>
</tr>
<tr>
<td>Department</td>
<td></td>
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<tr>
<td>MNCH department</td>
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</tbody>
</table>
8.4 Care during childbirth

The CoC model stipulates that for low-risk pregnancy a woman, if she prefers, should be able to use SBA assistance at home, provided that emergency transportation is readily available to transfer her to the next level of care in case of obstetric emergencies (146). Conversely, a woman may use birthing facilities where she can be assisted by a trained midwife or a doctor (146). The main idea is to ensure that women continue to receive uninterrupted SBA care at home or in a facility during pregnancy and childbirth.

In Katcho villages CMWs provide home-based skilled birth assistance, whereas women can utilise all components of maternity care free of charge in public health facilities. In this study, only 13% of women accessed the CMWs and public health facilities for birthing care, whereas the remaining women used dais and private practitioners. More than half the women surveyed used a dai because she was reliable, affordable, and accessible, including during the floods. Women in Katcho who organised transport and had sufficient funds to pay the consultation fees utilised birthing care services from private midwives.

8.4.1 Home-birth with an SBA

Globally every year approximately 52 million births occur at home without an SBA (343). In 2004, the WHO recommended SBA care for pregnancy and childbirth; as a result many countries, such as Afghanistan, Pakistan, Kenya, and Bangladesh, initiated community midwife (CMW) programs to provide home-based SBA assistance for normal birth (103, 107, 108, 344-346). The CMW programs face similar challenges across countries; such as lack of transportation support to access geographical remote and armed conflict locations, gaining community trust, gendered mobility restriction, and insufficient supplies and equipment (103, 107, 108). To address the financial barriers, in Afghanistan Turkmani et al. (108) suggested that a hardship allowance be provided to CMWs who work in conflict zones. In Pakistan, the DKT Foundation funded a “Dhanak Clinic project” to provide infrastructure support for CMW clinic (347). Between 2012 and 2014, the DKT Foundation renovated 850 CMW clinics, provided essential medical equipment and supplies for a functional maternity clinic, and trained CMWs as reproductive health counsellors at the
community level. There has been no project evaluation which can inform its impact on women’s utilisation of maternity-care services or contraception, however, it has definitely made CMW clinics functional in some parts of Pakistan.

Home-based SBA care was not available in Katcho villages. Only two CMWs from Katcho villages attended the CMW program, and both reside in Tando Jhark. Other river-facing remote villages did not have a local CMW. The CMWs showed lack of willingness to provide home-based maternity care services in Katcho villages because of their perceived images as a dai. All CMWs showed their preference to work in a facility or in the CMW clinics because facility-based workers are more respected than community based workers. The MNCH department do not provide essential equipment and medical supplies required for the CMW clinics, despite the fact that it is the part of the CMW program. As a result, many CMWs do not open their clinics in rural communities. Moreover, there is no provision of transport costs or allowances for CMWs to attend home-births in sparsely located communities. The DKT Foundation refurbished and provide essential medical supply in one CMW clinic in the study district.

To encourage CMWs to work in hard-to-reach communities, they should be provided transportation allowances or provision of transport by the MNCH department. This was also recommended by Turkmani (108) for CMWs working in conflict zones in Afghanistan. Moreover, maternity-care vouchers can be an effective way to reimburse the travel and service costs of CMWs’ home-based services (see Section 8.6). Moreover, to cater to the CMW’s preference to work in a health facility, the MNCH program should develop a partnership with organisations like DKT International (347) to share the financial burden of setting up CMW clinics in rural Pakistan. Existing health workers (LHW and LHV/midwives) which are well-known amongst community members should also promote local CMWs during their interactions with rural women as a SBA, who is educated, trained and have authentic knowledge about the labour obstetric matters.

8.4.2 TBAs’ revised role as birth companions

In a multi-country DHS analysis (2003-2010), Montage and colleagues stated that in resource-poor countries 56% of home-births are attended by untrained professionals and 41% by TBAs (348). Rural women prefer TBAs because they live
close to them, are experienced, accessible at all times, provide services at nominal rates, and accept payment in instalments (23, 104). In Zambia, Sialubanje (349) women preferred TBAs because they are more empathetic, remain close to the women from labour until after childbirth, and in cases of obstetric emergencies they accompany women to the hospital. The WHO guidelines about the choice of labour companion (350) suggest that during labour a woman can choose a birthing companion from her family or community. The birthing companion will stay close to her during labour for reassurance and assists with measures for physical comfort (e.g. providing comforting massages, warm baths or showers, and promoting adequate fluid intake and output) (350). Following a similar guideline, in Somaliland TBAs were trained as birth companions who would encourage a woman to have an institutional birth, accompany her to the hospital during labour, and stay with her after the baby is born. The qualitative evaluation of the intervention suggest that the intervention has significantly increased women’s rates of access to facility-based births and satisfaction with the birthing process (351)

In Katcho villages dai assisted births are more common for normal births, and when complications arise dai refers women to health facilities. Women prefer dais because they are from the same community, are reliable, and are experienced birth attendants. In facilities, the dai bridges the communication gap between the women and the health staff; as she explains the women’s condition to health workers, duration of labour, and the reasons for the referral to the health staff. A dai’s role as a communicator between women and facility staff is paramount when maintaining respectful maternity care, as the dai ensures that the birthing woman is supported and respected during the birth.

I recommend that, in areas where the CMWs are trained and deployed, the LHWs and CMWs should include dai as a birth companion, who encourage pregnant women to use SBA care and allow the dai to accompany women during labour. This way, the money that woman pay to a dai for birthing services would still go to the dai, whereas the CMW services can be paid by maternity-care vouchers. At present, the dai accompany women to the facility and remain with them during labour. The facility staff should be counselled to respect women’s preferences of labour companion and show respect for the dais’ indigenous knowledge about birthing as well as the emotional support they provide to labouring women.
8.4.3 Poor Access to Emergency Transportation

Most of the demand-side schemes for maternal health address the geographical access barriers by providing transportation vouchers or conditional cash to the pregnant women. This intervention is feasible for areas which have ready access to transportation, however, the same intervention will not be effective for hard-to-reach communities with limited access to transportation. In Southern Malawi, bicycle ambulances (bicycle with a stretcher) were offered as a transportation alternative to rural women who lived within two to five kilometres of a health facility (two hours walking distance) (352). However, women did not use the service because they felt that bicycle ambulances drew unwanted attention to them during labour and so preferred to walk to the health facility. Since 2009, the Janani Express Yojana project, in Madhya Pardesh, is providing free of cost transportation services for rural women through a state-sponsored initiative (353). The Department of Health in Madhya Pardesh contracted private agencies to provide vehicles for emergency transportation; whereas the pool of vehicles is being managed by the UNICEF-funded district call centres. This is a good example of public-private partnership, where the state involved private sector and INGOs to reduce maternal mortality. For a woman, to get emergency transport, she or her family member would contact the call centre (open 24 hours), and the vehicle would pick up the woman from home and drop her at the health facility. According to Sidney et al., (354) the service was largely utilised by women from low SES, marginalised castes, and those living in remote regions. Mian et al. (355) reviewed the major transportation interventions in Pakistan and suggested that with an improved number of facility-based ambulance networks, access to emergency transportation can be improved in rural Pakistan (355).

Ambulance services, including facility-based and private ambulances, are not available in the Katcho area. For delivery care, Katcho women normally commute either by public bus or organise private transport such as bull cart, motorbike (driven by a male member) and chinchi (three wheelers). However, in cases when emergency transportation is required (e.g. rapid labour), having access to a decent vehicle (to transport pregnant/labouring women) becomes a challenge. The cost of renting a vehicle is high and often there is no vehicle in the community which can be used. In the absence of emergency transportation, many women choose not to visit a health facility regardless of the severity of their condition.
Pakistan has two large networks of philanthropic ambulance services, Edhi and Chipaa, which provide ambulance services at nominal rates. Pakistan can replicate the Janani Express Yojana model and instead of using private agencies the Department of Health can collaborate with the Edhi and Chipaa Foundations to deliver emergency transportation for rural women. In 2009, the PAIMAN-USAID signed a Memorandum of Understanding with the Edhi Foundation that the Edhi Foundation would allocate 40 ambulances in seven PAIMAN districts to provide free of cost transportation from home to health facilities (168). This gives a supporting argument for my model that a similar arrangement can be made between the Department of Health and the Edhi or Chipaa Foundations to provide emergency transportation for labouring women in rural districts of Pakistan.

8.4.4 Overreliance on the private sector

In a multi-country analysis of DHS data, Montagu and colleagues showed that public health facilities are not well utilised for childbirth amongst the poorest quintile of South Asian women (348). Cost, access, perceived quality of care, and cultural preferences for home births were the main reasons why poor women decided not to give birth in a health facility. However, it was also noted that there were common perceptions about the reliability and accessibility of private care and this influenced women’s maternity utilisation of public facilities (140). The private sector was being utilised equally by rich and poor women in Pakistan because of the poor quality of services in public facilities and the perceived effectiveness of the private sector (356). Shaikh and Hatcher highlighted that while the private health sector in Pakistan held some accredited outlets and hospitals, the sector remains largely unregulated, especially in the rural regions, due to the absence of a state legislative authority (356, 357).

In this study, private providers were utilised more by women than public providers for ANC (46.2% vs. 14.2%, respectively) and delivery care (36.9% vs. 7.9%, respectively). Private providers were considered to be more reliable and accurate at diagnosing a problem. Women reported that they used private providers more when there was a complication during pregnancy and when their labour failed to progress. Despite many private midwives’ practices at small clinics with minimal diagnostic facilities, their utilisation remained higher than for LHV/midwives in public facilities,
which offer free consultations and medication, as well as diagnostic tests at subsidised costs. The privatisation of BHUs has improved the infrastructure and availability of facility staff, but women’s BHU utilisation is far below that of the private providers.

Private sector utilisation is a concern when a poor individual, with meagre resources, is required to pay for their care. Pakistan has an extensive network of primary and secondary-care facilities across the country (157) which are underutilised due to the perceived ‘poor’ quality of services. In 2009, many of the primary and secondary public health-care facilities were outsourced to private NGOs, PPHI in Sindh, and PRSP in Punjab by the Provincial Ministries of Health with the intent to improve service utilisation (136, 166). Their higher utilisation of private facilities in the presence of a free public health system demonstrates women’s lack of trust in facility staff as well their perceptions of the poor quality of care being provided at public facilities. It is important to break the stereotypes about public maternity-care services and care providers and to inform women about the services available in BHUs and RHCs and to encourage women to utilise them.

8.4.5 Absence of respectful maternity care in public health facilities

Health providers’ attitudes and behaviour during labour had a profound impact on women’s choice to deliver in a health facility. In many resource-poor countries, the health facility staff are reported to demonstrate aggressive behaviour towards labouring women, ridicule women’s poverty, illiteracy, smell, hygiene, and their desire to remain clothed during labour, and are not responsive to their needs (18, 140, 141) (see Section 1.3.3). In 2011, the White Ribbon Alliance recognised these seven areas as part of the Universal Rights of Childbearing Women Charter to help make childbearing women feel safe and respected during birthing (219). Reis et al. (145) reviewed the maternity-care interventions in 15 countries and grouped them into six key interventions: training of health workers, ensuring quality improvement mechanisms, integrating respectful care into existing clinical guidelines and protocols, advocacy through community activities and media campaigns, and strengthening local laws and regulations to protect women against any kind of disrespectful behaviour. In 2014, the USAID and Population Council developed a comprehensive resource guideline for health managers, doctors, midwives and CHWs to deliver different parts of maternity care services in Kenya (358). The guide used role play and discourses as
a mode of delivery as it enables the participants to critically reflect on their professional practices. Similarly, in Burkina Faso, Ouedraogo et al. used participatory training methods to assist public health staff to learn and reflect on their interpersonal skills and ultimately improve their relationship with their patients (141).

Staff behaviour was reported as the main reason for women’s poor utilisation of public facilities in Katcho villages. Women had negative experiences in public facilities, such as being slapped and verbally abused by LHV's and midwives for not following their instructions during labour. Due to women’s negative experiences, many women decided not to return to the health facilities in the future. On the other hand, the facility-based staff hold strong views about rural women’s inability to understand midwives’ instructions during pregnancy or at the time of labour because of their lack of education or limited understanding about pregnancy and childbirth. As noted in Chapter 3, the BHUs in Katcho villages were contracted out to the private organisation PPHI. While the PPHI ensured the staff were present in the BHU, arrived at work on time, and improved the facility infrastructure and medicine stock, there was no improvement in staffs’ attitude and behaviour towards patients.

Pakistan is a signatory to the Universal Rights of Childbearing Women Charter (219). To ensure that every facility and maternity-care provider in Pakistan deliver respectful maternity care, the interpersonal skills of public health staff need immediate attention. The Pakistan Nursing Council can update the existing in-service training course for nurses and midwives the light of respectful maternity care, as it was done in Kenya and Burkina Faso (141, 358). Leadership at the national, regional, and facility level must ensure that health plans at all levels include women’s rights to receive respectful maternal care in community as well as at all health facilities (359).
## Table 8.3 Recommendations for childbirth during Katcho villages

<table>
<thead>
<tr>
<th>Providers</th>
<th>Service delivery</th>
<th>Existing practices</th>
<th>Proposed recommendation as included in the new model</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health workers</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LHW</td>
<td>Community</td>
<td>• Refer labouring women to a health facility.</td>
<td>• Refer labouring women to either a CMW or a primary health facility.</td>
</tr>
<tr>
<td>CMW</td>
<td>Community</td>
<td>• Perform normal delivery at the CMW clinic.</td>
<td>• Provide information to labouring women and family about emergency transportation.</td>
</tr>
<tr>
<td>LHV/ midwife/WMO</td>
<td>Facility</td>
<td>• Perform normal delivery at a health facility.</td>
<td>• Use the free ambulance service (Edhi or Chippa) to transfer women from a CMW clinic to a BHU in cases of obstetric emergency.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Refer women to next level of facility in cases of complication.</td>
<td>• Allow TBAs as birth companions during labour.</td>
</tr>
<tr>
<td>MNCH department</td>
<td></td>
<td>• Continue supervision of CMWs for quality assurance.</td>
<td>• Work as a reproductive consultant in addition to maternity care provider, if the district MNCH Program partners with the DKT Foundation to establish CMW clinics.</td>
</tr>
<tr>
<td>PPHI &amp; District Health Department</td>
<td></td>
<td>• Continue supervision of BHU staff for quality assurance and ensuring provision of respectful maternity care.</td>
<td>• Establish partnership with NGOs such as the DKT Foundation to establish CMW clinics.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide CMWs with the necessary medicines and equipment required to perform normal delivery.</td>
<td>• Training of LHVs and midwives about respectful maternity care.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Establish partnership with Edhi or Chippa foundation for patient transfer from home to facility.</td>
</tr>
</tbody>
</table>
8.5 Postnatal care (PNC)

Globally, there are nearly 300,000 maternal deaths every year, and most of these deaths occur within 48 hours of giving birth (31, 360); which makes the first two PNC visits (within 24 hours, within 48 hours) crucial to maternal survival (361). Koblinsky (362) argues that the barriers of PNC are similar to those experienced during pregnancy and include physical access barriers, perceived quality of care at the facility, and lack of knowledge about the danger signs. In Pakistan, one in 89 women die due to pregnancy related complications such as postpartum haemorrhage (PPH), puerperal sepsis, and eclampsia, whereby the PPH is the leading cause of maternal deaths (239). Pasha et al. argue that Pakistan’s stagnant MMR is due to poor intrapartum and postpartum care in health-care facilities in rural Pakistan (363).

Katcho women demonstrated a limited understanding about the preventative value of PNC. Instead, women sought post-delivery care when there was a postpartum complication. Women perceived routine PNC visits as unnecessary, expensive, and time consuming. A dai was their preferred PNC provider because she gave women and newborns a massage seven to ten day after delivery and also performed domestic chores. Similarly, all health workers who participated in this study thought that PNC should only be sought for obstetric complications. The health workers’ perception contradicts the WHO’s recommendation that PNC needs to be delivered without exception.

The recent WHO guidelines for PNC recommend four PNC visits: on the first day (24 hours), day 3 (48-72 hours), between days 7-14, and at six weeks. For resource-poor countries, home-visits by community-based SBAs or a trained CHW and provision of demand-side financing are recommended.

8.5.1 Home-based PNC services

With targeted PNC interventions, Nepal was able to reduce its MMR from 538 in 1996 to 170 in 2011. The interventions included the provision of misoprostol to pregnant women at around 38 weeks of pregnancy to minimise the risk of PPH, and home-based PNC visits by CHWs on days 1, 3, and 7 after childbirth. Similarly, in the Manoshi project in Bangladesh, women were provided with birth assistance by SBAs
and small birthing centres, and CHWs provided five home-based PNC visits (for days 1, 3, 7, 21, and 28) to ensure the continuity of care from SBA-delivery care to PNC. In Pakistan, home-based PNC services were tested by Bhutta et al. to deliver integrated MNCH intervention at the community level. The intervention improved women’s knowledge about danger signs in the postpartum period, early initiation of breastfeeding, and reduced neonatal mortality (364).

Amongst all cadres of health workers, only the LHWs had consistent contact with women during and after pregnancy regardless of their birth attendant (SBA or dai). According to the LHWs, while they can deliver the essential components of PNC services such as information about danger signs during pregnancy, hygiene, and nutrition, they cannot provide effective counselling about modern contraceptives and postpartum complications due to lack of knowledge on subject matter. Conversely, PNC utilisation remains lowest for the facility-based workers. As a community-based SBA, the CMW can play an important role in the delivery of home-based PNC to women who, for cultural or geographic location reasons, are unable to utilise essential PNC services. Home-based PNC services are a part of CMWs’ existing role, however, they cannot provide this service because they do not have access to transportation.

The provision of home-based PNC services is a part of the existing maternity care system. All health workers (LHVs, midwives, and CMWs) need additional training on delivering essential components of PNC as well as effective counselling to postpartum women. I recommend that these trainings should be integrated to the existing in-service training by their respective programs. Furthermore, it is recommended that the LHW makes mandatory PNC home visits for six weeks to ensure exclusive breastfeeding and to address women’s and their families’ concerns and misconceptions about exclusive breastfeeding and modern contraceptive methods.
Table 8.4 Recommendations for PNC in Katcho villages

<table>
<thead>
<tr>
<th>Providers</th>
<th>Service delivery</th>
<th>Existing practices</th>
<th>Proposed practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health workers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LHW and FWW</td>
<td>Community</td>
<td>• Provide oral contraceptives and condoms at community level.</td>
<td>• Improve counselling on birth spacing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide neonatal immunisation.</td>
<td>• Educate about danger signs during postpartum phase.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Organise postpartum visits for women to Family Welfare Centres.</td>
</tr>
<tr>
<td>FWC</td>
<td>Family Welfare Centre</td>
<td>• Provide oral contraceptives and condoms at facility level.</td>
<td>• Encourage women to space between births.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Provide unbiased contraceptive counselling and care regardless of marital status, age, and socio-economic status.</td>
<td>• Inform women about side effects of contraceptives and management of them.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Provide personalised care address women’s physiological need and cultural preferences.</td>
</tr>
<tr>
<td>CMW</td>
<td>Community</td>
<td>• Provide maternity-care services at the CMW clinic.</td>
<td>• Provide maternity-care services at the CMW clinic and home.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Provide postpartum care at women’s houses.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Provide ANC and PNC services at women’s homes.</td>
</tr>
<tr>
<td>LHV and midwives</td>
<td>Facility</td>
<td>• Ensure women receive essential PNC services at the facility.</td>
<td>• Counsel women about contraceptive usage immediately after postpartum phase.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Coordinate with CHWs to provide PNC services.</td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Welfare Program</td>
<td>Organisation al level</td>
<td>• Provide technical, logistic and financial support to Family Welfare Program</td>
<td>• Provide additional training to FWWs and FWCs to address reproductive health needs of postpartum women.</td>
</tr>
<tr>
<td>LHW Program, MNCH program and District Health Department</td>
<td></td>
<td></td>
<td>• Increase the frequency of in-service trainings for all health workers to improve PNC counselling and services</td>
</tr>
</tbody>
</table>
8.6 Maternity care model

There is a global consensus on the important role of CHW to deliver MCH services in resource-poor setting. In many countries, the CHWs provide MCH services as an additional task (as in the case of Brazil and China) whereas some countries have CHWs which exclusively deliver MCH services (Pakistan and Bangladesh). Countries with a strong health system have usually one cadre of CHWs who deliver health promotion activities at the community level; on the contrary, countries like Pakistan, Bangladesh, and Indonesia, with critical shortages of doctors and physicians, have more than one cadre of CHWs who deliver MCH services (365). While there has been a significant focus on linking CHWs to health facilities, little attention had been paid to establishing coordination between different cadres of CHWs to deliver optimal MCH services.

Koblinsky et al. (33) recommends that instead of providing home-based birthing care by one birthing assistant, rural women should be provided care by small health teams in a rural health facility, whereby the small health team is comprised of a midwife, a midwife’s assistant, and/or a facility-based doctor. According to Koblinsky and colleagues (33), institutional care is more cost-effective than delivering home-based care with a single birth attendant in hard-to-reach communities. I argue that this approach is not a women-centred approach as it does not cater to the social, geographical and financial challenges of rural women. Moreover, this cannot ensure the continuity of maternity care in geographically hard-to-reach communities. Contrary to that, in Uganda Village Health Teams of community volunteers were formed in 2001 to deliver health promotion services in rural communities with the CHWs (333). A recent evaluation of Village Health Teams shows that it is not functional in many districts and that these volunteers should receive additional training and financial incentives similar to other CHWs in Uganda (333). The concept of community volunteers was also used in one study in Bangladesh, where community volunteers worked closely with CHWs as a team to deliver MCH education at a community level (328). However, as in Uganda, the study also proposed additional training for these community volunteers. In either case, the concept of community volunteers required additional money to train and retain them, while simultaneously managing the other cadres of CHWs (328, 333).
In Pakistan, the PHC system delivers MCH services through five cadres of health workers: LHV/s/midwives, LHWs, CMWs, FWWs, and FWCs (see Table 1.1). I recommend that instead of delivering independent MCH services, the five cadres should work together as a team I refer to as a ‘Health Workers Group’ (HWG) to deliver continuum of maternity care services. Each HWG would be a skill-mix of an EmONC-trained health worker (LHV/midwife), a family planning specialist (FWC), a community-based SBA (CMW), and health promoters (LHWs and FWWs) (for their detailed tasks see Appendix 7). This implies that during pregnancy a woman will have access to all essential components of CoC in the most affordable manner. Each HWG will serve 1,500 to 2,000 people which is aligned with health workers’ existing allocated population (refer Table 1.1). Figure 8.1 shows the delivery of continuum of maternity care services through HWG’s.

*Figure 8.1 Organisational structure of an HWG*

The private practitioners are not part of the HWG members because they provide fee-based services, which is not in line with the notion of affordable care of the HWG model. Secondly, as discussed in section 8.4.4, the private health sector in rural Pakistan is not fully regularised, therefore, it is difficult to establish linkages and supervision by the District Health
authorities. Furthermore, the HWG model attempts to build trust between the rural population and the public health system, to improve the utilisation of public facilities as well as improve women’s access to continuum of care. Similarly, as discussed in section 8.4.2 dais are included as a birth companion in the proposed model. The HWGs would respect women’s preference of a labour companion and also dais’ indigenous knowledge about birthing. Table 8.5 shows the establishment process, training, and supervision required for the implementation of HWG model.

Table 8.5 HWGs' recommended actions and responsibilities

<table>
<thead>
<tr>
<th>Actions</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Setting up HWGs</strong></td>
<td></td>
</tr>
<tr>
<td>✓ Identify existing health workforce and facilities at Union Council level.</td>
<td>DHPMT, Lady Health Supervisor, PPHI District Manager</td>
</tr>
<tr>
<td>✓ Form HWG and inform all health workers about their respective HWG.</td>
<td>Lady Health Supervisor</td>
</tr>
<tr>
<td>✓ Set up a preliminary meeting, advising of their collaborative roles and shared responsibilities.</td>
<td>Lady Health Supervisor</td>
</tr>
<tr>
<td>✓ Engage community: Health workers introduce their HWG team members in their villages.</td>
<td>LHV, LHW, CMW, midwife, FWW, and FWC</td>
</tr>
<tr>
<td><strong>Training HWGs</strong></td>
<td></td>
</tr>
<tr>
<td>✓ Identify training needs and trainers pool from respective programs and departments.</td>
<td>DHPMT</td>
</tr>
<tr>
<td>✓ Set up annual training calendar.</td>
<td></td>
</tr>
<tr>
<td><strong>Joint sessions on:</strong></td>
<td></td>
</tr>
<tr>
<td>✓ ‘Contraceptive Counselling’ for LHWs, CMWs and FWWs.</td>
<td>Trainers/ FWC/ Midwife tutors/WMO</td>
</tr>
<tr>
<td>✓ ‘Grouped ANC session’ for CMWs.</td>
<td></td>
</tr>
<tr>
<td>✓ ‘Labour Management’ for LHV, midwives, and CMWs.</td>
<td></td>
</tr>
<tr>
<td>✓ ‘Team Management, Conflict Resolution and Community Mobilisation’ for HWGs.</td>
<td></td>
</tr>
<tr>
<td>✓ ‘Essential ANC and PNC counselling’ for LHWs, CMWs, LHV, and midwives.</td>
<td></td>
</tr>
<tr>
<td><strong>Coordination of HWGs</strong></td>
<td></td>
</tr>
<tr>
<td>✓ Monthly meeting to discuss existing cases of pregnant women, stages of their pregnancy and the number of women expected to deliver in that month.</td>
<td>LHV, LHW, CMW, midwife, FWW, and FWC</td>
</tr>
</tbody>
</table>
Team building is an important consideration for the HWG model because it uses health workers from different skills, expertise, and MCH programs. As Gibbon et al. (366) noted that in interdisciplinary health team, shared planning and decision-making can be very difficult as members coming from different professions are likely to make decisions within their own of practice. This was argued by Nancarrow (367) which suggest that in small health teams this can be dealt by clear visions, diligent planning, ongoing communication between health workers, joint training ventures, and equitable personal rewards, training and development opportunities.

A recent example of health workers team building is from Kenya, which follows the similar district health structure as of Pakistan. Between 2008 and 2010, Kenya implemented a six-month “Leadership Development Program intervention” in 67 districts. In the intervention districts, small district health teams (health manager, doctors and nurses) received leadership and management training by using team-based approach (368). The health workers group chose an existing problem in their respective area, and devise strategies and/or develop annual work plans to address the problem. Regular meeting of health workers team and ongoing supervision from the District Health Management team was also part of the intervention. The project also engages stakeholders at national and sub-national level to create their commitment towards the intervention. The interventions resulted in significant increase of SBA-assisted delivery,
number of fully immunised children, timely and accurate reporting of service statistics, and modern contraceptive utilisation in intervention district as compare to the non-intervention district. In Ethiopia and Tanzania (369), under the Community Health Systems Strengthening (CHSS), the “Coach or the team leader” conducts joint field-visits with CHWs to make them feel supported and determine feasibility to implement health interventions at community level. The same coach also interacts regularly with the high-level district authorities to and inform them about grassroots level issues. The leadership role of coach was vital to the success of the CHSS model in Ethiopia and Tanzania.

The Challenge model is similar to the participatory workshop that I used as a data collection technique in this study, which was also an attempt to see the viability of the HWG model (see page 2.8.5, page 83). The interaction between health workers during this workshop is vital to bridge the communication gap and build trusting relationship between health workers. Similarly, joint field visits of LHW and CMW with the Lady Health supervisor can also be beneficial to improve coordination between the two cadres.

The existing tasks of all five cadres of health workers are provided in Appendix 7. The proposed tasks of HWG have been discussed earlier in Sections 8.1 to 8.4. Figure 8.2 summarises the HWG tasks at each stage of pregnancy, with respect to HWG members to deliver CoC.
Figure 8.2 Proposed role of health workers for CoC
The performance of HWGs would be assessed by the supervisors of the respective programs. At present, all health workers maintain separate records for pregnancy and childbirth, and it is common for a woman to be registered in the district records more than once. To minimise the duplication of records, ‘Health Cards’ (see Appendix 9: Pregnancy card) could be used as a single tool to maintain women’s pregnancy records which would be provided by LHW during her first ANC home-visit or by the CMW or LHV/midwife when woman visit the facility. It is recommended that women keep the health card with them throughout their pregnancy. Each time, women visit the health practitioner at a facility, or when community health workers visit women at home, they will add the detailed notes along with the clinical information for every pregnancy visit until the postpartum period. During natural disasters when a woman may be unable to see her usual practitioner, the health card provides the best tool through which any maternity care provider can understand a woman’s pregnancy history and subsequently manage the pregnancy.

Each health worker will provide detailed notes along with the clinical information for every pregnancy visit until the postpartum period. The LHWs would enter the information on the woman’s health card into her pregnancy record and submit it to the Lady Health Supervisor who would compile the report at the Union Council level. At present, the LHWs submit monthly reports on the basis of the pregnancy register they maintain for every family (see Section 3.5.1). The reports would be forwarded to the DHPMT who would use the statistics to track a district’s performance against the annual targets and to plan future activities. This way not only will the duplication of a client’s record be minimised, but it would provide a record of the continuity of care a woman receives during the course of her pregnancy. Furthermore, it would enable the SBAs to make informed decisions about a woman’s health and her pregnancy based on the information provided in the pregnancy card.

Despite the fact most of the HWG tasks are within the existing maternity-care system of Pakistan, there are two interventions, “Maternity Care Vouchers” and “Emergency Transportation” which are new to the system. Perhaps these two interventions are pertinent to the Katcho setting, as geographical isolation and poor transportation were significant barriers to women’s utilisation and health workers’ delivery of maternity-care services. There is substantial evidence from resource-poor countries that shows that vouchers (106, 115, 116) and emergency transportation (352-355) are an effective means of addressing geographical
barriers to maternity care utilisation (see Section 8.3.3). Therefore, in light of the existing evidence, I recommend that the district health authorities should build linkages with the philanthropic ambulance network to transport labouring women from home to a facility. Moreover, maternity-care vouchers should also be offered by the Ministry of Health to the most disadvantaged communities. Another alternative to maternity-care vouchers is the Prime Minister’s National Health Insurance Program, which offers free transportation to pregnant women for all maternity-care related visits to health facilities. Although this insurance program offers transportation to and from facilities they are only for four such visits per family. Thus, if the same program could add the transportation costs for pregnant women or CMWs’ visits to homes, the additional intervention of maternity-care vouchers may not be needed.

8.7 Maternity care during floods

In the last decade, Pakistan has experienced several natural disasters, of them, the recurrent annual flooding had adversely impacted the health of populations which reside in flood-prone regions. Pregnant women face additional challenges in any disaster setting because of their greater physical and health needs and limited access to care (206). According to the MISP guidelines (198) concerning reproductive health-care needs in emergency settings, labouring women should be referred to the nearest health facility and adequate transportation should be provided to transfer women from relief camps to health facilities. In contrast, the Inter-Agency Field Manual about reproductive health recommends that in disaster-prone areas where there is a likelihood that health facilities would become inaccessible during a disaster, TBAs should be trained as a potential birth attendants to manage birthing during crises (193). In a study of earthquake victims in Iran, pregnant women did not have access to emergency obstetric care and contraceptives because they were unavailable to women of reproductive age (202). In Pakistan, Bukhari and Rizvi (17) highlighted the poor living conditions in relief camps across Pakistan and the deteriorating conditions under which many women gave birth during floods.

In this study, women stated that they faced many challenges during the floods. Unnecessary bureaucracy to obtain approval to relocate pre-floods, the villagers’ low risk perception, and women’s lack of participation in relocation decision-making resulted in pregnant women giving birth in unfavourable conditions. Due to the lack of ‘gender sensitive’
disaster response strategies, women faced challenges to access basic facilities such as food, water, and shelter. In the absence of basic obstetric facilities, essential supplies, and a non-functional referral system, Katcho women gave birth on the floor in temporary shelters with the assistance of a dai. While birthing kits were provided in other parts of the country (370, 371), none of the study participants or dai received a clean delivery kit from any of the stakeholders; instead, the dai used the local birthing kit that pregnant women had made before relocating to the relief camp. Women had no control over the choice and place of birth or their birth attendant. They made birthing decisions on the basis of the available resources, not on their health condition. The absence of skilled birth attendants and a clean physical space to give birth put women and their newborn infants at risk of mortality. Pregnant and lactating women found the camp setting inappropriate, as there was no space for them to rest and breastfeed. Given the conservative nature of Pakistani society, ‘women-friendly’ spaces should be part of the relief camp to make them accessible to women of all age groups.

In recent years, the potential role of using CHWs as a disaster response provider has gained considerable attention. This includes CHWs success to reduce the post-cyclone diarrhoea deaths in Bangladesh, delivering of basic package of preventative or curative service by CMWs in conflict zone, or provision of SBA services in Burma after internal conflict (214, 216, 218). The Sendai Framework (2015-2030) recommends integration of disaster risk management policies into the health-care system and to train CHWs as frontline disaster response provider (196). Pakistan has a large number of facility and community-based rural health workers, however, to date, their role as frontline maternity-care providers during natural disasters has not been explored. These workers are local, trained, and have a good relationship with their community, hence preparing them as the frontline maternity-care workforce would be an economical and practical strategy to ensure women have access to safe and reliable maternity care in a timely manner. I recommend a model which would be an extension of the HWG model (proposed in Section 8.6), where health workers provide maternity care in three disaster stages: preparedness, early warning, and relocation and response.
8.7.1 Preparedness

Training HWGs and disaster health experts

The Inter-Agency Standing Committee (IASC) of humanitarian assistance proposed a training program for ‘Emergency Team Leadership’ to ensure the efficient utilisation of human and financial resources during a humanitarian emergency (372). I suggest that this training be implemented to build the capacity of district health managers, especially in disaster prone districts of Pakistan. The district is the first response site in conflict and crisis situations, therefore capacity of the disaster management team is paramount (see Section 7.1.1).

HWGs should be provided with training on how to work in emergency situations. LHWs and FWWs should be trained to counsel women about early warning and relocation, and CMWs should be trained to deal with the anxiety of pregnant women during displacement and to ensure that they treat their patients with extra diligence and respect (373). Furthermore, CMWs need to be trained in health camp management, record keeping of essential medicines and supplies, requisition processes and managing pregnancy and vaccination records while in the camp. The records would be later forwarded to the District Health Department for record-keeping purposes. Women would carry their health cards with them, to be updated by the staff at a health camp or the facility they visit during a disaster.

Health facilities must ensure that there is availability of EmONC-trained staff at all times, as well as essential medicines and supplies. It is important to remember that health workers themselves are likely to be distressed as they too would be displaced during a disaster. In such settings working in a group is more likely to distribute the workload as well as provide social support for members of the HWG. The District Health Department should ensure that health workers are well paid for their services and are provided adequate facilities while working in the relief camps. The staff working in relief camps should also have access to psychological counselling during and immediately after the disaster.

Needs assessment

At present LHWs maintain monthly records of pregnant women and contraceptive users, which are submitted to the District Health Department every month. In the revised maternity-care model, a health card would be used which would have a woman’s detailed
pregnancy record, and a monthly record will be updated in the District Health Department. This information could be used to estimate the number of clean delivery kits, reproductive health kits, dignity kits, and essential drugs and medicine required for pregnant, labouring, and lactating women during floods.

**Networking and coordination**

Based on the needs assessment, the DHMPT can produce a contingency maternity-care plan and highlight the areas where it needs additional support from the Health Cluster. Doing this in the preparedness stage would allow the DHD to identify its resource needs and assist it to plan ahead and avoid making *ad hoc* decisions during the time of the disaster. Secondly, it would facilitate the Health Cluster’s mapping exercise to identify local partners during the response phase and disburse their resources to a wider geographical area rather than focusing on selective, geographically accessible districts. Monsoon flooding is a recurrent annual event in Pakistan. Therefore, it is recommended that the District Health Department in disaster-prone districts pre-organise and store the hygiene kits, dignity kits, and clean delivery kits in their respective warehouses so that they can be easily distributed to relief camps. Similarly, the District Health Officer can ensure that emergency transportation is available at health camps by coordinating with the philanthropic ambulance networks, private car rentals, or from the existing facilities (see Section 8.4.3).

**Early warning to pregnant women**

In disaster prone regions, for the wellbeing of the mother, LHWs can educate pregnant women about the importance of timely relocation when they receive an early warning notification. In the case of a flood warning, the LHWs can also assist pregnant women to make decisions about relocation and counsel the family members about the need to maintain the pregnant woman’s safety. LHWs have the most up-to-date list of pregnant, labouring, and high-risk pregnant women from their respective villages, which they can forward to the DDMA to assist them identify and safely relocate the women and their children.
8.8.2 Disaster response

Birthing facilities in relief camps

During the 2011 floods, there was limited transport, poor road conditions, and no SBAs available for birthing women in the health camps. I recommend that every relief camp should have a birthing station situated in the health camp where CMWs can assist women in childbirth and LHWs can provide maternity care education, immunisation, and reproductive health services. A similar concept of a health post was recommended by the Inter-Agency Standing Committee, where SBAs assist women who have normal deliveries in an emergency setting (374). To respect the conservative nature of rural communities in Pakistan, which value physical and sexual modesty, birthing stations should only be accessible by women (375). These birthing camps would be located a distance away from the regular medical camps and only be accessible by females to ensure women’s privacy, and respect for the culture of gender segregation.

Referral system

The birthing station should be equipped with all the essential supplies and equipment for normal births so that the CMW can provide a CoC to all pregnant women. Normal labour can be managed at the birthing station, whereas complicated pregnancies would be referred to the BHUs where EmONC trained staff would assist birthing women. As per the MISP guidelines, referral must be accompanied with transportation and, as recommended in Section 8.4.3, the District Health Officer would pre-organise emergency transportation through local partners or philanthropic organisations.

Women-friendly centres

Multipurpose female-friendly spaces have been used successfully in Nepal, where they provided basic health-care services in emergency settings with a particular focus on sexual and reproductive health, psychosocial counselling, a safe space for breastfeeding, and recreational activities (376). Similarly, in Haiti, UNICEF and WHO initiated a ‘baby tent’ program to promote and sustain optimal infant feeding practices while reducing the health risks associated with the unregulated use of infant formula (377). In Haiti, lactating women were
also provided with clean drinking water, mats, and mattresses for sitting and relaxing, and counselling about nutrition.

Similar to Nepal and Haiti (376, 378), I recommend the establishment of a women-friendly centre in the relief camps, accessible by women of all age groups. Depending on the size of a displaced population, there could be a separate birthing and women-friendly station, or the same space could be used for both purposes in a relief camp. This space could also be used as a breastfeeding station to ensure privacy for breastfeeding mothers, shelter for the victims of gender-based violence, and as a counselling station for reproductive health or women’s psychosocial wellbeing. As per the MISP guidelines, nutritional supplements and food should be available for pregnant, birthing, and lactating women (198). The data shows that women were not aware of the availability of modern contraception in the relief camps; thus, the presence of such female-friendly spaces is essential for women who seek prophylactic and emergency contraception during a crisis situation. In the presence of LHWs, FWWs, and CMWs who possess adequate information about contraceptives, women would be able to choose the most effective and manageable protection that suits their needs. The station would also provide dignity kits or hygiene kits, which include culturally appropriate clothing, sanitary pads, panties, and essential toiletries.
Figure 8.3 Model of pregnant women’s care during emergency settings
8.9 Summary

In this thesis, I have proposed a parsimonious maternity-care model to ensure universal health coverage for rural women in Pakistan. Rural women who live in the floodplains are the most vulnerable and face numerous obstacles accessing health-care facilities due to geographical inaccessibility and financial deprivation. The HWG model offers optimal utilisation of the existing health workforce and infrastructure to provide skilled maternity care to rural women at home as well as in public health facilities. In this model, I include a component of maternal and reproductive health care during natural disasters, whereby the existing rural health workers are to be deployed as frontline maternity care providers. The next chapter is the conclusion of this thesis.
Chapter 9: Conclusion

The CoC has emerged as a dominant approach to reduce seven million maternal and neonatal deaths every year (5). What is significant about the CoC approach is that it broadens the focus of maternal health from “reducing maternal mortality” to “optimal health and wellbeing of the mother” at every stage of her life. Effective CoC connects women with essential MNCH services throughout adolescence, pregnancy, childbirth, postnatal, the newborn period, and into childhood, on the basis of their natural interactions with health services throughout the lifecycle (82). Iqbal et al. state that between 2006 and 2013 the CoC in Pakistan has only increased from 15% to 27%, which helps to explain the poor state of maternal health in Pakistan (10).

9.1 The study

This study explored maternity care utilisation of women who live in sparsely located Katcho villages which are geographically hard to reach, flood-prone, belong to a low SES, and have poor access to health facilities. This segment of the female population is highly vulnerable because they are not able to utilise CoC services during their reproductive life. This has been similarly noted in a number of studies (107, 379, 380) which highlighted poor physical access to health facilities of rural women who reside in hard to reach communities; however, none of the studies could provide a solution to ensure continuum of maternity care for the vulnerable population in Pakistan. In my study, I provide a parsimonious maternity-care model, which can provide CoC services for women and girls in the most vulnerable districts of Pakistan by using existing human resources and health-care infrastructure.

The findings of my study suggest that only 3% of women in Katcho villages received continuum of maternity-care services. The use of modern contraceptives during the preconception stage is intermittent and only one in five women had ever used a modern contraceptive in the five years prior to the study. Women’s fertility behaviour, such as their desire to have large families (six to eight children), and non-utilisation of contraceptives due to their fear of infertility or the side-effects, are significant barriers to the utilisation of modern contraception. For pregnancy care, women’s perceptions about existing pregnancy and maternity-care providers determine their choice of birth attendant. For instance, women were motivated to seek maternity care from a health professional when they had an obstetric
complication; on these occasions, women paid the doctors’ fee and the transportation costs. On the contrary, women without visible obstetric complication seek a dai’s assistance for childbirth. In both cases, maternity care utilisation from public health facilities is not preferred by Katcho women, even though these facilities are well equipped and have qualified health staff on duty twenty-four hours a day. The reason why women elected not to access a public health facility when they had an obstetric complication was due to the staffs’ disrespectful attitude and behaviour towards them, and to the women’s perceived low quality of care in the public facilities.

Pakistan’s PHC structure provides home-based and facility-based maternity-care services through an extended health infrastructure; however, there is no coordination between different cadres of health workers. The obstetric referral system between CMW and BHU staff is at a very basic level and often ends without the follow-up on either side. Similarly, contraceptive counselling is not part of routine postpartum care, thus only a handful women who request reproductive health care are referred to the Family Welfare Centre. Since there are no records of the referrals made by the BHU staff to the Family Welfare Centres, there is no way that the quality of the referral system can be assessed. At the community level, both CMWs and FWWs are unable to provide home-based pregnancy and reproductive health services because they do not receive a transportation allowance to deliver those services from their respective departments. No coordination exists between CMWs and LHWs in Katcho villages, and many LHWs were unaware of the CMW program, which operates in the same villages where LHWs provide services. The lack of coordination between the five cadres of MNCH health workers significantly affects women’s utilisation of affordable maternity care services in the TMK district.

The study also highlights that there is a lack of direction provided by the Ministry of Health program managers to all cadres of health workers. Health workers showed a willingness to work together as a team to deliver evidence-based maternity care in their communities, but the existing system does not provide them with the structure and support to do so. I argue that in the presence of a well-structured primary health-care system and an expansive network of health workers, limited transformation is required to ensure continuum of maternity care for women in rural Pakistan.
9.2 Maternity-care model

To deliver a continuum of maternity-care service, I recommend that HWGs should be established in all rural districts of Pakistan. The HWG demonstrates a good example of skill-mix of health workers as it includes SBAs (home and facility-based), reproductive health counsellors, and community mobilisers. The focus of the HWG is to improve women’s access and utilisation to skilled maternity-care providers and modern contraceptives (see Figure 8.1). In the HWG model, a woman would be able to access a team of health workers who would provide her with a continuum of care at every stage of her reproductive life. The private practitioners will not be included in the model, as the HWG focuses on improving utilisation of existing public health facilities. Moreover, if HWGs were included, the irregularity in the private health sector would make it impossible for district health authorities to monitor and supervise private practitioners on regular basis. Dais would play the role of birth companion in cases when women prefer the dai to accompany them in labour.

There would be three to six HWGs for every 10,000 to 15,000 people. Each HWG would include an LHV/midwife, a CMW, an FWC, an LHW, and an FWW, who would continue to deliver their existing services in a coordinated manner. The HWGs would meet on a monthly basis at the BHU to discuss the progress of present cases and any logistics issues that may arise to assist women. There may be some disruption of the scheduled monthly meeting during natural disasters. However, as LHWs, CMWs and FWWs would work in relief camps, they can hold the HWG meeting in the camp, and the facility-based workers can participate in the meeting via phone.

As per the existing practice, a pregnant woman would be identified by the LHW (preferably in the first trimester), who would record her initial pregnancy information in the ‘Health Cards’ (see Appendix 9: Pregnancy card) and refer her to the BHU for first-trimester screening (see Figures 8.1 and 8.2). In the first meeting, the LHW would also provide information (e.g. contact details, clinic times) about the HWG members who will look after her from pregnancy until the postpartum period. Moreover, the LHW would also provide maternity-care vouchers to eligible women in her second home-visit. Based on a woman’s preference and her first-trimester screening results, she would be provided home-based maternity care by a CMW or facility-based care at the BHU. Emergency transportation for transferring labouring women
from home to a primary-level facility and/or between facilities is not the part of existing referral system. Therefore, I recommend that the District Health Department should engage the philanthropic ambulance network (e.g. Edhi and Chippa ambulance services) to provide emergency transportation in rural areas of Sindh. For effective delivery of PNC services, I recommend that the existing in-service training program for all health workers should focus on delivery of essential PNC services and counselling of postpartum women. For pre-marital reproductive health counselling, LHWs should conduct reproductive health education sessions for adolescent girls and unmarried females in health houses.

The most significant change of an HWG model from the existing maternity-care system is the provision of maternity-care vouchers. There is substantial evidence from resource-poor countries, including Pakistan, that the vouchers can improve rural women’s maternity care utilisation (118). Moreover, vouchers may also increase CMW utilisation, which is an important but highly underutilised cadre of health workers. To make the voucher-scheme cost-effective, I suggest that the existing health insurance program (177) can increase the number of free maternity-related transport visits; this way an additional program for maternity care vouchers may not be required.

9.3 Maternity care model during floods

In this thesis, I explored pregnant women’s lived experiences in three stages of floods; early warning, relocation, living in relief camps. The findings suggest that women were not the direct recipients of early warnings, nor did they make relocation decisions. Male household heads or para heads delayed evacuation due to low risk perception, possessing livestock, and fear of losing agricultural work after the disaster. At the time of evacuation, many pregnant women did not get transportation to go to the relief camps, and they had to walk through floodwater with their children. The results also show significant critical gaps in the provision of recommended maternity care during floods. This includes a poor referral system, the unavailability of EmONC trained in referral facilities, and the inaccessibility of clean delivery kits and a physical space for dai who assists birthing women in relief camps.

The poor flood response at the district level was attributed to the lack of preparedness of the District Health Department to manage large-scale emergencies. I recommend that the NHEPRN should allocate adequate funds (either from the Ministry of Health or NDMA) to
organise training programs for District Health Officers and medical staff in all district health facilities. The training of District Health Officers should focus on developing and implementing contingency health plans in crisis settings, and on strengthening partnerships with Health Clusters, local NGOs, and agencies to provide health-care services during natural disasters. Moreover, the NHEPRN should train HWG members as a front-line maternity care workforce during natural disasters or in emergency situations.

In the model I recommend that the LHWs and FWWs can be used to provide early warning to pregnant women, CMWs can be used as birth attendants in relief camps, and LHV/ midwives can become EmONC trained health personnel in referral facilities. Moreover, I recommend that female friendly spaces should be part of every relief camp during any natural disaster or emergency situation in Pakistan. A model like this was recently used in Nepal where the UNFPA set up female friendly spaces (376) in relief camps to offer reproductive health services to girls and women and also to provide a safe shelter for victims of gender and sexual violence during earthquakes. In addition to using them as access points for reproductive health services, I recommend that female friendly spaces can also be used to provide birthing and postpartum care, especially in rural districts where health facilities become inaccessible after disaster.

Having said that, a functioning referral system remains the first choice in places where patient transfer is possible from relief camps to a health facility. The MISP defines a functional referral system model as one which includes a primary health provider in the health camp, transportation to and from the relief camp, and EmONC trained staff at referral facilities(381, 382). In my proposed model, I suggest that a CMW can assist all normal birthing cases in the female friendly spaces, and refer women with obstetric complications to the referral hospital. Every referred woman would be provided with transportation to and from the relief camp, and every referral facility would have at least one EmONC trained medical officer on the duty all the time.

Provision of maternity care with the help of a team of community-based health workers (HWG) instead of solo community health workers is a new concept, however, it has the potential to reach to the most vulnerable populations in an economic and efficient way to deliver CoC services. If implemented, the HWG model also has the potential to avoid unnecessary maternal and neonatal morbidity and mortality during the time of natural disasters.
9.4 Strengths of the study

This is the first study from Pakistan to analyse the utilisation of continuum of maternity-care services of women who reside in geographically challenging and flood-affected areas in Pakistan. I used extensive data from three different types of participants; women who live in flood-prone areas, health workers who are MNCH providers in those areas, and key informants who are directly involved in MNCH policy making and implementing MNCH programs in Sindh. I used a mixed-methods approach to synthesise multiple perspectives from these participants, in order to develop a parsimonious maternity-care model which is best-suited to the existing health structure of Pakistan and which simultaneously addresses women’s maternity care needs. The most significant element of this model is that it focuses on the optimal utilisation of existing sources with the least movement from the existing system.

Recurrent disasters have had a significant impact on the maternal health of women in Pakistan. To date, no studies have explored women’s birthing experiences during floods in Pakistan. In my study, not only did I describe women’s birthing experiences during floods, but, on the basis of the recent humanitarian response guidelines, I also propose a model which will efficiently utilise the existing health workers to deliver maternity-care services during disasters or in humanitarian emergency settings.

The most pertinent feature of this model is that it provides a cost-effective solution with the least movement from the existing maternity-care structure of Pakistan; which makes the adaption of this model easier for the Ministry of Health, Pakistan. Moreover, since it has been developed under the most recent international guidelines for health workers (76, 383-386), and maternity care in resource-poor countries (326, 387, 388), it may also attract international donors (WHO, UNFPA) working for maternal health or humanitarian response agencies who can test this model in rural Pakistan.

9.5 Limitations of the study

This study was based on women’s experiences pregnancy and childbirth during floods and health workers’ experiences of providing services in these settings. The findings are based on participants’ ‘recall’ of previous experiences; therefore, there may have been a recall bias in the findings, which was unavoidable. Secondly, to measure CoC, I only focused on the births that occurred in the five years prior to the study, and I did not collect information about births
that occurred before that time. Thirdly, the proposed model is participant-based and relates to the structure of the current health system; the recommendations have not been pilot tested in any setting in Pakistan. Fourthly, the economics of this model is beyond the scope of this study, thus further research is warranted in this area.
Appendixes

Appendix 1: Interview guidelines with women

1. Tell me something about yourself
   (Probes)
   ➢ Education
   ➢ Marriage (whether she has come from a different village)
   ➢ Family (yourself, husband, kids and other family members).
   ➢ Daily routine

2. Tell me your daily life during pregnancy
   (Probes)
   ➢ How is it similar or different to your regular life?
   ➢ Family and social support during pregnancy
   ➢ Work arrangements during pregnancy

3. When was your youngest child born?
   (Probes)
   ➢ Where was it delivered?
   ➢ Who conducted the delivery?
   ➢ Decisions about delivery care provider (who decides it, and why)
   ➢ Who conducted your other earlier delivery/deliveries?
   ➢ Have you had antenatal visits during your last pregnancy? Who conducted those?
   ➢ Have you used CHWs services? Which services, and why?

4. Let’s draw a map to see where the maternity-care providers are located?
   (Probes)
   ➢ Where do you go and why?
   ➢ I see your house is very close to a CMW’s house OR hospital why didn’t you use their services?

5. Were you pregnant or did you deliver a baby during floods?
   (Probes)
➢ Tell me what happened during the floods?
➢ Were you aware about the floods before?
➢ Did you migrate somewhere?
➢ How do you get the extreme weather warning?
➢ Did your pregnancy go well during that time?
➢ What kind of support system was available for pregnant women? What do you think should be available in future to support women?
I invite you to participate in a research project, which examines how maternity care is being delivered to the women living in rural areas of Pakistan in the last five years and how women have experienced pregnancy and child birth during the times of recent floods. The study will explore the existing role of CHWs as maternity-care providers during floods and in regular circumstances.

**Expected benefits to the wider community:** This information will be used to develop a policy draft which will be presented to the Ministry of Health, Pakistan. The draft will provide a set of approaches to network all cadres of CHWs so that pregnant women living in rural areas can have access to skilled birth care that is economical, geographically accessible, culturally relevant, and seasonally appropriate. The research is funded by Deakin University and __________ (if any). The project is being undertaken as part of a PhD degree.

Your area CHW (LHW/LHV/CMW) [select one] suggested you to participate in the study because you have had your previous pregnancy in the last five years (Jan 2010-Sep 2014). I am invited you to participate in the following activities. You can select more than one option from the following:
Focus group discussion – You will be talking in a group of five to seven women who have had their previous pregnancy within last 5 years. [Time 60-90 min]. The researcher will discuss the survey questionnaire for the language improvement and comprehension. **This will be audio recorded.**

Interview: You will be interviewed by the associate researcher with the presence of the RA for interpretation [Time 40-60 min]. The researcher will ask questions about your last pregnancy and childbirth. **It will be audio recorded.**

Survey: You will be filling a survey questionnaire form with the RA [Time 20-30 min]

You will be asked questions about yourself (age, education, profession, number of children), your family (husband’s education, number of family member), your last pregnancy, maternity services utilised from CHWs, satisfaction with the services, and maternity services utilised during floods. You may choose to withdraw from further participation at any stage of the research activity and even after the interview/FGD/Survey. Your participation or withdrawal of participation will remain strictly confidential and will not affect your relationship with your maternity-care providers.

Risks and potential benefits to participants: There might be some distressing questions e.g. if your last child was born during floods. If you feel distressed or anxious when answering any question, you can skip that question or even withdraw from the interview/survey process. If you need further counselling you can contact;

Aga Khan Health Services Pakistan,
Tando Muhammad Khan,
Sindh, Pakistan

The data will be used for research publication; however, your identity will be strictly protected. Your name or any information that can potentially identify you will never be disclosed anywhere.
Payment made to participants: Your travel costs to reach the interview venue will be reimbursed by the researcher. You may also choose to have a copy of the interview transcript and summary of the final report. Please tick the following if you wish to:

- Review the interview transcript
- Read the final summary report

The ethical aspects of this research project have been approved by a human ethics panel at Deakin University [and the Pakistan Medical Research Council]. If you have any complaints about any aspect of the project, the way it is being conducted, or any questions about your rights as a research participant, then you may contact:

The Manager, Office of Research Integrity, Level 1, Building EA, Deakin University, Elgar Road, Burwood Victoria 3125, Telephone: 9251 7129, Facsimile: 9244 6581; research-ethics@deakin.edu.au. [Please quote project number DU 2014-181]

In Pakistan, you can contact Secretary National Bioethics Committee, Pakistan, Pakistan Medical Research Council Shahrah-e-Jamhuriat, G 5/2 Islamabad, Pakistan. Tel 051-9217146. [please quote the project reference number NBC 161]

If you require further information, wish to withdraw your participation or if you have any problems concerning this project, you can contact the associate researcher Humaira Maheen at +92 333 3412880 or the principal investigator Dr Elizabeth Hoban at +61 3 924 46688

If you agree to participate, please return this consent form to the researcher or RA with your preferred type of participation, day, and time that suits you.

Thank you for your time
Appendix 2: Interview guidelines with health workers (LHWs, LHVs, CMWs)

Age: __________

Years since working: __________

Marital status: ______________

Number of deliveries conducted/supervised (individually): __________ (for CMWs and LHVs)

Assigned area: ________ (number of villages or UCs)

Number of trainings attended: __________

Can you tell me the names of training courses that you’ve attended in the last five years?

Can you tell me the names of refreshers that you’ve attended in the last five years?

1. Tell me something about yourself. [Your family, your former village, your daily life]
2. What motivated you to become a CHW?
3. What is the best thing about your job?
4. What is something that you would like to change about your role?
5. Would you like to continue this as a profession?
6. What are the challenges that you have faced during your professional experience?
7. Who is your supervisor? Tell me something the monitoring process.
8. How do you approach the local health facility?

(Probes)

a. Do you have to regularly visit them? (How frequently?)
b. What is the attitude of medical staff?

9. Tell me something about the your trainings and refreshers

a. Probe: time duration (days and hours), training venue (how near or far), transporting facility, time between two trainings, willingness to attend training.
b. Facilitators’ response, facilitators’ knowledge, organisations that fund the training (e.g. UNICEF, UNFPA, WB).

10. Tell me about interaction with community members.

(Probes)
a. How positive is it?
b. Women’s professions? Availability at home?

11. What are the challenges of working in this community?
   (Probes)
   a. Are there any caste or ethnic issues in approaching women?
   b. Cultural barriers?
   c. Image of CHWs in communities.
   d. Duplication of roles and tasks.
   e. Presence of TBA and their impact of CHW birth attendance.

12. What kind of interaction do you have with other cadres?
   (Probes)
   a. Is it organised?
   b. What sort of relationship do you have with other CHWs?

13. Do you think that all cadres can work together as team?

14. What do you think about possible challenges of working with all CHWs as a team?

15. What is your opinion about the existing maternity-care system; is it fulfilling the needs of community women?

16. How do you think it can improve?
Plain language statement and consent form – Health Worker

Full Project Title: Improving Maternity Care in rural Sindh Pakistan, Re-defining the roles of CHWs
Principal Researcher: Dr Elizabeth Hoban
Tel +61 3 924 46688
Email elizabeth.hoban@deakin.edu.au
Associate Researcher(s): Mrs Humaira Maheen
Tel +92 333 3412880
Email hmaheen@deakin.edu.au
Project Reference Number:

I invite you to participate in a research project, which examines how maternity care is being delivered to the women living in rural areas of Pakistan in the last five years and how women have experienced pregnancy and child birth during the times of recent floods. The study will explore the existing role of CHWs as maternity-care providers during floods and in regular circumstances.

Expected benefits to the wider community: This information will be used to develop a policy draft which will be presented to the Ministry of Health, Pakistan. The draft will provide a set of approaches to network all cadres of CHWs so that pregnant women living in rural areas can have access to skilled birth care that is economical, geographically accessible, culturally relevant, and seasonally appropriate. The research is funded by Deakin University and __________ (if any). The project is being undertaken as part of a PhD degree.

You have been selected as a study participant as you are working as an LVV/LHW/CMW/LHS at present. I am inviting you to participate in the following activities. You can select more than one option from the following:

  Focus group discussion – You will be talking in a group of five to seven CHW [Time 60-90 min]. The discussion will be audio recorded.
Interview: You will be interviewed by the associate researcher [Time 40-60 min]. The interview will be audio recorded.

You will be asked questions about yourself (age, education, profession, number of children), your family (husband’s education, number of family member), and maternity-care services available in the area, experience with other cadres, and experience with community members.

The data will be used for research publication; however, your identity will be strictly protected. Your name or any information that can potentially identify you will never be disclosed anywhere.

If you agree to participate, please return this consent form to the researcher or RA with your preferred type of participation, day, and time that suits you. You may choose to withdraw from further participation at any stage of research activity and even after the interview/FGD/Survey. Your participation or withdrawal of participation will remain strictly confidential and will not affect your relationship with your supervisors.

**Risks and potential benefits to participants:** If you feel distressed or anxious when answering any question, you can skip that question or even withdraw from the interview/survey process. If you need further counselling you can contact;

Aga Khan Health Services Pakistan,
Tando Muhammad Khan,
Sindh, Pakistan

**Payment made to participants:** You travel costs to reach the interview venue will be reimbursed by the researcher. You may also choose to have a copy of the interview transcript and summary of the final report. Please tick the following if you wish to;

- Review the interview transcript
- Read the final summary report
The ethical aspects of this research project have been approved by a human ethics panel at Deakin University [and the Pakistan Medical Research Council]. If you have any complaints about any aspect of the project, the way it is being conducted, or any questions about your rights as a research participant, then you may contact:

The Manager, Office of Research Integrity, Level 1, Building EA, Deakin University, Elgar Road, Burwood Victoria 3125, Telephone: 9251 7129, Facsimile: 9244 6581; research-ethics@deakin.edu.au. [Please quote project number DU 2014-181]

In Pakistan, you can contact Secretary National Bioethics Committee, Pakistan, Pakistan Medical Research Council Shahrah-e-Jamhuriat, G 5/2 Islamabad, Pakistan. Tel 051-9217146. [please quote the project reference number NBC 161]

If you require further information, wish to withdraw your participation, or if you have any problems concerning this project, you can contact the associate researcher Humaira Maheen at +92 333 3412880 or the principal investigator Dr Elizabeth Hoban at +61 3 924 46688

Thank you for your time
Appendix 3: Interview guideline with key informants

1. Tell me something about your experience with maternal and child health programs in Pakistan (Sindh).
2. Tell us about your present activities in rural Sindh Pakistan to improve the maternal mortality ratio.
3. Are they any changes expected in future in CHW programs in relation to maternity care?
4. How are you going to increase maternity care utilisation by CHW in community women? Do you have any strategies for rural areas?
5. What are your strategies about cultural sensitivities in relation to pregnancy and childbirth in rural areas?
6. Can you tell me about the future activities in relation to maternity care in Sindh?
   a. Any particular in rural Sindh
   b. Your priorities in urban Sindh (like population of young age, urbanisation etc)
7. How would you support the local government to improve maternal health in the country?
   a. Explain what you do
   b. And what government does
   c. How is it synergised
8. Can you tell me about the activities that ensure the health of pregnant women during floods?
9. What is the mechanism of care for pregnant women during floods or before floods?
10. Are there frontline health workers who can assist pregnant women?
    a. If the answer is mobile ambulances, how about their effectiveness, access, cultural barriers, and communication issues with pregnant women who are already be distressed?
    b. Do you have any training programs for the flood health workforce during floods?
    c. How would you know about the number of women who would need your assistance during natural disasters?
    d. Is there any program for capacity building of CHWs during natural disasters or humanitarian emergencies?
11. What are your issues in implementing community based programs?
12. Are there any issues which are common in all regions of Pakistan?
13. Do you have direct access to community women? How would you approach them? How much does the government assist you?

14. Tell me something about the UN strategic priority (or your organisation) areas in relation to maternal health.

**MNCH and Ministry personnel**

1. What do you mean by integrated delivery of MNCH service at district level?

   What is strategic communication of MNCH care?
This letter is to invite you to participate in a research project, which examines how maternity care is delivered to the women living in rural areas of Pakistan in the last five years. We would like to know how women have experienced pregnancy and child birth during the times of recent floods. The study would like to explore the existing role of CHWs as maternity-care providers during floods and in regular circumstances.

**Expected benefits to the wider community:** This information will be used to develop a policy draft which will be presented to the Ministry of Health, Pakistan. The draft will provide a set of approaches to network all cadres of CHWs so that pregnant women living in rural areas can have access to skilled birth care that is economical, geographically accessible, culturally relevant, and seasonally appropriate. The research is funded by the Deakin University and __________ (if any). The project is being undertaken as part of a PhD degree.

You have been selected as a key informant for this study because of your knowledge about this topic. You will be interviewed by the associate researcher, and the duration of the interview will be 40-60 minutes. The interview can be organised at your office or even via skype, based on your convenience. The interview will be audio recorded.

You will be asked questions about the existing MNCH structure at the provincial and district levels, and the challenges of implementing community-based programs.
Risks and potential benefits to participants: There is a very minimal possibility that you may get distressed due to any question. However, if you feel distressed or anxious when answering any question, you can skip that question or even withdraw from the interview/survey process.

The data will be used for research publication; however, your identity will be strictly protected. Your name or any information that can potentially identify you will never be disclosed anywhere. You may choose to withdraw from further participation at any stage of research activity and even after the interview/FGD/Survey. Your participation or withdrawal of participation will remain strictly confidential and will not affect your relationship with your supervisors or colleagues.

If you agree to participate, please return this consent form to the researcher or RA with your preferred type of participation, day, and time that suits you. You may also choose to have a copy of the interview transcript and summary of the final report. Please tick the following if you wish to:

- Review the interview transcript
- Read the final summary report

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If you require further information, wish to withdraw your participation or if you have any problems concerning this project, you can contact the associate researcher Humaira Maheen at +92 333 3412880 or the principal investigator Dr Elizabeth Hoban at +61 3 924 46688

Thank you for your time

Participant’s Name (printed) ……………………………………….

Signature …………………………… Date ……………………………

Please return this form to Mrs Humaira Maheen or RA ________.

Key informants can email the consent form at hmaheen@deakin.edu.au
PLAIN LANGUAGE STATEMENT AND CONSENT FORM

TO: [Community Health worker/Community health worker/Key informants]

Consent Form

Date:

Full Project Title: Improving Maternity Care in rural Sindh Pakistan, Re-defining the roles of CHWs

Reference Number:

I have read, or have had read to me in Sindhi/Urdu/English, and I understand the attached Plain Language Statement.

I freely agree to participate in this project according to the conditions in the Plain Language Statement. I understand that the interview is audio recorded and it may have some distressing questions. The researcher has explained those questions to me and identified the places where I can seek help.

I know that a copy of my transcript can also be provided by the researcher if I want to edit or delete any information. The data can be used for publication and the researcher has agreed not to reveal my identity and personal details, including where information about this project is published or presented in any public form.

I have been given a copy of the Plain Language Statement and Consent Form to keep.
Appendix 4: Questionnaire

Section 1: Demographics

1. Year since married ________
2. Your highest education level?
   - Bachelors /Masters
   - Matric /Intermediate
   - Middle
   - Primary
   - Never attended school
3. Your husband’s highest education level?
   - Bachelors /Masters
   - Matric /Intermediate
   - Middle
   - Primary
   - Never attended school
4. What is your household type?
   - Nuclear
   - Joint
   - Extended
5. What is your husband’s profession?
   - Agriculture (Land owner)
   - Agriculture (Land worker
   - Mill worker
   - Personal business
   - Services
   - Other ___________
6. What language(s) do you speak at home?
   (Tick all that apply)
   - Sindhi
   - Siraiki
   - Balochi
   - Brahavi
   - Urdu
   - Punjabi
   - Other: _________
7. Toilets available
   - Yes
   - No
8. Including you how many people live in your household? ________
9. What is your age: ____________
10. Number of children: ___________
11. House structure
    - Katcha
    - Semi Pakka
    - Concrete
12. What is your current working status?
    - Housewife
    - Working
13. What is your religion?
    - Islam
    - Hindu
    - Christian
    - Other __________
14. What is your profession?
    - Tailor
    - Land workers
    - Others __________
### Section 2: Maternity care utilisation about all childbirth

I would like to know about your maternity care utilisation for each of your children. Please state the year your child was born, the place of delivery for each child (starting from the youngest child).

<table>
<thead>
<tr>
<th>Child</th>
<th>Year</th>
<th>Place of delivery</th>
<th>Delivery attended by</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td></td>
<td>Home</td>
<td>Dai (Traditional Birth Attendant)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hospital (Taluka/District)</td>
<td>Family/neighbour/friend relative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rural Health Centre</td>
<td>Doctor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Basic Health Unit</td>
<td>Nurse /midwife (based in hospital)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private clinic</td>
<td>Lady health visitor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maternal child health centre</td>
<td>Community midwife</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health house</td>
<td>Other _________</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other _________</td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td></td>
<td>Home</td>
<td>Dai (Traditional Birth Attendant)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hospital (Taluka/District)</td>
<td>Family/neighbour/friend relative</td>
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<tr>
<td></td>
<td></td>
<td>Rural Health Centre</td>
<td>Doctor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Basic Health Unit</td>
<td>Nurse /midwife (based in hospital)</td>
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<tr>
<td></td>
<td></td>
<td>Private clinic</td>
<td>Lady health visitor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maternal child health centre</td>
<td>Community midwife</td>
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<td></td>
<td></td>
<td>Health house</td>
<td>Other _________</td>
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<tr>
<td></td>
<td></td>
<td>Other _________</td>
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</tr>
<tr>
<td>Third</td>
<td></td>
<td>Home</td>
<td>Dai (Traditional Birth Attendant)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hospital (Taluka/District)</td>
<td>Family/neighbour/friend relative</td>
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<tr>
<td></td>
<td></td>
<td>Rural Health Centre</td>
<td>Doctor</td>
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<tr>
<td></td>
<td></td>
<td>Basic Health Unit</td>
<td>Nurse /midwife (based in hospital)</td>
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<tr>
<td></td>
<td></td>
<td>Private clinic</td>
<td>Lady health visitor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maternal child health centre</td>
<td>Community midwife</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health house</td>
<td>Other _________</td>
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<td></td>
<td></td>
<td>Other _________</td>
<td></td>
</tr>
<tr>
<td>Fourth</td>
<td></td>
<td>Home</td>
<td>Dai</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hospital (Taluka/District)</td>
<td>Family/neighbour/friend relative</td>
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<td>Other _________</td>
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<td>Health house</td>
<td>Other _________</td>
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<tr>
<td>Home</td>
<td>Dai</td>
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<tr>
<td>Hospital (Taluka/District)</td>
<td>Family/neighbour/friend</td>
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<tr>
<td>Rural Health Centre</td>
<td>relative</td>
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<tr>
<td>Basic Health Unit</td>
<td>Doctor</td>
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<td>Nurse /midwife (based in hospital)</td>
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<td>Lady health visitor</td>
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<tr>
<td>Health house</td>
<td>Community midwife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other _________</td>
<td>Other _________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community midwife</td>
<td>Other _________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other _________</td>
<td>Other _________</td>
<td></td>
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</tr>
</tbody>
</table>

15. Please indicate if you used any of the following community health workers (CHW) during your last pregnancy? (Please tick all that apply)
- Lady health visitor
- Lady health worker
- Community midwife
- I have never taken services from CHW [skip to question 17]
- Other_____________________

16. If you ticked yes for any of the above health services, please state whether you encountered any of the following issues; [Please tick all that apply]
- They are difficult to contact (e.g. no phone, do not live close by etc.).
- They are not available all the time
- They refuse to help
They are busy with other activities
They are expensive
I am not sure about their role
Other ____________

17. If no, why didn’t you utilise their services?
   I am not allowed to contact any CHW (family restriction, different caste, socio-economic status etc)
   I would prefer to go to the health-care facility
   I do not trust their qualification /training
   I have a trustworthy family doctor (private obstetrician)
   I have a trustworthy dai (traditional birth attendant) who conducts all deliveries in my family
   After vaccination, my hands swell
   Other ________________
Section 3: Satisfaction with community health workers

Now I would like to know about your personal experience with the community health workers to provide maternity care. Based on your experience please indicate if you have used the service (Yes or No) and rate your satisfaction on the service provided by the following? [1= extremely dissatisfied, 2= Not satisfied, 3= Satisfied to some extent, 4= Very satisfied.]

<table>
<thead>
<tr>
<th>SNo</th>
<th>Services utilised</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lady Health Worker (LHW)</td>
</tr>
<tr>
<td>1</td>
<td>Did she give you antenatal visits at home?</td>
</tr>
<tr>
<td>2</td>
<td>Did she provide iron and folic acid supplements during pregnancy?</td>
</tr>
<tr>
<td>3</td>
<td>Did she give you postnatal care at home?</td>
</tr>
<tr>
<td>4</td>
<td>Did she administer a pregnancy vaccination (tetanus) at home?</td>
</tr>
<tr>
<td>5</td>
<td>Did she refer you to an attached health facility?</td>
</tr>
<tr>
<td>6</td>
<td>Did she provide you information about a Community midwife in your area?</td>
</tr>
<tr>
<td>7</td>
<td>Did she counsel you about family planning?</td>
</tr>
<tr>
<td>8</td>
<td>Did she provide you with family planning tablets?</td>
</tr>
<tr>
<td>9</td>
<td>Did she vaccinate your child?</td>
</tr>
<tr>
<td></td>
<td>Lady Health Visitor (LHV)</td>
</tr>
<tr>
<td>10</td>
<td>Did you see her for antenatal visits at a hospital?</td>
</tr>
<tr>
<td>11</td>
<td>Did she provide iron and folic acid supplements during pregnancy?</td>
</tr>
<tr>
<td>12</td>
<td>Did she administer a pregnancy vaccination (tetanus) in hospital?</td>
</tr>
<tr>
<td>13</td>
<td>Was your delivery conducted at a hospital?</td>
</tr>
<tr>
<td>14</td>
<td>Did she provide you postnatal care in hospital?</td>
</tr>
<tr>
<td>15</td>
<td>Did she counsel you about family planning?</td>
</tr>
<tr>
<td>Community Midwife (CMW)</td>
<td></td>
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<tr>
<td>------------------------</td>
<td>--</td>
</tr>
<tr>
<td>16 Did she give you antenatal visits at home?</td>
<td></td>
</tr>
<tr>
<td>17 Did she provide iron and folic acid supplements during pregnancy?</td>
<td></td>
</tr>
<tr>
<td>18 Did she administer a pregnancy vaccination (tetanus)?</td>
<td></td>
</tr>
<tr>
<td>19 Did she conduct your delivery at her health house or your house (underline the place)?</td>
<td></td>
</tr>
<tr>
<td>20 Did she refer you to an attached health facility (when required)?</td>
<td></td>
</tr>
<tr>
<td>21 Did she provide you with postnatal care at your home or at her health house?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Private practitioner</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>22 Did you see her for antenatal visits at a hospital?</td>
<td></td>
</tr>
<tr>
<td>23 Did she provide iron and folic acid supplements during pregnancy?</td>
<td></td>
</tr>
<tr>
<td>24 Did she administer a pregnancy vaccination (tetanus) in hospital?</td>
<td></td>
</tr>
<tr>
<td>25 Was your delivery conducted at a hospital?</td>
<td></td>
</tr>
<tr>
<td>26 Did she provide you postnatal care in hospital?</td>
<td></td>
</tr>
<tr>
<td>27 Did she counsel you about family planning?</td>
<td></td>
</tr>
<tr>
<td>28 Did she provide you with family planning tablets?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Traditional Birth Attendant (dai)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>29 Did she give you antenatal visits at home?</td>
<td></td>
</tr>
<tr>
<td>30 Did she provide iron and folic acid supplements during pregnancy?</td>
<td></td>
</tr>
<tr>
<td>31 Did she administer a pregnancy vaccination (tetanus)?</td>
<td></td>
</tr>
</tbody>
</table>
Section 4: Pregnancy and Delivery during floods, 2010 – 2013

I will now ask you some questions about your last pregnancy or childbirth experience if that happened during the recent floods in Tando Muhammad Khan.

16. Were you aware about the possible monsoon flooding?
   Yes
   No [skip to Q 21]

17. Who informed you about the floods?
   Family/friends/neighbours
   UC office
   Local NGO
   CHWs
   Radio/television _____________
   Other ____________

18. Did you temporarily migrate before the monsoon floods?
   Yes [skip to Q 34]
   No

19. Where did you migrate to?
   Relatives
   Jabal (nearest hill)
   Others ____________
   I didn’t migrate

20. Were you pregnant during the 2010-2013 floods?
   Yes, which year? ____________
   No [skip to Q 34]

21. Do you know how many months pregnant you were?
   1-3 months
   3-6 months
   6-9 months
   Full term pregnant
22. Were any of your children born during the floods?
   During floods
   Before the floods
   After one month of floods
   After two months of floods
23. Who conducted the delivery?
   A dai
   CMW
   LHV
   Friend or relative
   Doctor
   Other ________________
24. Where did the delivery take place?
   Home
   Hospital facility
   Mobile camp
   Shelter home
   Other ________________
25. Did the birth attendant use a clean delivery kit?
   Yes
   No
   I am not sure
26. What was the outcome of your pregnancy during the floods?
   Live birth
   Miscarriage
   Still birth
27. What kind of social support was available for you during your postpartum period during
   the floods?
   Family support
   Neighbours/friends support
   I didn’t get any support for my postpartum period
28. Were there any special spaces (shelters) available for pregnant women or those who had
   given birth during the floods?
   Yes
   No
29. If yes, please explain what these shelters were and where they were located.
   ____________________________________________________________________________
   ____________________________________________________________________________
   ____________________________________________________________________________
30. Were there any counselling services or support groups available to help pregnant women during the floods?
   Yes
   No
   Don’t know [skip to Q 30]
31. If yes, please explain who were the service providers and where they were located.

32. Did you use any of these services?
   Yes
   No
33. If no, why didn’t you use these services?

34. Do you think that your maternity needs were met during floods?
   Yes
   No
   Don’t know
35. Please explain your point of view.

36. Do you have any advice to improve pregnancy and delivery care during floods for women from your community?


Appendix 5: Ethics approval from Deakin University

Memorandum

To: AProf Elizabeth Hoben

B

From: Deakin University Human Research Ethics Committee (DUHREC)

Date: 08 September, 2014

Subject: Improving Maternity Care in rural Sindh Pakistan, RE-defining the roles of community health workers

Please quote this project number in all future communications.

The application for this project was considered at the DUHREC meeting held on 18/09/2014.

Approval has been given for AProf Elizabeth Hoben, to undertake this project from 08/09/2014 to 08/09/2016.

The approval given by the Deakin University Human Research Ethics Committee is given only for the project and for the period as stated in the approval. It is your responsibility to contact the Human Research Ethics Unit immediately should any of the following occur:

- Serious or unexpected adverse effects on the participants
- Any proposed changes in the protocol, including extensions of time.
- Any events which might affect the continuing ethical acceptability of the project.
- The project is discontinued before the expected date of completion.
- Modifications are requested by other HRECs.

In addition you will be required to report on the progress of your project at least once every year and at the conclusion of the project. Failure to report as required will result in suspension of your approval to proceed with the project.

DUHREC may need to audit this project as part of the requirements for monitoring set out in the National Statement on Ethical Conduct in Human Research (2007).

Human Research Ethics Unit
research-ethics@deakin.edu.au
Telephone: 03 9251 7123
Appendix 6: Ethics approval from the National Bioethics Committee

National Bioethics Committee (NBC) Pakistan

Ref: No.4-87/14/NBC-161/RDC/1016

Date: October 24, 2014

Dr. Humaira Maheen
Student
School of Health & Social Development
Faculty of Health,
Deakin University
Australia.

Subject: Improving Maternity Care in Rural Sindh, Pakistan, Redefining the Roles of Community Health Workers (NBC-161).

Dear Dr. Humaira Maheen,

I am pleased to inform you that the above mentioned project has been cleared by “Research Ethics Committee of National Bioethics Committee”.

Kindly keep the National Bioethics Committee Secretariat updated with the progress of the project and submit the formal final report on completion.

Yours sincerely

(Prof Dr. Aasim Ahmad)
Chairman
NBC-Research Ethics Committee

Pakistan Medical Research Council, Shaukat-e-Jamshaid, Off Constitution Avenue, Sector 03/2, Islamabad

Tel: 92-51-8207386, 9216793, 9205480. Fax: 9216774, 9204559
## Appendix 7: Health workers’ qualifications and MNCH tasks

<table>
<thead>
<tr>
<th>Key characteristics</th>
<th>LHV (n=8)</th>
<th>Midwife (n=31)</th>
<th>FWC (n=13)</th>
<th>CMW (n=56)</th>
<th>LHW (n=440)</th>
<th>FWW (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population allocated</strong></td>
<td>10,000-15,000</td>
<td>10,000-15,000</td>
<td>10,000-15,000</td>
<td>5,000</td>
<td>700-1,000</td>
<td>10,000–15,000</td>
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<tr>
<td><strong>Facility/community based</strong></td>
<td>Rural Health Facilities (BHU, RHC, and District Hospital)</td>
<td>Rural Health Facilities (BHU, RHC, and District Hospital)</td>
<td>Family Welfare Centre</td>
<td>Community</td>
<td>Community</td>
<td>Community</td>
</tr>
<tr>
<td><strong>Age limit for hiring (preferably)</strong></td>
<td>18-35 years</td>
<td>Maximum 25 years of age for training</td>
<td>18-30 years</td>
<td>18-35 years</td>
<td>18-35 years</td>
<td>18-35 years</td>
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<tr>
<td><strong>Marital status (preferable)</strong></td>
<td>Single (during training)</td>
<td>Single (during training)</td>
<td>Not specific</td>
<td>Married</td>
<td>Married</td>
<td>Unmarried</td>
</tr>
<tr>
<td><strong>Minimum education qualification</strong></td>
<td>Grade 10 and above</td>
<td>Grade 10 and above</td>
<td>Grade 10</td>
<td>Grade 12</td>
<td>Grade 8</td>
<td>Grade 12</td>
</tr>
<tr>
<td><strong>Department/Program</strong></td>
<td>District Health Department</td>
<td>District Health Department</td>
<td>Population Welfare Department</td>
<td>MNCH Program</td>
<td>National Program of Family Planning and Primary Health Care</td>
<td>Population Welfare Department</td>
</tr>
<tr>
<td><strong>Title of degree/diploma</strong></td>
<td>Diploma in General Nursing and Midwifery</td>
<td>Diploma in Midwifery</td>
<td>Diploma in Family Welfare Worker + three years working experience</td>
<td>Diploma in Community Midwife</td>
<td>LHW training</td>
<td>Diploma in Family Welfare Worker</td>
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<tr>
<td><strong>Training duration</strong></td>
<td>24 months’ follow-up training</td>
<td>15 months</td>
<td>24 months’ follow-up training</td>
<td>18 months’ training</td>
<td>15 months’ training</td>
<td>24 months’ follow-up training</td>
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## Appendix 8: Delivery cost break up with health-care provider fees and travel costs

<table>
<thead>
<tr>
<th>Villages /Mode of transport</th>
<th>Travel</th>
<th>Private midwife</th>
<th>Private doctor</th>
<th>Public doctor/LHV</th>
<th>TBA</th>
<th>Travel</th>
<th>Private midwife</th>
<th>Private doctor</th>
<th>Public doctor/LHV</th>
<th>TBA</th>
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<tbody>
<tr>
<td>Bashir Machi</td>
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<td>Motorbike</td>
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<td>TMK city (costs are mentioned in PKR)</td>
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<td>Villages /Mode of transport</td>
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</table>

* The costs mentioned above are in Pakistani rupee (PKR); the AUD conversion is (AU$1.00 = PKR79.23), conversion updated on 21 March 2015
Appendix 9: Pregnancy/health cards
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