

PN. ACL-084
108452

Final Report
Safe Motherhood Initiative in Rural Balochistan

Farid Midhet
The Asia Foundation
Pakistan
1998

MotherCare/John Snow, Inc Subcontract 5025-91
USAID Contract HRN-5966-Q-00-3039-00

Section 1

Introduction and Background

Maternal mortality reflects much greater disparity between the developed and developing countries than any other health status indicator. The maternal mortality ratio^a (MMR) in South Asia is over 20 times the MMR in developed countries. Because of higher fertility, women in the developing world are at a much greater risk of dying of maternal causes than women in the developed world; for example, in the developed countries, the *lifetime risk*^b of maternal death (Measham and Herz, 1990) is of the order of 1/1,900, while the same risk in West Africa is about 1/19 (Tinker and Koblinsky, 1992).

A decline in maternal mortality in the developed countries is attributed to advances in medical technology (blood transfusion, aseptic techniques of delivery, management of hypertensive disorders of pregnancy and antibiotics) (Loudon, 1992). Advent of antibiotics and blood transfusion caused a sharp decline in the MMR in England and Wales -- from 550 in 1931 to about 50 in 1951 (Macfarlane and Mugford, 1984). All of these technologies are available in contemporary developing world. Yet there are striking differences between health services available to the rich and the poor and to rural and urban populations. Access to adequate obstetric care is probably the most important determinant of maternal mortality in developing countries (Sundari, 1992; WHO, 1991). Although the role of health services in the causation of maternal deaths is widely recognized, very few studies have examined the true relationship between the risk of maternal mortality and access to health services.

The important elements of maternal health services are family planning, primary level obstetric care -- including prenatal care, risk assessment and safe delivery -- and emergency obstetric care (EmOC). Information, education and communication (IEC) play an important role in effective utilization of available health services. Early recognition of "danger signs" during pregnancy and childbirth by women, their families and their primary providers assures timely referral to hospital. Family planning reduces maternal mortality by preventing high risk pregnancies (e.g., among grand multiparous women).

An ideal district health system should provide IEC, family planning, prenatal care, safe delivery care, postpartum care and neonatal special care, besides EmOC and referral and transportation of obstetric emergencies. These services should be accessible, affordable and acceptable to women. Where all of these elements are in place and functioning, maternal mortality is low; where any of these elements are missing, maternal mortality is high. The latter is the case in Pakistan where basic health services lack emphasis on safe

^a Maternal mortality ratio measures the obstetric risk of death as it is conditional upon the pregnancy. Maternal mortality rate, on the other hand, is the number of maternal deaths per 100,000 women of reproductive ages, and is more general than the ratio.

^b Lifetime risk of maternal mortality is computed by: $1-(1-\text{MMR}/100,000)^{\text{TFR}}$; risk estimates for West Africa and developed countries are computed using an MMR of 760 and a TFR of 7.0 in the former, and an MMR of 26 and a TFR of 2.0 in the latter (1988 estimates)

motherhood, particularly in the rural areas. EmOC is available only at urban hospitals which are difficult to access for rural women. Although maternal and child health (MCH) care is the major focus of basic health services, its role in reducing maternal mortality is dubious.

There is no dearth of information on levels, causes and determinants of maternal mortality. It is known that a majority of maternal deaths in developing countries are attributable to hemorrhage, obstructed labor, sepsis, hypertensive disorders and complications of induced abortions. It is also known that births at age less than 18 or over 35 years, grand multiparity (five or more children) and closely spaced births contribute to increase a woman's risk of maternal death. Poverty, illiteracy and low social status of women are also held responsible for high maternal mortality rates in the developing countries. However, this information is not enough to develop effective interventions for reducing maternal mortality. What is needed is an in-depth and comprehensive study of the proximate, intermediate and distant determinants of maternal mortality. In the context of rural Pakistan, the most relevant questions are: What are the barriers to the use of health and family planning services for rural women. What are the women's perceptions about contraceptive use, management of common obstetric complications and government health services. What is the role of informal birth attendants (e.g. *dais*) in the causation or prevention of maternal mortality. Answers to these questions would help design an effective intervention program in a defined population.

The Balochistan Safe Motherhood Initiative (BSMI) is an operations research project which aims at developing and testing effective intervention strategies in the rural district of Khuzdar in Balochistan, the least developed province of Pakistan. The first phase of the project (completed September 30th, 1998) comprised baseline research which was designed to get answers to the three questions listed above. In this report, we present the major findings from the baseline research and try to build a case for the interventions proposed in the second phase. For the uninitiated reader, we include in this chapter some general information on the causes and determinants of maternal mortality.

Causes and Risk Factors of Maternal Mortality:

Medical causes of maternal mortality:

Medical causes of maternal death in the developing countries today are the same as they were in the developed countries half a century ago: Antepartum and postpartum hemorrhage, puerperal sepsis, obstructed labor, hypertensive disorders and unsafe induced abortions. The ranking of these causes depends mainly upon accessibility of adequate obstetric care. In addition to these direct causes, certain medical conditions are aggravated as a result of pregnancy, for example, anemia, essential hypertension (continuously high blood pressure), ischemic heart disease and diabetes mellitus. Infections like malaria and hepatitis are unrelated to pregnancy but increase a woman's risk of complications during pregnancy and childbirth.

Hemorrhage around delivery is the most frequently reported cause of maternal deaths in developing countries, accounting for 25-33% of all maternal deaths. The associated factors which enhance the risk of maternal death due to hemorrhage include pre-existing anemia, lack of blood banks, failure to find blood

donors and unskilled blood bank technicians (Stokoe, 1991). Antepartum hemorrhage after 28th week of gestation is most frequently caused by premature separation of placenta from the uterine wall. Placenta previa (a condition in which placenta lies at the lower part of the uterus near the cervix) is also characterized by Antepartum hemorrhage. Antepartum hemorrhage before 28 weeks of gestation is associated with spontaneous or induced abortions, or, less frequently, with ectopic pregnancy (a condition in which the fertilized ovum is implanted in one of the fallopian tubes outside the uterus). Postpartum hemorrhage is most commonly caused by retained placenta (failure of expulsion of placenta within 30 minutes after delivery), or by failure of uterus to contract immediately after delivery. Grand multiparous women (women having five or more live births) are at a greater risk of postpartum hemorrhage, because their uterus loses its normal structure and muscle tone as a consequence of numerous pregnancies.

The proportion of maternal deaths attributed to obstetric hemorrhage may be regarded as an indicator of development of obstetric care in a country. A woman having hemorrhage around delivery must reach an adequate obstetric care facility within 3-6 hours in order to save her life. Even when a facility providing EmOC is within easy access, delay in decision-making to seek adequate medical care often results in a fatal outcome.

Puerperal sepsis is the second most important cause of maternal deaths in developing countries. Almost one fifth of all maternal deaths are attributed to postpartum infections. This condition is characterized by infection of the genital tract associated with pelvic pain, high grade fever and abnormal vaginal discharge. Sepsis is frequently associated with delivery under unsanitary conditions. It is also a common consequence of unsafe illegal abortion. Prolonged labor, failure to deliver until 12 or more hours after the rupture of membranes, is a predisposing factor for puerperal sepsis. Maternal tetanus, frequently associated with unsafe abortions, is also an important cause of maternal death in many developing countries (Stokoe, 1991; Fauveau et al., 1992).

Deaths from sepsis are rare in settings where deliveries are conducted under sterile conditions and prolonged labor is promptly remedied by medical or surgical means. Clean delivery practices and provision of antibiotics work dramatically in reducing the number of deaths due to postpartum infections. Puerperal sepsis is a less acute condition than hemorrhage. Relatively inexpensive interventions like training of traditional birth attendants in safe delivery practices, and availability of oxytocic agents (drugs used to induce labor) and antibiotics result in a rapid decline in the incidence of puerperal sepsis.

Hypertensive disorder of pregnancy (HDP) remains a major cause of maternal morbidity in the developed and the developing countries. Between 10-33% of maternal deaths in the developing countries are attributed to HDP. If untreated, hypertension (high blood pressure) during pregnancy may lead to renal failure, resulting in swelling over the face and legs, abnormal weight gain and proteinuria (high protein content in the urine). The woman may also develop a potentially fatal condition called eclampsia (toxemia of pregnancy), characterized by convulsions and disorientation or loss of consciousness.

Even in its early stages, HDP needs skilled professional care for its detection, management and

monitoring. Since it is not preventable, HDP is not susceptible to low-cost interventions; however, specialized management of the disease is successful in saving women's lives. In Sweden, the case fatality rate for eclampsia has dropped from 14 percent in 1950 to about 3 percent in 1980 (Hogberg, 1985), while the incidence of HDP has remained the same. In the rural areas of developing countries, HDP is likely to go unnoticed if blood pressure is not routinely checked during pregnancy. In rural Pakistan, even trained providers frequently fail to check a woman's blood pressure during prenatal visits (Parvez et al., 1993). In a study in Enugu, Nigeria, incidence of eclampsia among unbooked patients (women who did not report for an earlier prenatal visit) was found to be 14.3/1000, significantly higher than 1.1/1000 among the booked patients ($p < 0.05$). The study concluded that early recognition and prompt referral of women at risk of eclampsia was critical for saving women's lives (Ozumbia and Ibe, 1993).

Obstructed labor (also referred to as cephalo-pelvic disproportion [CPD]) is commonly caused when the size of the baby's head is larger in relation to the diameter of the bony pelvic aperture of birth canal. Less frequently, obstructed labor is caused by an abnormal lie (position of the baby in the uterus) at the onset of labor. The women most likely to experience obstructed labor are young, primiparous (having their first birth) and malnourished. In most instances the only recourse for obstructed labor is a Caesarean section, which can only be performed in a well-equipped hospital by an obstetrician or specially trained physician.

Failure to correct this condition soon after the onset of labor may result in rupture of uterus and death due to shock; if previously weak and malnourished, the woman may die due to severe exhaustion even before any physical damage to the uterus has occurred. Among surviving women, prolonged obstructed labor frequently results in development of obstetric fistula, a condition in which the urinary bladder and genital tract are abnormally connected. This is a most distressing condition for the woman as it may cause urinary incontinence (lack of control over urination), recurrent infections, vaginal stenosis and dyspareunia (painful sexual intercourse), amenorrhea and infertility.

Obstructed labor is one of the few conditions which may be predicted in many cases, and is thus identifiable during routine prenatal visits. Also, monitoring the progress of labor (using a partograph^a) and timely referral to an adequate facility would prevent death and disability in nearly all cases.

A significant proportion of maternal deaths in developing countries is attributable to induced abortions, particularly those performed illegally by untrained providers under unhygienic conditions. Although adequate and reliable data are generally not available, between 7% and 29% of all maternal deaths are attributed to unsafe induced abortions in developing countries (WHO, 1991).

Anemia is the most important indirect cause of maternal deaths in the developing countries. In a pregnant woman, a hemoglobin level of less than 11.0 grams per 100 ml. is regarded as moderate anemia and

^a A partograph is a chart on which the dilatation of cervix and the descent of fetal head during labor are recorded against time, along with fetal heart rate, and the woman's pulse, blood pressure and temperature; it is an invaluable decision-making tool for timely referral of woman for a C-section.

a level less than 9.0 grams per 100 ml. is regarded as severe anemia. The latter condition requires transfusion of blood in the form of packed cells, which may only be carried out in a facility having a blood bank and trained technicians. Estimated prevalence of moderate anemia during pregnancy in the developing countries is almost 60%, compared to about 15% in the developed countries (WHO, 1991). Anemia during pregnancy is frequently associated with intestinal parasites and malaria. Because anemic women are more likely to succumb to Antepartum and postpartum hemorrhage, anemia must be corrected early in pregnancy. In a study of twelve Indonesian hospitals, the anemic women were found to be four times more likely to die than non-anemic women (Lettenmaier, 1988). Severely anemic women may also experience heart failure, particularly in case of excessive blood loss (Zimicki, 1989); these women are also at an increased risk of infections during pregnancy and postpartum period. It is highly advisable to give prophylactic iron and folic acid therapy to all pregnant women as part of prenatal care, as it corrects iron-deficiency anemia by increasing the hemoglobin level in the blood.

Anemia is easily detectable and treatable in early pregnancy. Traditional birth attendants may be trained in using simple techniques to judge the degree of anemia. They may also prescribe or dispense oral iron and folic acid tablets and monitor women for adverse effects of medication. Hence anemia is susceptible to low-cost interventions, although a significant proportion of women (those having severe anemia) would still require referral to a secondary care facility.

Malaria and viral hepatitis are highly prevalent infections in many developing countries, and frequently affect pregnant women; in some developing countries, these infections still claim the lives of a significant proportion of pregnant women. Therefore, both are regarded as important indirect causes of maternal mortality.

Due to physiological changes, pregnant women are less resistant to malaria, specially during the second trimester, and are highly likely to contract it during peak malaria season. They are also more likely to acquire heavier loads of parasites in their blood than the non-pregnant women (Zimicki, 1989). Infection with falciparum malaria is particularly dangerous, because it may lead to inflammation of the brain (cerebral malaria), severe anemia and/or dehydration. Although malaria is relatively easy to detect and treat, some cases would require hospitalization, e.g., for correction of severe dehydration and treatment of cerebral malaria.

Viral hepatitis is a disease associated with unsanitary and crowded living conditions and malnutrition. It was reported as one of the six major causes of maternal deaths in a multi-national study in Africa (Kwast and Stevens, 1987). Viral hepatitis is also highly prevalent in South Asia (Lettenmaier et al., 1989). This fulminating infection of the liver in a pregnant woman is doubly hazardous as it may lead to hemorrhage and/or liver failure sooner than in non-pregnant women. Hepatic encephalopathy (depression of brain function due to excessive levels of toxic substances in the blood) and hepato-renal failure (failure of kidney function as a consequence of liver failure) are common consequences of untreated viral hepatitis; these conditions have very high fatality rates, particularly among pregnant women. Viral hepatitis is difficult to detect and manage and usually requires hospitalization.

Biological risk factors of maternal mortality:

Women having delivered many children previously are considered at a greater risk of maternal mortality. Postpartum hemorrhage, possibly the most prevalent cause of maternal deaths in developing countries, typically occurs in grand multiparous women (women having four or more previous births). On the other extreme, first birth is also regarded at high risk of complications. Nulliparous women (women never having a live birth before) are considered at a higher risk of maternal mortality, especially when they had a previous pregnancy not resulting in live birth. In Matlab, Bangladesh, women having their first child were three times more likely to die of maternal causes than the women having their third child (Koenig et al. 1988). This "J-shaped" relationship between parity and MMR is found in most countries regardless of the level of maternal mortality (Kwast and Sullivan, 1987).

Age at birth of 35 years or older is regarded as a risk factor of maternal mortality and morbidity. In a study in Nigeria, women aged 30 and over were found to be at a 2.5 times greater risk of maternal death than women aged 20-24 (Royston and Lopez, 1987). A similar finding was from two studies in the Matlab, Bangladesh (Chen et al., 1974; Koenig et al., 1988). Similarly, teenage pregnancy (before 18 years of age) is considered at high risk. In Matlab, the MMR among women under 15 years of age was about five times higher than that among women aged 20-24 years (Chen et al., 1974; Koenig et al., 1988). Younger women are particularly at higher risk of eclampsia and obstructed labor (Zimicki, 1989).

When plotted against age, the MMR forms a J-shaped curve, depicting higher risk in the young ages, and a steady increase in the risk after 35 years of age. This holds true regardless of the level of maternal mortality. In a study in the United States, age-specific maternal mortality ratios were found to be higher among minority women than in white women for each age-group, although there was a steady increase in risk for both groups after the age of 40 years (Atrash et al., 1989). In some instances, risk of maternal death in the teenagers may be greater than the risk in the older ages (Kwast et al., 1991; Stokoe, 1989), either due to a higher risk involved with the first birth, or because many births occur among teenagers less than 15 years old.

The effects of age and parity are closely related and it is difficult to distinguish between the two types of risk. Data from Matlab, Bangladesh, were suggestive of excessive risk for young age and Nulliparous women as well as for old age and grand multiparous women (Chen et al., 1974). In the same area, however, a later study found that high parity carries a higher risk only at the very old ages (Koenig et al., 1988)

Previous history of fetal loss is also found to be associated with increased risk of maternal mortality (Fikree, 1994; Midhet et al., 1998), although the biological relationship between the two is not clear. The apparent association may be due to the fact that many risk factors of maternal mortality may also result in poor pregnancy outcomes (stillbirths and spontaneous abortions). For similar reasons, perinatal mortality (stillbirths and deaths of the newborn within the first week) is regarded as a surrogate of the risk of maternal mortality in an area (WHO, 1993; WHO, 1989).

Short birth interval (less than two years elapsed since the last live birth) is also regarded a risk factor

of maternal mortality, particularly in developing countries (Ascadi and Johnson-Ascadi, 1991). The biological pathways leading to maternal death among women having narrowly spaced births are not understood very well. The phenomenon of "maternal depletion" is one possible explanation: It is plausible that an already malnourished and anemic woman, having not recovered from a previous pregnancy, would succumb to similar risks posed in the current pregnancy. However, the many confounding factors make it difficult to tease out the effect of the so-called maternal depletion syndrome (Winikoff, 1988). No studies specifically address the question of effect of short birth interval on the risk of maternal mortality (Winikoff, 1987).

The biological profile of a high-risk pregnancy may be summarized as: "too young, too old, too many and too close". Additionally, malnutrition, previous infections, and short stature are also considered important biological risk factors of maternal mortality. Malnutrition predisposes a woman to infections and lowers her ability to cope with excessive intrapartum bleeding. Similarly, pre-existing infections, especially those of genital tract, may lead to problems during pregnancy, childbirth and postpartum period. Existing systematic infections like tuberculosis render a woman weak and susceptible to acquiring new infections. Women having short stature are considered at higher risk of experiencing obstructed labor, the risk being greatest at first birth.

Some, but not all, of the biological risk factors have equal significance in developed and developing countries, although women in developing countries are prone to have multiple risk factors. Any combination of biological risk factors is more important than any one of those considered separately (Viegas et al., 1988). It may be noted that these risk factors are not predictive of complications during pregnancy or childbirth. Even so, a pregnant woman's probability of experiencing complications may be estimated through careful prenatal risk assessment.

Socioeconomic and cultural factors:

Poverty and illiteracy are the most important and inter-related risk factors of maternal mortality. Maternal mortality is invariably higher among the less educated, poor rural women. These women also have high fertility, are less likely to use modern birth attendants and are less aware of the dangers involved in having birth under unhygienic conditions. In the less educated, poor and rural societies of developing countries, women have a lower status than men. Such women are likely to be malnourished and stunted, to marry at a young age and to have closely spaced births. They may not be allowed to seek health care of their choice, or to use contraceptive methods, without their husband's approval. Whether and when to seek medical care during pregnancy and childbirth is also a decision to be made by their husbands or, at times, by their mothers-in-law.

Traditional practices and beliefs surrounding birth differ widely in societies. Although not all of the traditional beliefs are harmful, some are quite dangerous. For example, in some rural areas of Pakistan it is believed that excessive bleeding after delivery is a good sign (Toor, 1994). Similarly, restricting certain foods for the pregnant woman may result in her not getting enough nutrition which could be doubly dangerous if she is already malnourished. Not seeking modern medical care except as a last resort is also a dangerous

practice.

Higher levels of maternal mortality are also associated with poor infrastructure development and economic depression. After the economic crisis of 1981, the Nigerian government was forced to cut public expenses. The health sector was the hardest hit. In Zaria, North Nigeria, the number of deliveries doubled during 1983-1988 while there was no increase in the number of health personnel and facilities. An increase in maternal mortality was recorded during this period. It was believed that measures to cut costs in the health sector were responsible for the increase in maternal mortality (Ekwempu et al., 1990). In a study in rural India, it was found that poorly developed villages had four times the MMR than the more developed villages. High socioeconomic status, literacy and better contacts with the outside world also had an impact on maternal mortality (Bhatia, 1993).

Role of health services:

A maternal death results from an interplay between several risk factors: Whether a woman survives puerperal sepsis or postpartum hemorrhage depends upon her health and nutritional status at the time of delivery. Moreover, whether she delivers at home or in a hospital -- or uses a trained or untrained birth attendant -- depends upon her cultural beliefs, socioeconomic status of her family, distance from an adequate health facility, and the availability of transport services in her village (Stokoe, 1991). Poor rural women are more likely to be illiterate, grand multiparous and malnourished. They are also more likely to use untrained birth attendants for delivery and seek medical care too late, or not at all, if complications arise (Stokoe, 1991).

Many studies on medical causes of maternal mortality divide the observed maternal deaths into "avoidable" and "unavoidable" categories. Maternal deaths in the first category are usually attributed to barriers in access and utilization of health services. In a study in southern India (Bhatia, 1993), 22 percent of the 221 "avoidable" deaths were attributable to lack of primary level obstetric care (prenatal care, tetanus immunization and treatment of anemia during pregnancy). The rest of the maternal deaths could only have been avoided through highly skilled services at a hospital (blood transfusion, control of infection, abortion and Cesarean section, etc.). Many of these women had shown the "danger signs", and their lives might have been saved if the family or the birth attendant had recognized the severity of the situation. The families of about 23 percent of these women said they were unaware of the seriousness of the condition. About two thirds of these women were eventually taken to a hospital, but 9 percent died on the way. In about 5 percent of cases, no action was taken. (The same study found that maternal mortality was lower in villages where primary health care centers and sub-centers were located than in villages with no such facilities.)

Winnard (1995) presented a typological approach to describe the contexts in which health care has a bearing on maternal mortality. Three main categories were defined:

(1) Setting A, where women are typically isolated and uneducated; where nearly all births occur at home and are assisted by untrained providers; where primary level obstetric care does not exist; and where

even the district hospital lacks capacity to respond to obstetric emergencies.

(2) Setting B, where primary level obstetric care is available and the district hospital functions as the first referral level. In the community, however, female literacy levels are low, fertility is high and contraceptive use is low. A majority of births are attended by untrained providers and the available health services are grossly under-utilized

(3) Setting C, where hospitals and primary obstetric care are within easy access of women and their utilization is also high. As a result, contraceptive use rates are moderately high, fertility is low and births are routinely attended by trained provider. However, quality of care remains problematic and health facilities are overburdened.

All three settings can be readily identified in any developing country of South Asia, Africa and Latin America: Setting A defines remote rural areas of the less developed regions, setting B represents rural areas of relatively better developed provinces and setting C is found in peri-urban and urban areas.

Campbell et al. (1995) have listed the four elements of an effective safe motherhood program as: (1) IEC strategies to improve health services utilization and to increase awareness regarding obstetric danger signs. (2) Community-based delivery of family planning services and primary level obstetric care. (3) First referral level facilities providing emergency obstetric care. (4) Referral and transport systems. They argue that the risk of maternal mortality depends upon these characteristics of the health service organizations and their use. Utilization of health services by women, in turn, depends on a multitude of socioeconomic and cultural factors, as well as on the woman's primary level provider of obstetric care and on the organization of health services in her area. It has been pointed out that even the most comprehensive safe motherhood programs are limited to the problems associated with pregnancy and delivery (Pinotti, 1994), which impedes their full utilization and acceptance by the women.

Finally, it is important to recognize the complexity of relationship between traditional beliefs and practices, presence of indigenous obstetric care providers and the issues of physical and socioeconomic accessibility of modern health services. Some of these issues are discussed below:

Traditional birth attendants:

In many developing countries, traditional birth attendants (TBAs) are still the main providers of obstetric care, particularly in the rural areas. An excellent definition of a TBA is provided by Kwast (1988): "[A TBA] .. is a woman who is called upon during childbirth not only by her own relatives but also by other women, who has learned midwifery by working with other TBAs attending births, and is recognized as TBA in the community. The TBA is paid by the mother in cash or kind".

There is an extensive body of literature on the experiments of training and supervising the TBAs. The results of these experiments have been mixed. The main reasons for failure are a lack of follow-up and a

failure to integrate the TBAs into the district health system. While TBAs are considered by some a "dying breed" in urban areas, their enduring significance in the rural areas of many developing countries is quite clear (Kamal, 1992). TBA training and supervision will remain an important issue in the developing countries for the next several decades, despite reservations about success of such programs.

An important finding by studies evaluating the TBAs' performance is that they are better than the unpaid birth assistants like relatives and neighbors. In a study in Ethiopia (Kwast, 1988), the risk of maternal mortality among women delivered by a TBA was about one third of the risk in home births without a TBA. The same study found that the women having prenatal care (at a health facility) were more likely to be assisted at delivery by a TBA (rather than delivering unassisted or assisted by a family member or neighbor) than those who did not receive prenatal care. The study concluded that, compared to delivering unassisted, or assisted by a family member or neighbor, having a TBA in assistance is certainly better and safer.

Coupled with IEC to improve women's awareness, and along with improvements in referral and transport of obstetric emergencies, trained TBAs can play a key role in reducing maternal mortality in under-served areas (Rosenfield, 1992). Focused studies have detected some success with TBA training: In Burkina Faso, trained TBAs successfully identified and referred about 70 percent cases of obstetric complications (Wollast et al., 1993). Similarly in the Sudan, a prospective study concluded that TBAs' skills can be improved to provide MCH care and monitor and refer high risk pregnancies (Ibrahim et al., 1992).

Reproductive outreach services:

Access to health services in general and emergency obstetric care in particular have been documented to play a crucial role in preventing maternal mortality in varied settings. Viegas et al. (1992) examined the data on maternal mortality from rural areas in Indonesia, the Philippines and Thailand. Overall, less than one third of the deceased women lived close to a hospital, and between 9 percent and 40 percent had no access to transport. Many maternal deaths were due to postpartum hemorrhage. The authors concluded that timely referral to a secondary-care hospital might have saved these women.

Several methods of providing outreach services have been tried. In Matlab, Bangladesh, trained midwives were posted who could treat some conditions and refer women in need of emergency obstetric care. A significant decline in the obstetric risk was documented in the post-intervention period (Fauveau et al., 1991). The interventions affected abortion complications, postpartum hemorrhage, puerperal sepsis, obstructed labor and eclampsia, in that order.

Maternity waiting homes are another approach to reduce the obstetric risk of maternal mortality without over burdening the secondary level facilities. In one of the villages surrounding the city of Attat in Ethiopia, a maternity waiting home with 15 beds was built with help from community. A nurse visited the waiting home every day to monitor high risk cases. In 1987, there were 13 maternal deaths among women who were directly admitted in the secondary hospital but none among the women who were admitted through the waiting home (Poovan et al., 1990). A different experiment in Ivory Coast involved 'decentralization' of

the obstetric surgical units by appointing obstetricians at hospitals in smaller towns (Berardi et al., 1989). During 1980-1985, the number of referrals from smaller hospital to teaching hospital was brought to zero. The risk of maternal mortality at the teaching hospital also improved during this period.

Between 10-15 percent of all pregnant women require special medical care at some stage, regardless of the level of maternal mortality in the country (Belsey, 1991). Incorrect or delayed treatment was an element in 11-47 percent of maternal deaths in studies in Colombia, Vietnam, India and Tanzania. It has also been estimated that only about 10 percent of the African women needing a Cesarean section actually get this operation (Maine et al., 1985). Primary health care facilities are the closest source of modern medical care to rural populations. Unfortunately, the staff of these facilities is barely able to provide even first aid to the women experiencing obstetric complications (Maine et al., 1985). The magnitude of maternal mortality in a developing country depends largely on the quality and accessibility of peripheral health services.

Role of family planning in safe motherhood:

Family planning is considered an important strategy to reduce the risk of maternal mortality at the community level (Ross and Frankenberg, 1993). Family planning works by preventing pregnancies in general, and among high risk women in particular. Therefore, the effects of family planning are more marked on the lifetime risk of maternal mortality, and on maternal mortality rate, rather than on maternal mortality ratio (MMR). It may be noted, however, that acceptance of family planning services is low among population groups at the greatest risk of maternal mortality, e.g., illiterate and rural women. Clearly, family planning programs should focus broadly on promotion of family limitation and birth-spacing, rather than concentrating on the women at a high risk of maternal mortality. The absolute number of women dying due to maternal mortality is highest in the so-called "safe" categories of age and parity. A strategy that focuses only on high-risk women will ignore between 50 and 65 percent of women who die as a consequence of childbearing (Winikoff, 1987).

There is no evidence that family planning affects the MMR (the obstetric risk of maternal death) directly, although avoiding pregnancy by high risk groups (e.g., teenagers, women over 35 years of age and grand multiparous women), would decrease the overall MMR in a country or community. When family planning is successful in reducing the number of unwanted births, the MMR may drop substantially (Fortney, 1987), as these women are more likely to seek unsafe abortion services. In Matlab, the effect of eliminating births to women under 20 years or over 39 years was an almost 14 percent reduction in the MMR (Fortney, 1987), while about 4 percent reduction was achieved by eliminating births to women already having six or more children. However, the combined effect of eliminating both of these high risk categories was about 25 percent reduction in the MMR and 55 percent reduction in the maternal mortality rate. It may be noted here that the maternal mortality rate, being the product of MMR and the general fertility rate (GFR), better captures the effect of family planning services on the risk of maternal death in a country (Campbell and Graham, 1991).

Prenatal care:

Prenatal care is considered an important element of adequate obstetric care. Women who never attend a prenatal care clinic are at greater risk of maternal death than those having received prenatal care. There is substantial empirical evidence that lack of prenatal care is an important risk factor of maternal mortality. Maternal mortality has been found three times higher among women who did not receive any prenatal care as compared to those who did (Zimicki, 1989; Kwast et al., 1986). In a hospital-based study of over 22,000 births in Zaire, the risk of maternal complications was found to be several times higher among women who did not register for prenatal care (Harrison, 1985). Similarly in Egypt, the MMR was found to be four times higher among "unbooked" pregnant women than those who received appropriate prenatal care (Ebrahim, 1989).

In spite of the empirical evidence, beneficial effects of many specific maneuvers included in prenatal care have not been established. Risk assessment during prenatal care is often inaccurate, particularly in the developing countries (Winikoff et al., 1991). Both the specificity and sensitivity of prenatal risk assessment are poor, even for complications that are relatively more predictable (e.g., cephalo-pelvic disproportion (Maine et al., 1985). The apparent role of prenatal care in reducing maternal mortality is sometimes attributed to a selection effect, because low-risk women are more likely to use modern health services both for prenatal and delivery care. On the other hand, it is also possible that women at high risk, for example those having complications in pregnancy, may selectively register for prenatal care (Ramachandran, 1989). In such cases, the association between lack of prenatal care and maternal mortality may be weakened.

Interventions of prenatal care known to be effective are: Prevention, detection and treatment of anemia; detection and early treatment and/or referral of women having hypertensive disease of pregnancy; timely transfer of women with pre-eclampsia to a secondary care hospital; supportive treatment of eclampsia; screening for and treatment of infections like syphilis, gonorrhoea and bacteriuria; and primary prevention of infection through tetanus immunization (Rooney, 1992). The importance of prenatal care lies primarily in risk ascertainment; however, prenatal care may also work by raising the women's awareness and by providing them with accurate information.

Framework for analyzing maternal mortality:

A maternal death may be prevented by one of the three pathways (Maine et al., 1993):

- (1) By avoiding pregnancy.
- (2) By reducing the incidence and/or severity of obstetric complications.
- (3) By reducing deaths among women who have complications.

It follows that the strategies to achieve the goal of reducing maternal mortality must have a three-pronged approach, addressing each of the three aspects described above. The intervention strategies to achieve a sustainable decrease in maternal mortality and morbidity are organized in the form of *reproductive health services*, comprising six basic elements (Table 1.2). It may be noted that reproductive health services

work *in toto*; a significant decline in the MMR may not be achieved if some of the elements are in place while others are not. Therefore, the MCH programs in a district must incorporate all of the basic elements of reproductive health care.

Time is the most critical factor in the management of maternal complications. Thaddeus and Maine (1989) have discussed three types of delays which greatly reduce a woman's chances of survival from maternal complications:

- (1) Delay in decision-making to seek medical care.
- (2) Delay in reaching a facility where adequate care is available.
- (3) Delay in getting adequate care once the woman has reached the facility.

The first type of delay is caused by lack of awareness on the part of the woman, her family and/or her primary provider. The second type of delay is caused by physical distance, unavailability of transport, lack of resources, socio-cultural taboos and ignorance regarding where to take the woman. The third type of delay is related to the quality of care provided at the health facility. The second and third types of delay are attributed directly to the weaknesses in district health system. The first type of delay may be considered an indirect effect of the failure of health system in providing adequate information to women, their families and the primary level providers.

An ideal district health system is capable of providing the basic elements of reproductive health care. Following is a brief description of a three-tiered district health system which may be used as a rough standard to evaluate the reproductive health services in a district:

Level 1, Community Level: At this level, women have their first contact with the health services. Activities at this level include provision of contraceptive supplies, follow-up of family planning users, IEC and home-based prenatal care. In many countries, outreach workers, like village health workers, have been successfully trained to provide these services. In settings where TBAs are the principal providers of primary level obstetric care, introduction of a new cadre of health workers may be problematic and less cost-effective. TBAs have been used successfully to distribute family planning supplies in several countries including Pakistan. In some countries, pictorial cards for home-based prenatal care have been developed for use by illiterate TBAs (Hussein, 1992).

Level 2, Primary Health Facilities: These facilities provide training and supervision of community-based workers and basic curative and preventive care to women. Ideally, primary health facilities should be capable of providing the basic elements of essential obstetric care. In some settings, these facilities also function as maternity waiting homes. In other settings, they are capable of dealing with a significant proportion of obstetric complications and recognizing and referring others to a higher level facility.

Level 3, The Secondary Hospital: The hospital should be capable of treating all of the common medical and surgical conditions related with obstetric and gynecological complications (Table 1.6). It

functions are to provide clinical care and diagnostic, curative, inpatient care and rehabilitation services and emergency obstetric care on a round-the-clock basis. This role should be taken up by the district hospital (and by the sub-district hospital in larger districts). Most importantly, the secondary hospital provides the surgical obstetric services not available at lower level health facilities (Table 1.4) and all six elements of emergency obstetric care (Table 1.5). The district hospital also has a training function for outreach workers and other health staff (WHO, 1992). It must also have referral links with teaching hospitals in big cities so that more complicated cases are transferred to these hospitals.

Situation of rural health services in Pakistan:

There is a wide gap between the health needs and the health services in the rural areas in Pakistan. Although about 70 percent of the population is rural, 78 percent of hospitals and 66 percent of maternal and child health centers are located in urban areas (Rahman, 1980). Less than 32 percent of rural population live within two miles from a health facility, while about 21 percent live beyond five miles from a health facility (Pakistan Planning Commission, 1980). Access to health facilities is particularly difficult for rural women because of their restricted mobility and due to lack of transportation, inconvenient timings and frequent absences of the government health personnel.

Transport and communications are poorly developed in most rural areas, further limiting the population's access to health services. Primary health facilities do not have ambulances, nor is there a system to call an ambulance from a higher level health facility. Transporting patients in need of emergency medical care is a major problem.

Every national government has promised to make improvements in the health services available to rural women and children. Since 1960, all national five year plans and many special vertical programs, some funded by international and bilateral agencies, have addressed the issues in maternal and child health. The third five year plan (1968-1973) proposed one MCH worker for every Union Council and improvements of RHCs and hospitals. In the sixth five year plan (1983-1988), the MMR was quoted as 6-8 per 1000 (Planning Commission 1980). The high MMR was attributed to lack of adequate obstetric care, and a program for training of TBAs was proposed with a goal of training 45,000 TBAs who would be backed up by LHVs and female doctors. The official number of trained TBAs in the country in 1990 was 38,000. The seventh plan (1988-1993) simply brought forward the objectives of the sixth plan, and set an objective to reduce MMR to 100 per 100,000 by the year 1993 by increasing the number of trained TBAs to 65,000.

It is unfortunate, however, that these training programs failed to achieve their objectives. There is no evidence that training TBAs had any impact on maternal mortality. The main reasons behind this failure have been lack of follow-up and supervision and support mechanism for the trained TBAs. There are no formal links of trained TBAs with government health system. Also, the TBAs are illiterate and the training does not include an element of adult literacy. The programs and manuals are not standardized. Selection criteria for participation in these programs are also not well defined. Many programs would give training to any group of women who are gathered there, and would hardly make an effort to identify and include professional

TBAs.

Regardless of the flaws in TBA training programs, and growing skepticism about their effectiveness, TBAs will remain the major providers of obstetric care in rural areas. In 1988, about 68 percent of births in rural Pakistan were attended by untrained TBAs, and another 22 percent by relatives or neighbors (Pakistan Demographic Survey, 1991). The proportion of births attended by an untrained TBA or a relative was almost 95 percent in rural areas of Balochistan.

The annual number of physicians produced by medical schools in the public sector has multiplied almost four times since 1975. Poor planning has resulted in a majority of these physicians being concentrated in the cities, even though every province has laws requiring the fresh medical graduates to spend time in the rural areas. During 1985-1988, there were impressive investments in constructing new basic health facilities. Later governments also aimed to provide one basic health unit in each village, although investment in the development sector has considerably slowed down since 1985.

In 1993, the federal Ministry of Health and the World Health Organization conducted an evaluation study of the rural primary health facilities (including basic health units, rural health centers and maternal and child health centers) in Pakistan (Parvez et al., 1993), with the following results:

The study found that about one third of health facilities were supervised by a paramedic instead of a doctor. This proportion was almost 50 percent in Balochistan. About 30 percent of the positions for male medical officers and over 50 percent of the positions for female medical officers were vacant. About 36 percent of medical officers posted in these facilities were found absent during normal duty hours. Only one fifth of the official accommodations for staff were occupied. Most of the staff lived far away from the facility where they were appointed.

About 38 percent of the health facilities visited by the evaluation team did not provide any maternal and child health care because there was no LHV appointed in the facility. These facilities depicted high attrition rates for LHVs, with the exception of maternal and child health centers where about 70 percent LHVs were working continuously for three or more years. Only 37 percent of the facilities kept records of antenatal clinics, two thirds of which showed five or less antenatal visits during the last month. The LHVs reported they made regular home visits for antenatal and delivery care, but there were no records to support their claim. The average number of deliveries conducted by LHVs during preceding three months was just four deliveries per LHV per month.

The utilization of government health services was poor, particularly by women of reproductive ages: The evaluation team randomly selected five households from the immediate catchment area of each basic health facility included in their sample. Only about 23 percent of pregnant women residing in these households reported they ever visited a government facility for antenatal care. Of those who did visit a government health facility for antenatal care, about one third did not receive tetanus immunization, none had a blood sample taken, only 28 percent got their urine tested, 38 percent got their weight taken and about 56

percent got their blood pressure checked. Out of the 200 deliveries that occurred in these households during the preceding one year, 67 percent were conducted by a private TBA, 12 percent by a family member and only 20 percent by a government health personnel (including doctors, LHVs and TBAs appointed in government health facility). Only six (3 percent) deliveries occurred in a government health facility -- two in a rural health center and four in a secondary care hospital.

About half of the rural health centers had an ambulance, but none of the basic health units had any kind of transport. Just about 39 percent facilities reported that they routinely referred cases to a higher level institution. One third of all facilities were located on a dirt road, while the remaining were located on an asphalt (paved) road.

Maternal mortality in Pakistan:

The MMR reported by various hospital-based studies in Pakistan range between 300 and 700 per 100,000 live births (WHO 1991). The MMR at the national level is believed to be about 400 (UNICEF, 1997), although indirect estimates range between 190 and 300 (Blacker, 1989). This means that between 15,000 and 25,000 maternal deaths occur each year (based on a crude birth rate of 40 per 1,000 population). It is also estimated that nearly half a million women suffer annually from severe complications of pregnancy and childbirth^a, some of which result into long-lasting disabilities.

The leading causes of maternal deaths are hemorrhage, puerperal sepsis, hypertensive disorders and obstructed labor (WHO, 1991; Fikree, 1994). Grand multiparity (five or more children) and young age at birth (less than 18 years) are regarded as important biological risk factors of maternal mortality (Aziz-Karim et al., 1989; Aziz, 1968). Among the "avoidable" causes of maternal deaths listed in the various hospital-based studies, delay in reaching a hospital, lack of prenatal care, and deficient management by the traditional birth attendant are listed as the prominent ones (Aziz, 1968; Janjua, 1985; Ahmed, 1985).

Although the country has recorded significant reduction in infant mortality since independence, there is little evidence of a significant decline in maternal mortality. Existing data are inadequate to draw conclusions about trends. However, women's access to adequate obstetric care has not improved remarkably to suggest any reduction in maternal mortality. Life expectancy at birth for females has traditionally been lower than males, and that situation has only recently begun to change (Sathar, 1990; Irfan, 1986).

The proportion of pregnant and lactating women having severe anemia (blood hemoglobin levels less than 9.0 grams per 100 ml.) remains at a high 9.6 percent (National Nutrition Survey, 1988). About 21 percent of births occur to women aged 35 or older; about 27 percent to those already having delivered five or more children; and about 34 percent births occur in less than two years after a previous birth.

^a Based on the assumption that at least 10-15% of pregnant women would experience complications (Rosenfield et al., 1990; Koblinsky, 1993).

These observations clearly indicate that there has been no remarkable improvement in women's health status indicators in Pakistan, particularly in the rural areas. Barriers to women's access to adequate health services still exist. Some of these barriers are at the family and community levels and are related to inadequate information and beliefs. Low quality of government health services and unavailability of staff and equipment also add to the belief that government hospitals are not worth visiting. Both of these factors are responsible for the delay in decision-making to seek medical care in cases of obstetric emergencies.

Rationale, Objectives and Methodology of Balochistan Safe Motherhood Initiative:

Khuzdar is a remote district in Balochistan, the least developed province of Pakistan. In this district, rural settlements are scattered and small, infrastructure like roads and communications systems are under-developed and health services are scanty. In the primitive tribal and rural society, women are uneducated and isolated, are mostly confined to their homes and have very limited access to health services.

During 1991, the Maternal and Infant Mortality Survey (MIMS), conducted under the aegis of the Aga Khan University of Karachi, found that the maternal mortality ratio (MMR) was about 700 per 100,000 live births in Khuzdar. It was also estimated that for every single woman who dies of maternal causes, almost twenty women suffer from long-lasting disabilities like vesico-vaginal fistula and severe persistent anaemia. Nearly half of all women who become pregnant every year experience some complications during pregnancy, delivery or the postpartum period. The perinatal mortality rate (PMR) was estimated at 60 per 1000 total births. The survey found that more than 85 percent of all deliveries were conducted by untrained traditional birth attendants. Women sought medical care from trained health professional only during life-threatening situations. A majority of the maternal deaths were attributed to the delays in decision-making to seek adequate medical care and in transporting the woman to hospital.

The Balochistan Safe Motherhood Initiative (BSMI) is an operations research project which aims at developing and testing community-based interventions to reduce maternal mortality and morbidity in Khuzdar. The project area comprises about 30 village clusters located within an 80 kilometers radius of Khuzdar Town, the district's headquarters. Phase I of the project (completed September 30, 1998) comprised Baseline Research, including the following activities:

1. Qualitative research including focus-group discussions and structured in-depth interviews with women of reproductive ages and traditional birth attendants. The research focused on women's perceptions of and actions around common obstetric complications, health services utilization and family planning. A total of 24 focus-groups and 47 structured in-depth interviews were conducted.
2. Situation analysis (SA) of existing government health services, comprising assessment of 25 primary health facilities and two secondary care hospitals in the project area. Using

standard SA procedures, we examined the staffing, equipment and supplies, services and utilization of reproductive health services in these facilities.

3. Orientation of traditional birth attendants (TBAs) in an attempt to explore their interest in the project objectives and to develop a lasting relationship with them. Four groups of 10-12 TBAs each participated in a five-day orientation about women's health problems in their area and the proposed plans under the BSMI project.
4. Similar orientation sessions were conducted for the health care providers working in the government health facilities in the project area.
5. Baseline survey of about 6,500 households residing in the project area was conducted during July-August, 1998, to estimate perinatal mortality rate, contraceptive prevalence rate, health services utilization rates among women and self-reported pregnancy-related morbidity rates. More than 7,000 women of reproductive ages were interviewed.
6. Along with the baseline survey, about 700 women of reproductive ages were given an additional questionnaire to elicit information on their knowledge, attitudes and practices (KAP) regarding family planning, common obstetric danger signs, health services utilization, desired family size and birth interval, etc.
7. Finally, a cross-sectional study of about 270 randomly selected women of reproductive ages was conducted to estimate current prevalence rates of common illnesses. The study also collected information on the risk factors associated with these illnesses.

Data from the Baseline Research activities are currently being processed and analyzed. An initial report on Phase I, Baseline Research, will be available shortly. These project activities were funded by UNICEF and the MotherCare Project (John Snow Inc., Arlington, Virginia, USA). Activities during the current phase (Phase II) are funded mainly through a grant from the National Institute of Child Health and Human Development (NICHD), Bethesda, Maryland, USA. The Provincial Health Department, Government of Balochistan, and UNICEF are our main collaborators in this project.

Information from the Baseline Research will be used to develop specific intervention strategies to reduce maternal mortality and morbidity in the project area. Research methodology for Phase II is briefly discussed here:

Research Methodology:

A quasi-experimental approach would be adopted to test the following community-based intervention strategies in selected village clusters:

1. Information, education and communication (IEC) to women and their families, as well as to traditional birth attendants (*dais*). The IEC package would include a pictorial booklet covering the six most important topics in reproductive health (family planning, prenatal care, nutrition, safe delivery, postpartum and neonatal care and danger signs during pregnancy, delivery and postpartum period). It would be accompanied by an audio-cassette in the local language, explaining the pictures and messages included in the booklet. The IEC would be imparted in support-group settings, whereby the women would gather once or twice every month in groups facilitated by local *dais*, other activist women or lady health workers, who will be specifically trained for this purpose.

2. Training, motivation, recruitment and monitoring of local owners of private vehicles for the transport of women in need of emergency obstetric care to an adequate health facility. The existing indigenous system of transport would be streamlined and upgraded. A revolving-fund system would also be introduced at the village-level which would be used to help needy families during medical emergencies. Village committees would be formed to monitor and supervise these systems.

3. Introducing reliable, efficient and durable telecommunications systems to connect the *dais*, families, primary health facilities and transporters. The system in each village cluster would comprise short-range VHF transceivers including walkie-talkies (given to *dais*), mobiles (given to transporters) and a base-station (set up at the primary health facility). The system would be effective only within the village-cluster where it is installed (about 5-7 kilometers radius from the primary health facility), and will be used mainly by *dais* to get instructions from health facility and to contact and call the transporter in case of an emergency.

In addition to the above interventions, which will be specific to the village-clusters randomized into the "treatment" arm of the study, the following will be implemented throughout the project area:

1. Up gradation and strengthening of reproductive health services provided at the government's primary health facilities. This would be achieved through continued collaboration with the Health Department and UNICEF.

2. Training of health care providers working at the primary health facilities. Two rounds of initial training/orientation have already been completed. The objective of this training would be to motivate, sensitize and prepare the providers to deal with common reproductive health problems in their communities. Lady health workers would also be included in such training.

3. Continued training of the *dais*. An earlier orientation of local *dais* have identified and included 45 active traditional birth attendants. The proposed project would keep a constant touch with the *dais* and develop mechanisms for their supervision and support.

4. Up gradation and strengthening of reproductive health services provided at the Divisional

Hospital, Khuzdar and the District Hospital, Kalat. This would be achieved through continued collaboration between the Health Department and UNICEF. Obstetric care providers working at these hospitals would be offered refresher and advanced training courses.

The community-based interventions would remain in place for about 21 months, at the end of which period a follow-up survey would be conducted to measure the impact of interventions on selected outcome indicators. (Benchmark data on these indicators has already been collected through the baseline survey explained earlier). In addition to the follow-up survey, three periodic surveys, approximately six months apart, would be conducted to establish progress through monitoring of selected process indicators. Finally, a women's database would be developed whereby all women (in both "treatment" and control arms of the study) would be registered and monitored.

The sampling strategy is designed along the lines of a randomized controlled trial. Preliminary calculations indicate that the study would be capable of detecting a 30 percent or greater decline in the perinatal mortality rate (PMR) with 90 percent power at a 95 percent statistical confidence level. The power of the study to detect a change in the other outcome indicators (such as health services utilization rates among women and contraceptive prevalence rates) is much greater.

The study is being implemented through a team of trained and dedicated workers including Study Coordinator, Research Assistant, Field Supervisor, Liaison Officer, TBA Coordinator, IEC Coordinator and Subject Specialists, along with an efficient support staff. A field office in Khuzdar is functioning since January 1998. The overall supervision is carried out by the Principal Investigator (Farid Midhet) and the Research Coordinator/Co-investigator (Fouzieyha Towghi). The NICHD funding provides salaries of staff, costs of running the field office, transportation costs, training costs for non-governmental providers and per-diem and fees for some consultants. The project seeks additional funding in the following areas:

1. Developing, pretesting and mass-producing the IEC materials (pictorial booklets and audio-cassettes). The costs would include services of experts in the field, some additional transport and domestic travel costs for the Islamabad-based staff.
2. Establishing the transport and communications systems, including telecommunication equipment, training and supervision of local transporters, training of *dais* and primary health facility staff and community-mobilization.
3. Training of government health care providers including those working at the Divisional Hospital, Khuzdar and the District Hospital, Kalat. The providers would be given about four additional sessions each of five-days duration.
4. Data analysis and presentation of results from the baseline research phase. The activities involve hiring of consultants for analysis and preparation of results, services of experts in the field and

costs of production of reports.

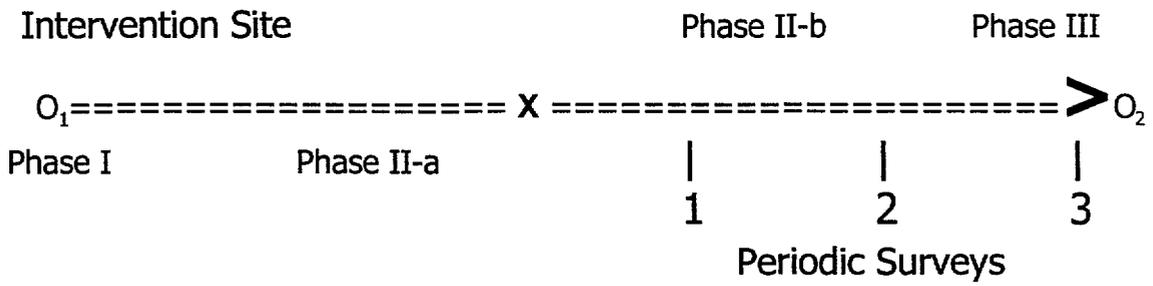
5. Presentation workshops, seminars and conferences which would be used to disseminate the results and lessons from the BSMI project.

Additionally, we wish to develop and implement two additional research components:

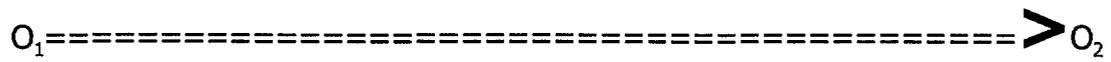
1. A qualitative and quantitative study of the male involvement in reproductive health. A preliminary proposal has already been developed. The study has an objective to find ways to involve males, particularly husbands, in the reproductive health care interventions being planned and implemented under the BSMI project. For better validity and generalizability of the results, the study would be conducted simultaneously in Khuzdar and Quetta, in collaboration with the Institute of Public Health, Bolan Medical College, Quetta. Technical assistance in the proposal development and conduct would be provided, with no cost to the project, by Johns Hopkins University, School of Hygiene and Public Health, Baltimore, Maryland, USA. Additionally, the services of an expert in qualitative research would be acquired from the University of Maryland, Baltimore, Maryland, USA, under a separate contract with the NICHD.

2. A qualitative and quantitative study of traditional medicine use in reproductive health. A preliminary proposal has already been developed. The study would focus on the herbal and home remedies used by women and local *dais* during pregnancy, delivery and postpartum period in the BSMI project area in Khuzdar. Samples of commonly used herbs and substances would also be obtained and analyzed to determine their chemical composition. The social and cultural practices and beliefs surrounding the use of traditional medicine would be studied in detail. We expect technical assistance for this endeavor from Harvard University (School of Public Health) and University of Maryland.

Study Design



Control Site



O_1 : Baseline Survey; X: Intervention; O_2 : Follow-up Survey;

Section 2

Materials and Methods

The goal of BSMI is to develop and test community-based intervention strategies for reducing maternal mortality and morbidity in the rural district of Khuzdar in Balochistan province of Pakistan^a. It is an operations research (OR) project, whereby the impact of interventions would be compared to a control site through baseline and follow-up surveys. The Project has two phases: the baseline research phase and the intervention phase. This section presents the research methodology adopted during the first phase of the project. The baseline research phase comprised the following activities:

1. Qualitative research to collect information on the women's knowledge, beliefs and behaviour of regarding family planning, pregnancy-related illnesses, childbirth and purpureum and health services utilization. Field work comprised focus-group discussions and structured in-depth interviews with women and traditional birth attendants (TBAs).
2. Situation analysis of primary health facilities operated by the provincial health department in the project area. It comprised health facility assessment, provider interviews, exit interviews with female patients and community-based user interviews in the catchment area. In addition, an assessment of the reproductive health services provided at the secondary care facility (Divisional Headquarters Hospital [DHQH], Khuzdar) was carried out separately.
3. Baseline survey was conducted to estimate perinatal mortality and maternal morbidity rates and to identify the patterns of health services utilization by women of reproductive ages. A total of about 6,800 households were visited and about 7,500 women were interviewed. A sub-sample of about 700 women were given a knowledge, attitudes and practices (KAP) questionnaire to estimate the proportions of women having adequate knowledge of modern methods of family planning and early signs of common obstetric complications.

In addition to the above, orientation of the active TBAs was also conducted. The main objectives were their motivation and sensitization and emphasizing their role in family level decision-making. A similar orientation was arranged for government health personnel, exposing them to modern concepts of community-based interventions in reproductive health.

Field work associated with each of these activities was extensive and varied. To the extent possible, local workers were used for all field activities. These workers were local women -- a majority

^aThe Project area is defined as all primary health facilities, along with their respective catchment populations, located within an 80-kilometers radius of Khuzdar town. The catchment area of a primary health facility is defined as all rural settlements located within one hour of waling distance to the facility.

of them belonging to Khuzdar – having an education of high school (10th grade) or above. Very few of them had any previous relevant training and/or experience in community-based research. For a majority, this was the first opportunity to work outside their community or school. Moreover, most female workers had never worked so closely with men.

Logistic support to field activities was provided through a project office, set up in the district's headquarter (Khuzdar town). The office also served as a training and meeting place. Staff from Islamabad also used the field office as temporary accommodation.

1. **Qualitative Research (QR)**

February-April, 1998

The objective of qualitative research (QR) was to study the rural women's knowledge, attitudes and practices regarding reproductive health and health services utilization. The QR results would be used to develop the contents and methodology of the information, education and communications (IEC) campaigns as well as in improving the existing government health services.

Methodology: Two basic methods were used for data collection: focus-group discussions (FGDs) and structured in-depth interviews (SIIs). Specific areas of investigation included family planning, obstetric "danger signs", high-risk pregnancy, anaemia, obstetric emergencies, antenatal care, care during delivery, postpartum care, and health services utilization.

Two sets of guidelines were developed, the first focussing primarily on obstetric danger signs and the second primarily on family planning. Questions on women's behaviour regarding health service utilization were included in both. The guidelines were adjusted according to the interview method used (FGD or SII) and the composition of the target group. To ensure homogeneity of groups, younger (ages 20-35 years) and older (ages 36-49 years) women were interviewed separately. Criteria for interviewing included being currently married and having given birth to two or more children. Many of the older women were likely to be mothers-in-law. In addition, twelve traditional birth attendants (TBAs) were interviewed using the guidelines on obstetric danger signs. Selection criteria for TBAs included: under 50 years of age, having delivered at least one baby during last three months, living within fifteen kilometres of selected primary health facility (PHF), and identified by village women as an active TBA. Some of these TBAs also participated in a FGD using the same guidelines.

Six local women having metric to college level education were trained as field researchers. Their selection criteria included language skills (excellent command over spoken and written Urdu and at least one local language) and capability for moderation and note-taking. Training was conducted by the Research Coordinator (Fouziyha Towghi). During training, the guidelines were translated first into Urdu and then into local languages (Brahvi, Balochi, and Sindhi). Services of three local TBAs were also acquired who provided the native equivalents of common technical terms. Each question was extensively discussed to assure that field researchers understood and internalized its purpose. This process was an

important evaluation method and allowed the trainer to assess each participant's level of understanding of the research purpose and hence their capability to explore and probe beyond the written question. Trainees had an opportunity to practically apply and test their moderation and note-taking skills through role plays. Toward the end of the training, several field practice sessions in actual rural settings were organized, which were also used to assess the field researchers' readiness for actual research. Evaluation criteria included the skills required for interviewing, moderating, note taking and group facilitation (e.g. ability to organize the women and explain the research purpose). After completion of training, the field researchers pretested each set of guidelines, which were then modified accordingly. Key local terms to increase comprehension by interviewees were also incorporated as a result of pretesting.

Villages were visited in advance to inform the village leaders and make appointments with eligible participants. First ten women meeting the selection criteria were invited to participate. In a given cluster of villages, an attempt was made to conduct the SIIs in different village(s) than those where FGDs were conducted. Both FGDs and SIIs were conducted in villages within a five kilometres radius of the selected PHF. In each cluster, defined by villages surrounding the reference health facility, one FGD and two SIIs with eligible women were conducted, while a TBA was interviewed in every other cluster.

Six to eight women participated in a typical FGD. Most sessions of FGDs and SIIs were taped, after seeking permission from the participants. In situations where women did not allow tape-recording, three note takers were assigned for the FGD and two for the SII. All sessions were simultaneously translated and transcribed into Urdu from the local language in which they were conducted. At the end of each day, the field researchers listened to the tapes to complete and finalize their notes. Generally, a FGD lasted a maximum of three hours and the SII lasted up to two hours.

The following table provides a summary of FGDs and SIIs conducted.

Title of Guidelines	Target Group	Research Methods		Total
		Focus Groups	In-depth Interviews	
Obstetric Danger Signs	Younger Women	6	12	18
	Older Women	6	7	13
	TBAs	1	12	13
Family Planning	Younger Women	5	8	13
	Older Women	6	8	14
Total		24	47	71

25

Situation analysis (SA) of primary health facilities (PHFs) included in the study area and of the emergency obstetric care (EmOC) facility (Divisional Hospital, Khuzdar) was carried out to assess the range and quality of reproductive health services. The Situation Analysis (SA) methodology was adopted from that commonly applied in family planning operations research (Fisher et al. 1991). This includes an assessment of the facility (building and equipment), supplies and related systems, record-keeping, staffing, services and utilization. The SA methodology addressed four questions: (1) Are all components of the system (subsystems) in place? (2) Is each of these components functioning? (3) Are quality services being provided? (4) Are services being utilized?

The SA provided a profile of government health services in the project clusters, including the PHFs and the first referral-level hospital. It identified training needs of health personnel as well as the needs for equipment and supplies. It is believed that the SA results would assist in highlighting the “missing elements” of reproductive health services in the district health system and also in developing and fine tuning the proposed intervention strategies.

Methodology: Data were collected through observation, provider interviews, patient-flow studies, exit interviews with patients, inventory checklists and review of patient records. The research team included one staff interviewer, two client interviewers and one record reviewer, all of whom received one month’s intensive training. The research team was accompanied by the Study Coordinator, SA, and the Field Supervisor. Permission for conducting research was obtained from the Secretary of Health, Government of Balochistan. The research team reached a PHF about 15-20 minutes before its official opening time (8:00 AM) and stayed there until the official closing time (2:00 PM). A typical health facility assessment comprised the following:

1. Observation and recording of all persons entering and exiting the health facility with a description of the person and the times of his/her arrival and departure.
2. A detailed interview with the officer in-charge of the health facility, using an extensive pre-coded questionnaire, to collect information on staffing, services, utilization and budgets of the health facility.
3. An inventory of the furniture, equipment, medicines, supplies and support services.
4. Reviewing and extracting information from the facility records, including indent registers, patient registers and staff attendance registers.
5. Personal interviews with all health care providers.
6. Interviews with women of reproductive ages who visited the health facility that day.
7. Community-based user interviews: Depending upon the size of the health facility, 6-10

women of reproductive ages who visited the facility during last one month were identified and interviewed within the facility's catchment area. They were asked their opinion of services provided at the facility and the problems they faced.

8. Community interviews with men and women, randomly selected from the catchment area, to assess their knowledge of the location, staffing and services of the health facility and eliciting their opinion about its functioning.

At the end of each working day, the research team reviewed the information and prepared a detailed qualitative report on the functioning and utilization of the health facility they visited on that day. Completed questionnaires were edited and entered into a database to be later analyzed by the Principal Investigator and Research Coordinator.

3. Baseline Survey

July-August, 1998

The Baseline Survey has the objective of collecting information on the output and outcome indicators used to monitor and evaluate the interventions. The survey was completed in end of August, whereby a total of 6,700 households were visited and about 7,000 ever-married women of reproductive ages were interviewed. A typical household interview included: a census of household members; socioeconomic and environmental characteristics of the household; history of births and deaths (during last one year) and illnesses (during last one month) in the household; an abridged pregnancy history of last five years of all ever-married women under 50 years of age; and information on the women's knowledge and use of contraceptive methods. Every 10th woman was given a Knowledge, Attitudes and Practices (KAP) questionnaire to elicit information on topics related with reproductive health. Finally, the deaths of adult women and children under one year of age were investigated to establish the probable cause of death.

Methodology: The Baseline Survey was conducted in all village clusters included in the project area (randomization into control and intervention has not been carried out yet). A village cluster was defined as all the villages located within a five-kilometers radius or one-hour walking distance of the selected health facility (PHF). All PHFs located within an 80-kilometers radius of the district's headquarter were included in the project area. Initially, it was planned to randomly select and interview about 500 households from each village cluster. However, the average number of household residing in the defined perimeter was estimated at 400. Therefore, it was decided to interview all households residing in the natural catchment areas (defined as all villages located within five kilometers) of the PHF. Additional village clusters were identified within the Khuzdar town limits (10 kilometers radius of the district headquarter).

Survey was conducted by 24 local women, having an education of metric or above, who were given an intensive, three weeks training in survey methodology, interview techniques and the contents of

the questionnaires. The interviewers were divided into three teams, each supervised by a woman having previous experience in field surveys. All interviewers and Team Supervisors spoke at least one local language; a majority of the interviewers spoke two or more local languages. The Field Supervisor and the Survey Manager were responsible for pre-visits to the villages, logistics of the field work and quality of the data. Spot checks for quality assurance, and re-interviews to ensure reliability of data, were conducted concurrently by the team supervisors and a smaller team of specially trained interviewers.

Within each village cluster, teams were preassigned the villages (or groups of houses) which they were expected to visit during the day. Within these villages, the Team Supervisors assigned individual households to their interviewers. An interviewer had to identify a household to be interviewed as per instructions (Related persons living together and sharing their resources for procurement and preparation of food). All ever-married women under 50 years of age were interviewed separately within each household. A primary respondent, usually the wife of the head of the household, provided information related to household (income, housing characteristics, ownership of valuable items and arable land, etc.).

Completed questionnaires were edited by professional editors and were later computerized at the Community Health Sciences Department of the Aga Khan University, Karachi. Data entry has been completed and standard tests for data quality checks and cleaning are currently being carried out.

The questionnaires included the following information:

1. Date of visit.
2. Household size.
3. Type of construction of house.
4. Number of rooms used for living.
5. Electricity, telephone connection and tap water.
6. First and second languages spoken in the household.
7. Ownership of valuable items (radio, TV, car, washing machine, etc.).
8. Ownership of farm animals and arable land.
9. Average monthly income.
10. Births and deaths during last one year.
11. Illnesses reported during last one month in the household.
12. Age, sex, education and occupation of each household member.
13. Current age, age at marriage, education and occupation of ever-married women.
14. Number of pregnancies, live births and currently alive children of ever-married women.
15. Knowledge and practice (current and past) of contraceptive use (ever-married women).
16. Abridged pregnancy history of last five years for all ever-married women.

To women who reported a current pregnancy and/or a pregnancy that terminated during the last 12 months, a detailed pregnancy questionnaire was also administered, comprising the following questions:

17. Antenatal care and immunization history.
18. Outcome of pregnancy (in cases of completed pregnancies).
19. History of medication received during pregnancy.
20. History of any changes in diet and physical work during pregnancy.
21. Details of illnesses and problems encountered during pregnancy.

The KAP interview is given to women who are currently married, are 20 years of age or older, and who have two or more live births. It comprises 26 questions in all, 24 of which are pre-coded. The interviewers are trained to first record the verbatim response to a question and then tally it with the list of coded responses provided. Fourteen questions have multiple responses and the interviewers record the responses before and after prompting. Ten questions are single response (interviewers select the coded response which best describes the verbatim response). Two questions are open-ended. The questionnaires are in Urdu but the interviewers have the standardized versions in all three local languages which they keep as a reference. Questions are simple and straightforward, for example: "Under what circumstances would you be willing to see a male health care provider?", with the following coded responses: If there is no woman provider; if I have a minor illness like cold, cough or fever; if there is a complication during pregnancy; if there is a complication during delivery; I'll never see a male provider; any others; don't know/no answer. Questions are developed on the basis of the preliminary analysis of the Qualitative Research and Situation Analysis. These can be divided into three categories: questions related to women's knowledge and beliefs about the seriousness and causation of common obstetric complications; questions related to the knowledge and beliefs about family planning; and questions related to women's attitudes toward utilization of modern health care during obstetric emergencies.

The KAP survey was part of a larger household survey which was conducted to estimate the baseline levels of the outcome indicators. A little over 7,500 ever-married women of reproductive ages were interviewed in the baseline survey. Every tenth woman who met the eligibility criteria (currently married and living with her husband) was also given the KAP questionnaire.

The interviewers were local women who had schooling of ten years or more and who spoke one or more local languages. Most of these interviewers had prior experience of field-based research. They were trained by the Principal Investigator and the Research Coordinator in interview techniques and in the KAP survey questionnaire. The questionnaires were first translated into Urdu, the national language, and then into the three local languages. Although the interviews were conducted in local languages, the responses were recorded in Urdu. The interviewers carried with them the standardized versions of local language translations which they used for reference.

All but two of the 26 questions were pre-coded. A typical question had five or six pre-coded response categories, a seventh box for "others" and a box for "Don't know/No answer". The first fourteen questions had multiple responses, which were recorded both before and after prompting. The next ten questions had a single response to be selected by woman, and the last two were open-ended questions.

First, the stem of the question was read to the respondent and she was invited to give a spontaneous verbal response. This response was recorded in Urdu in the space provided under each question. The interviewer then decided which of the coded response categories matched best with the woman's verbatim response; these categories were marked in the "Before Prompting" column. The respondent was then offered the remaining response categories and was asked if she agreed with them. Such responses were marked under the "After Prompting" column. If the woman's verbatim response did not match with any of the coded categories it was marked under "others". The same procedure was adopted for the single response questions, although only the first (spontaneous) response was recorded and coded. The interviewers worked under direct supervision of a senior team supervisor.

Data were entered first into an Excel spreadsheet and later transformed into database files. The quality of data entry was maintained through cross-checking randomly selected questionnaires with the electronic data. Each questionnaire had a unique identification number through which it could be linked to the household data from the larger (baseline) survey. Data analysis was carried out using SPSS for Windows, version 6.0.

Section 3

Reproductive Health Behavior

Two important objectives of the BSMI are to promote safe delivery practices and family planning from a women's health perspective. Both will be vital components of the information, education and communication (IEC) methodology. During the baseline research phase, comprehensive data were collected on women's reproductive health behavior, including patterns of contraceptive use, through the household and KAP surveys described earlier. The qualitative research component also included family planning as one of its topics. In this section, we present the results from the household and KAP surveys and discuss their implications for the proposed interventions.

Introduction

Increase in contraceptive use is directly associated with a reduction in the number of maternal deaths. By the same token, maternal morbidity also declines with increasing use of effective contraceptive methods. Contraceptive use prevents maternal mortality and morbidity by avoiding pregnancies and abortions. At the community level, contraceptive use can significantly reduce maternal deaths--primarily through a reduction in the total number of births and the number of births per woman. Moreover, women at high risk of maternal mortality and morbidity may selectively use family planning, thus causing a direct decline in maternal mortality.

To promote family planning, however, it is essential to first recognize the prevailing norms, beliefs and practices related to fertility and contraception. From the qualitative research in Khuzdar, it became clear that women generally know about modern methods of family planning. They also thought that births should not be narrowly spaced, and that a woman must stop childbearing after she has had "enough" children. Narrow spacing of births was most commonly associated with pain and suffering during pregnancy and childbirth. Contrary to our expectations, religious and cultural taboos were not presented as major obstacles to contraceptive use. Women openly discussed their own experiences with contraception. However, it was clear that they rarely discussed these matters with their husbands.

Crude measures of fertility include crude birth rate (number of births per 1,000 population), and gross fertility rate, estimated as the number of births per 1,000 women of reproductive ages. Child-woman ratio, the ratio of the number of children under five years of age to the number of women 15-49 years of age, is also a crude measure of fertility, which is useful when information on fertility rates is not available. A more refined and commonly used measure is total fertility rate (TFR), which depicts the number of children a woman would bear in her lifetime if her fertility behavior conforms to the prevailing age-specific fertility rates (ASFR). The ASFR is defined as the number of births per 1,000 women in a given age-group. All of these measures take live births in the numerator, and are expressed over a period of time, usually a year.

Total fertility rate (TFR) in Balochistan was estimated at 5.8 for the period 1984-1990 (PDHS, 1991). The CBR in Balochistan was estimated at 38.3 by the PDHS. The National Institute of Population Studies (NIPS) reported a TFR of 7.7 and a child-woman ratio of 84.3 from the 1981 census (NIPS, 1991). The Maternal and Infant Mortality Survey (MIMS) of 1991 estimated the crude birth rate for the Khuzdar district at 35.6 births per 1,000 population. The TFR for Khuzdar district was estimated at 5.8.

Contraceptive prevalence rate (CPR) is the percent of women of reproductive ages practicing family planning at a specific time, out of the total number of women of reproductive ages. In Pakistani culture, the question about use of contraceptive may only be asked of a married woman. Therefore, the CPR is estimated as the percent of married women of reproductive ages using a family planning method. The 1991 MIMS survey estimated the CPR for Khuzdar district at just 0.7 per 100 married women of reproductive ages. A majority of these women were using the pill, the injection and the IUD, while a few had a tubal ligation operation.

Methods

The methods for data collection have been described earlier. Here we will briefly present the methods we used for data analysis.

We will present a summary of the outcomes of the pregnancies reported during the five years prior to the baseline survey (which was conducted during July-August, 1998). We present the association between the education levels of the woman and her husband and choice of birth attendant and place of birth, etc. We also computed the age-specific fertility rates and total fertility rates for all women, by region and also by selected socioeconomic characteristics. Finally, we will examine the patterns and determinants of contraceptive use in this population.

The results presented in this section are based upon the findings from the baseline and the KAP surveys. These data were entered into database files and analyzed using SPSS Windows, Version 7.5 (Norusis, 1996). Most results comprise simple cross-tabulations and frequency distributions. For ease of interpretation, column totals of all percentage distributions are set at 100. The denominators for percentage distributions (total number of observations included in computation of percentages) are reported at the bottom of each table. Where appropriate, P-values for statistical significance of association between two variables are also computed and reported. Under most circumstances, Chi-squared test with continuity correction was used to estimate the P-values for such associations. In the two-by-two tables, however, P-values were estimated using Fisher's Exact Test (two-sided). Besides tables, bar charts and line graphs are also presented where appropriate.

For computing rates and ratios, and 95 percent confidence intervals around them, aggregated data files for numerators and denominators were developed, which facilitated efficient and reliable estimation. Confidence intervals were computed by using normal approximation of the binomial distribution. The

denominators used for the computation of rates and ratios are also reported. When comparing rates and ratios across variable categories, it should be noted whether the confidence limits overlap. If not, then the difference between the two rates is statistically significant. Moreover, the narrower the 95 percent confidence interval, the more robust is its estimate.

Finally, odds ratio (OR) and its 95 percent confidence limits are also used as a measure of association between two variables. An OR which is significantly different from one, (i.e., its 95 percent confidence interval does not overlap 1.0), reflects the existence of relationship between the two variables. The strength of association is depicted by the departure of the OR from 1.0. Values of the OR over 1.0 indicate a positive association while those below 1.0 indicate a negative (sometimes called a “protective”) association between the two variables. The OR could be either crude or adjusted. Adjusted estimates of OR are derived through logistic regression analysis. Usually, such estimates of OR are adjusted for all the variables included in the same table, unless otherwise noted.

Results

First, we present the data from the baseline household survey. A total of 7,423 ever-married women of reproductive ages were interviewed.

The mean age of these respondents was 27.5 years while the median age was 26 years. Almost 90 percent of all women were under the age of 40 years. Table 3.1 presents the percentage distribution of women by age-group and region. There are no marked differences in the distribution between regions.

Table 3.2 presents the distribution of women by age at marriage and region. The mean and median age at marriage was about 14 years, same in all three regions. About two-thirds of all women were married at an age below 15 years. About 90 percent women reported that they were married within three years after menarche. Almost one third were married within one year after menarche. Those married for more than 14 years reported to have, on the average, 8.2 pregnancies, about 7.3 of which resulted into a live birth; the average number of children currently alive was only 5.8 among this group of women (Table 3.3). These patterns were essentially the same in all regions.

The total fertility rate (TFR) in all regions was 5.5 children per woman, based upon the live births reported during the last one year. TFR was the higher in the midway region (Table 3.4). The mean number of children ever-born (CEB), which is close to completed fertility among women aged 40-49 years, was 8.0 (Table 3.5). Compared with TFR, this difference indicates a recent decline in fertility. Fertility was lower in the remote region than both midway and municipal regions. Figure 3.1 presents the age-specific fertility rates by region. There is not much difference in the shape of the curves, all of which depict natural fertility. However, the fertility patterns among educated and uneducated women were slightly different (Figure 3.2). Among women having some schooling, fertility seems to begin slower and finish earlier, as compared to women who had no schooling.

To have an idea of the determinants of fertility, we compared the mean CEB of women aged 30-39 years across socioeconomic subgroups (Table 3.5). All of these variables are associated with fertility: Mean CEB was lower for women who had schooling and those whose husbands had schooling. Less remarkable differences are found across income group and by possession of television or TV.

Pregnancy histories of last five years are interesting to look at because they provide information on recent trends in fertility as well as birthing practices. Table 3.7 presents the pregnancy history of last five years. On the average, women had 1.3 pregnancies during this period. Eleven percent of women had three or more pregnancies. Again, the differences between regions are not remarkable. About 10 percent of these pregnancies resulted into a loss (miscarriage or intrauterine death), and another 2.7 percent into early neonatal death (death within first week of birth) (Table 3.8). A little under one percent of pregnancies resulted into a twin birth. Out of almost 11,000 pregnancies, only about 11 were reported to have been aborted (induced abortion), which might be an under-reporting. There were no significant differences between regions in the distribution of pregnancy outcomes.

Table 3.9 indicates that a majority of reported live births were attended by local *dais* (traditional birth attendants). Almost 10 percent of all live births were not attended by anybody or the woman was assisted only by a family member. As expected, the proportion of births attended by a trained provider was highest among the women living in the Municipal region. Almost 97 percent of all births occurred at home (Table 3.10). Just about a fifth of the births occurred at the woman's parents' home and the rest at her own home. Again, the proportion of hospital births was highest in the Municipal region.

Figures 3.3 and 3.4 present the proportion of hospital births and births attended by a trained provider, respectively, by woman's schooling level. The patterns are about the same in all three regions. In the Municipal region, about 18 percent of births to women having a post-primary education occurred in a hospital. In the same region, one fifth of the births to these women were attended by a trained provider. Interestingly, the trends of association between women's education and hospital births (as well as births attended by a trained provider) is stronger in the Remote region than in the Midway region.

Husband's schooling also seems to have a bearing on the choice of place of birth and birth attendant. Figures 3.5 and 3.6 show the percentages of births occurred in a hospital and those attended by a trained provider, respectively, by husband's level of education. The trends are about the same as depicted in the last two figures. However, the strength of association between choice of a trained birth attendant and hospital births and woman's schooling are more marked.

Figure 3.7 shows the current and past use of contraceptive methods by region. The contraceptive prevalence rates (CPR) are higher in the Municipal and Midway regions than in the Remote region. The highest CPR recorded in the project area is about 10 percent in the Municipal region.

The most popular contraceptive methods seem to be pills and injections, followed by IUD. A sizable proportion of the current users are made of the women who had a tubal ligation operation (Figure 3.8). Trends are the same among past users of family planning (who may or may not be using a method currently) (Figure 3.9).

As expected, woman's schooling seem to have a bearing on family planning use in all three regions (Figure 3.10). Among the women having primary or post-primary education and residing in the Municipal area, the CPR exceeds 20 percent. In both Midway and Remote regions, the CPR among women having post-primary education exceeds 10 percent. Husband's schooling has a similar relationship with contraceptive use (Figure 3.11). CPRs are also higher among women having an average monthly household income of Rs. 4,600 or more, as compared to women belonging to lower income households (Figure 3.12). The highest levels of CPR are found among the owmen aged 30-39 years in all regions (Figure 3.13). Similarly, women having five or more previous live births are also more likely to use family planning than women having fewer kids (Figure 3.14).

Discussion

The above results indicate that the fertility rates are still high in this part of Balochistan and contraceptive use rates are low. Women are married at an early age. Fertility starts early and continues late in the woman's life. A majority of births occur at home and are attended by untrained traditional birth attendants. Use of modern health care facilities for this purpose is low. However, woman's schooling, her husband's education level and her income have a bearing on the choice of trained birth attendant. It is also likely that a majority of hospital births are complicated cases which are either self-referred or are referred by the primary provider.

Even though contraceptive use rates are low, there are encouraging trends which indicate that family planning use may be more common than in the past. Compared to the Maternal and Infant Mortality Survey, conducted in the same district in 1991, these rates are certainly much higher. There is also a strong association between contraceptive use and woman's age, parity, socioeconomic status, her own schooling and her husband's schooling. Moreover, contraceptive use rates are much higher in the Municipal region where access to services is relatively better. These findings indicate that, if family planning supplies and services are made available, a dramatic increase in the CPR and significant decline in fertility can be achieved.

Table 3.1
Percentage distribution of ever-married women by age and region

Age-group	Region

	Municipal	Midway	Remote	All
15-19 years	17.6	17.1	18.9	17.7
20-24 years	24.2	25.7	25.2	25.2
25-29 years	19.9	19.5	17.9	19.2
30-34 years	16.8	15.9	16.1	16.2
35-39 years	13.0	10.9	10.4	11.3
40-44 years	5.9	7.0	7.5	6.9
45-49 years	2.6	3.9	3.9	3.6
Total	100.0	100.0	100.0	100.0
N	1,922	3,342	2,159	7,423

Table 3.2
Percentage distribution of ever-married women by reported age at marriage

Age at marriage	Region			
	Municipal	Midway	Remote	All
Less than 15 years	60.6	64.5	66.2	64.0
15-16 years	27.5	26.0	24.3	25.9
17-18 years	9.0	6.8	6.0	7.1
19-20 years	2.2	1.6	2.2	1.9
More than 20 years	0.8	1.2	1.2	1.1
Total	100.0	100.0	100.0	100.0
N	1,944	3,386	2,189	7,519
Mean age at marriage	14.39	14.25	14.14	14.25
Median age at marriage	14.00	14.00	14.00	14.00

Table 3.3
Mean numbers of pregnancies, live births and living children by duration of marriage

Duration of Marriage	Region			
	Municipal	Midway	Remote	All
Mean number of pregnancies				
Less than 5 year	1.02	1.00	0.82	0.95
5-9 years	2.98	3.12	2.82	2.99
10-14 years	5.30	5.39	5.03	5.26
More than 14 years	8.05	8.34	7.98	8.16
Mean number of live births				
Less than 5 year	0.83	0.81	0.71	0.78
5-9 years	2.59	2.65	2.41	2.56
10-14 years	4.68	4.76	4.42	4.64
More than 14 years	7.27	7.41	7.07	7.27
Mean number of children currently alive				
Less than 5 year	0.73	0.70	0.60	0.68
5-9 years	2.16	2.20	1.95	2.12
10-14 years	3.80	3.93	3.50	3.78
More than 14 years	5.70	5.96	5.53	5.77

Table 3.4
Total fertility rates (TFR) by region, based upon the births reported in last 1 year

	Region			
	Municipal	Midway	Remote	All
Total fertility rate	5.0	6.0	5.1	5.5
Number of women	2,803	4,578	2,957	10,338

Table 3.5
Mean numbers of children ever born (CEB) by broad age-group and region

Broad age-group	Region			
	Municipal	Midway	Remote	All
Less than 20 years	0.88	0.95	0.87	0.91
20-29 years	3.78	3.86	3.58	3.76
30-39 years	6.96	7.14	7.09	7.07
40-49 years	8.07	8.27	7.64	8.03
Number of women	1,922	3,342	2,159	7,423

Table 3.6
Mean CEB to women aged 30-39 years by selected socioeconomic characteristics

	Region			
	Municipal	Midway	Remote	All
Woman's education:				
No schooling	7.02	7.15	7.09	7.10
Primary schooling	6.38	5.25	6.20	5.90
Post-primary schooling	5.59	7.36	5.80	6.22
Husband's education:				
No schooling	7.13	7.37	7.28	7.29
Primary schooling	7.08	6.23	7.10	6.61
Post-primary schooling	6.55	6.68	6.94	6.87
College/diploma	6.62	6.54	6.46	6.56
Average monthly household income:				
Less than Rs. 1,500	7.25	7.12	7.37	7.22
Rs. 1,500 to Rs. 4,600	6.99	7.20	6.97	7.07
More than Rs. 4,600	6.70	7.24	7.12	7.01
Household owns television:				
No	7.01	7.22	7.12	7.15
Yes	6.90	6.40	6.70	6.75
Household owns radio:				
No	7.05	7.65	7.09	7.11
Yes	6.75	7.05	7.08	6.98

Table 3.7
Percentage distribution of ever-married women by number of live births during the five years preceding the survey

Number of live births in the last five years	Region			
	Municipal	Midway	Remote	All
None	26.9	25.8	28.3	26.8
One	28.1	28.2	32.3	29.4
Two	32.7	33.3	31.6	32.7
Three or more	12.2	12.7	7.7	11.1
Total	100.0	100.0	100.0	100.0
Mean	1.31	1.34	1.20	1.29
Median	1.00	1.00	1.00	1.00
Number of women	1,945	3,392	2,196	7,533

Table 3.8
Percentage distribution of pregnancy outcomes during five years preceding the survey

Pregnancy outcome	Region			
	Municipal	Midway	Remote	All
Singleton live birth	86.1	87.7	86.7	87.0
Twin live births	0.7	0.8	1.0	0.8
Stillbirth	3.4	3.5	4.5	3.7
Miscarriage	6.8	5.3	5.1	5.6
Abortion	0.1	0.1	Nil.	0.1
Early neonatal death	2.8	2.8	2.6	2.7
Total	100.0	100.0	100.0	100.0
Number of pregnancies	2,847	4,982	2,909	10,738

Table 3.9
Percentage distribution of live births (reported during five years preceding the survey)
by birth attendant

Birth attendant	Region			
	Municipal	Midway	Remote	All
Nobody	4.6	4.2	4.1	4.2
Family member/friend	4.3	4.7	4.4	4.5
Local <i>dai</i>	78.2	82.9	85.5	82.4
Hospital <i>dai</i>	4.7	3.5	2.3	3.5
LHV or Midwife	0.8	0.7	0.6	0.7
Female doctor	7.2	3.2	2.6	4.1
Others	0.2	0.5	0.6	0.5
Total	100.0	100.0	100.0	100.0
Number of live births	2,847	4,983	2,908	10,738

Table 3.10
Percentage distribution of live births by place of delivery

Place of delivery	Region			
	Municipal	Midway	Remote	All
Own home	74.0	75.1	77.4	75.4
Parents' home	20.4	22.0	20.3	21.1
Private hospital	1.2	0.5	0.5	0.7
Nearby government hospital	1.1	0.2	0.3	0.5
Government hospital in Khuzdar/Quetta	2.7	1.7	0.8	1.7
Others	0.6	0.6	0.7	0.6
Total	100.0	100.0	100.0	100.0
N	2,639	4,691	2,752	10,082

Figure 3.1
Age-specific Fertility Rates (ASFR) by Region

Figure 3.2
Age-specific fertility rates (ASFR) by woman's schooling



Figure 3.3
Hospital births as percent of all births by woman's schooling

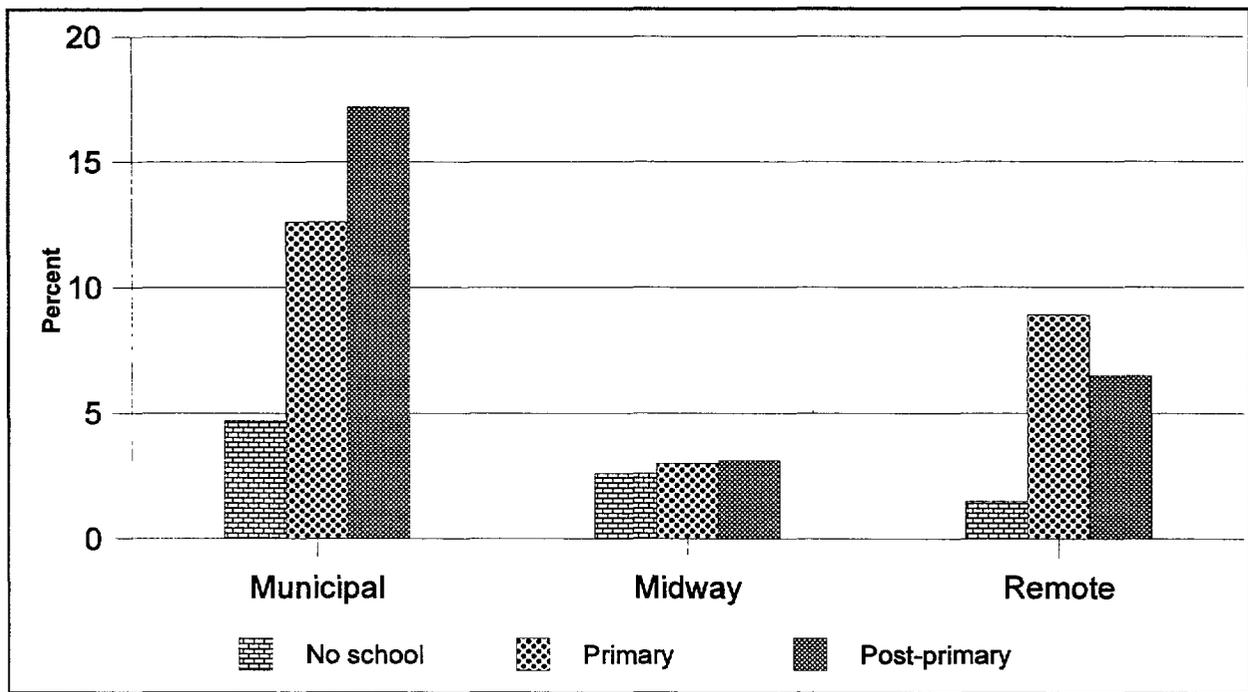


Figure 3.4
Live births attended by a trained provider by woman's schooling

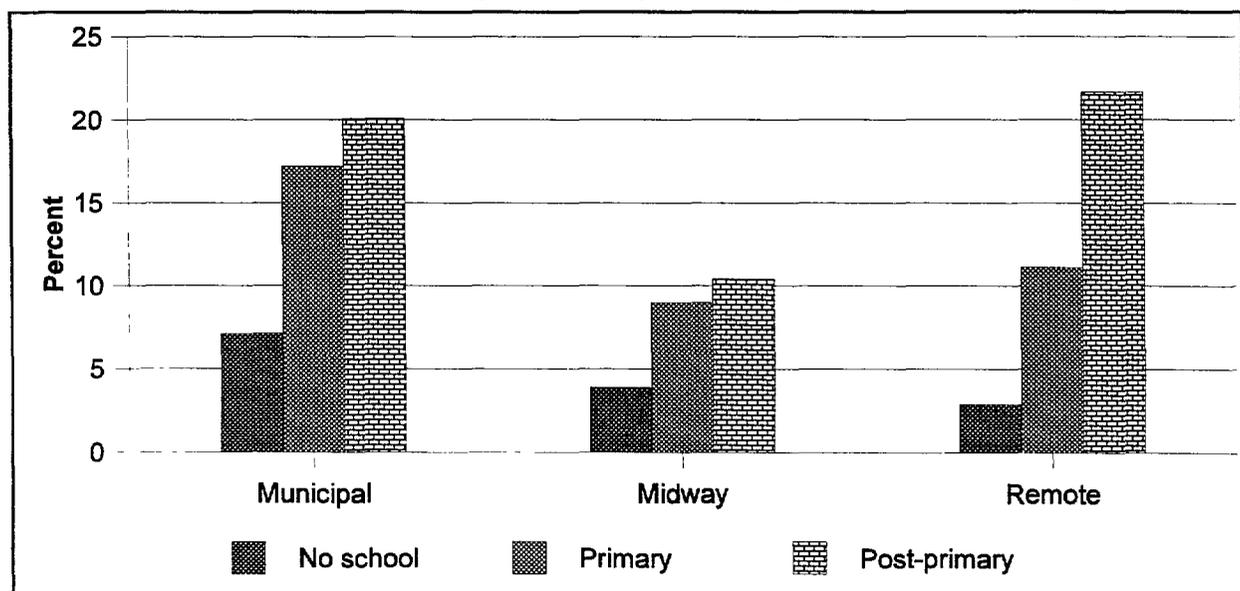
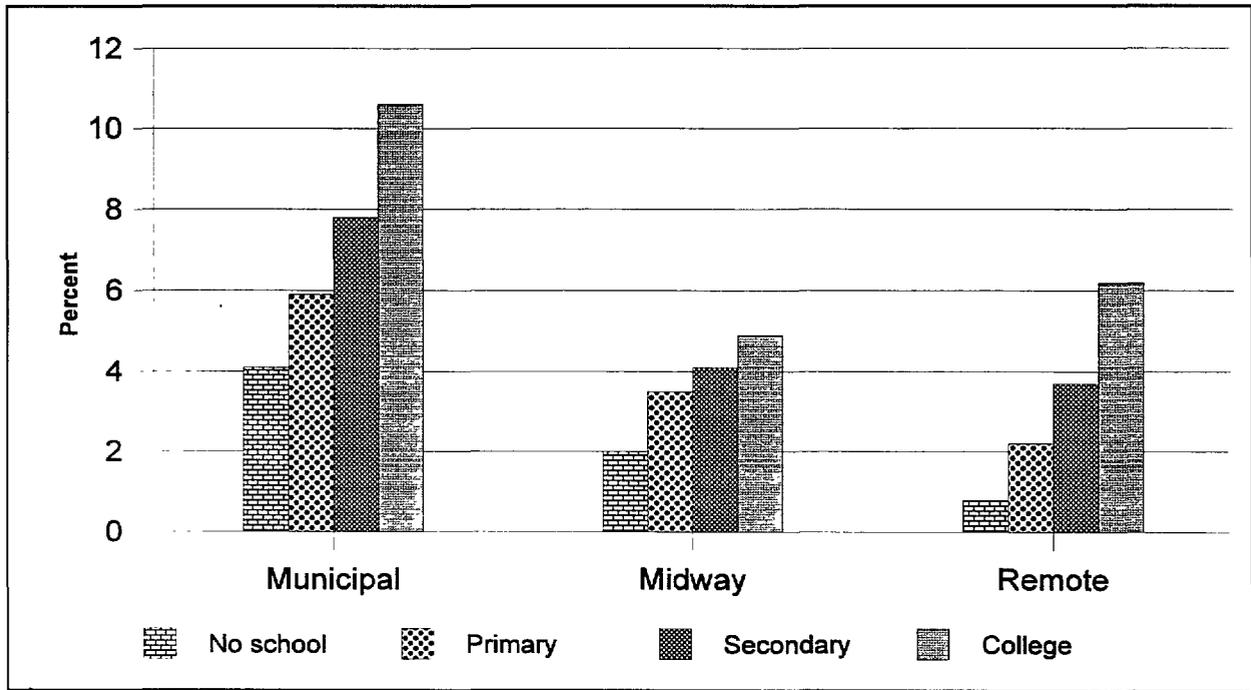


Figure 3.5
Hospital births as percent of all births by husband's schooling



45

Figure 3.6
Live births attended by a trained provider by husband's schooling

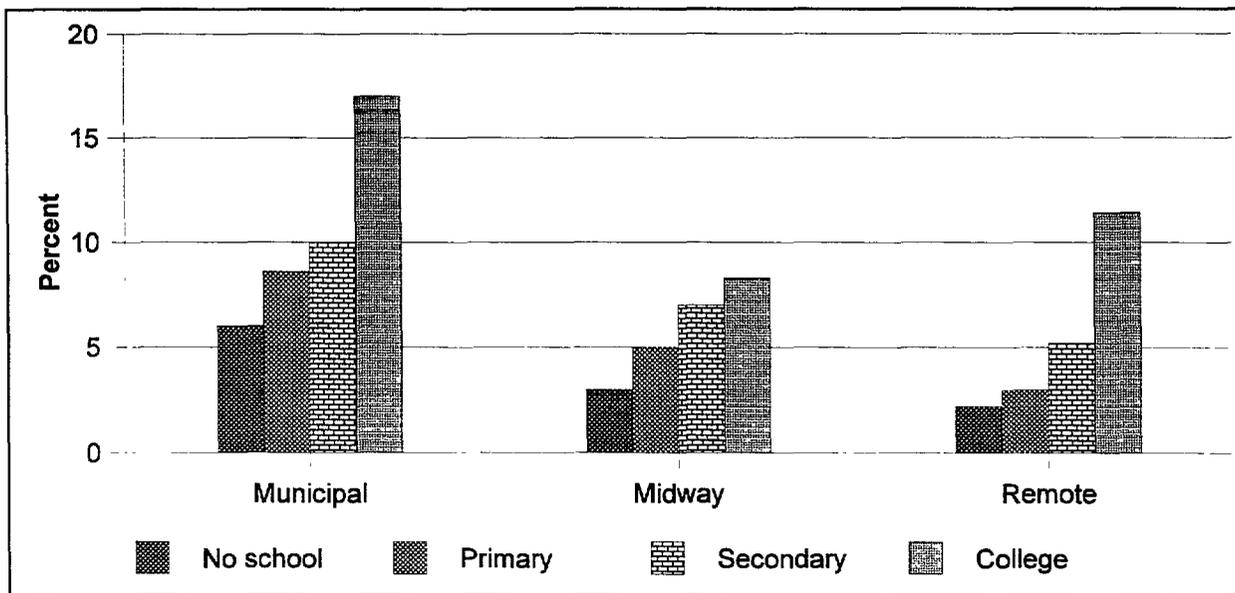


Figure 3.7
Percent of women currently using family planning or having used in the past

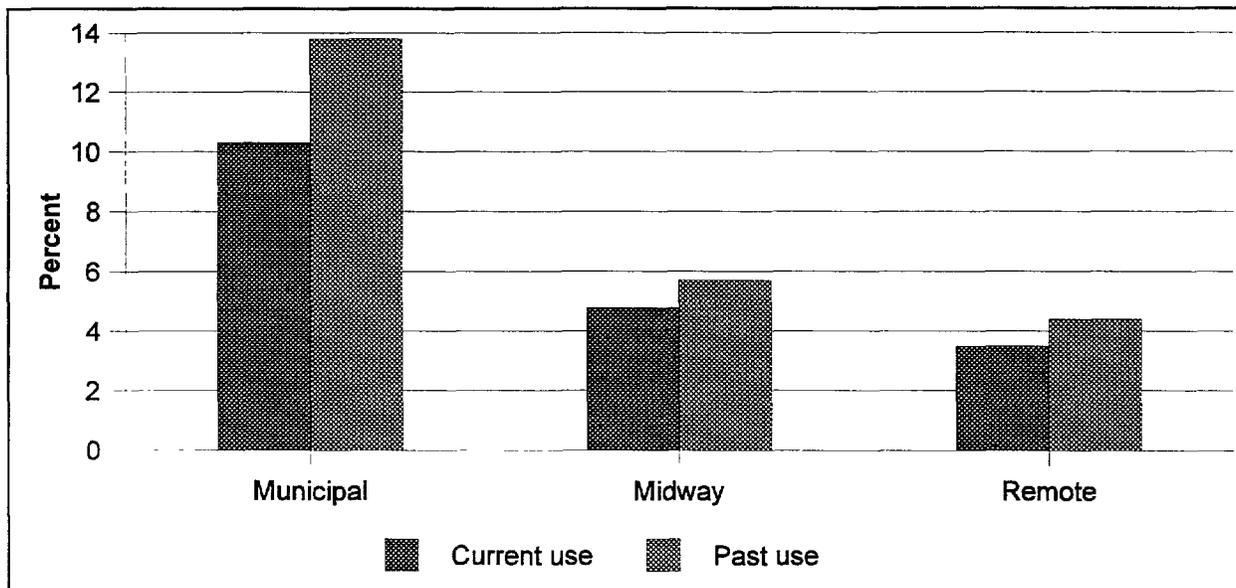


Figure 3.8
Distribution of women currently using family planning by contraceptive method

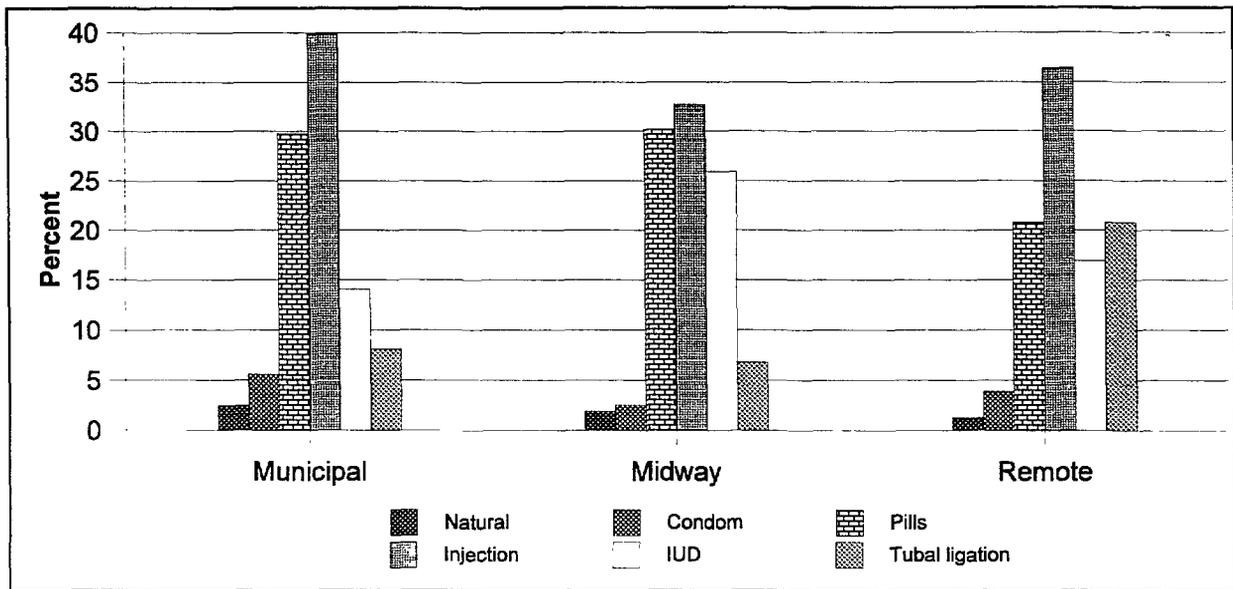


Figure 3.9
Distribution of past users of family planning by contraceptive method

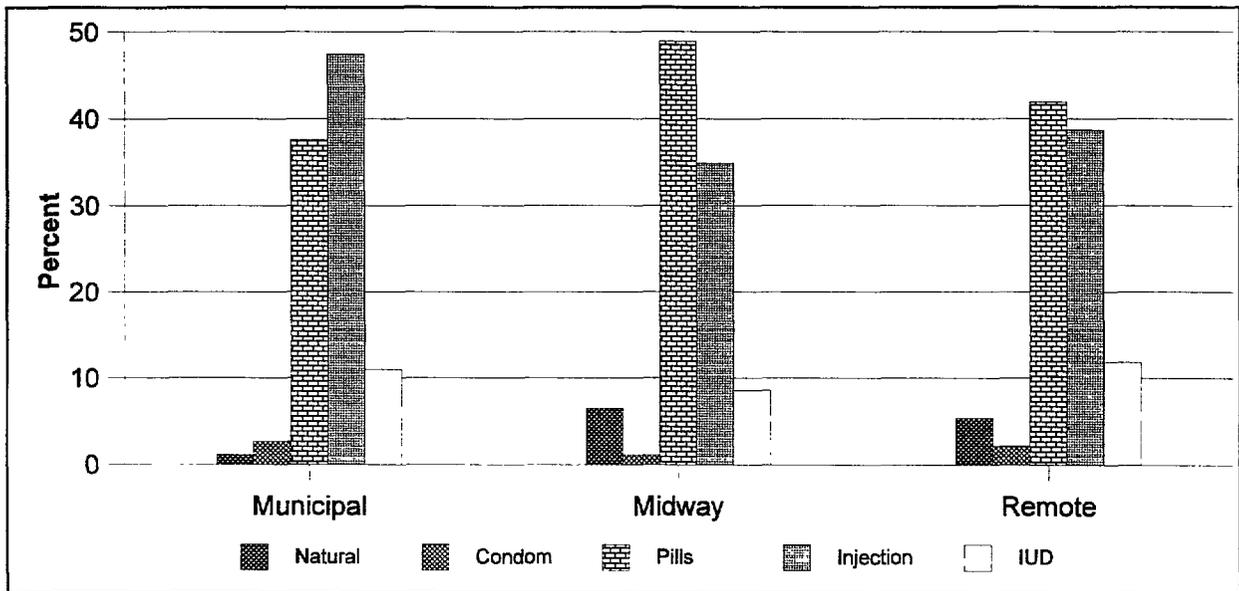


Figure 3.10
Contraceptive prevalence rates (%) by level of woman's schooling

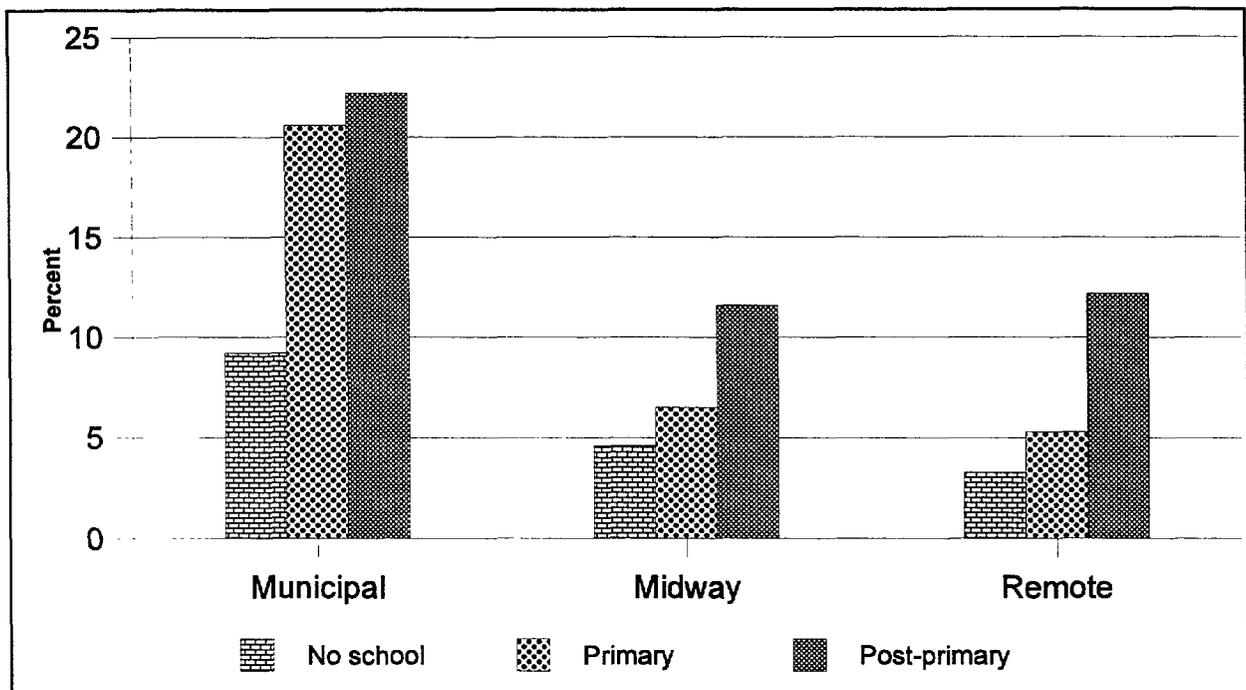


Figure 3.11
Contraceptive prevalence rates (%) by husband's schooling

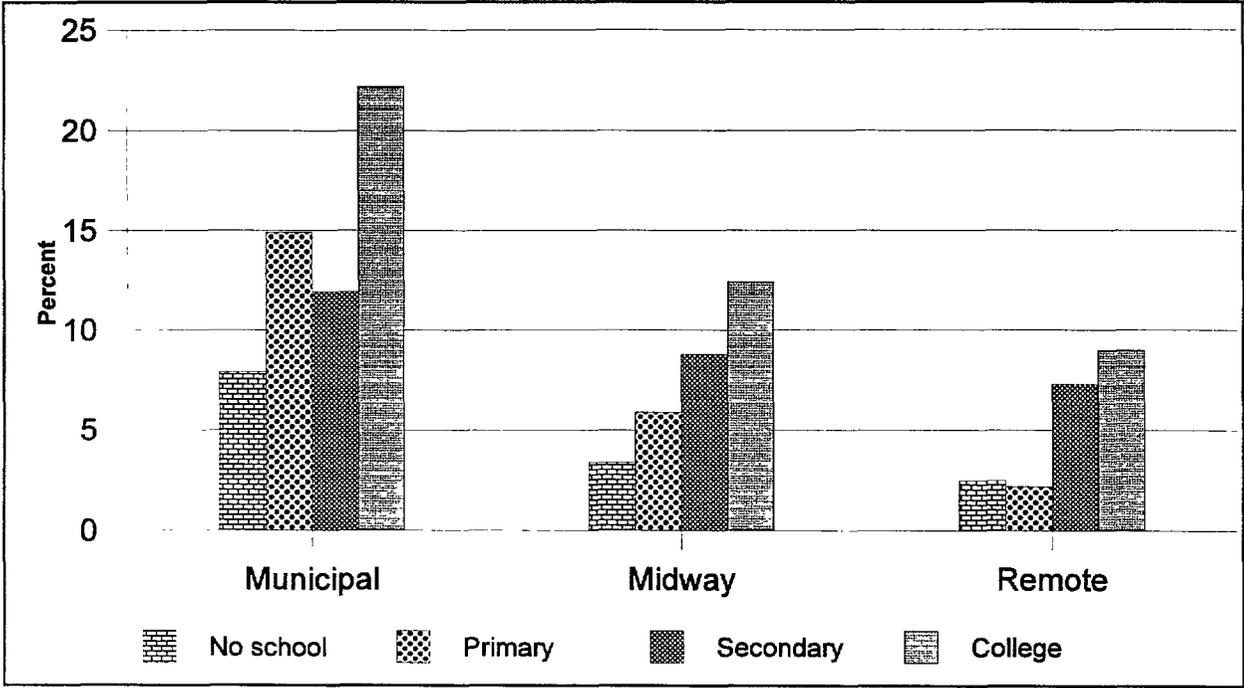


Figure 3.12
Contraceptive prevalence rates (%) by income group

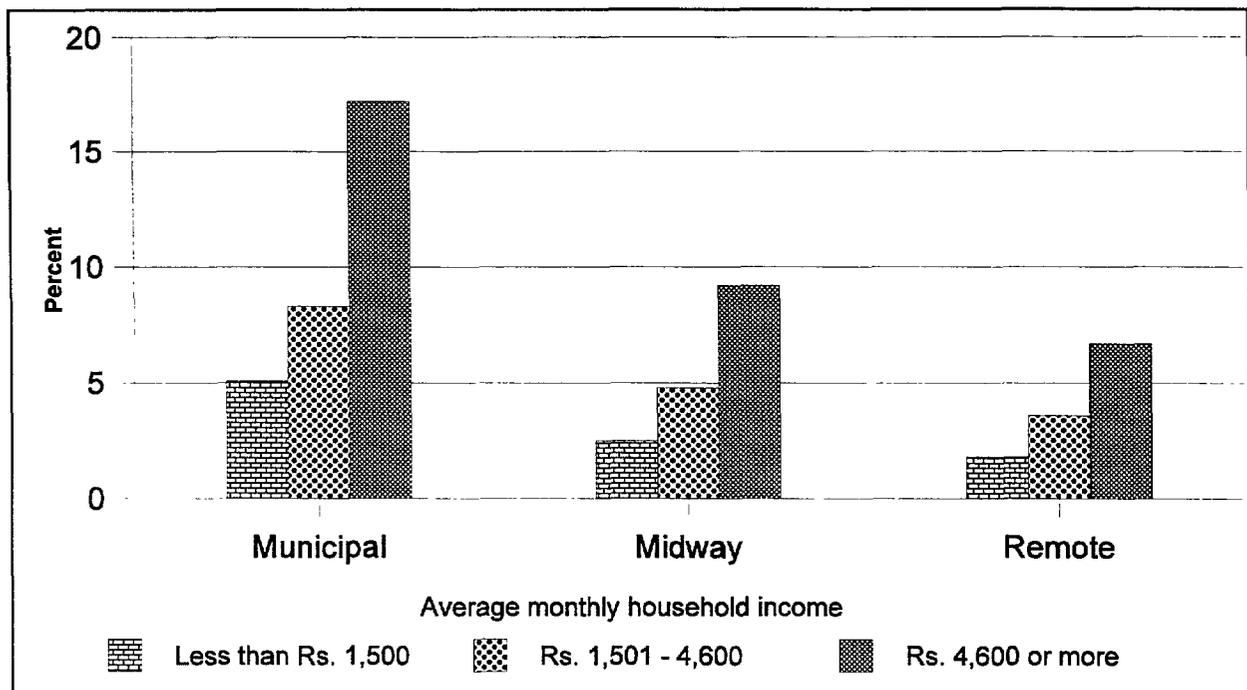


Figure 3.13
Contraceptive prevalence rates (%) by woman's age-group

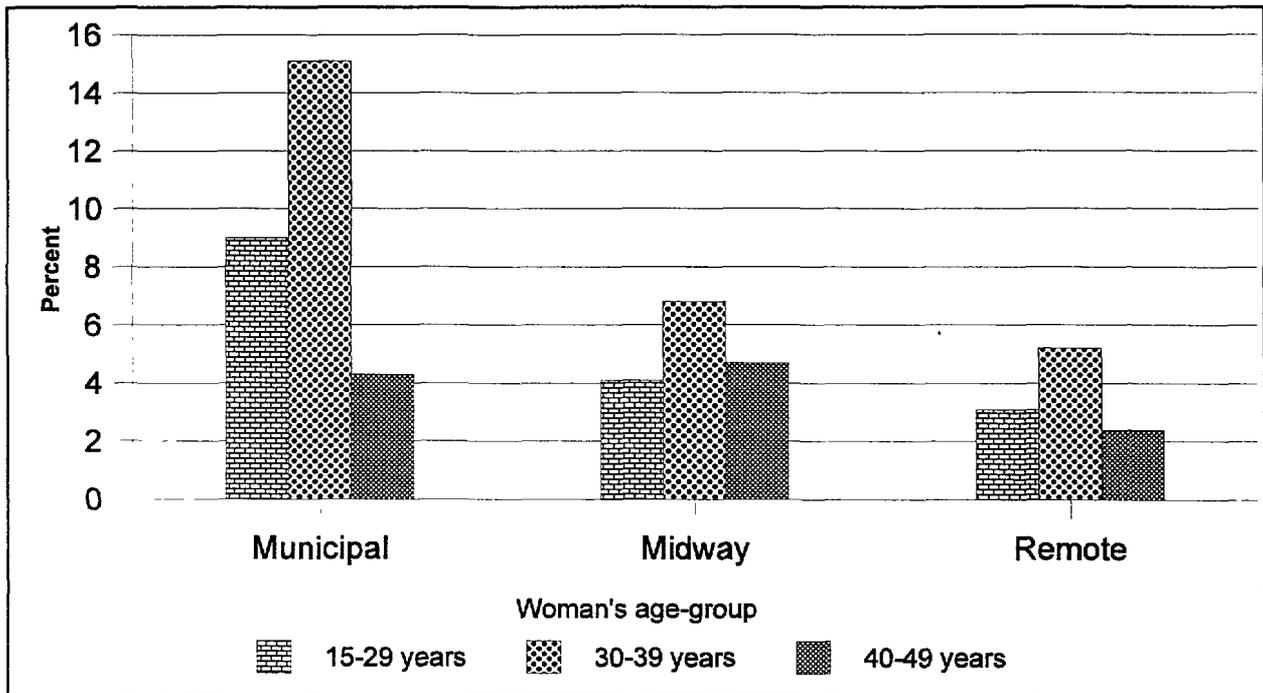
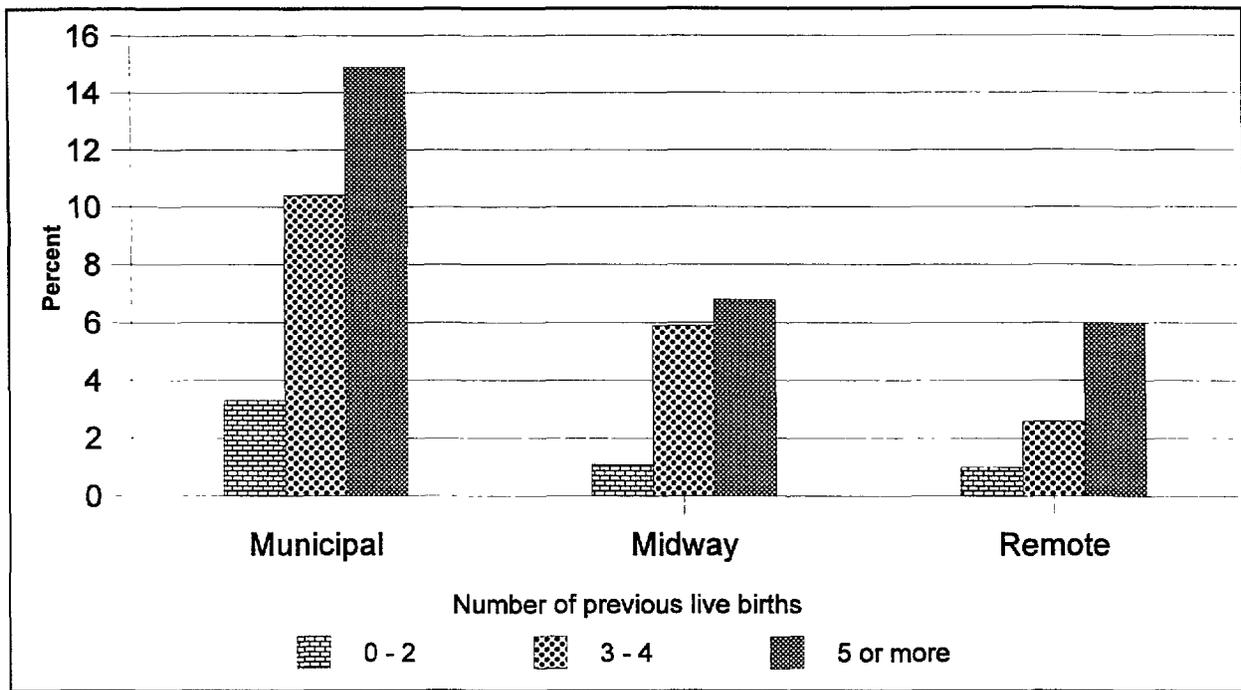


Figure 3.14
Contraceptive prevalence rates (%) by number of previous live births



Section 4

Women's Perceptions of Obstetric Danger Signs

From the project's point of view, it is of utmost importance to comprehend the women's perceptions of the obstetric "danger signs". Through qualitative research, we assessed the women's understanding of the seriousness of these early signs of common obstetric complications. This information would guide us in developing the IEC messages and methodology. In this section, we present selected findings from the qualitative research and discuss their implications for the proposed interventions.

Like their sisters in rest of rural Pakistan, women in Khuzdar are isolated and have restricted mobility. They are frequently denied their human rights and are viewed and treated subservient to men. Polygynous marriages are common in many regions of the district. Living in a patriarchal set up, women have minimal role in the community and family decision-making.

Even children are exposed to these societal norms from an early age. While girls help their mothers, stay near the home and are taught submissiveness, boys are allowed to play, to roam around freely and to display self-confidence and aggression. Little girls start helping their mothers at an early age, in caring of siblings, sweeping and cleaning, fetching water and herding live-stock. In some parts girls help with the household economy by doing embroidery and rug making.

Everyday tasks are strongly associated with gender, as are codes of behaviour and conduct. In Khuzdar a woman's role revolves around the daily household chores, which include care of children and animals, preparing food, cleaning, washing, and fetching water. In some areas women provide extensive labour, including farm work, to supplement the family income. For example, women participate in the harvesting and packing of onions, work side by side with men planting and harvesting and are responsible for livestock-rearing and herding. Women are also the rug-makers and embroiders. For many women doing housekeeping for other families seems to be an important source of family income. One of the most obvious occupation for women is being a *dai* [traditional birth attendant].

The physical strain of carrying heavy loads of water long distances over difficult terrain causes health problems, including an increase in number of miscarriages. Exhaustion from a high domestic workload, malnutrition, and infection combine with early and repeated pregnancies add to the risks to maternal health.

The qualitative research component of the study comprised focus-group discussions and in-depth interviews with women of reproductive ages. We asked these women about their knowledge, attitude, and actions regarding family planning and pregnancy-related complications. This section will describe the women's perceptions of and their actions around the early signs of three common obstetric complications (antepartum bleeding, postpartum bleeding and prolonged labour). The findings are analysed to identify

the norms and beliefs of women and considered for their applicability for the information, education, and communication (IEC) strategies. More specifically, women's views about heavy bleeding, their perceptions of differences between bleeding before and after delivery, and their perceptions of the causes and consequences of the three complications are described. How women respond or what they think should be done in the event of such complications is also described. We will also ascertain and discuss the possible impact of women's perception of causes and consequences of the three obstetric complications on decision-making to seek medical care.

Data Analysis Methods

This analysis is based on the results from twelve structured in-depth interviews (SIIs) and six focus group discussions (FGDs). Eight of the SIIs and two of the FGDs were conducted with women aged 20 to 34 years (referred to in this report as "younger" women). The remaining interviews (four SIIs and four FGDs) were conducted with women aged 35 to 50 years (referred to in this report as "older" women). These interviews were conducted in thirteen different village clusters. Seven of the eighteen interviews were conducted in the "remote" villages (described as those villages located more than 40 kilometers from the central town of Khuzdar) while eight were conducted in the "midway" villages (located outside the municipal limits of Khuzdar but under 40 kilometers from town). The remaining three interviews were conducted in the village clusters located within the municipal limits of Khuzdar town (see table below). The main reason for including these interviews in the current analysis is because their translation into English was satisfactorily completed.

Section 2 of this report provides details of the research objectives and data collection methods. Two sets of guidelines were developed for the field researchers: The first set of guidelines focussed primarily on pregnancy-related complications and the second focussed primarily on family planning. Questions on women's behaviour regarding health service utilization were included in both. The guidelines were developed in a way that allowed the women to discuss the problems that they experienced as well as to list the problems of which they were aware. Women were encouraged to discuss their own experiences as well as those of others. The guidelines used a series of prompts which urged women to discuss issues that were not brought up spontaneously.

The interview guides moved from general to specific. First, the participants were asked to describe the serious problems faced by them during pregnancy, delivery, and postpartum period. They were then asked about their awareness and perceptions regarding the five major obstetric complications. We were interested in knowing about women's perceptions of causes and consequences of these complications and the actions they deemed fitting around these complications, i.e., what they do (or would do) when faced with an obstetric complication.

Data analysis was done manually. Firstly, the results (field notes) were translated and entered as text in a computer word processor. Secondly, the information regarding specific obstetric complications

from each unit of analysis (FGD or SII) were consolidated in one place. Data on each complication were analysed separately. To facilitate analysis, in the content regarding each complication, an identifier was marked to distinguish statements regarding: (1) general perception, (2) perception of cause, (3) perception consequence, and (4) actions taken (or what women think should be done with reference to that particular complication). An identifier that includes region, interview type, and age group of women was developed and retained at the end of women's statements. This identifier is designed to facilitate comparison between regions and age groups. Additional individual attributes of study participants are summarized below.

<i>Village Name</i>	<i>Region</i>	<i>Language</i>	<i>Interview type</i>	<i>Age group</i>
Parko (2)	Remote	Brahvi	SII and FGD	Younger and older
Baghbana	Municipal	Brahvi	SII	Younger
Pishiwar	Midway	Brahvi	SII	Older
Pishijhal (2)	Midway	Brahvi	SII	Younger and older
Nal (2)	Midway	Balochi	SII	Younger and Older
Wadh	Municipal	Brahvi	SII	Older
Koshk (2)	Municipal	Brahvi	SII	Younger and older
Zeedi (2)	Midway	Brahvi	SII	Younger and Older
Pirumar	Midway	Brahvi	FGD	Older
Pshikappar	Remote	Brahvi	FGD	Younger
Gonigresha (2)	Remote	Balochi	FGD	Younger and older
Tootak	Midway	Brahvi	FGD	Older

Profile of participating women: Fifty-two women participated in the qualitative research. A personal profile sheet was completed by the facilitators for each participant, comprising basic information such as women's age, first language, duration of marriage, parity, and the women's and her husband's level of education and occupation.

Among the younger group, women's ages ranged from 20 to 33 years, the average age being 25 years. Among the older group, women's ages ranged from 31 to 50 year, the average age being 41 years. Most women were married at the age of 15 years or less. The duration of marriage ranged between 5 and 33 years. Women in the younger group had, on the average, 4.7 previous pregnancies, while the older women had an average of 8.8 previous pregnancies. Number of live births for younger women ranged from 0 to 9, the average being 3.8 and for older women it ranges from 3 to 14, the average being 6.9. None of the participating women had any formal education, although nine women said they knew how

to read the holy Quran. There were only nine women whose husbands had formal education, ranging from primary to intermediate. In regards to employment, nine women were engaged in some sort of income generating work (mostly embroidery and housekeeping). Six women reported that their husbands were unemployed at the time of the interview.

As we describe the data we will present statements made by the women. The statements made by the women will follow by an identification that refers to the region name, age group (younger [Y] or older [O]), and interview type (focus group discussion [FG] or structured in-depth interview [SII]). Details of women's responses to questions related to antepartum and postpartum bleeding, and prolonged labor are provided in tables at end of this section.

Findings

Women's perceptions of heavy bleeding in the antepartum and postpartum period:

We asked women to define heavy bleeding before asking them about their experiences of antepartum and postpartum hemorrhage. Hemorrhage, as understood in scientific terms, does not have an equivalent term in the local languages of the women we interviewed. Therefore, we felt it is important first to obtain women's emic^a perception of heavy bleeding before asking them about their experiences of antepartum and postpartum bleeding. This approach allowed us to explore women's perception of causes and consequences of heavy bleeding in relation to their emic perception of heavy bleeding.

In asking women what they considered to be too much bleeding an important theme has emerged that required elaboration before we present how women define heavy bleeding in the antenatal and postpartum period.

All women said that heavy bleeding is *khayal*. *Khayal* is mentioned by all women as both a cause and a consequence of heavy bleeding. Many women describe the effect of *khayal* in its varying forms. *Khayal* is an important category to understand, as it appears to play an important role in women's actions to seek care specifically for antepartum and postpartum bleeding, and for obstetric complications in general. A description of meaning of *khayal* as presented by women in the current data follows.

Khayal is a Balochi and Brahvi term frequently mentioned by many women in the study to describe a common condition faced by women in pregnancy and in the postpartum period. Although *khayal* can occur during pregnancy, most frequently *khayal* refers to heavy bleeding after childbirth. It is one word that seems to distinguish hemorrhaging from bleeding. When questioned about heavy bleeding, women mention occurrence of *khayal* more frequently in the postpartum period than the

^awomen's inside or own view or definition.

antepartum period.

Women believe there are different types of *khayal*. A prevailing description of *khayal* by women is that, depending on the condition in the antepartum or postpartum period, *khayal* could be wet or dry. Wet refers to presents of heavy bleeding and dry refers to absence of bleeding at a time when bleeding is expected and considered normal.

[PPH]^a *When there is no bleeding we call it khushk [dry] khayal, and when there is bleeding it is called thar [wet] khayal. If she changes clothes five or six times a day we think it is too much.* [Gonigresha, younger women's focus group (YFG)]

[APH]^b *Baroona khayal [wet khayal] sets in just before birth and the woman loses consciousness, she dies. Palona khayal [dry khayal] is when there is no bleeding. In the former the woman needs treatment and can die without it, she is given injections by the doctor and also charms and amulets.* [Wadh, older women's structured in-depth interview (OSII)]

[APH] *If there is no bleeding then it is called khayal, and if there is bleeding then it is called barrona khayal and we get amulets for it and recover. And if we get weak then we get drips and injections.* [Wadh, YFG].

Like heavy bleeding or wet *khayal*, dry *khayal* is also considered to be a dangerous and a life threatening condition for the woman.

She becomes weak, last year my sister's mhavari [menstruation-sometimes used to refer to vaginal bleeding but not actual menstruation] stopped and she died, her eyes were finished, she was blinded. When the baby was born there was no bleeding [during childbirth] and she died.

In general pain and certain amount of bleeding are an expected as well as an accepted part of childbirth and the postpartum period.

[Because] *we had no money, she died of poverty. A child can't be born without pain. Some women bleed for a day once the baby is born, others for twenty days, still others for forty days and she can't do any work.* [Gonigresha, YFG]

Bleeding stops in twenty days, it is important that this blood comes out, as it helps the woman so that her belly doesn't grow big. Her back and feet hurt if there is no bleeding and pills are purchased from the medical store to induce bleeding. This bleeding is in small amounts. [Koshk, YSII]

^aresponse to question about heavy bleeding in the postpartum period.

^bresponse to question about heavy bleeding in the antepartum period.

Types of *khayal* are also distinguished according to when it occurs. There is *khayal* that occurs just before childbirth, there is *khayal* that occurs after childbirth and before the delivery of the placenta.

[continued bleeding before delivery of placenta] *Yes, it is dangerous. If the placenta is retained and she bleeds we call it khayal.* [Tootak, OFG]

And there is *khayal* which occurs after childbirth and the expulsion of the placenta.

[continued bleeding after delivery of placenta] *She gets very weak and can die. She faints and we call it khayal and there is danger to both mother and child.* [Baghbana, YFG]

The complexity of what is *khayal*, is reflected in the fact that *khayal* is perceived both as a cause and consequence of heavy bleeding. That is, *khayal* can lead to heavy bleeding, but also that bleeding during certain periods, such as the antepartum period, can lead to *khayal* during childbirth.

[*Khayal* as a cause] *She also bleeds [heavily] due to khayal and can die or go mad.* [PishiKappar, YSII]

[*Khayal* as a cause] *We get khayal from which there is a lot of bleeding.* [Zeedi, OSII]

[*Khayal* as a consequence in the antepartum period] *We say she has khayal, if there is bleeding one or two days before [childbirth], then she gets khayal. I bled for five days and the pains started on the 6th day. We narrowly escape death, we lose our health, what [do you think then] is left of us?* [Tootak, OFG]

[*khayal* as a consequence in the postpartum period] *Blood comes for forty days. If there is too much bleeding, then going to the hospital is necessary. We say that she has been hit by khayal. We take taweez [amulet for protection] and from this the woman is in danger. We cannot do anything, we leave it to Allah.* [Zeedi, OSII].

Although women describe *khayal* concretely, the effect of *khayal* are analogous or ascribed to a spirit or demonic possession. And when women consider *khayal* as a cause, they talk about the role of *jinn* and *saya*. Literally *jinn* and *saya* mean ghost and shadow, respectively. Both *jinn* and *saya* are considered to be negative supernatural forces. Sometimes *khayal* is called *saya* in which case *saya* can be defined as possession by evil. Some women say that the reason for *khayal* is *jinn ka saya* which can be defined as demonic possession. When this occurs the woman is said to be hit by *hawwa* [wind]. It is important to note that at least one woman in a focus group discussion stated that their belief in the *jinn* or *saya* as a cause of heavy bleeding or *khayal* is due to women's lack of knowledge of the actual cause of heavy bleeding. In general women believe that *khayal* is not good, and it is a dangerous condition that should be avoided and for which something should be done.

If there is heavy bleeding then in Balochi we say khayal has been hit. We call it khayal when the person has been hit by saya or jinn. If anyone has this illness, she dies. (Nal, YSII)

If the bleeding stops she goes blind and her abdomen swells. [Parko, OFG]

Women's awareness and perception of bleeding in pregnancy:

Bleeding during pregnancy is not always an expected process of pregnancy. In general such bleeding is neither considered normal, nor safe for the foetus or the woman. However, experiencing bleeding during pregnancy is not uncommon. Most women in these interviews discussed instances of antepartum bleeding in one or more of their pregnancies, or they talked about knowing other women with such experiences. Frequency of bleeding mentioned by women is mostly in reference to bleeding that occurs before the third trimester. A woman from Koshk said, usually there is no blood loss during pregnancy, but some women do have spotting and she had a sister, who due to heavy bleeding for six days, was required a D& C after being told she had an aborted pregnancy by the 'lady' doctor. One woman called heavy bleeding in pregnancy *deel* [a big problem] because bleeding can kill the child in the womb.

We call big problems deel. If the woman has no strength the baby is immobile and dies in the womb, the abdomen hurts. If there is bleeding we take her to the hospital . Bleeding or water loss before delivery kills the child. [Wadh, OSII]

It appears that some women who once have bleeding in pregnancy before the third trimester also have chances of bleeding again in other pregnancies.

This [bleeding in pregnancy] happens suddenly to me when I am pregnant, I start bleeding spontaneously and miscarry. My child is weakened inside me and doesn't develop well. [Gonigresha, YFG]

Although women frequently associate bleeding during pregnancy with miscarriage, some women do consider heavy bleeding and clots as a risk for the mother.

If there are big clots of blood it is a danger sign. She is taken to a doctor or else one is called, otherwise she might die. [Wadh, OSII]

We also asked women about bleeding that could occur during the third trimester. It appears that heavy antepartum bleeding which is called *khayal* is mostly experienced in the third trimester.

It happens in the 8th and the 9th month. She loses blood and weakens and the blood is called khayal or subhan [subhan is a local term that describes fits associated with eclampsia and tetanus. It is also a term used to describe a state of shock that can be a consequence of too much blood loss]. [Wadh, YFG]

Though one woman said that *khayal* doesn't hurt a child, *I haven't heard of this, nor has anyone told me, but khayal doesn't hurt a child...*[Koshk, YSII], most women view excessive bleeding to be dangerous. *Khayal* is certainly a predominate description of heavy bleeding provided by women in all

regions. However, there are other ways in which women define excessive bleeding in pregnancy and the postpartum period. Many of women's definitions of heavy bleeding are presented in Tables 2 and 3.

Table 2. Definition Of Heavy Bleeding During Antepartum Period			
Definition	*Age	(**)	Region
<i>..Some take an hour, others lose more water...Some bleed for 2 or 3 days, others for 10.</i>	O	FGD	Parko
<i>Sand is put under her and if the blood seeps through that, then it is dangerous. It is excessive if we have to change the sand, her clothes and the bedding repeatedly, then we it is too much and it is dangerous.</i>	O	FGD	Parko
<i>If she changes the cloth 5 or 6 times we say it is excessive bleeding.</i>	Y	FGD	Gonigresha
<i>If she bathes 4 or 5 times and changes clothes..</i>	Y	FGD	Gonigresha
<i>It was a lot. It soaked through the mattress under me like going through paper.</i>	O	FGD	Tootak
<i>I had too much bleeding during labour, it flowed out of my cloth and shalwar [trousers].</i>	O	FGD	Gonigresha

Perceived causes of bleeding in pregnancy:

Causes of heavy bleeding during pregnancy are attributed to:

(1) Women's work:

We toil, climb mountains, fetch water and firewood, we get weak and bleed. [Parko, OFG]

I don't know why it happens, the doctor would know, it may be due to heavy work, we have no medicines for it, the doctor does. [Parko, OFG],

(2) Weakness:

This [heavy bleeding] indicates either the death of the foetus or woman's weakness. [PissiJal, OSII]

It is due to weakness, a woman in our area had this problem last year, she went to the doctor, she miscarried upon returning from the hospital. [Pishikappar, YFG]

This is due to lack of strength, the breath is suffocated and it is hard to do house work and her energy ends, she is weak by the time of delivery and has problems. [Baghbana, YFG]

Table 3. Definition Of Heavy Bleeding During Postpartum Period			
Definition	*Age	(**)	Region

Big clots of blood	Y	SII	PissiJal
bucket-full of blood	Y	SII	PissiJal
If she changes her trousers 4 tor 5 times a day it is excessive and if she changes again and again, we call it too much blood.	Y	SII	PissiJal
It is dangerous for a woman to lose a lot of blood like 2 bottles.	Y	SII	Koshk
If ever our menses is too much, or is more than 4 days, if menses is smelly, then we go to the doctor.	Y	SII	Nal
If a woman is having too much bleeding, like solidifying into a clot like rounded pieces of brick and big pieces of blood come out, ...	Y	SII	Nal
The blood is called <i>khisht</i> [brick], we call it big big pieces of blood.	Y	SII	Nal
More than three days is excessive, she can faint.	O	SII	Nal
If there is massive bleeding, we call it ziyada khoon [too much blood]. It spoils the clothes, bedding and carpets. The [vaginal] bleeding is called <i>khayal</i> .	O	SII	PissiJal
...her clothes are changed 6 or 7 times, her bedding is changed, the woman can die.	O	SII	Pishiwar
We say that she has been hit by <i>khayal</i> .	O	SII	Zeedi
There is a lot of bleeding, the bedding and clothes all get soiled.	Y	FGD	Gonigresha
If she changes clothes or cloth pads 5 or 6 times a day we think that it is too much.	Y	FGD	Gonigresha
After childbirth there lots of bleeding with clots.	Y	SII	Hazarganji

(3) Excessive or not enough labour pains:

I think that excessive pain produces heavy bleeding. [PissiJal, OSII]

If it is excessive [bleeding] we call it dangerous, some take an hour others lose more water, it happens during pains. [We think] with less pains [if there is not enough labour pains then] comes greater bleeding. Some bleed for two or three days, others for ten. [Parko, OFG]

(4) Back and bladder ache:

It is due to weakness of the back. I get like this till the 10th month. I start bleeding one month into my pregnancy. [Parko, OFG]

(5) Premature foetus:

The child is nahum poor [not full term], that is why this happens. [Parko, OFG]

Some women seem to recognize that doing heavy work during pregnancy can lead to a miscarriage- because such work worsens an already weak back.

During pregnancy the woman is told not to do any heavy work, because the child can be lost [miscarried] from doing hard work- because the woman's lower back is already weak. [Nal, YSII]

Many women consider weakness as both a cause and consequence of heavy bleeding in pregnancy and the postpartum period.

[weakness as a consequence] *It weakens her, if she bleeds for one or two hours she becomes lifeless. I don't know the dangers of this, Allah knows, the doctor knows. It happened to my sister-in-law, she bled from 3pm to 8pm, she passed rughshat, chunkal [big clots]. The mullah [faith healer] came and gave dhum [blessing] and charms but it didn't work, the bleeding stopped when she gave birth. [Gonigresha, OFG]*

[weakness as a cause] *Due to weakness there is bleeding, there is lots of bleeding, and for each woman this is what happens to their bodies. All the bodies blood is finished. Due to loss of blood there is weakness. Due to too much pain we breathe deeply. [PirUmar, OFG]*

In the minds of most women, weakness is associated with many types of bleeding, but it is particularly viewed as a cause of bleeding in pregnancy. The perception that weakness leads to bleeding is common among all women. One woman was specific regarding the timing of bleeding in pregnancy that would suggest weakness as a cause of bleeding. And another mentioned that when bleeding leads to weakness, it also weakens the child.

If there is blood loss after the 6th month, it is due to weakness. [Pishikappar, YFG]

When there is bleeding before delivery then the child gets weak inside her and can die. [Gonigresha, YFG]

Some women recognize that weakness is a consequence of anaemia, and something that can be worsened by their heavy work load. However weakness is not explicitly attributed to anaemia. The closest expression to anaemia is "deficiency of blood". Women appear to understand the concept of not having enough blood or having too little blood and consequently having reduced energy. The fact that blood loss can lead to weakness is described by nearly all women. Many of them realize that "strengthening injections" are given to help the woman regain her strength that she has lost due to heavy blood loss. Some women also recognize the function of iron tablets to ameliorate weakness, but its use is dependant on availability. Though they relate weakness as a cause of bleeding, the inclination is to treat the condition only when it becomes serious and there is more and heavier bleeding.

...People get injections for Khayal (bleeding) and to reduce mhavari [menstrual or vaginal bleeding] because it causes weakness...They are given for Khayal because [due to khayal] the woman weakens and the child is harmed and 8 to 10 women had this problem here as their men could not afford to take them to the hospital for other treatments.

Perceived consequences of bleeding in pregnancy:

In general bleeding in pregnancy is considered harmful either to the foetus or the mother, however this awareness does not appear to always lead to immediate action to seek medical care. Women

mention abortion as an outcome of bleeding in pregnancy, though they do not make a clear distinction regarding how bleeding is related with threatened versus incomplete abortions. Women seem to believe that any amount of bleeding in pregnancy is risky for the foetus, however it is usually excessive bleeding that is considered to be risky for the mother.

Excessive bleeding is dangerous. There is backache and the bladder hurts, then the bleeding starts. Babies don't survive even if the pregnancy is in the 7th or 8th month. [Hazarganji, YSII].

We know that this is damaging [for the woman], we tell the men to bring a doctor for this. The baby is lost [miscarried]. [PirUmar, OFG]

A consequence of bleeding in pregnancy can be the death of the pregnant woman. Women believe that when bleeding becomes heavy it increases the danger for the women so much so that she could die.

For this [heavy bleeding in pregnancy] we call the mullah or the doctor. But [even] after the treatment from the mullah or doctor is sought, the women continue to have more bleeding and die. [Nal, YSII]

Before childbirth bleeding is dangerous. If the woman has so much bleeding, then the woman dies. The woman becomes unconscious, she gets fever, she becomes weak. The woman who becomes weak and out of strength dies. [Zeedi, OSII]

More than heavy bleeding is included as a danger sign. The child is inside the woman's womb, and there is bleeding, so this is also dangerous. The child dies in the womb, and the woman dies. [PirUmar, OFG]

She weakens and dies and even if the bleeding is small in amount it lasts eight or nine months and she dies. [Parko, OFG]

According to some women, bleeding in the third trimester indicates that the birth will be delayed.

The baby is born two or three days later. [Koshk, YSII], though one woman said that:

If the bleeding continues we know that the child will be born, if water comes before the birth of the baby, then the child is badly affected, the child cannot be born. If there is no bleeding, then we understand that the child cannot be born. [PirUmar, OFG]

It seems that women do not recognize the difference between normal bleeding called "the show", that occurs prior to delivery, and bleeding that is not normal. The two statements noted above might in reference to the "bloody show" that indicates that indicates nearness of childbirth.

Excessive bleeding can also trigger some women to become mad.

If there is excessive bleeding the woman goes mad. [PishiKappar, YFG]

A woman just lost her mind, she was taken to Quetta and Sindh. When she tried to get up to work she got dizzy. Now she has had her babies stopped [used a permanent form of contraception] but she isn't better. [Parko, OFG]

Many women describe miscarriage/abortion as a consequence of bleeding in pregnancy.

If the foetus is alive she [the lady doctor] gives injections to stop the bleeding. If a woman miscarries she tends to do it repeatedly. Here a woman has miscarried 7 times in the 4th, 5th, or 7th month. She sought treatment again and again but it didn't work because habitual miscarriage is like an illness and it causes weakness. [Pishiwar, OSII]

One woman walked home from the road and the baby got aborted. [PishiKappar, YFG]

From this [the bleeding] what happens is that the child is lost [miscarried/aborted], The woman can also die. During the 6th or 7th month, if the woman bleeds, she can die. [PirUmar, OFG]

What happens? The child falls [is miscarried] what else happens?! The woman becomes weak. [PissiJal, OFG]

A number of women ascribe prematurity as a cause of bleeding in pregnancy which occurs three months prior to delivery. The bleeding is seen as a consequence of weakness. Women also recognize that when they overwork while pregnant, they become weaker and hence believe that working in such a condition can induce bleeding.

Although women view heavy bleeding in pregnancy before the third trimester as dangerous for the mother, it is considered more life threatening for the child in the womb.

The bleeding is due to weakness, and the child is incomplete [premature], and it is more harmful to the child. The woman only weakens and recovers with treatment. [Wadh, YFG]

Consequently, attempts to obtain modern medical care often occurs when the woman's condition becomes exceptionally severe. So that if the the woman does not recover after (1) herbal, (2) Mullah's, or (3) Dai's interventions, then a doctor is called or she is taken to the doctor at a hospital.

...otherwise the dai does what she can and the doctor is called to give injections and it has happened to many women. [Wadh, YFG]

Actions around bleeding in pregnancy:

Women in nearly all clusters describe the use of traditional methods such as getting a taweez, dhum and prayer from a mullah, and using herbs when faced with bleeding during pregnancy.

Before childbirth we work, tote wood and water, but keep everything to ourselves and fetch a charm from the clergyman. The doctor has no remedy for this, we use local medicines called mongoli, narpoat, and sunch , the dai provides them. [Pishijhal, YSII]

If there is bleeding for 10 to 20 days, then we consider this too much. From this we use doctor's medicine, or women's medicines. The dai makes dewai [medicine] and gives it as well. [Zeedi, YSII]

If the back and the bladder aches, it leads to bleeding, some lose water. We use Balochi medicines prescribed by the dai after which the pregnancy aborts. I was fine until I started to bleed spontaneously and lost the child. [Hazarganji, YSII]

Bleeding during pregnancy also impels certain women to use herbal methods to abort their pregnancy. Although some women describe using traditional medicine to stop bleeding during pregnancy, it is most often used to terminate a pregnancy. The assumption is that the child is already dead or it will not survive to full term. Women appear to rely much more on herbs, than pills or injections for terminating a pregnancy when faced with vaginal bleeding. Injections are given by *dais* [traditional birth attendants] for backache and weakness.

A dai can tell if the foetus is dead and gives an injection to evacuate it. If the foetus is alive she gives injections to stop the bleeding. [Pishiwar, OSII]

A woman from Nal felt that even use of pills and injections could not guarantee survival of the child and due to too much bleeding both the child and the mother could die.

Some people are like this, that even after the use of pills and injection the child is lost [miscarried/aborted], because it is not God's wish [for the woman to have the child]. Due to this illness the mother also dies, because from too much bleeding the mother and child both die. And even if the mother survives [the delivery], due to too much bleeding the mother and the child both die. [Nal, YSII]

Many women said that they seek care either from a faith healer or a doctor; and although cure from a *Mullah's taweez* and *dhum* or the herbs from a *dai* is not guaranteed, it is still an option because 'sometimes women survive', though death is a possibility.

I lost all my body's blood, but it was God's will that I didn't die, and I survived. Because we don't want to go the hospital [which is far] in our bleeding condition, for us the government should do that much and at least give us facilities in our area. [PirUmar, OFG]

In this condition we get injection and also take taweez. Injections and taweez work by Allah's command. For injections we go to Khuzdar hospital. —Whatever treatment there is in our hands we will do, for this we get injection. [PirUmar, OFG].

Perceptions of postpartum bleeding:

Unlike their perceptions of bleeding in pregnancy, many women consider some bleeding in the postpartum period not only normal, but also expect it. In the minds of some women if there is no postpartum bleeding it is detrimental for the woman.

This [bleeding] is normal after delivery. [Wadh, YSII]

We say it is due to subhan, but if it [the bleeding] stops, then the abdomen swells and hurts. [Gonigresha, OFG]

A little bleeding after childbirth is to be expected and helps against abdominal pain. If no blood is lost the braina [Brahvi term for uterus or womb] aches. This means she hasn't been given hot medicines. These end the flow of dirty blood and ease the pain. [Koshk, YSII]

The above statement implies that not having medicines or herbs that are hot in quality is why a woman does not bleed when it is considered normal for her to bleed. Certain traditional medicines are considered to cleanse the uterus following childbirth, and if 'dirty' blood that is meant to be removed from the uterus does not come out, it can cause swelling and pain for the woman.

However, women do believe that heavy postpartum bleeding is dangerous for the mother. In discussing the effect of postpartum bleeding, women don't always make a clear distinction between bleeding that occurs during delivery, immediately following birth and in the postpartum period at least twelve hours following childbirth

She gets very weak. If someone loses blood and water, what is left of her then but bones? She bleeds for two or three days. The dai knows nothing and she is taken to Khuzdar. The dai only gives an injection. Balochi cures are finished now [are useless now]. [Parko, YFG]

If there is too much bleeding after the placenta comes out, then she dies. This is due to bad lungs and due to weakness. [Pishijhal, OFG]

Perceived causes of postpartum bleeding:

There appears to be little distinction in women's perceptions of causes versus their perceptions of consequences of heavy postpartum bleeding. Women describe weakness and *khayal* as both a cause and consequence of heavy bleeding in the postpartum period. In addition to weakness and *khayal*, some women believe that a uterine wound could be a cause of abnormal postpartum bleeding.

It is due to weakness, I know no other reason. [Parko, OFG]

It is due to weakness and due to vein breaking and due to injuries in the womb. [Baghbana, YFG].

*Many women have bleeding after childbirth. This blood is called *khisht* [brick- red clots], we call it big big pieces of blood. This blood is from weakness.* [Nal, YSII]

*If there is too much bleeding after giving birth then it is called [it is because of] *khayal*.* [Parko, OFG]

A number of women mentioned jaundice as a related consequence of postpartum bleeding. Jaundice is attributed to weakness that occurs due to postpartum bleeding. It is believed that this same weakness can also lead to hot fever.

She is too weak to move, she gets kawail [jaundice]. Sometimes she has hot fever. All this is due to weakness.
[Zeedi, YSII]

In case of jaundice that arises in the postpartum period and is perceived to be a consequence of bleeding and weakness, it is said that,

We use doctor's medicine. The dai doesn't give medicines in this case.[Zeedi, YSII]

Retained placenta (the 'enemy' of women) as a cause of postpartum bleeding:

We asked women regarding their perceptions of heavy bleeding before and after the delivery of the placenta. Analysis highlights that retained placenta is a common problem among women. In particular, retained placenta is perceived to be one of the commonest causes of heavy postpartum bleeding. Continued bleeding with a retained placenta is perceived to be more dangerous than continued bleeding after the expulsion of the placenta. Continued bleeding after the expulsion of the placenta is typically associated with necessary removal of dirty blood and fluids. Whereas, continued bleeding after childbirth with a retained placenta is considered life threatening to the mother. A number of women referred to the placenta as one of women's biggest enemy, because death due to this is a common experience. Women in nearly all clusters mentioned knowing one or more women in their community who died as a consequence of retained placenta.

[continued bleeding after delivery of placenta]

If the placenta is delivered and bleeding occurs then the woman gets better. This bleeding is good for her as the blood won't go to her brain. [PissiJal, OSII]

[continued bleeding before delivery of placenta]

It [heavy bleeding] happens if the placenta is retained and also due to khayal. [PishiKappar, YFG]

If the placenta does not come out then it is dangerous. She becomes more weak from bleeding and the woman can die. There is lots of damage to the woman. One woman died in this way. [PissiJal, OFG]

In this condition the woman becomes weak, and the woman can die. The placenta is a very dangerous thing.
[Zeedi, OSII]

Yes, lots of women have had this, once a woman died of this problem en route to the hospital. The dai tries her best, then tells the men to get transport. These poor people get very worried. They first borrow a motorbike and [with the motorbike] they try to go and hire a car. Until time the care comes, she must wait and may die on the way. Five or six women had this problem and two or three died this month of the very same problem. They wait at home for two or three days and then they are taken. Some [women] retain their placentas for one or two days then die in a hospital or on the way to it. [Parko, YFG]

Some women's babies rot inside them and some can't deliver the placenta. Thank God it hasn't happened here. [Here] the baby is born and the placenta comes out. We call the placenta bad [evil]. Thank God my ears have never heard of it. [Due to the retained placenta] her abdomen swells and she dies. The doctor says she dies in one hour, but it can take a day. A woman on the mountains had this problem and it stayed inside her for fifteen days. [Gonigresha, OFG]

Perceptions regarding consequences of retained placenta accompanied by bleeding suggests that when a placenta is retained following childbirth, women's perception of danger is defined by how long the placenta remains undelivered. One woman mentioned a case when a placenta remained undelivered for nearly ten hours following childbirth. In this situation, a female health practitioner was called to give an injection assist with delivery of the placenta. For many women, this condition produce a great deal of anxiety and feelings of helplessness. In such situations some women in the family try to expel the placenta by massage techniques that they may have observed *dais* using. Other women are clear about stating that they do not know what could done under such circumstances.

Perceived consequences of postpartum bleeding:

We asked women what they thought was wrong when a woman has heavy bleeding after delivery of the baby. Three themes emerge in regards to women's perception of consequences of heavy postpartum bleeding. Women believe that bleeding in the postpartum period can lead to:

(1) Weakness:

When she is sick her head spins with weakness and she can't go anywhere. [Gonigresha, YFG]

If after zachki [delivery] there is too much bleeding, then what do you think happens?! The woman becomes weak. This happens because she has a wound in her uterus. [PissiJal, OFG]

(2) *Khayal*:

It is dangerous and is called khayal, the woman loses consciousness and weakens, she loses all her blood. [Hazarganji, YSII]

It is dangerous and is called khayal, the woman loses consciousness and weakens, she loses all her blood. [Hazarganji, YSII]

or

(3) Death of the woman:

It is dangerous, some women die, once the blood is gone what else is left behind? We have poor health because we lose much blood every time and we work. [Tootak, OFG]

Big clots of blood, excessive bleeding can kill a woman. If a bucket-full of blood is lost she dies. We dig a hole to bury the blood and keep changing her clothes. [PissiJal, YSII]

It is dangerous for a woman to lose a lot of blood like two bottles. Massive blood loss causes weakness and dizziness and can kill. [Koshk, YSII]

I have heard that many women and babies die, but I haven't seen that for myself. [Koshk, 32sii]

Although, death can be a consequence of both antepartum and postpartum bleeding, it was more often mentioned as a consequence of postpartum bleeding.

Women do not associate duration of bleeding with danger for the mother. In discussing duration of bleeding, it is unclear if women are referring to continuous bleeding or bleeding resulting on and off in that period. This detail was not clarified by moderators. What is apparent from the data is that women are expected to have some bleeding following childbirth and during forty day postpartum.

Women from Gonigresha believe that in other areas outside of Gonigresha, women usually stop bleeding in a week after childbirth, but in their own region women remain unwell for forty days.

Usually they stop bleeding in a week in most areas, but it is not so here and they remain unwell for forty days. [Gonigresha, YFG].

If the blood stays in her then she lives, they must have injections for this too. If she get Khayal, we get dhum for her. She faints with Khayal [from too much bleeding]. If this happens we go to a doctor. If he gives an injection it helps and has a good effect. [Gonigresha, YFG]

As reflected by the statement above, when women have heavy postpartum bleeding, medical assistance is not sought until the woman is unconscious or nearly unconscious.

Action around postpartum bleeding:

We asked women what is done if a woman has heavy bleeding after childbirth. Nearly all women mentioned going to a *Mullah* and getting *taweez*. Attempts to seek modern medical care appears to be one of the last steps, if at all, taken to assist a woman affected by severe postpartum bleeding. In handling postpartum bleeding, women largely rely on fate for its cure. Even when women seek any sort of modern medical care for postpartum bleeding, in their views, ultimately *healing lies in the Hands of Allah*. [Baghbana, YFG]. One woman put it this way, *If we believe in Allah, he always helps us, if we pray and say nafals* [non-obligatory prayers], *Allah is very kind to us*. [Baghanban, YFG].

Because women believe that heavy bleeding is due to *khayal*, some women attempt to remove the *jinn* and *saya*. To do this, they seek a *mullah*, who will provide *dhum* and *taweez*.

We get charms which help her and use Balochi medicines, a dai in Damb gives these. After childbirth there is lots of bleeding. [Hazarganji, YSII].

However, invariably a doctor is sought or an attempt is made to seek one, if the condition becomes

severe enough or life threatening for the woman.

If Allah heals her with dhum then all is well, else she is taken to the doctor. [Parko, OFG]

If there is no improvement from the mullah's intervention then,

She sickens and loses strength, [then] she is given strengthening injections and recovers. [Hazarganji, YSII].

Sometimes, though, the woman is not taken to the hospital.

Some people take her to the hospital and some don't, we give charms and local medicines for six days that help the bleeding to gradually taper off. [Hazarganji, YSII].

It appears that using amulets and charms are not necessarily an attempt to stop the bleeding, but rather a response to a situation where real and physical barriers to call on a doctor, or to go to a hospital exists. Therefore, in the minds of women in such circumstances, using charms can only increase the chances of woman's survival. One woman had these thoughts regarding what is done for postpartum bleeding.

[We first do] *nothing*. [Then], *charms are used*. [If nothing improves] *we take her to a private hospital in Khuzdar because the government hospital is useless. We sell land and cattle to pay for treatment.* [PissiJal, YSII]

To a significant extent, treatment by a mullah seems to equal getting treatment from a doctor.

Sometimes it happens that the mullah and doctor are unavailable and the woman dies. At this time even with the use of Balochi dewai there is no benefit. This work can only be done by a mullah or lady's hand, because the lady checks and looks and the mullah does dhum from which there is a difference. If ever the doctor has given an injection, the bleeding stopped. Some people's bleeding did not stop even with an injection, that which we call khayal, then the mullah does dhum. If the woman has khayal or saya, then from the pills and injections heavy bleeding starts. If the placenta has come out and there is bleeding then the woman can die. If she can't get immediate treatment, the woman can die. [Nal, YSII]

But faith in religion is greater than faith in herbal medicine. Traditional medicine often referred to as (Balochi dewai, Brahvi dewai, desai dewai) is commonly used by women in varying forms and methods. Among the many responses to actions taken when faced with a given obstetric complications we learned that women would either insert herbal mixture in their vagina, or orally take a herbal mixture, usually made by the attending dai. Women appear to use traditional medicine more frequently for postpartum bleeding than antepartum bleeding,

Though a woman from Parko said, there is no Balochi medicine for it, and if we have a motorcycle we can get a car to take the patient to the hospital. [Parko, YFG].

She is given local medicines for six days, as well as other medicines, she usually recovers. She is taken to the doctor via donkey cart or car. The government hospital offers no treatment, we have to buy medicines from the market. Brahvi treatment is better. [Koshk, YSII]

However, in some regions a doctor or mullah is not even a distant option for a woman facing heavy bleeding in the postpartum period.

It happens that there is bleeding after the placenta comes out, but we can do nothing for it. We use Balochi medicines and stay in bed. We take bed rest for three or four days. Occasionally the bleeding lasts six days, we do nothing for it. We should have the facilities of a lady doctor and an ambulance. She weakens, and with more blood flow she faints. There is no mullah or doctor here to treat us. [Gonigresha, YFG]

Perceptions and actions around prolonged labour:

We asked women how long it should take for a woman to deliver the baby after the labour pains begin and what is done when a woman is in labour for more than 12 hours. Their responses are summarized below. Further details of women's views on prolonged labour are presented in tables at the end of this sections.

Prolonged labour, waiting more than twelve hours after start of labour, appears to be a common experience among women in all regions. Most women appear to think prolonged labour is risky for the child and the mother, and that long labour pains means increased suffering for the woman. They understand that the longer pains last, the more women suffer.

The more that pain last the more we suffer, our backs ache, our feet hurt and we can't walk, we get weak. [Gonigresha, YFG]

Those who deliver late suffer a lot of pain. [Gonigresha, YFG]

She is in pain until she delivers. [Gonigresha, YFG]

They also recognize and appear to be witness to the fact that length of labour can vary from one woman to another.

Some women take one day and one night, some give birth quicker, I can't say. [PisshiKappar, YFG]

Some people deliver early, others late. [Gonigresha, YFG]

For many women it takes an hour, for some it takes one day. [PirUmar, OFG]

Some people are such that the pains take one day and one night, we wait, some take a few hours and we wait. [Parko, OFG]

Some take 10 to 20 minutes, others the whole day. [PissiJal, 28]

Though women seem to tolerate a great deal of labour pain for delivery, they desire a shorter

labour period.

We say that there be one minute of pain and the child be born.—I also say that. —We want that we become better in one day, but some have three days of pain, everyone has their own way. [PissiJal, OFG]

Three or four hours of pain are enough, although pains occur for four or five days and start in the 8th month and by the end of the 10th month we are unable to sit or stand. In our ignorance we think many children good. [Baghbana, YFG]

*If someone gives birth quickly with little pain that is good labour. [Baghbana, YFG]
In my mind even one day of pains is plenty, two days is really hard and a woman should be through as soon as possible. [Zeedi, YSII]*

One or two hours of intense pain is quite enough, more is harmful to mother and child. [Nal, OSII]

Labour beyond 12 hours is considered long, and the effect of prolonged labour means women will become tired and weak.

Women get tired and wait for Allah's mercy and then take charms. I took a day and a night and then the child was born. Two days are too much, we give alms and take charms, medicines and injections. [PissiJal, YSII]

However one woman considered 12 hours of pains as normal and harmful only if labour pains continue beyond three days.

*[Even] if a woman has pains for 12 hours we consider this normal, labour can continue for [even] two or three days. If it goes beyond four days the child dies and rots inside the mother. If a woman has labour pains for two or three days we think it is prolonged, these are called *goad ka dar*. If the pain is very intense we call it *bayri*. [PissiJal, OSII]*

Prolonged labour is considered dangerous both for the child and the mother, but such lengthy labour is particularly risky for a woman who is already weak.

One woman had this, she was taken to the hospital at Khuzdar and the child died, she lost six babies like this and took pains for four days. [Tootak, OFG]

If the baby is not born by the second day, it can die inside her. [PissiJal, YSII]

Some people take two or four days, it is harmful to mother and child. [Nal, OSII]

Allah knows better! We don't do anything, we try to take her to a doctor. This is dangerous for a woman, she can die. [PissiJal, OSII]

If it happens then there is danger to the woman and the child. Those who are fine have the child quickly but those who are sick and weak can't bear the pains. [Wadh, YFG]

Some women described more than one incidents of women dying due to prolonged labour.

It happened to the dai's daughter, it was her 9th month, she bore pains and her mother wasn't there, no dai was there and she died. We have no other dai in our area except a Baloch one and she wasn't there either. [Gonigresha, OFG]

A mother and child died like that.—It happened at our village too, in the 7th month, they both died.—A woman's baby died during labour from lack of doctor. Lots of mothers and babies die.” [Gonigresha, OFG]

Some people have pains for up to six days because there is no treatment for it. One woman underwent labour for three days and the child died inside her, they were too poor to go to Khuzdar. My husband paid for her treatment because the child had died and was rotting inside her. The doctor said you people bring us patients when they are dead. The child was buried here. [Pishiwar, OSII]

Some women said they worry if pains take longer than two or three hours, because pains like 'long labour pains' can lead to death of child or the woman. In spite of such beliefs, women wait two or three days before they take steps to seek medical care.

The pain that delivers the child in two or three hours is good. If it takes longer we get worried and her parents get very worried, pains like these lead to the death of child and the woman. We wait two or three days before taking her. [Baghbana, YFG]

Lack of transport, facilities, and money are mentioned as obstacles to getting timely care for a woman facing prolonged labour.

Yesterday a woman went into labour in the morning and delivered in the evening, if she had taken longer we would have taken her. Because there was no car then, and if we had a car we could have taken her earlier, the doctor came and gave her an injection to induce pain but to no avail, however Allah was kind and she delivered the child. [Baghbana, YFG]

Then [if labour is beyond 12 hours] we take her to Khuzdar, there is a bus but how can she be taken in a bus with everyone looking on, we hire a car. If there is no care then we are helpless. [Baghbana, YFG]

We wait and see, what else can we do? And pray for it to be easy for her. When the dai says take her elsewhere then someone takes her and she bears pains all the way to Khuzdar. First someone goes on motorbike to find a car, then she is taken. We have no lady doctor, no transport no fuel for motorbikes, or the key may not be there. Poor people lack money for transport. It costs Rs.1500 to hire a car one-way and they leave us there and it is very difficult to hire another car to bring the dead body home. [Parko, YFG]

This is torture, the women of Parko are doomed, we have no transport so what can we do. [Parko, OFG]

It takes two hours, it also takes three hours, and four days is taken as well. What can happen?! Nothing happens, in our village there is no hospital. That's it, we continue to sit and can't do anything. [Zeedi, OSII].

Some women describe prolonged labour as a common problem such that at times, death of the woman is inevitable. And if a woman lives it is by chance and due to God's will.

We say if she bears pains for a day and a night then may God relieve her quickly, if she loses all her body's blood then what will be left? Some die, some live, it is in the hand of God, we have all gone through it.

[Tootak, OFG]

There were also women who said they do nothing, they wait it out and it could take 3 days or more. And one woman mentioned breech delivery as a cause of prolonged labour.

If the child is not being delivered it is usually coming out feet first. This is called buchara, she is taken to hospital at Khuzdar. [Wadh,OSII]

Perceptions and consequences of premature rupture of membrane:

Women were also asked about their views, experiences, and actions regarding premature rupture of the membrane. Women perceive water loss as an indication for the onset of childbirth, and depending on when and how long water discharge continues, it can represent delay of childbirth. Some women said that if pain is accompanied with the water loss, then it indicates that birth is about to occur.

It is a sign from God when the water-filled bag bursts then the baby is born, thirty minutes later there is severe pain then the child and later the placenta come out. [Koshk,30].

However, if there is no pain accompanied with water loss and water loss persists, it leads to a dry labour. Following are selected statements by women reflecting their views about premature of the membrane. Further details of women's responses on this question are provided in tables at the end of this section. Women describe six different effects of the water bag breaking too soon including:

(1) Delay of childbirth:

The pain stop and baby is not born easily." "Some lose blood, if she loses water first then the child isn't born. [Gonigresha, OFG]

Then the baby is born late, it starts three or two days before labour and if it goes in the child's mouth or nose then it can die. [Parko, OFG]

When the water flows from morning till evening then the child doesn't get born and there is danger to the woman's life. [PishiKappar, YFG]

No child is born painlessly, water loss means the birth will be delayed. [Koshk, YSII]

If water breaks and there are no pains it is due to allergy, the body suffers injury and birth is delayed.. [Pishiwar, OSII]

If water is lost before onset of labour then there is some time before delivery. We don't do anything if there's no water loss. If a lot of water is lost then the childbirth is delayed by five to ten days. [PissiJal, OSII]

(2) A 'dry' labour:

Then there is dry pain which harms the child. If childbirth is delayed then this is the reason for it. [Tootak, OFG]

It is dry, we Brahvi lubricate her from inside with ghee (clarified butter) or oil or make a pessary (surgical plug worn in the vagina) to put inside her. [Parko, OFG]

(3) Danger for the child and damage and increased pain to the woman:

This causes harm to the mother, the child dies and the woman's breath is lost (she tires out), there is intense pain and getting up and walking becomes a big problem." [PishiKappar, YFG]

Due to this the child is damaged. It hurts the woman more than the child, if there is much bleeding then she dies. [Gonigresha, OFG]

She will wait it out what else? She will be working on as the water flows, she can get zalal (severe pain), and she and the child is weakened. When she tries to stand all goes dark before her eyes, she trembles and loses the child. [Baghbana, YFG]

There is the danger of child going unconscious, it drowns (tarjak), some lose water for two or three days without pains starting, they say pains come with water and the child dies inside the body. [Parko, YFG]

It is more dangerous to the child, it is painful and if the poison rises the woman is in danger, she weakens, we say bring amulets. [Parko, OFG]

If it (the water) goes in the child's mouth or nose then it can die. [Parko, OFG]

The child is weak and dies.—If one bucket of water is lost the child dies, water may be lost in the 7th or 8th month...but some children live while others die because water suffocates a child. [PissiJal, YSII]

...this woman lost water for six days then her child was born, but it died on the fourth day, the child was born on the eighth month. [Hazarganji, YSII]

Then at this time there is danger to the child, that the child could possibly die, because the water can go in the child's mouth, ear, and nose. [Nal, YSII]

The woman weakens, the stink goes to her head and she is unable to sit up. [PissiJal, YSII]

This kills the baby, we say the child died due to water loss. [Wadh, OSII]

From this the child becomes weak, and the child can die. [Zeedi, OSII]

(4) Prolonged labour:

A woman lost water for five days and had pains for a day and a night. [Gonigresha, OFG]

Delivery takes longer if the bag breaks, otherwise the baby is born normally. [Gonigresha, OFG]

There is no cure, no pill, some have this for four days some for up to fortnight. [Baghbana, YFG]

It takes a day and night, the water accompanies the pains,... [Tootak, OFG]

...and we keep waiting for the water to stop so that the birthing starts.—I was like this too, water loss for three days with no pains. [Parko, YFG]

(5) Leads to childbirth:

When this water is discharged, then the child is born. [Nal, YSII]

It is sign from God when that water-filled bag bursts then the baby is born- thirty minutes later there is severe pain then the child and later the placenta come out. [Koshk, YSII]

This leads to childbirth and needs no intervention, if there is no water loss and pains are dry then it's not good. Water loss for an hour means the child will be born quickly, a dry labour means birth will be delayed. [Nal, OSII]

(6) No danger and is beneficial to the child or mother:

There is no danger to the mother or child, the membrane is strong. [Gonigresha, OFG]

Water coming first is beneficial because then the woman and the child both can be well. [Nal, YSII]

That's no problem, the water breaks and labour starts, it is not harmful. Some women lose water for four to five days before the onset of labour. [Zeedi, YSII]

In this condition what can happen? If the water comes, then it is good, because it stays inside, then the belly swells and the woman becomes sick. [Zeedi, OSII]

Women's actions around premature rupture of membrane:

When the water bag is perceived to break too soon, many women said that they get an injection. The type and purpose of the injection is unclear, though two women said the injection is used to stop the flow of the water. A number of women said they use local herbs and or get an amulet to treat this problem. Some women recognize that there is a need to go to the hospital to treat a premature ruptured membrane, however it does not appear that going to the hospital is an immediate response by women and their families. One woman said when the water bag breaks before its time they wait for the water to stop and birthing to start. In general women do not view a premature ruptured membrane as an indication for urgent response, nor a need to seek immediate medical care. Women's statements regarding action around premature ruptured membrane are provided below.

We go to a doctor for an injection to stop the water loss, and occasionally we get an amulet. [Wadh, OSII]

If a lot of water comes, then she needs to go to the hospital. But there are not any hospitals from where we could get injection or pills. [Zeedi, OSII]

We use local medicines. She is given strengthening medication to stop the flow. The water stops by itself. We boil local medicines. [PissiJal, YSII]

We bathe the woman and take her elsewhere until she recovers. [Koshk, YSII]

We use strengthening medication and charms. Only the doctor has a cure for it. [Hazarganji, YSII]

We take medicines and pills from the doctor, and get advise from the doctor. The dai says the lower back is weak, you will be alright. [Nal, YSII]

We go to a doctor for an injection to stop the water loss, and occasionally we get an amulet. [Wadh, OSII]

The dai charges Rs50 for the injections, but takes Rs20 from poor people. [Pishiwar, OSII]

We use Balochi medicines shootuk, aloonj, guldur, larak, passur for bellyaches, but if they don't help then we get medicines from stores, lion brand paracetamol is taken for fever and body aches, thinking that it might help. This pain is like labour pains. [Gonigresha, YFG]

We powder and dissolve mamalai, mozash, shootuk, halcha, zehrak poata, milan lakar, undersaath, kuller, more narm peelor, kaish tur, chazza boon. These pellets are eaten all the time, it costs Rs100 to 500 but last a year. [Gonigresha, OFG]

...and we keep waiting for the water to stop so that the birthing starts. [Parko, YFG]

...we say bring amulets.[Parko, YFG]

We Brahvi lubricate her from inside with ghee (clarified butter) or oil or make a pessary (surgical plug worn in the vagina) to put inside her.[Parko, OFG]

Discussion

Our research confirms that obstetric complications during pregnancy, delivery, and postpartum period are a common occurrence for women in Khuzdar. The facility and interest with which women spoke of these problems attests to the normality of this reality in women's lives, be they young or at a later stage of their reproductive ages.

The results show that, in Khuzdar, women's level of awareness is intricately related to their reproductive experiences. For many women, awareness of the three obstetric danger signs is reflective of how often women themselves face and/ or observe other women face physical difficulties and complications in their reproductive cycle. The degree to which they recognize the signs of obstetric complications varies. Our analysis also suggests that what women do when faced by a given obstetric complication is not only dependant on women's perceptions of the severity of the complication, but is also influenced by availability of appropriate health services and the real economic and social constraints faced by them.

In this discussion we highlight the themes emerging from the analysis of women's perceptions of the three obstetric complications (antepartum and postpartum bleeding, and prolonged labour).

1. *Obstetric complications not perceived as normal*

Although obstetric complications appear to be common in Khuzdar, women do not believe that all reproductive and obstetric complications are normal. For example, although prolonged labour is quite common, the women wish for a labour that is easy and quick. Most women realize through their own and other women's experiences that miscarriage is related to antepartum bleeding and therefore bleeding during pregnancy can be damaging for the mother. And they have a concept of normal postpartum bleeding versus heavy bleeding that is perceived as dangerous and life threatening for the mother.

2. *Not all complications are perceived as equal*

Women also don't consider all problems to be equal. For example bleeding in pregnancy prior to the third trimester is viewed as a less serious problem than bleeding in the third trimester or immediately before delivery. Even though bleeding in pregnancy is linked with miscarriage, what is perceived to be life threatening for the mother is considered more serious than a complication that is primarily life-threatening to the foetus. Although some complications are considered more serious, it does not necessarily mean that an attempt is made to obtain medical care sooner. For example, heavy bleeding in the 3rd trimester is considered more serious since such bleeding increases the chance of death for the mother. However, since heavy bleeding is *khayal*, seeking a mullah to provide dhum and taweez is usually the first action taken for this problem. Often it is only if such an intervention does not improve the condition, then efforts are made to seek modern medical care.

3. *Khayal*

Women's perceptions of heavy bleeding acutely influences what they do for it. Though heavy bleeding is considered dangerous, women's responses when faced with heavy bleeding does not reflect their perceived danger of this complication. Rather, it appears that women's course of actions when faced with heavy bleeding reflects their perceived cause of heavy bleeding both in the antepartum and postpartum period. The current data suggest that, in order to fully understand women's perceptions of heavy bleeding, it is important to understand what is *khayal*.

Khayal is a predominate description of heavy bleeding provided by women in Khuzdar. *Khayal* is considered a very dangerous and life threatening condition for women. Yet, women's perception of effect of *khayal* does not appear to lead to the kind of urgent response necessary for such a condition. Why? It is the meaning of *khayal* that influences women's immediate actions when faced by heavy antepartum and postpartum bleeding. Because women believe that heavy bleeding is due to *khayal*, and *khayal* is caused by supernatural forces such as jinn and saya, steps are taken to remove these forces. Women describe being hit by *khayal* as if to imply that when a woman has heavy vaginal bleeding, she is possessed by negative spirit force. Hawwa is a term used to describe the effect of *khayal*. *Hawwa* literally means wind, but in this context hawwa can be interpreted as a spirit force. Some women spoke of *khayal* as either being wet or dry. Dry is in reference to a postpartum situation where women are expected to bleed but they do not. Women spoke of dry *khayal* much less than wet *khayal*, probably because heavy bleeding occurs more frequently than no bleeding in the postpartum period. *Khayal* reflects the perceived severity of women's condition, but it's association with the supernatural means that women will first take steps to remove the effects of negative spirit forces and if the woman's condition fails to improve than attempts to seek modern medical care are made.

4. *Weakness*

Weakness is frequently mentioned by women as a cause and consequence of bleeding. Its awareness reflects women's recognition of malnourishment, exacerbated by the physical strains of heavy work-load. Women are aware that weakness can contribute to abnormal bleeding in pregnancy (miscarriages are a common occurrence for women) and the postpartum period. They also recognize that hard work can intensify an already weak condition. However, such an important awareness does not appear to influence

women to make adjustments in their work-load. Also the concept of prenatal care and taking appropriate preventive actions is not apparent in women's views regarding what must be done for a healthful pregnancy.

5. *Interaction between awareness and action:*

Based on their own experiences, many women are well aware of the consequences of delays in seeking care in case of obstetric complications. However, the fact that usually women have very little to say about the causes of obstetric complications, suggests that women are unclear if not completely unaware of what causes the complications. Consequently, women are often unaware of how they can prevent serious complications and what they can do when they face such complications. Women's beliefs coupled with unclear concepts of causes of complications contributes to existing economic and environmental constraints to seeking timely medical care.

Awareness and experiences regarding consequences of obstetric complications does not appear to lead to immediate action by women or their families. For most women, barriers to proper action when faced with obstetric complications are both internal (knowledge, beliefs, perceived disadvantages, lack of skills) as well as external/structural (lack of transport, lack of basic services, high costs). The gap that arises between women's perceptions of obstetric complications and their responses when faced with such complications is largely influenced by the real social-environmental constraints (lack of transports, lack of quality modern health facilities, inconsistent and unpredictable traditional care, and general poor economic conditions) faced by them. Such constraints appear to reinforce if not augment the divergence between what women want to do or think should be done versus what is actually done. Consequently, attempts to obtain modern medical care often occurs when the woman's condition becomes exceptionally severe. Following response in a focus group discussion reflects this tendency.

Bleeding before childbirth is dangerous, we say that khayal has hit. What else can we do? If anyone has something, then they take her to the hospital. And we people don't don anything, we give taweez [amulet], and in this way the child is lost [miscarried/aborted]. We say that it be so quick that the child be born and woman should become free. Due to too much bleeding she loses her child. We say that there be a 'lady' [female doctor or lady health visitor] to give her treatment. [Pishijhal, OFG]

Section 5

Preliminary Results from the KAP Survey

A total of 709 women were interviewed for KAP. However, 76 of these questionnaires could not be linked with the baseline data. In this report, information on personal and household characteristics (age, education, income etc.) is presented for the 633 women for whom it was available. The KAP data include all 709 women interviewed.

All of the respondents were married and living with their husbands. The mean and the median age was 28 years. Figure 1 provides the distribution of women by age-group.

On the average, each woman had 6.3 pregnancies, about 5.6 of which had resulted into a live birth. However, the mean number of children currently alive was only 4.7. During the last five years, each woman had an average of 1.8 pregnancies. About 17.0 percent of the respondents were pregnant at the time of interview.

Just under 5.0 percent of the respondents had any schooling. However, about 30.0 percent of their husbands had some schooling. Figure 2 presents the percent distribution of respondents and their husbands by level of education.

Contraceptive use was uncommon in this group of women and only about 11.0 percent of them reported current use of a contraceptive method. Among the users (N=67), 29.4 percent were using pills, 35.3 percent were using injections, 17.6 percent were using an IUD and another 13.2 had a tubal ligation operation. The rest were using either traditional methods or condoms. About 14.0 percent women reported to have used a family planning method in the past. About two-thirds of these past users of family planning were not using any method currently.

About 51 percent of these women were either pregnant at the time of the interview or they had a completed pregnancy during the last one year. Of these, about 47 percent reported that they had visited a medical care provider during pregnancy for various reasons. More than 54 percent of women had taken a medicinal drug during pregnancy. About 22 percent of them had been prescribed iron, about half of whom had received iron injections. More than 30 percent had taken vitamin tablets during pregnancy. Only about 11 percent had received a tetanus toxoid injection. An overwhelming 97 percent reported that they had experienced some problem during pregnancy.

About 52.0 percent of the households to which these women belonged owned agricultural land. However, a majority of the arable land holdings were small: the average size of land was about 37.0 acres while the median was just 8.5 acres. Only about 3.0 percent of households owned a tractor.

More than 96.0 percent of the respondent lived in *katcha* (mud) houses. A majority of households (76.4 percent) had electricity but only 22.1 percent had tap water inside their homes. Just under 10 percent owned a working telephone. Almost half of the households had a radio while about 22 percent also owned a television set. A little under 7.0 percent owned a four-wheeled vehicle while about 24.0 percent owned a motorcycle. A majority of the households were poor: The average monthly income was only RS. 4,412 (about 100 US dollars) while the median income was only RS. 3,000. The average household size was 9.3 persons.

With this background, we now present the findings from the KAP survey. The data are organized into four sections: (1) Health services utilization patterns. (2) Attitudes and beliefs regarding family planning. (3) Knowledge of “danger signs”, the earliest signs of common obstetric complications. (4) Dynamics of decision-making to seek medical care during obstetric emergencies.

Health Services Utilization Patterns: Panels A through D present the results of the questions related to health services utilization. We consider the spontaneous responses (those provided before prompting) as the true picture of the women’s beliefs. It is obvious that women seek medical care during pregnancy when they have an illness or weakness. Around delivery, however, women prefer to seek medical care from a hospital only when there is severe pain or when they consider the condition as life threatening. Only about 6.0 percent women mentioned heavy bleeding as a cause of concern before any prompting, although about two-thirds of them recognized this after prompting. Similarly, prolonged labor and retained placenta also did not come out as spontaneous responses to this question. In general, women prefer to see female medical care providers for their reproductive health needs. A vast majority of women said they would see a male provider only for minor illnesses. However, about 17 percent mentioned complications during pregnancy and delivery might justify seeing a male provider. After prompting, about two-thirds of respondents agreed that they would see a male health care provider if a female one was not available. The proportions of women mentioning obstetric complications as a reason for seeing a male provider also increased after prompting. However, about 5 percent of women mentioned that they would never want to see a male provider. On the other hand, a vast majority of women said that they would prefer to see only a female health care provider for all women’s diseases including those associated with pregnancy and childbirth.

Attitudes and Beliefs Regarding Family Planning: Panels E through J present the aggregation of responses to questions related with family planning. Panel E presents the women’s perceptions of a minimum interval between births: It is obvious that most women consider two years or more as a reasonable time between two births. As to the benefits of a significant interval between births (Panel F), the respondents suggested health and well-being of the child as well as the mother. In response to the question regarding tubal ligation (Panel G), a majority of women mentioned “too many” children and woman’s poor health as justifiable reasons for preventing subsequent pregnancies. The questions in panels H and I explored the status of inter-spousal communication regarding family planning: More than half of the respondents said that they never talked to their husbands regarding family planning. About one fifth

reported that they had talked to their husbands about family planning some time in the past. But only 15 percent reported that they have regular talks about family planning with their spouses. About one sixth of respondents had no idea what their husbands think about family planning (Panel I). Almost half of the respondents said that their husbands did not approve of family planning (26.4 percent) or they thought it was against religion (18.9 percent). It is encouraging to note, however, that about 30 percent women reported their husbands condone family planning. Finally, regarding desirable family size, a majority of women could not answer the question according to the response categories provided. Instead, about 37 percent of responses were coded as “others” while another 26 percent women said that they had no answer to this question, perhaps because children are born due to God’s will.

Knowledge of Danger Signs: A large number of the KAP questions attempted to determine the respondents’ perceptions regarding the early signs of the three commonest obstetric complications (antepartum and postpartum bleeding, puerperal fever and prolonged labor). With regards to bleeding during pregnancy, a little over one third of women said that any bleeding during pregnancy would be dangerous. However, a majority of the rest of women considered that bleeding during pregnancy could be a cause of concern only when it is continuous, when clots are passed with it or when it continues for more than a day (Panel K). While some bleeding after delivery is considered normal, many respondents thought that bleeding after delivery should be considered as heavy and/or dangerous only when it contains clots, when it is rapid or when it continues for more than six days (Panel L). As to the cause of heavy bleeding, a significant proportion of respondents thought that it was caused by evil eye. Only after prompting the respondents were able to name internal injury or premature separation of placenta as causes of heavy bleeding during or after delivery (Panel M). The consequences of heavy bleeding were recognized by the respondents as weakness, unconsciousness and death (Panel N). The respondents did not recognize the beneficial effect of breast feeding the baby immediately after delivery on postpartum bleeding. A majority of them thought that breast feeding had no effect on bleeding, it might be harmful for the baby or it might further weaken the mother (Panel O). About half of the respondents said that they would either do nothing, or consult a religious person or *dai* if they experienced heavy bleeding after delivery (Panel P). Regarding puerperal fever, a majority of women responded that they would seek help. About 38.0 percent said they would seek help from a religious person and about 44.0 percent said they would call a lady health visitor (LHV) or a doctor. Only 19.0 percent said they would visit the nearest hospital (Panel Q). Regarding fits during pregnancy, about half of the respondent said they would call a LHV or doctor (Panel R). Prolonged labor, defined as labor pains lasting more than 12 hours, was recognized by women as a serious complication. However, only about one third of the respondents said they would ask to be moved to a hospital in such an eventuality (Panel S).

Dynamics of decision-making to seek medical care during obstetric emergencies: More than 70 percent women said they would first tell their husbands if they were experiencing a problem during pregnancy (Panel T). Similarly, over 90 percent women said that the husband’s permission was necessary before a woman could be taken to hospital for treatment of a serious illness during pregnancy or delivery (Panel U). Also, a majority of women thought that their *dai* would refer them to a hospital if she could

not handle the case, if the child was malpositioned or if the labor was taking too long (Panel V). Fewer women thought that the *dai* would call someone having more experience in such situations (Panel W). Finally, prolonged labor was considered by many women as pains lasting for more than 24 hours, and the danger was associated only with deterioration in the woman's condition (Panel X).

Discussion:

To summarize, the preliminary findings from the KAP data suggest the following:

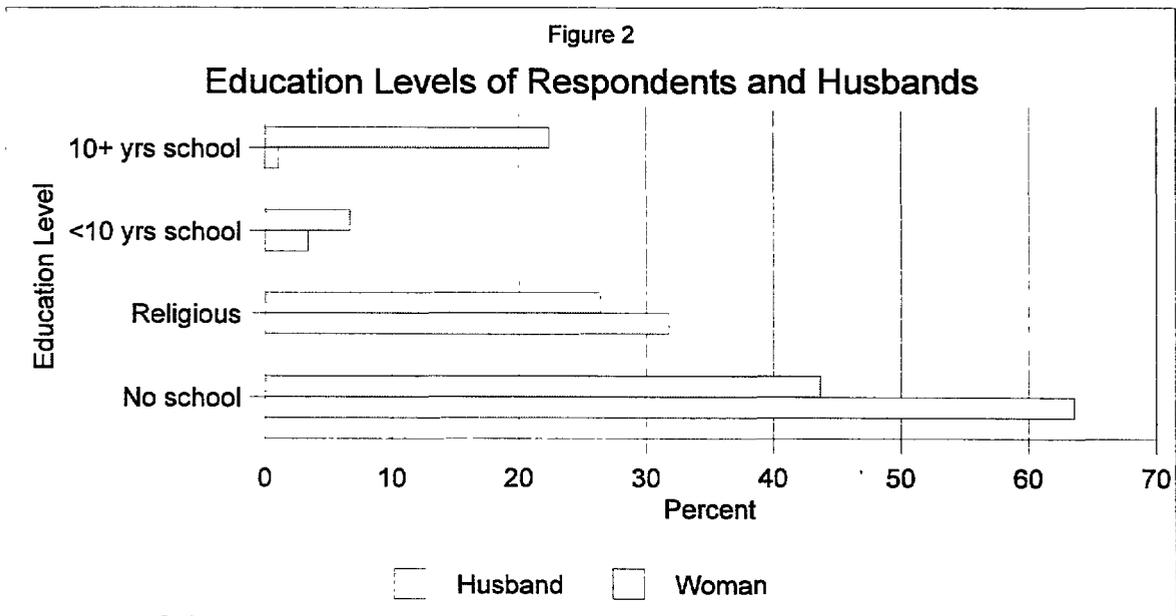
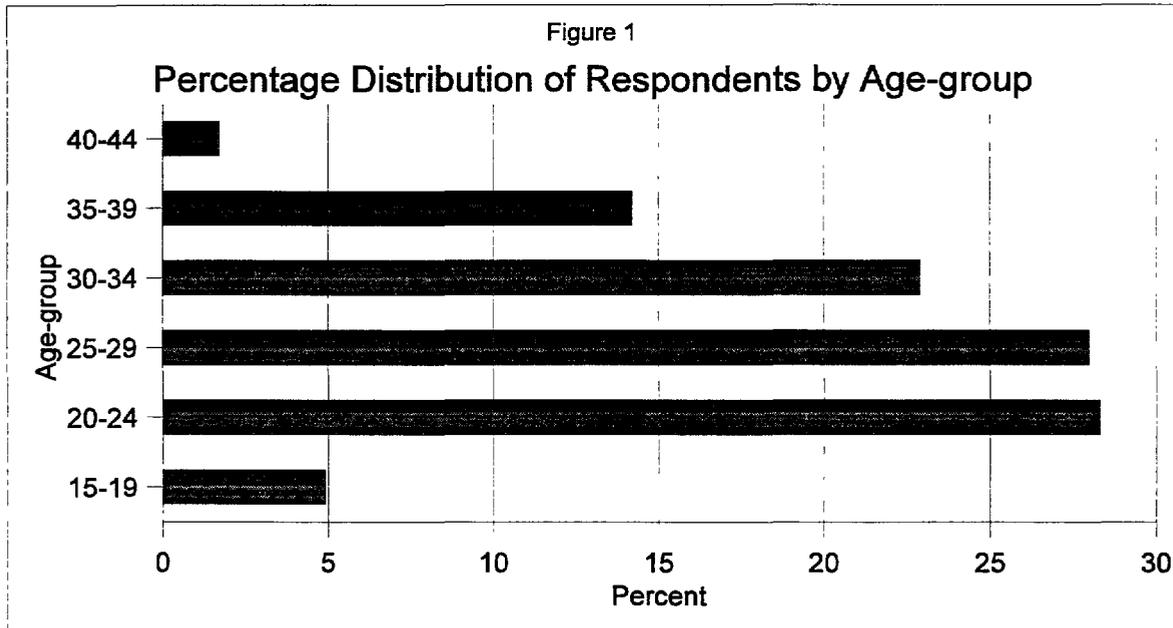
1. That women prefer not to seek medical care from a hospital (or from a trained provider) unless there is a serious problem. Fortunately, "weakness" (perhaps associated with nutritional anemia) is considered by women a serious enough problem to warrant consulting a medical care provider.
2. That a majority of women prefer seeing a female health care provider for all of their reproductive health needs. They would, however, see a male medical care provider for treatment of minor illnesses.
3. That some, but not all, women recognize the need to stop childbearing, which they associate with their own physical health. They also recognize the need for spacing between births which, again, they associate with their own physical health. However, not too many of them communicate with their spouses on the subject of family planning.
4. That there are misconceptions about the significance of the early signs of common obstetric complications, particularly with regards to bleeding around delivery and prolonged labor. Also, many women attribute bleeding to evil eye, for which they seek help from religious persons.
5. That the husband's permission is necessary before taking the woman to a hospital. Many women also said they would first inform their husband of any problem during pregnancy. The data also suggest that the women expect the *dai* to refer complicated cases to a hospital, and that they do recognize the limitation of the *dai*'s skills in handling obstetric complications.

Bleeding around delivery was found to be the most important cause of maternal mortality in rural districts of Pakistan (Midhet et. al. 1998). Yet the respondents in the current survey do not seem to have a full recognition of its severity. In particular, postpartum bleeding is considered as a consequence of evil eye by many women. Bleeding around delivery is also not considered a reason to seek medical care. Similarly, the respondents in the current study do not perceive prolonged labor as a dangerous and potentially life-threatening situation. In all cases, seeking medical care from a trained provider, or from a government health facility, is considered a last resort. Women also prefer to see a female medical care provider, except for minor illnesses.

It appears that women appreciate the benefits of child spacing and stopping childbearing altogether, both with reference to their physical health. However, contraceptive use is low, and there is hardly any communication between spouses regarding family planning.

In this remote and under-developed area of Pakistan, it is difficult for rural women to visit a government health facility on their own. Only in villages where a primary health facility is close enough to walk do women utilize modern health care. However, the quality of health services is extremely poor, particularly with reference to reproductive health and obstetric care. The District Hospital is the only secondary care facility in the whole district, which is out of reach for a majority of women living in remote villages. Transportation is also a big problem. We believe that many of the women's misconceptions are attributable to their lack of access to modern health care. For example, evil eye is considered the cause of heavy bleeding after delivery and the services of a religious person are sought for its treatment. These beliefs may have their roots in tradition and culture but they are further strengthened by a lack of availability of modern health care services and information.

It is clear that, in this population, there is a need to improve the women's knowledge and perceptions of reproductive health problems. Any such attempt must also incorporate the husbands, who have the decision-making power.



A	During pregnancy, under what circumstances would you want to visit a medical care provider?	Before prompting (%)	After prompting (%)
	When there is doubt that something may be wrong	5.6	69.8
	If I am feeling weak	40.5	46.1
	When there is a serious problem with pregnancy	26.1	63.6
	When I have a minor illness (like fever, cold etc.)	26.7	49.9
	When I have a major illness (like jaundice, serious cough, etc.)	36.1	46.0
	Others	28.6	
	Don't know/No answer	1.1	

B	Immediately before delivery, during delivery or immediately after delivery, what circumstances would compel you to seek medical care from a hospital?	Before prompting (%)	After prompting (%)
	When there is exceptional or heavy bleeding	6.1	67.0
	When I have too much (severe, unbearable) pain	40.8	34.8
	When the labor lasts for more than 12 hours	3.0	61.4
	When placenta fails to come out after delivery	7.1	77.7
	When my condition becomes life threatening	26.1	58.1
	Others	2.5	
	Don't know/No answer	1.2	

C	Under what circumstances would you be willing to visit a male health care provider?	Before prompting	After prompting
		(%)	(%)
	If there is no female health professional available	6.5	66.1
	If I have cough, cold, fever or other minor ailment	72.4	16.6
	If I have a serious complication during pregnancy	17.6	50.1
	If I have a serious complication during delivery	16.5	43.7
	I would never want to see a male doctor	5.5	2.8
	Others	17.9	
	Don't know/No answer	0.8	

D	Under what circumstances would you want to get treatment ONLY from a female medical person?	Before prompting	After prompting
		(%)	(%)
	For diseases associated with pregnancy or delivery	22.4	66.9
	For assistance during childbirth (for delivery of baby)	30.9	59.1
	For treatment of all woman's diseases	62.9	30.9
	For family planning advice or supplies	9.2	74.9
	For all diseases except minor ailments (cold etc.)	9.2	46.7
	Others	7.9	
	Don't know/No answer	1.1	

E	What should be the interval between two births?	Responses (%)
	Enough for first child to leave breast	15.2
	Enough for first child to be able to walk	5.6
	Enough for mother to recover her health	1.3
	About one year	3.5
	About two years	23.6
	More than two years	34.0
	Others	15.8
	Don't know/No answer	1.0

F	What do you think would be the benefits of delaying your next pregnancy?	Before prompting (%)	After prompting (%)
	My child would have my breast milk for longer	16.0	63.0
	My child would have more attention and grow better	33.4	48.5
	I would stay strong and healthy till next pregnancy	44.9	40.3
	The household's expenses would be reduced	5.8	67.4
	There are no benefits in delaying my next pregnancy	9.3	1.4
	Others	21.2	
	Don't know/No answer	3.4	

G	Under what circumstances would you want to have a tubal ligation operation?	Before prompting (%)	After prompting (%)
	After I have had too many children	25.4	31.3
	If my husband and I think that we have enough kids	3.0	56.8
	If I am too weak or sick to have any more children	39.8	28.8
	If my family is too poor to afford additional children	6.8	44.1
	When I think that I should have no more children	9.7	27.1
	Others	28.2	
	Don't know/No answer	5.8	

H	Do you talk (have you ever talked) to your husband about family planning? Explain.	Responses (%)
	No, never	53.0
	Occasionally, and superficially	3.8
	I have tried, but he won't talk	5.2
	He has tried, but I won't talk	2.7
	Yes, we regularly talk about it	15.0
	Yes, we have talked about it	19.3
	Others	0.7
	Don't know/No answer	0.2

I	What does your husband think about family planning methods?	Before prompting (%)	After prompting (%)
	He is against family planning	26.4	8.6
	He thinks that family planning is against religion	18.9	22.1
	He thinks these methods might render me sick	1.8	19.6
	He thinks these methods are too expensive to use	1.1	12.7
	He approves of family planning methods	29.9	0.3
	I have no idea what he thinks about these methods	16.5	--
	Others	7.3	
	Don't know/No answer	3.6	

J	About how many children (boys and girls) do you think you should have (should have had)?	Responses (%)
	Two: One boy and one girl	1.1
	Three: Two boys and one girl	1.6
	Four: Two boys and two girls	9.0
	Five: Three boys and two girls	6.2
	One or two girls and many boys	9.9
	As many as possible	9.0
	Others	37.1
	Don't know/No answer/God's will	26.1

K	How much bleeding during pregnancy (before delivery) do you think is dangerous?	Responses (%)
	Any bleeding during pregnancy is dangerous	36.4
	When there are clots in the blood	4.1
	When blood seeps through <i>shalwar</i> (trousers)	3.9
	When bleeding is continuous (does not stop)	12.1
	When bleeding lasts more than one hour	3.5
	When bleeding lasts more than one day	25.8
	Others	10.2
	Don't know/No answer	3.9

L	How much bleeding after delivery would you consider as heavy and/or dangerous?	Before prompting (%)	After prompting (%)
	If in one day I have to change my <i>shalwar</i> four or five times	27.8	64.7
	When big clots of blood of brick red color are coming out	15.7	79.5
	When bleeding continues for more than four days	10.2	46.5
	When bleeding continues for more than six days	28.2	43.6
	Others	22.7	
	Don't know/No answer	0.8	

M	What do you think is the cause of heavy bleeding during or immediately after delivery?	Before prompting (%)	After prompting (%)
	The cervix has come too far down	1.7	64.5
	There is an internal injury in the body	9.0	55.7
	There is a wound in the womb	4.9	68.5
	The placenta is prematurely separated from the womb	3.0	62.3
	This is caused by evil eye or evil spirit	44.1	44.0
	Others	43.8	
	Don't know/No answer	2.4	

N	What do you think may happen when a woman has heavy bleeding after delivery?	Responses (%)
	Nothing	0.8
	Woman may become dizzy	5.2
	Woman may become very weak	47.7
	Woman may become unconscious	18.9
	Woman may die	17.9
	Woman's condition may become very serious	7.2
	Others	1.4
	Don't know/No answer	Nil.

O	What effect do you think breast feeding the baby immediately after delivery might have on the postpartum bleeding?	Responses (%)
	No effect	64.2
	It might increase the bleeding	3.1
	It may be harmful for the baby	4.8
	It may slow down the bleeding	1.3
	It may stop or reduce the bleeding	0.3
	Woman may become further weak	6.9
	Others	17.5
	Don't know/No answer	2.0

P	What would you do if you had heavy bleeding after delivery?	Before prompting (%)	After prompting (%)
	I would do nothing and wait for bleeding to stop	9.4	8.7
	I would seek help from a religious person (<i>Mullah</i>)	39.2	43.7
	I would ask a family member to call a <i>dai</i>	6.6	61.1
	I would ask a family member to call a doctor or LHV	39.2	33.0
	I would ask to be taken to a hospital immediately	24.5	35.5
	Others	12.2	
	Don't know/No answer	Nil.	

95

Q	What would you do if you had continuous and high fever a few days after delivery?	Before prompting (%)	After prompting (%)
	I would do nothing and wait for fever to subside	5.1	5.8
	I would seek help from a religious person (<i>Mullah</i>)	37.8	37.1
	I would call a <i>dai</i> to consult	2.7	51.8
	I would call a LHV or doctor to consult	43.9	29.1
	I would visit the nearest hospital	19.0	40.5
	Others	16.8	
	Don't know/No answer	Nil.	

R	What would you do for a woman who is having fits during pregnancy?	Responses (%)
	Nothing	22.1
	Call an older family member	5.9
	Call a <i>dai</i>	0.4
	Call a LHV or doctor	52.0
	Take woman to hospital	7.5
	Inform her husband or other male relative	3.5
	Others	6.1
	Don't know/no answer	2.4

S	What would you do if you were in labor pains for more than 12 hours?	Responses (%)
	Nothing	10.9
	Ask for a <i>dai</i>	20.0
	Ask for LHV or doctor	21.7
	Ask that you should be taken to hospital	26.8
	Seek advice or help from mother-in-law	5.2
	Will ask husband to take me to a hospital	6.8
	Others	8.3
	Don't know/No answer	0.3

T	If you have a problem or illness during pregnancy, whom would you <u>first</u> tell?	Responses (%)
	My mother	11.8
	My husband	71.1
	My mother-in-law	8.5
	Any female member of the family	3.4
	Any male member of the family	0.3
	My <i>dai</i>	2.3
	Others	2.5
	Don't know/No answer	Nil.

U	When you have a serious illness related to pregnancy or delivery, whose permission is necessary for taking you to hospital?	Before prompting (%)	After prompting (%)
	The husband	92.0	3.2
	The mother-in-law	6.2	50.8
	First the husband, then the mother-in-law	3.7	55.3
	If husband is not present, then father/brother-in-law	5.2	53.6
	Permission is not necessary from anyone	2.0	3.7
	Others	5.1	
	Don't know/No answer	Nil.	

V	Under what circumstances would the <i>dai</i> who is assisting you in delivery refer you to hospital?	Before prompting (%)	After prompting (%)
	If the <i>dai</i> can no longer handle the case	51.8	33.7
	If the child in the womb is breech or sideways	16.8	57.3
	If there is too much bleeding after delivery	4.2	62.6
	If labor is taking too long	13.5	55.4
	If placenta fails to come out after delivery	7.6	67.6
	She would never refer me to hospital	11.1	
	Others	21.3	
	Don't know/No answer	2.2	

W	Under what circumstances is your <i>dai</i> or other birth attendant forced to call someone having more experience for help?	Before prompting (%)	After prompting (%)
	If there is heavy bleeding after delivery	3.2	57.4
	If labor pains continue for too long	8.5	55.7
	If placenta does not come out after delivery	11.6	60.2
	If the baby is in breech position or is sideways	18.2	52.6
	If she suspects that baby might be dead in the womb	9.4	66.0
	Others	49.8	
	Don't know/No answer	2.8	

X	If a woman is in labor pains for a long time, how long would you wait before deciding that she needs to be taken to a hospital	Responses (%)
	For about six hours	9.7
	For about twelve hours	10.4
	Four one day and one night (24 hours)	19.6
	As long as it takes	4.4
	Until her condition deteriorates (she becomes very ill)	17.5
	If there is an additional problem	2.8
	Others	34.4
	Don't know/No answer	1.1