

Spousal Occupation and Antenatal Health Care Utilization :

and a District Level Determinant Analysis for Pakistan.

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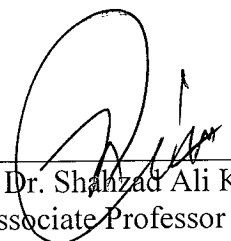
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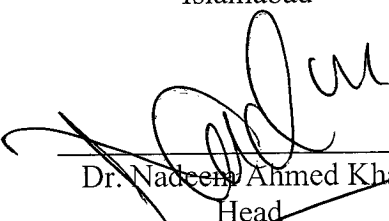
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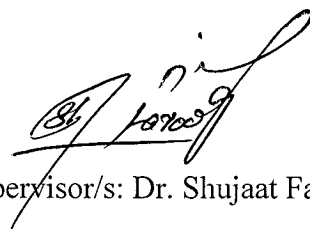
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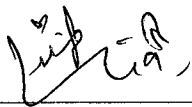
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Date

Dedication

I dedicate this Thesis to

My husband, my family

&

to

My supervisor Dr. Shujaat Farooq

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I would like to give very special thanks to my supervisor Dr. Shujaat Farooq for his time, patience, guidance trusting and supporting me throughout my university life; and making this thesis possible. I would also like to thank and give special recognition to my parents whose prayers and sacrifices helped me attaining higher education.

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ABSTRACT

The paramount concern of this study is to identify the relationships between spousal nature of occupations and employment and prenatal health care utilization in Pakistan. These relationships are witnessed through two ways: 1) Individual level analysis 2) District level analysis. Individual level analysis is also known as the local level analysis in which the research population typically is an individual in the social setting or a small group of individuals in a particular social context. Examples of this level of analysis include, but are not limited to, marriage, families, households, neighborhoods, etc. On the other hand, the district level analysis is based on the locations and administrative boundaries. It is vital because of decentralization of policy formation from Central to provincial level and further to district levels. Data have been collected from PSLM (2012-2013) and district level data has been collected from aforementioned source and provincial development statistics. The estimated results obtained from binary and multinomial logit models make it evident that age and education of female, gender of head, education of husband and head of the family, dependency ratio, and assets of the households are found significant determinants of prenatal health care. Specifically, the central concerned variables nature of occupation (highly skilled, skilled, unskilled workers), nature of employment (unpaid family worker, self-employed, own cultivator, sharecropper, and contract cultivator), and labor force participation (employed, unemployed, and inactive workers), and finally sector of employment (agriculture, mining, industry, and services) are found significantly affecting the likelihood to utilize prenatal health care services. It indicated occupational and employment related differences affect the health care services. Especially workers who are indulged in agriculture sector have been found disadvantageous as compare to others in utilization of antenatal health care services in Pakistan. From district level analysis, female empowerment related indicators (i.e. female ratio to male, literacy rate of female, non-prevalence of

violence and health facilities available in districts are found significant factors in determining prenatal health care. Similar to microanalysis workers indulge in agriculture sector in a district are found having less prenatal health care than that of non-agriculture sector.

Key Words: Spousal Occupation, Prenatal Health Care, Pakistan.

Chapter 01

INTRODUCTION

1.1 Introduction

Health care is the maintenance or improvement of health via the diagnosis, treatment, and prevention of disease, illness, injury, and other physical and mental impairments in human beings. Health-care is important to ensure a healthy body, a healthy workplace, a healthy community and a healthy nation. Antenatal care is a type of preventive healthcare with the goal of providing regular check-ups that allow doctors or midwives to treat and prevent potential health problems throughout the course of the pregnancy while promoting healthy lifestyles that benefit both mother and child. According to WHO, only half of the women worldwide receive the recommended amount of care during pregnancy. Studies have shown that if a mother dies, then her children are also less likely to survive. The new WHO model of antenatal care recommends a standard programme of four antenatal visits (with additional visits should conditions emerge which require special care). The WHO guidelines are also specific as regards the timing and content of antenatal care visits according to gestational age. The guidelines stipulate, "Only examinations and tests that serve an immediate purpose and that have been proven to be beneficial should be performed". These examinations include measurement of blood pressure, testing of urine for bacteriuria and proteinuria, and blood tests to detect syphilis and severe anemia. Routine weight and height measurement at each visit is considered optional.

Core function of health system is to provide curative and preventive services to the people. It is observed globally that maternal mortality rate is high in developing

countries. Adequate antenatal health care services reduce the maternal mortality rate and contribute largely in reducing it. Numerous contributory studies (Hong & Ruiz-Beltran, 2007; Hanjra et al., 2011) showed that antenatal health care depends upon various socio-economic and demographic factors. Women receiving antenatal care services have less chance of mortality during pregnancy as these services are preventive in their nature. Intervention during pregnancy largely depends upon availability of antenatal health care service utilization and affordability of women to avail these services. Antenatal health care service utilization gap between developed and developing nations shows that spousal occupation and resources to utilize such services are very important. Education and occupation of husband plays vital role for health of women during pregnancy. Major segment of global population lives in urban area, the attention of urban society is larger in Asia while Africa is urbanizing faster than any other continent as 72 percent of city residents in sub-saharan Africa lives in slums (United Nations, Department of Economics and Social Affairs, Population Division, 2014). Reducing maternal mortality ratio by 75 % between 1990 and 2015 is the Fifth Millennium Development Goal (Nour, 2008).

Table 1.1: Antenatal Health Care coverage in South Asian Countries (At least four visits)

Countries	Years of data collection	Total (%)	Source
Afghanistan	2013-2014	23	Living conditions Survey 2013-2014
Bangladesh	2014	31	DHS Key Indicators_2014
Bhutan	2015	85	National Nutrition Survey_2013-2014
India	2013-2014	45	Rapid Survey on Children_2013-2014
Maldives	2009	85	DHS_2014
Nepal	2014	60	MICS_2014
Pakistan	2012-2013	37	Pak_DHS_2013-2014
Srilanka	2006-2007	93	DHS_2006-2007

Source: [data.unicef.org]

Globally, while 85 per cent of pregnant women access antenatal care with skilled health personnel at least once, only six in ten (61 per cent) receive at least four antenatal visits. In regions with the highest rates of maternal mortality, such as sub-Saharan Africa and South Asia, even fewer women received at least four antenatal visits (49 per cent and 34 per cent, respectively).

According to the above table 1.1, Pakistan has thirty-seven percent of antenatal health care coverage that is comparatively much lower than the rest of the countries in the South Asian region. This visible disparity and low rate of ANC in Pakistan can strongly be linked to poor economics and low rate of female spouse occupation that directly relates with earning economics and relatively poor health care provision. Similarly, the occupation and earnings of male spouse is also a major determinant.

1.2 Pakistani Context

Research studies about morbidity and mortality in developing countries recommended interventions in the form of antenatal health care and availability of trained resource to attend and assist women during pregnancy. However, utilization of these services varies from developed to developing countries on the basis of differences prevailing in socio, economic and cultural fronts. These differences create disparities among developed and developing countries as in developed nations 97 percent pregnant women receive ANC with a huge ratio of 99 percent skilled services. On the other hand in developing countries only 65 percent women receive ANC from 53 percent skilled attendants (Chalmers *et al*, 2001; Shah and Say, 2007; Say and Raine, 2007).

UNICEF reported that 250 maternal deaths per 1, 00,000 live births occurred in Pakistan in 2010. Keeping same pace by 2015 Pakistan fail the MDG 5 of 140 maternal mortalities per 1,00,000 live birth from a huge difference (GoP, 2010).

According to PSLM 2012-13 about 68 percent of mothers in 2011-12 had pre-natal consultations as compared to 58 percent in 2010-11 during their last pregnancy. Prenatal consultations were much more common in urban than in rural areas but there is also considerable improvement in rural areas. There is an increasing trend both in urban and rural areas to consult Private Hospitals/clinics and which is also significant i.e. from 47 percent in 2010-11 to 58 percent in 2011-12.

Providing Antenatal health care services Pakistan is a growing concern for health policy makers and is comparatively on higher side in the world. Pakistan Demographic Health Survey shows that 276/ 100000 females die during pregnancy. Prenatal health care utilization in Pakistan is far below than acceptable level of global community. This study is an attempt to investigate the impact of socio economic factor of spousal occupation on prenatal health care utilization. Antenatal Health (ANC) is regarded as a good opportunity for interventions related to health and education for promoting the use of skilled attendance at birth (Wang *et al.*, 2011). A systematic review conducted by Villaret *al.* (2001) argued that World Health Organization recommends at least four antenatal visits with skilled attendant for healthy women.

A handy literature is available which analysed the relationship between different socio demographic factors affecting antenatal health care service utilization. These factors are parental age education, husband education, infrastructure related variable, religious factors, health facility, and women empowerment etc. which determine the antenatal health care but male involvement in delivery plays an important role as well. Although husband role is very important and significant in family planning, provision of antenatal health care (Ciceklioglu *et al.*, 2005; Mwangi *et al.*, 2013).

1.3 Role and Impact of Male Involvement in Antenatal Health Care Utilization

Studies regarding male involvement suggest that male involvement plays key role in antenatal health care, such as provision of skilled lady health worker, number of visits to doctors and to be aware of any complication, and to receive proper treatment during pregnancy. Male participatory role is determined by education, age, and occupations of the male (Terefe and Larson, 1993; Drennan, 1998; Varkey *et al*, 2004). As involvement of men in reproductive health and family planning is recognized as important component of Reproductive Health Services Package of Pakistan, it becomes important to examine their RH status and role in accepting and utilizing those services. For analyzing men's RH issues, very little information is available about their RH problems, needs, and their knowledge and attitudes. A couple of national level surveys provide data on husbands' family size preferences and family planning related questions (Mahmood and Nayab 2000).

In most of the household's male members are empowered and enjoying autonomy as well because they are participating in livelihood activities and has power in main decision making in all issues including antenatal health care. They can employ this opportunity to provide their pregnant wives some maternity services and arrange some skilled careful treatment during pregnancy if delivery took place at home. It is important for a man to make right and wise decision for their partner regarding place of delivery, and professional attention, and moreover, men need to understand the importance of maternal health care. Men who knew the dangerous and harmful signs of pregnancy are likely to act fast to save the lives of their wives (Bhaleroet *al*, 1984; Cohen and Burger; 2000; Mullany *et al*, 2007).

Another important factor which is husbands' labor force participation, nature of employment and employment status play their role in determining antenatal health

care because in developing countries like Pakistan which is male dominant society and most of the females are dependent on husbands employment. Husband's skill is also important because a skilled husband has higher probability to be employed and can provide skilled lady health worker to his mother during pregnancy. In existing literature some studies are suggestive of the significant role of husband occupations and employment such as agriculturalist, non-agriculturalists, skilled, unskilled, and self-made worker etc. and these occupational and employment related characteristics are important to determine prenatal health care utilization (Celik and Hotchiks, 2000; Hotchiks, 2001; Sirivastava et al, 2016).

1.4 Research Questions

- How do spousal occupation differentials affect antenatal health care service utilization in Pakistan?
- Is that Husband's occupation more associated with attaining antenatal health care utilization or woman's one?
- What are the district level variations in impact of spousal occupation on antenatal health care utilization in Pakistan?
- What are the other socio-economic factors affecting antenatal health care service utilization in different districts of Pakistan?

1.5 Objectives of the Study

The objectives of the study are as follows:

- To analyze the association between spousal occupation and utilization of antenatal health care service utilization in Pakistan.

- To determine the occupation which affects the antenatal health care most (e.g. husband's or wife's)
- To analyze the antenatal health care service utilization and spousal occupation at district level and to study variation district-wise.
- To examine the impact of socio-economic status on antenatal health care service utilization in Pakistan.

1.6 Hypotheses of the Study

- Spousal occupational differentials greatly impact on antenatal health care utilization.
- Women's income is more influential on antenatal health care utilization comparatively to Husband's level income.

1.7 Significance of the Study

Increased number of maternal mortality is alarming situation for health policy makers in Pakistan and this is directly associated with poor antenatal health care utilization. The situation is due to multifaceted issues including socio economic demographic factors such as lack of education, lack of awareness, lack of hygiene, unemployment and others. In this scenario poor health services has two fold aspects one from supply side i.e. unavailability of health care services from state and from demand side i.e. illiteracy and un-affordability of prenatal care. This situation arises a need of understanding the complex phenomenon by concentrating on economic factor of employment of spouse and its impact on prenatal health care services utilization.

This investigation paves the path for policy makers to formulate the concrete policies for prenatal health care services in different districts of Pakistan. Various factors influencing health seeking behavior of women during pregnancy includes organizational such as access to the services, or socio demographic features including education, occupation and number of children in Pakistan. Especially in Punjab, Pakistan, family finances and women levels of education were considered as most important determinants of ANC utilization.

Family Finances purely depends to occupation, nature of employment and labor force participation of head of the family. As family head of most of the families are empowered financially and leading decision makers in all issues related to health of family members. Spouse is very much concerned about services taken by their wives during pregnancy. So their concerns for selecting delivery place and hiring professional services for delivery counts a lot (Bhalerao et al. 1984; Cohen and Mullany et al. 2007). It is important to find out relationship of spouse (husband) employment, and occupational status, and antenatal health care utilization in Pakistan.

There are a lot of studies available [Bhalerao et al (1984); Cohen and Mullany *et al.* (2007); Holland and Hogg (2001); Adamu and Salihu (2002); Pallikadavathet *al.*, 2004; Matsumura and Gubhaju, (2001)] on socioeconomic and cultural determinants of prenatal health care utilization, and out of these few studies did focus on spousal occupations. But this study will contribute in literature especially regarding Pakistan in finding prenatal health care in two ways 1) study will analyze the relationship between husbands' occupation and nature of employment and prenatal health care utilization at micro level survey data where This study will pave a path for understanding the utilization of antenatal health care from the perspective of spousal occupation which includes nature of employment along with distinguishing factors of

different employment categories, and 2) a district level analysis will also be made to find out determinants of prenatal health care in Pakistan. The study is very significant in a way that it provides district level differentials about the impact of spousal communication in health care utilization. This study will help in policy implication at district level as this is very important after decentralization of policy formation from state level to provincial level and further district level. The results and policy recommendations of this study are very significant as a way forward to improve spousal communication and antenatal health care.

1.8 Organization of the Study

This rest of the study has been organized as follow. The Second chapter of this study includes detailed literature review from recognized research journals and is an attempt to evaluate global perspective and local.

In chapter 3 conceptual framework devised for conducting this study is discussed in detail. An argument is built for using important variable in the study are explained in the chapter. This section caters the importance of husband employment by providing justification from male dominant role in the society and his power and authority to take decision related to family health. Later part of this section explains the various classification of occupation, division of employment in different sectors and finally labor force participation of selected sample of population including in the study.

Data is defined from both source and sample perspective. In this the data set that is going to be used i.e. PSLM Survey Data – 2012-13 has been explained and in the next step the methodology, specification of model are explained, and in the last parts the dependent variables and explanatory variables are explained and defined.

Holland and Hogg (2001) have found household decision making is important for improved health status of women. In developing countries man as sole decision maker of household issues depicts poor status of maternal health. In this scenario women are mostly dependent upon man for her antenatal health care. Women autonomy is a serious question for utilization of prenatal health care services. Various studies argued that lack of autonomy is major factor for underutilization of antenatal health care (Adamu and Salihu, 2002; Pallikadavathet *al.*, 2004; Matsumura and Gubhaju, 2001).

2.2 Urban Rural Differences in Antenatal Health Care Utilization

Fatimi and Avan (2002) found factors affecting the utilization of antenatal health care in rural area of Sindh province, Pakistan. Majority of the women in the developing countries are unable to receive antenatal care for a variety of reasons. A cross sectional research has been undertaken in Union council Jhangra during 1997, and married women which are found delivering a baby at least first time and systematically, 222 eligible females were selected. The main focus of the study was to identify socio-economic and environmental factors which may have some influences on female's antenatal health utilization. For empirical purposes multinomial logistic approach has been utilized. The empirical results were indicating that 30 percent of the females were found utilizing antenatal health care during the most recent pregnancy. Out of these 72 percent received it from the government health care provider. Further the findings were suggestive that women whose husbands have been found in white collar occupation were utilizing the antenatal health care than that of those whose husbands were found engaged in blue collar occupations.

In a recent study conducted in Ethiopia regarding skilled delivery care service utilization claimed that still there is long way to improved antenatal health care and its level to meet accepted standards of world health organization (Fekadu & Regassa,

2015). Hence, this study clearly distinguished the features related to urban and rural made differentials as their predictors. The authors used the Ethiopian Demographic and Health Survey data of 2011 for this purpose. In this study women who gave birth in last five years were included and all analysis ranging uni-variate, bivariate and multivariate were done. In uni-variate the percentage of antenatal health care service utilization was analysed while in bivariate chi-square test was taken for analysis. Bayesian Logistic Regression model was used in multivariate analysis. The result indicated that 6621 women received skilled service delivery services which accounts for 15.6 % of all population included in the study. In rural areas of Ethiopia the percentage is very low i.e. only 4.5% in case of assistance from Skilled Birth Attendants (SBAs). This percentage is very low when compared with urban as it is more than 64%. With the help of Bayesian Logistic Regression Analysis, various variables including place of residence, prenatal health care utilization, education level of women, age and birth order were identified as key predictors of this service. Moreover, this study also ensures that skilled husbands are more likely to actively participate in providing antenatal health care to their wives. The findings suggested that there is dire need for collective efforts from all stakeholders including government and population to improve the health by increasing community participation through awareness. Moreover, this study recommended that quality improvement along with massive awareness and provision of equitable access will resolve the issue to a great extent.

Srivastava et al (2016) identified that underlying causes on maternal health care utilization in Bareilly specifically in rural areas. A cross sectional study was conducted in 2011. Convenience sampling was used and only 6 out 99 villages were selected with a rationale to cover maximum number of women. A door to door survey

was conducted and women having age of 15-49 who gives birth to a child during last one year were included in the study. The questionnaire used in the study caters all information ranging from socio-demographic background along with health information was designed. The information also covers the multifaceted aspects of maternal health care utilization. For analysis both bivariate and multivariate analysis were employed. The results showed tremendous improvement in ANC utilization as 88.6 percent (343/387) showed registration for ANC during pregnancy. Seventy percent of women were registered during 4-6 months of pregnancy. An interesting conclusion of this study was hiring service of private doctor that was only 28.5 percent. The conceptual framework devised for this study showed that there is significant association between age, family size, birth order, family feature and socio-economic status of family. Complication were found at age of 30 years and more, birth interval of more than 2 years and working mothers belonging to joint family. Maternal education and spousal occupation were considered as major predictor for utilization of antenatal health care service. Finally this study suggested community based awareness program as remedial measure for this issue.

2.3 Socio Demographic Factors and Antenatal Health Care Utilization

A handy literature was available which examined the impact of various socio-demographic and economic factors affecting health care services utilization by pregnant women. These research contributory studies may focus on different sub-factors of social, economic and demographic factors but little work was found in literature regarding impact of spousal occupation on prenatal health care. The review of various studies in which these factors were analyzed is given below.

Nisar and White (2003) found the socioeconomic and demographic factors which have impacts on antenatal care utilization of females aging 15-49 years for urban area of Karachi. The study conducted a survey which was a community based where 295 women were interviewed, and for analysis bivariate and multivariate analysis has been made. The results obtained from multinomial logistic model showed that employed women are more likely to receive prenatal health care utilization than those which are unemployed and have lower income. Moreover, educated females were found taking care of dietary food, and required proteins.

Fikree *et al* (2004) have explored the traditional beliefs and practices, and to investigate morbidity, and to comprehend the care-seeking behaviors. A qualitative and quantitative as well study has been conducted in some socioeconomic arrangements and settlements of Karachi. The study suggested that five focus group discussions were conducted and even 15 in-depth interviews have been conducted. The sample distribution was fashioned as 525 Muslim women are selected who were 6-8 weeks post-partum. The study suggested that the maternal care has been relatively good. Moreover, counseling to attend post-partum clinics among facility deliveries was 16%, of which only 26% (11/43) attended. The practices during prenatal and postnatal are found affecting by various socioeconomic factors.

2.4 Country Examples of Antenatal Health Care Utilization and

Determinants

Mackray (2004) have found some spatial and temporal factors which may affect rural women within developing countries. An important piece of this exploration is addressing time constraints and the cultural context. After time has been spent attending to essential tasks that the entire family is dependent upon, do rural women have "disposable time" left to visit a healthcare facility? The setting for this study is

the Ubombo Magisterial District, a northern rural area of KwaZulu Natal, South Africa. Environmental factors and socio-economic factors that motivate or discourage women from utilizing prenatal care are addressed using a multinomial logit model. Many of the factors documented in literature as affecting prenatal care utilization, i.e. age and parity, do not apply in this area. On the other hand, fetching water as a daily activity, which is usually not associated with prenatal care utilization, has a significant effect on utilization.

Pallikadavathet *al* (2004) estimated the factors which have impacted the antenatal health care utilization in India. They collected the data of 11389 married women from Indian National family Health Survey for the year of 1998-99. They employed the multinomial logit model, and the estimated results suggested that empowerment of women, education and age of pregnant women, and husband education have positive and significant impacts whereas regions factors were found playing negative impacts on antenatal health care utilization.

Mumtaz and Salway (2005) investigated the factors which could affect antenatal health care in Pakistan. The data of 7848 women was collected and they employed multinomial logit model for empirical purpose. The estimated results showed that uncomfortable transport, poor road conditions, and females having difficulties in crossing rivers are the major barriers to utilize antenatal health care.

Ciceklioglu *et al* (2005) have observed the determinants of antenatal health care in Turkey. The data of 245 women have been collected by conducting a survey. They employed logit model for empirical purposes, and the findings of the study suggested that level of education and age of females, education and age of parents, and occupations of husbands are major significant factors which affected antenatal health

care. Further results suggested that husband occupations have different impacts on antenatal health care.

Futna and Solwey (2006) have investigated how women health care utilization has been affected by husband occupation and what were the important factors which had influences on antenatal health care in Nepal. The study has been conducted on women having age 15-49 years and data have been taken from the Nepal survey data on health and demographics. They employed Logistic model to find empirical results. The important factors which had effects on health care utilization were women decision making, spousal occupations, and spousal discussion of family planning. They found education of females were the important factor whereas skilled and employed females were found having more likelihood to have health care utilization.

Ali *et al* (2008) investigated the reasons which had significant impacts on mother or women's approach to emergency obstetric care services in Pakistan. A cross sectional study has been conducted through survey and 170 health facilities from 19 randomly selected districts in Punjab and KPK. The findings of this study are suggestive that different elements are found limiting women's access emergency obstetric center, and these were found unavailable in most health facilities. Those factors were geographic remoteness, cultural norms, staff absenteeism, delayed access, and facilities such as ambulance shortage, which had significant impacts on health care utilization.

Simkhada *et al.* (2008) did a systematic review by summarizing most of the studies on this specific issue in developing countries. They argued that four factors including women socio-demographic features (age and education), Current pregnancy feature (gender of child, multiple birth), affordability (e.g., socio-economic status such as

spouse's education house hold wealth/income and insurance coverage) and accessibility are important in getting prenatal health care service utilization.

2.5 Health Interventions and their Level of Impact on Health Care Utilization

Bhutta *et al* (2008) found the feasibility of community based interventions in prenatal health care utilization in Pakistan. The role of LHVs and traditional birth attendants has been investigated. The intervention has been promulgated in 4 of 8 village clusters whereas 4 are found serving as comparison groups. The LHWs in intervention clusters received additional training focused on essential maternal and newborn care, conducted community education group sessions, and were encouraged to link up with local *Dais*. The intervention was delivered within the regular government LHW programme and was supported by the creation of voluntary community health committees. Findings in intervention villages, there were significant reductions from baseline in stillbirth (from 65.9 to 43.1 per 1000 births, $P < 0.001$) and neonatal mortality rates (from 57.3 to 41.3 per 1000 live births, $P < 0.001$). The proportion of deliveries conducted by skilled attendants at public sector facilities also increased, from 18% at baseline to 30%, while the proportion of home births decreased from 79% to 65%. A household survey indicated a higher frequency of key behaviors (e.g. early and exclusive breastfeeding, delayed bathing and cord care) in intervention villages.

Fan and Habibov (2009) have examined the socioeconomic, geographic, demographic determinants of maternal health care utilization in Tajikistan. Data have been conducted from newly conducted survey by local government, and for the sake of empirical models, two regression models which are binomial logit models, and zero-inflated negative binomial models are used. The results showed that two models gave strikingly consistent results, and those were indicating that education status, number

of siblings, availability of public infrastructure and maternal health care utilization were the important factors which have influences on health care utilization.

Gabrysch and Campbell (2009) have suggested that skilled attendance at child birth is very crucial for decreasing neonatal and maternal mortality, and yet a lot of women in developing countries deliver child outside of the health facilities, and these are without any skilled help. The main theoretical framework in this field implicitly looks at home birth with some complications, and therefore we extend to include preventive facility delivery for uncomplicated child birth, and reviewed some determinants. They found 20 factors which are under the theme of socio-cultural elements, need of skilled attendance, economic accessibility and physical accessibility. The findings suggested that there were ample evidence and indications of high maternal age, education level, household wealth, and lower parity increase use, as has been done by urban residence. They found facility use in previous delivery and antenatal care use were highly predictive of health facility, and distance from health facility has been also important determinant of health facility use.

A notable contribution was done by Ahmed *et al.* (2010) by presenting concept of 3E's. According to them economic status, empowerment of women and education are significant attributed with utilization of prenatal health care services. They compared large data of 33 developing countries by dividing it into two groups on the basis of each factor.

According to Regassa (2011) formal employment accompanied by lower parity (maximum of three children's), younger age and education were major predictors for ANC is women residing in Southern Ethiopia. He further added that employment as civil servant is strongest predictor in this regard.

Asewehet *al* (2011) have identified the socio-economic factors or determinants of maternal health services utilization in Ghana. They applied binary probit and ordered probit models to take out some empirical findings. The empirically obtained suggested that the most of women in Ghana undertake the required visits for antenatal services and also take both doses of the tetanus toxoid vaccine as required by World Health Organization. Nonetheless, the results were indicating that the low levels of utilization in terms of the some other maternal health care services. There were evidently urgent needs to initiate or develop innovative strategies which will be helpful to upscale intervention, especially, for the improvement in the utilization of these services. The empirically obtained findings are suggestive that the utilization of maternal health services, and furthermore intensity of usage of the antenatal services were affected by age of mother, education of the mother, and father, economic status, geographic location, ethnicity, and religious attachments were important and significant factors which have impacts on antenatal health care utilization.

Byamughishaet *al* (2011) have found the relationship between husband involvement and antenatal health care utilization in Uganda. By using randomized clinical trial, data of 1060 females were collected, and out of it 530 intervention, and whereas 530 were control group. The estimated results suggested that male involvement plays positive and significant impact on antenatal health care. The educated and highly skilled husbands provided trained and skillful lady attendant. Moreover, education of women, and education of husband were found significantly affecting antenatal health care utilization.

Feijen *et al* (2011) has reviewed systematically the evidence for the determinants of prenatal healthcare utilization in high-income countries. The Search of publications in EMBASE, CINAHL, and PubMed (1992-2010) and some studies that attempted to

study determinants of prenatal healthcare utilization in high-income countries were included. Two reviewers independently assessed the eligibility and methodological quality of the studies. Only high-quality studies were included. Data on inadequate use (i.e. late initiation, low-use, inadequate use or non-use) were categorized as individual, contextual, and health behavior-related determinants. Due to the heterogeneity of the studies, a quantitative meta-analysis was not possible. Ultimately eight high-quality studies were included. Low maternal age, low educational level, non-marital status, ethnic minority, planned pattern of prenatal care, hospital type, unplanned place of delivery, uninsured status, high parity, no previous premature birth, and late recognition of pregnancy were identified as individual determinants of inadequate use. Contextual determinants included living in distressed neighbor hoods, living in neighbor hoods with high rates of unemployment, single parent families, medium-average family incomes, low-educated residents, and women reporting Canadian Aboriginal status were associated with inadequate use or entering care after six months. Regarding health behavior inadequate use was more likely among women who smoked during pregnancy. Evidence for determinants of prenatal care utilization is limited.

Franny (2013) suggested that health care system reduces the morbidity and mortality rate of maternal and new born health. Reproductive health care has important for well-being of women as it has three fold aspects including pre-delivery, during delivery and post pregnancy. It caters the health care dimensions of family planning and antenatal health care services for decreasing the rate of morbidity and mortality. Occupation is a predictor of antenatal health care service utilization.

Osorio *et al* (2014) investigated the relationship between individual and local level factors, and total number of antenatal care visits by women in Colombia. The data

have been collected from Colombian Demographic and Health Survey (CDHS, 2010), and for empirical analysis, multinomial Logistic regression models have been used. The findings of this study indicate that contextual elements play their role in addition to maternal factors. The results are suggestive that contextual factors whether pregnant females complete the minimum required or recommended antenatal visits also influence antenatal health care. These factors have been female empowerment in community, and regional inequality, and access barriers, costs of services, and lack of confidence in doctors. Moreover, the obtained results showed that regional and local level inequalities in antenatal care utilization existed and these differences are highlighted in policy design of Colombia.

Rai (2014) conducted study to analyze the factors associated with utilization of maternal health care services among Muslim women residing India, Bangladesh Pakistan. For data demographic and health survey datasets from Pakistan (2006-2007), India (2005-2006) and Bangladesh (2007) were taken. Only important three components of maternal healthcare were considered: deliveries conducted in a health facility, women having four or more antenatal care visits, and deliveries conducted by skilled health attendants. Binomial logistic regression methods were applied. Results showed that Muslim women I India were more likely to having four antenatal visits and preferably opt skilled health attendant than in Pakistan and Bangladesh. India also performed better in providing better delivery facilities as compared to Bangladesh. Study suggested as policies and programs formulated for improving maternal health care utilization need to be understood in depth. Various studies confirmed the importance of male involvement in family decision making either in by direct participation or by enabling their partners to use services during.

2.6 Barriers to Antenatal Health Care Utilization

Iqbalet *al* (2015) conducted study to analyze the social and societal barriers in utilization of maternal health care services in rural Punjab Pakistan. Maternal mortality is deep rooted public health problem in developing countries. Qualitative method was employed under which focus group discussion were conducted with married women of child bearing age, husbands and mother-in-law. Content analysis technique was used to analyze data. Results showed that home was the most preferred place for delivery than health centers, *Dai* was the preferred attendant. Limitations to accessing antenatal services were, transportation cost, distance of the proper health centers, and lack of knowledge about benefits of antenatal services. Furthermore, people had strong belief on *pirs* as faith healer and customary practice like *pardah*, *taweezdhaga* and *saya* etc. with this an interesting finding was people do not trust on young community midwives. To tackle these issues, efforts toward ensuring utilization of antenatal and delivery services should be targeted towards rural areas and importance of skilled care should be emphasized.

Srivastaveet *al* (2015) conducted study under aim to assess the pattern and identify underlying factors on maternal health care utilization in rural areas of Bareilly. Six villages out of 99 were selected in bhojipira block of district Bareilly. All married women who had delivered child within past 1 year were interviewed by house to house survey. Information was gathered on various aspects of maternal care utilization. Both Multivariate and bivariate analyses were employed using excel and SPSS. Results showed that 87% of pregnancies had registration for antenatal care. Maternal health care services utilization from health personnel was significantly associated with age at marriage 18 years, birth order 2, family size 3 and higher socio-economic status. Husband's occupation and mother's education found highly significant to the

utilization of antenatal health care services utilization. Study concluded maternal health care utilization is high but it further can be improved by community-based education.

Bloom *et al* (2015) conducted study having aim at knowing, does antenatal care make a difference to safe delivery? This study was conducted in urban Uttar Pradesh India. Sample of 300 women were taken, belonging to low to middle income, which had given birth within past three years. Logistic regression analyses were employed as a methodology to examine effect of antenatal care utilization on using safe delivery care, a factor which is famously known to decrease maternal mortality. Results showed that women with high level of care had estimated odds of using trained assistance at delivery that was almost four times higher than women with low level of care. This strong positive association between level of care obtained during pregnancy and the use of safe delivery care may help explain why antenatal care could also be associated with reduced maternal mortality.

Ghaffaret *al* (2015) conducted study to identify and compare factors associated with antenatal care utilization in rural Baluchistan. Cross sectional study was conducted in Jhalmagsi District with sample of 513 pregnant women. Reinforcing, enabling and predisposing factors were evaluated with generalized linear model. Results showed that prevalence of antenatal care was only 14%. Husband's support for antenatal care is more crucial than any other member of community. Among predisposing factors better knowledge regarding antenatal care, occupation, education and higher income were positively highly significant. Increase number of children showed negative association. Study suggested that to achieve higher utilization of antenatal care policy makers should focus on increase of husband's support.

2.7 Summary

It was found that majority of the studies conducted in above cited literature mainly focused on various socio-demographic and economic factors while using occupation of husband as controlled variable. To our own knowledge little research work was found in which occupation of husband was used as explanatory variable. No study as per our knowledge was found in context of Pakistan which examined the impact of occupation of head and employment status for measuring prenatal health care service utilization.

Chapter 03

DATA AND METHODOLOGY

3.1 Introduction

To obtain the objectives of the study theoretical and methodological structure have been specified. First section discussed theoretical framework while second section discussed methodological framework that applied for the sake of the proposed study.

3.2 Conceptual Framework

In this section, the conceptual framework of the proposed study has been presented to analyze the possible theoretical links on the bases of which the explanatory variables can affect the dependent variable antenatal health care.

The main channels through which various research scholars, the researchers, broadly determine antenatal health care links in developing countries examined the relationship among several socio-demographic and economic factors affecting antenatal health care service utilization. These determinants included infrastructure related to health, access and convenience related to service utilization, age and education of both husband and wife and the financial status of heads of families. The above-mentioned determinants play a vital role in prenatal service utilization of women, which reduces the mortality of mother and infant up to a great extent.

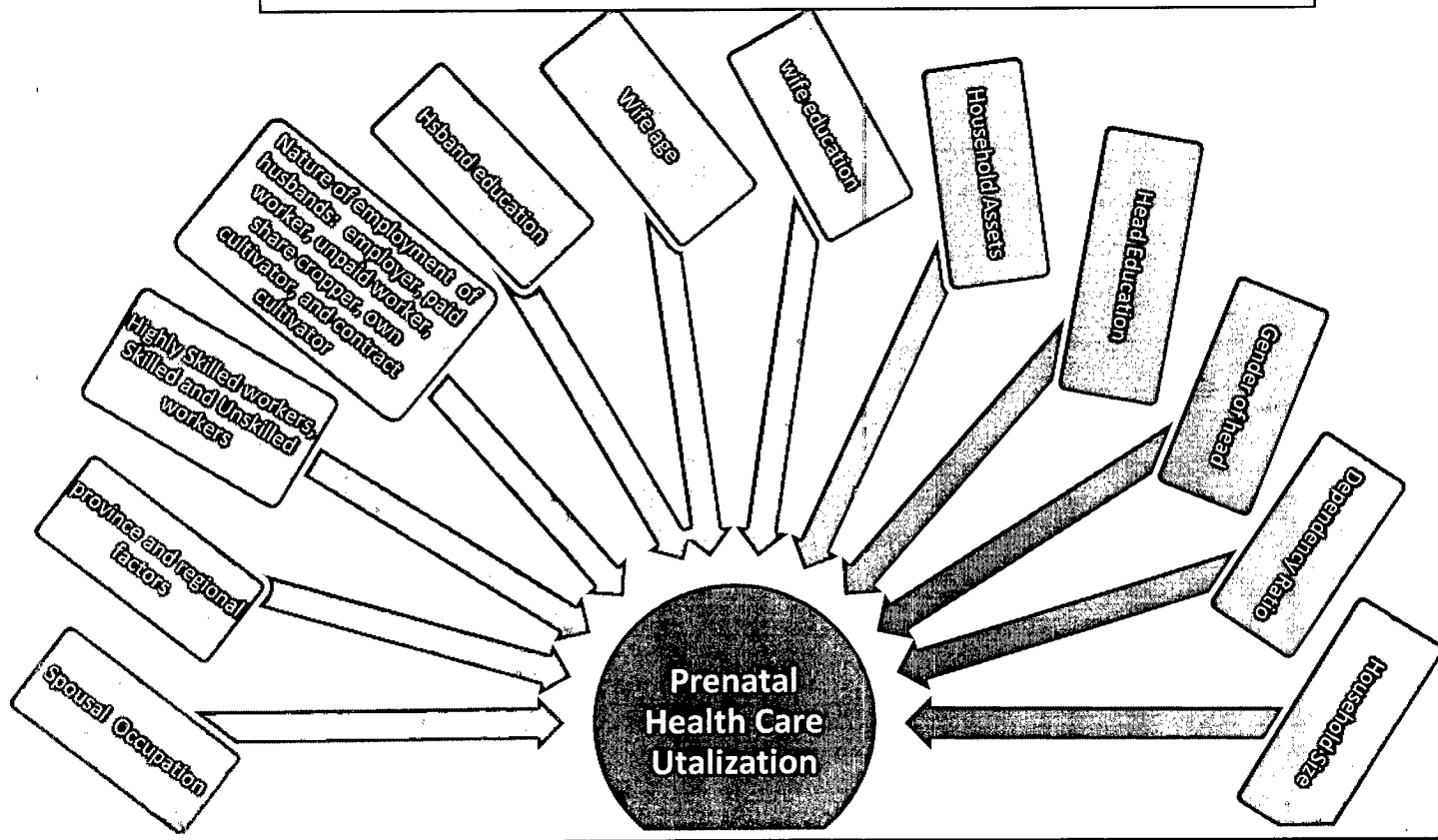
In Pakistan, male involvement in birth preparedness and ANC utilization of women is critical. The reason behind it is only that in our society the leading gender are males and their decisions to all family issues is important. Husband role in family is to take care of all family members and he is only source of income of majority of the families. During pregnancy women needs attention of their husband as well financial

support for preventive any complications related to pregnancy. Husband occupation and employment status played a vital role in case of antenatal health care in our society. Various classification of occupation included highly skilled and unskilled labor, skilled and unskilled labor creates differences in usage of such services. Nature of employment has two fold aspects counts a lot in this case. It purely relates to labor force participation of husband and caters various statuses. In case labor force participation three main categories including farmer, share cropper and own cultivator are present in our society. Secondly, active participation in labor force is a major determinant having another category parallel to it which is known as inactive. (Essendi et al. 2010 and Mpembeni et al. 2007).

Sectoral division is also important, though Pakistan was considered as agrarian society largely focused on agricultural sector. Last decade witnessed a tremendous shift from agriculture to manufacturing and service sector. This will give rise to classification of sectors of employment in different forms.

The figure 3.1 indicates the framework used for this study, in which the independent

Figure 3.1: Framework for Prenatal Health care utilization



variables are been plotted around the dependent variable, which are showing the level of impact in the chapter of findings.

3.3 Data Description

This study has taken data of required variables from Pakistan Social and Living Standards Measurement Survey (PSLM) for the year of 2012-13 collected by PBS, and is one of the major mechanism for monitoring the execution and implementation of the development projects, and tracking of the Millennium Development Goals (MDGs). It provides a set of the district level representative, and population based estimates of the social indicators, and their progress under MDGs. These consist of intermediate and outcome measures, and it observes what is being provided by the social sectors. They contain a range of 'outcome' measures, which assess the wellbeing of the population. It is important for policymakers to be aware of weather the poor people have advantageous from the programme or weather the increasing government expenditures on the social sectors have been captures by the better off.

The universe of this survey consists of all urban and rural areas of all four provinces, AJK and Gilgit Baltistan, FATA and Military restricted areas are excluded from the scope of the survey.

This survey covers 75,516 households in the entire country, and its information has been collected from households on the range of social sector issues. Primarily these are kept focus on the main sectors such as education, health, pre/post natal health care utilization, household assets, and amenities, immunization, and household satisfaction by the facilities and services in the overall context of Millennium Development Goals (MDGs).

The central concern of this study is to identify the relationship between prenatal health care utilization and husbands' occupational and employment status. There are two sample units of this study are: 1) married women of age 15-49 who delivered baby during last three years preceding to the survey and, 2) after individual level analysis, district level analysis has been done.

The ongoing targets those women who have been pregnant and gave birth to baby during last three years when this survey being conducted (2012-13), and their age group is 15-49 years. This survey contains 31574 women, which are found pregnant and given birth a baby during last three years. This has been identified from the section I of PSLM questionnaire, and question number 1 identified it where it has been asked did women have been pregnant during last three years. The second concerned unit is husbands of these pregnant women. Husbands of 28138 pregnant women out of total pregnant women (31574) are found alive whereas husbands of remaining pregnant women are found dead. As this study intends to find out the relationship between husbands 'occupational and employment status and prenatal health care utilization. Therefore, our final targeted sample is 28138 pregnant women from all provinces. Out of above-mentioned number of husbands, 27273 (96%) are participating in labor force or found employed, and 143 are unemployed whereas 722 husbands are found inactive in concerned sample.

This sample can be distributed into provinces and regions. Punjab province contains higher number of pregnant women 11,058, Sindh contains 7496, and from Baluchistan 5265, and while 4319 pregnant women are from KPK. Moreover, 19062 spouses are coming of rural areas whereas 9076 spouses are from urban areas. Now coming to our second sample unit which is based on from all districts of Pakistan because our second main objective is to find prenatal care at district level as well.

Data of prenatal health care and employment and occupational variables, and some other social and demographic factors of all districts including Islamabad (115) have been collected from different sources PSLM 2012-13, PDHS, and MICS, and provincial development statistics.

3.4 Methodological Framework

In order to identify the relationship between prenatal health care and husband's occupations and employment status, this study will meet its objectives by using two approaches firstly bivariate analysis, where cross tabulation will have used to meet its objectives and secondly multivariate analysis to observe empirical analysis by employing binary and multinomial Logistic Models. The data will be selected from all urban and rural areas of Pakistan, mainly included the four provinces (Punjab, KP, Sindh and Baluchistan). Furthermore, data from all districts of the selected provinces will also be include in the proposed study.

3.4.1 Empirical Model

This study constructs its dependent variable in two ways: 1) binary variable where 1 is assigned if women received prenatal health care and otherwise zero, and 2) categorical variable for prenatal health care on the basis of four categories i.e. no prenatal health care (1), at home received assistance from TBA, LHV etc., care received from government or public hospitals and prenatal health care receive from private hospitals. The bivariate model is useful for describing the relationship between two variables. It describes both the strength and directions of the variables. Our concerned model is specified as follows.

$$Z_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + U_i \dots \dots \dots (1)$$

In above equation Z_i is a dependent variable that is prenatal health care, and X is vector explanatory variables such as age, education, first pregnancy, dependency ratio, household assets, husband occupations and employment status, regional and provincial dummies. B is the vector of parameters, and U_i is error term.

In above equation variable of husband occupation and employment status that is our independent variable and it has been used in different ways. It is used by classifying workers into skill wise (i.e. highly skilled, skilled, and unskilled), sector wise (agriculture, industry, mining, and services), nature of employment (i.e. employer, paid worker, self-employed, unpaid family worker, own cultivator, sharecropper, contract cultivator), and labor force participation (i.e. employment, unemployment, and inactive workers). We have estimated above equation separately on these occupational and nature of employment. Definition and description of these variables are given in next section.

3.4.2 Binary and Multinomial Logit Models

In this section we are concentrating on binary and multinomial logit models, as we know that if more than one measurements are made on each observation, multivariate analysis is applied, as we took two dependent variables too in the proposed study, and when exactly two measurements are made on each observation we used bivariate analysis, in order to test simple hypotheses of association and causality. So as early mentioned in the empirical section about the equation. Therefore, Equation (1) will be estimated by binary and multinomial logit models separately because we have constructed our dependent variable in two ways: i.e. the two measurement are 1) binary variable form of prenatal health care, and 2) categorical variable form of prenatal health care on the basis of four categories, since both are obtained for each observation. In the case of binary dependent variable, binary logit model will be used

to find out relationship between prenatal health care utilization and nature of the occupations and employment of husband which is supported by Hotchiks (2001); Sagoe-Moses (2009); Wanjira et al., (2011); Fekadu&Regassa (2015); Srivastava *et al* (2016) and they have used binary logit model to estimate determinants of prenatal health care utilization. It is worth mentioning that this study will estimate equation (1) separately on four types of occupations and employment.

Further, the proposed study used multivariate and bivariate analysis because we want to predict the outcomes between variables. For example, we want to predict the effect of independent variables on the dependent variable antenatal health care. In this case we have four independent variables (predictors) and two dependent variables (outcomes).

We have also constructed dependent variable in categorical order where it contains four outcomes i.e. a) not having prenatal health care, b) received assistance from skilled attendant at home, and c) containing prenatal health care in government hospitals, and d) receiving health care from private hospital. Therefore, the multinomial logistic regression model has been applied to estimate the relationship between prenatal health care and husbands' employment and occupational status. The multinomial logit model assumes that data are case precise; that is, each independent variable has a single value for each case, and the proposed study also had used single values for some independent variables. The multinomial logit model also assumes that the dependent variable cannot be perfectly predicted from the independent variables for any case. As with other types of regression, there is no need for the independent variables to be statistically independent (i.e, the occurrence of one does not affect the probability of other) from each other. In existing literature most of the studies have used multinomial model [Baralet *et al* (2010); Gabrysch and Campbell (2009); Onahet

al (2006); Cohen & Burger (2000); Story *et. al*(2012)]. Multi logit regression technique permits each unordered outcome to be compared with any respective reference category by making k-1 numbers of logit regression models. For current study, the no prenatal category has been used as the reference category. Hence, the general form of multinomial logistic model is given below.

$$\log \frac{\Pr(Z_i)}{\Pr(1-Z_i)} = \frac{1 + \exp(Z_i)}{1 + \exp(-Z_i)} \dots\dots\dots(2)$$

3.4.3 Econometric Model for District Level Analysis

The district level analysis in this study is very important and will be first of its kind, because after decentralization followed by transfer of decision making to provinces; the transfer of decision making to district level is in progress. The district level analysis will contribute to district level policy formation

For district level analysis, following equation is estimated by using Ordinary Least Square (OLS).

$$Z_i = \beta_0 + \beta W_i + U_i \dots\dots\dots(3)$$

In above equation, dependent variable is prenatal health care received in districts, whereas W_i is vector of explanatory variables such as female empowerment related variables i.e. female ratio to male in labor force, female ratio to male in wage. Female ratio to male in jobs, literacy rate of females in urban area, literacy rate of females in rural areas, ratio of hospitals to population, provincial dummies, employment related variables skill wise (highly skilled, skilled, and unskilled), nature of employment (self-employed, unpaid workers, own cultivators etc.), and sector wise (i.e. agriculture and non-agriculture), metallic roads, commercial banks and B is the vector of parameters. Descriptions of these variables are given in next section of definition.

Similar to micro analysis, equation (3) has been estimated three times separately for district level employment and occupation variables.

3.5 Construction of the Variables

This section deals the definitions and construction of the variables that will be used in this study, and we will define the variables in two ways 1) variables which are being used in micro level analysis, and 2) variables which are being employed in district level analysis, and their description is given below.

3.5.1 Definition of Variables for Micro Level Analysis

Dependent Variable: *Antenatal Health Care*: The main aim of this study is to investigate the relationship between occupations of the spouse and antenatal health care utilization. This study takes prenatal health care utilization as indicator of antenatal health care utilization. This variable has been defined in two ways: 1) a dummy variable has been constructed for prenatal health care utilization where 1 is assigned for having prenatal health care and zero otherwise, and 2) a categorical variable has been generated where 1 is assigned if women did not receive prenatal health care, 2 is assigned if women received prenatal care at home from home TBA, home LHV, home LHW, and home doctor, further 3 is given if women received prenatal health care at public or government hospitals, and finally 4 is assigned if women received prenatal health care at private hospitals. Hence, prenatal health care utilization has been used in above mentioned two ways for bivariate analysis and multivariate analysis.

Explanatory and Controlled Variables: Explanatory variables are occupations and employment status of the husbands related variables where as some controlled variables are for micro analysis are age and education of mother, education of

husband and household head, gender of the head, experience of previous pregnancy and their description is given below.

Occupations and Employment of the Spouse: the prime focus of this study is exploring the relationship between nature of occupation and employment related variables and prenatal health care utilization. This study used these variables in different ways: 1) highly skilled workers, skilled workers, and unskilled workers, and not working 2) with respect to labor force participation i.e. employed workers, unemployed workers, and inactive workers, 3) nature of employment wise i.e. employers, self-employed, unpaid family workers, own cultivator, share cropper, and contract cultivator, 4) sector of employment i.e. Agriculture, mining, industry, and services compare to non-participating labors.

Now we discuss the construction of the aforementioned occupation and employment levels in some detail that are given as follows.

1) Highly Skilled, Skill, and Unskilled Workers (Husband)

These three variables are constructed separately and these are constructed on the basis of nine categories of occupations as described in PSLM data. Every group of occupation has been constructed from subgroups of each major group.

Dummy variables are generated based on occupations where for highly skilled worker takes value of 1 if workers are Legislators, Senior Officials and Managers, Professionals, and Technicians and Associate Professionals, and 0 otherwise. Similarly, variable of skilled worker takes value 1 if they are Clerk, Service Workers and Shop and, Market Sales Workers, Skilled Agricultural and Fishery Workers, Craft and Related Trades Workers, Plant and Machine Operators and Assemblers, 0

otherwise, and finally for unskilled workers dummy variable takes the value 1 if workers are indulged in elementary occupations. This study will keep highly skilled workers as reference category.

2) Labor Force Participation (Husband)

Three variables are constructed for labor force participation where dummy variable is measured for employed workers and value of 1 is assigned if spouse is participating in labor force and 0 otherwise, similarly, dummy variable for unemployed is constructed if spouse is not participating, and finally a dummy variable for inactive workers has been generated where 1 is assigned if workers are inactive, and zero otherwise.

3) Nature of Employment

The nature of employment contains employers, self-employed, unpaid family workers, unpaid family workers, own cultivator, sharecropper, and contract cultivator. Dummy variables constructed for aforementioned components of nature of the employment where 1 is assigned for employer and zero otherwise, and similarly for each we have generated dummy variables.

4) Sector of Employment

The study constructed four categories of the sector of employment i.e. agriculture sector, mining, industry, and services. Binary variables generated for each sector where 1 is assigned for agriculture if spouse is indulged in agriculture, forestry and fishing and zero otherwise. Similarly, dummy variable of mining is constructed spouse is indulged in mining sector. Dummy variable of industry is generated if husband is involved in manufacturing etc. and finally dummy variable

for services sector is generated where 1 is given if spouse is working in transportation and storage, accommodation and wholesale and retail trade; repair of motor vehicles and motorcycles, education and health etc. and zero otherwise.

These variables are constructed based on industry codes given by PSLM 2012-13.

Education of the Husband and Wife: we employ this variable in two ways: 1) as continuous variable in regression analysis where total number of completed education years has taken for both husband and wife separately, and 2) in bivariate analyses, variable of education has been categorized into seven groups for both husband and wife separately. These are no education, primary education, middle education, metric education, intermediate, B.A education, and above graduation and these categories are generated separately for both spouses.

Age of Mother: age of mother has been categorized into three age groups i.e. 1) age group ranges 15-25 years, 2) age groups ranges 26-35 years, and 3) age group ranges 36-49 years. Dummy variables are generated for each group where each binary variable takes 1 if women are lying in first age group (15-25 years), and otherwise zero. Similarly, we generated binary variables for each second and third age group (26-35 and 36-49 years) respectively, and in analysis we kept third age group as reference category.

First Experience of Pregnancy: a dummy variable has been generated where 1 is assigned if female have not been previously pregnant or given birth, and zero otherwise.

Gender of Household Head: A dummy variable has been generated for gender of the household head where 1 is assigned if household head is male and zero otherwise (female) where female is our base category.

Education of the Household Head: education of the head is also used as continuous variable in regression and whereas in bivariate analyses, variable of education has been categorized into seven groups for both husband and wife separately. These are no education, primary education, middle education, metric education, intermediate, B.A education, and above graduation.

Overseas and Within Country Remittances: a dummy variable of overseas and within country remittance has been used where a dummy variable takes value of 1 if households are receiving overseas remittances and otherwise zero. Similarly, dummy variable for within country remittances is also generated.

Dependency Ratio: Dependency ratio has been measured as the ratio of productive age group members and unproductive age group members. It is calculated by the total of members' age below 15 years and above 64 years, and this summation is divided by total number of family members 15-64 years' age groups. Its formula is specified as follows.

DependencyRatio

$$= \frac{\text{No. of children aged 0 - 14} + \text{No. of people 65 and over}}{\text{Number of people aged 15 - 64}} \times 100$$

Continuous variable has been used in regression analysis but for bivariate analysis we categorized it into three categories 1) average or normal dependency ratio, 2) medium dependency ratio, and 3) severe dependency ratio. If score of dependency ratio is below 1 then it is named as normal or low dependency ratio, similarly if score is exactly equal to 1 then it is named as medium dependency ratio, whereas if score of dependency ratio is greater than 1 then it is named as severe dependency ratio.

Household Assets: Likert scale type score have measured variable of household assets and formula is given as follows.

$$\text{HH Assets} = A_i / \text{Total number of assets}$$

Where $i=1, 2, 3, \dots, 12$, and A_i = how much a household is owning assets from radio, TV, refrigerator, air conditioners, air cooler, computer, bicycle, car, scooter, tractor, washing machine, and mobile. Actually, we selected aforementioned twelve assets, for example if a household contain any five assets from aforementioned assets and twelve will divide it (5/12). Values of this score ranges between 0-1 and zero shows having no assets and 1-show households contain all of these assets.

Regional Variable: a dummy variable has been constructed for regional variables where 1 is assigned to urban areas and zero otherwise (rural area) where rural area has been kept as reference category.

Provincial Dummies: provincial dummies have been measured by assigning 1 if province is Punjab and zero otherwise. Similarly, dummy variables for Sindh, KPK, and Baluchistan provinces have been generated where Baluchistan province has been kept as reference category.

3.5.2 Description of Variables for District Level Analysis

The variables which are being used in district level analysis are presented in table 3.1 where female empowerment related variables such as female ratio to male in employment and wage, prevalence of violence among females by males, health facility in districts, provincial dummies, and the main explanatory variables occupations and employment status at district levels are described.

Prenatal Health Care at District Level: this variable is measured in percentage of females having prenatal health care in districts, which is our dependent variable, and it is a continuous variable.

Nature of Occupation and Employment at District Level: Nature of occupation are in total percentage of workers of highly skilled and skilled and unskilled workers and it is computed from PSLM 2012-13, and these are calculated from similar indicators which are discussed in previous section. Similarly, nature of employment related variables is measured in percentage of spousal which are total percentage of self-employed, unpaid workers, own cultivators, share cropper, and contract cultivator in districts. Finally, two sectors are generated from PSLM 2012-13 are generated as percentage of agriculture and non-agriculture.

Rests of the variables are defined in table following table 3.1 where all district level variables are used, which is given below. Most of the variables are related to the major topic of spousal occupation, whose impact has been shown in the chapter of findings of this thesis.

Table 3.1: Description of Variables Used for District Level Analysis

Indicator	Definition	Data
Prenatal health care utilization	Total percentage of prenatal health care receive in respective districts	PSLM 2012-13
Nature of occupation: highly skilled, Skilled, and unskilled workers	Percentage of total highly skilled workers, (males & females) percentage of total skilled workers, and total percentage of unskilled workers in districts.	PSLM 2012-13
Nature of employment	Percentage of self-employed, unpaid workers, own cultivator, share cultivator, and contract cultivator. These variables are calculated for district level	PSLM 2012-13
Agriculture employment	Total percentage of workers in agriculture related activities where own cultivator, share cropper, contract cultivator, livestock holding are considered agriculture related activities.	PSLM 2012-13
Ratio of female to male labor force (%)	Ratio of women (ages 15-60) to men in labor participation (in percentage)	PSLM 2012-13
Ratio of females to male wages (%)	Ratio of women (ages 15-60) to men wages across all available labor categories (in percentage)	PSLM 2012-13
Ratio of females to males among high skilled jobs (%)	Ratio of women (ages 15-60) to men in share of managerial and Professional jobs (in percentage)	PSLM 2012-13
Rural female literacy rate	Rural level of female literacy rate for district level	Provincial development statistics
Urban female literacy	Urban level of female literacy rate for district level	Provincial development statistics
Ratio of health centre to population	Total number of basic health centers, and rural health centers are divided by population of district and multiplied by 100	Provincial development statistics
Metallic roads	Total metallic roads in a district	Mouza Statistics 2008/09
Commercial banks	Ratio of total commercial banks to population in district	Mouza Statistics 2008/09
Province	Provincial dummies are constructed where value of 1 is given to each respective province and otherwise zero. These are four dummies for Punjab, Sindh, KPK, and Baluchistan	Mouza Statistics 2008/09

Source: Author's own calculations

3.6 Limitations of the Study

This study mainly focuses on spousal occupation and economic indicators, all other socio-cultural variables which have also an impact on antenatal health care utilization, are not been covered.

Chapter 4

BIVARIATE ANALYSIS

In this chapter bivariate analysis is conducted for understanding the relationship between prenatal health care service utilization and other household characteristics. Household features included socio-demographic and economic status of family at household level and at individual level. The said relation between both is analyzed by cross tabulation i.e. tables and graphical representation.

4.1 Household Level Variables and Prenatal Health Care Utilization

This section will discuss age and education of head, dependency ratio, and household assets and their relationship with prenatal health care utilization.

4.1.1 Gender of Household Head and Prenatal Health Care Utilization

The table 4.1 depicts relation between gender of household head and prenatal health care utilization and it is evident that women of female headed are receiving higher prenatal health care than male headed but notably these differences are not much higher. It is presented in table that there is no difference in receiving health care at home, and prenatal health care in terms of government or public hospitals (for detail see table 4.1).

Table 4.1: Gender of the Household Head and Prenatal Health Care Utilization

Gender of Head	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
Female Headed	31.6	12.5	20.6	35.3	100
Male Headed	35.5	12.5	20.5	31.5	100
Total	35.3	12.5	20.5	31.7	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.1.2 Education of Household Head and Prenatal Health Care Utilization

The given table reflects the relation between educational level of household head and prenatal health care service utilization. At all levels the analysis shows upward trend in prenatal health care utilization in higher educated family heads. In case if family head is graduate the prenatal health care utilization is on higher side in terms of percentage, as in this case it is more than 55 percent. While in case of uneducated family head, the percentage is far below and is 22.98. It means education of household has significant positive effect on ANC utilization (for more detail see table 4.2).

Table 4.2: Education of Household Head and Prenatal Health Care Utilization

Education Level	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
Uneducated	43.6	13.3	20.1	23.0	100
Primary Education	36.0	14.3	20.2	29.5	100
Middle Education	28.5	12.6	22.8	36.1	100
Matric Education	27.1	11.5	21.9	39.5	100
Intermediate	24.3	10.3	20.1	45.3	100
Graduation	18.5	7.3	18.4	55.7	100
Above Graduation	26.5	8.7	15.5	49.4	100
Total	35.3	12.5	20.5	31.7	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.1.3 Dependency Ratio and Prenatal Health Care Utilization

Dependency ratio has been categorized into three categories i.e. normal dependency ratio, medium dependency ratio, and severe dependency ratio. Table 4.3 contains the relationship between dependency ratio and prenatal health care. It is observed that in case of severe deficiency 39.39 percent of women received no prenatal health care while only 27.72 percent women goes for ANC in private hospital. It can be seen from following table as the dependency ratio moves to severe dependency ratio overall females of that family receives lesser prenatal health care. It shows that there is negative relationship between dependency ratio and prenatal health care.

Table 4.3: Dependency Ratio and Prenatal Health Care Utilization

Dependency Ratio Categories	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
Normal Dependency	30.3	11.3	21.9	36.5	100
Medium Dependency	33.5	13.0	20.2	33.4	100
Severe Dependency	39.4	13.3	19.6	27.7	100
Total	35.3	12.5	20.5	31.7	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.1.4 Household Assets and Prenatal Health Care Utilization

The table shows that household assets such as holding TV, Radio, computer, car, scooter, AC, and air cooler etc. are positively associated with prenatal health care service. In case of no assets in family, the 53.52 percent of women don't receive any health care during pregnancy while 15.62 percent of women from this category visit private hospital for it. The situation is quite different in case of a family having assets as 32.68 percent of women visit private hospitals for utilizing this service. Moreover it is evident that those households which have aforementioned assets are yielding higher prenatal health care and whereas lesser no prenatal (34.16 %) as compare to those households which don't have any asset. For more detail see table 4.4.

Table 4.4: Household Assets and Prenatal Health Care

Household Assets	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
Having no assets	53.5	16.8	14.1	15.6	100
Having assets	34.1	12.3	20.9	32.7	100
Total	35.3	12.5	20.5	31.7	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.2 Individual Level Characteristics and Prenatal Health Care Utilization

In this section we will discuss the relationship between demographic characteristics of pregnant women.

4.2.1 Age of Mother and Prenatal Health Care Utilization

Prenatal health care service utilization is related not only with household characteristics but individual features also have some impact on it. These individual characteristics include age of mother, education of women and others. In case of age mother in age brackets of 15-25 years 32.42 percent of women visits private hospital and a significant percentage of 33 percent never utilize this service. The table also showed that with the increase of age the utilization of health service diminishes as in case of age more than 35 years almost 42 percent women receive no prenatal health care service (for more detail see table 4.5) and it is concluded that older women are receiving lesser prenatal health as compare to younger females.

Table 4.5: Age of Mother and Prenatal Health Care Utilization

Age Groups of Mother	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
Mother_age15-25_years	33.4	12.6	21.5	32.4	100
Mother_age25-35_years	34.7	12.4	20.1	32.9	100
Mother_age_above35_years	41.6	12.7	19.8	25.8	100
Total	35.3	12.5	20.5	31.7	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.2.2 Education of Women and Prenatal Health Care Utilization

The table 4.6 given below shows that education of pregnant women and prenatal health care has positive relation. In case of graduate wives 65.74 percent women visits private hospital and only 10.83 percent never go for prenatal health care service. While in case of no education, primary, middle, metric and intermediate the percentage shows low figures affirming the positive relation between high education and high prenatal health care service utilization.

Table 4.6: Education Level of Mother and Prenatal Health Care

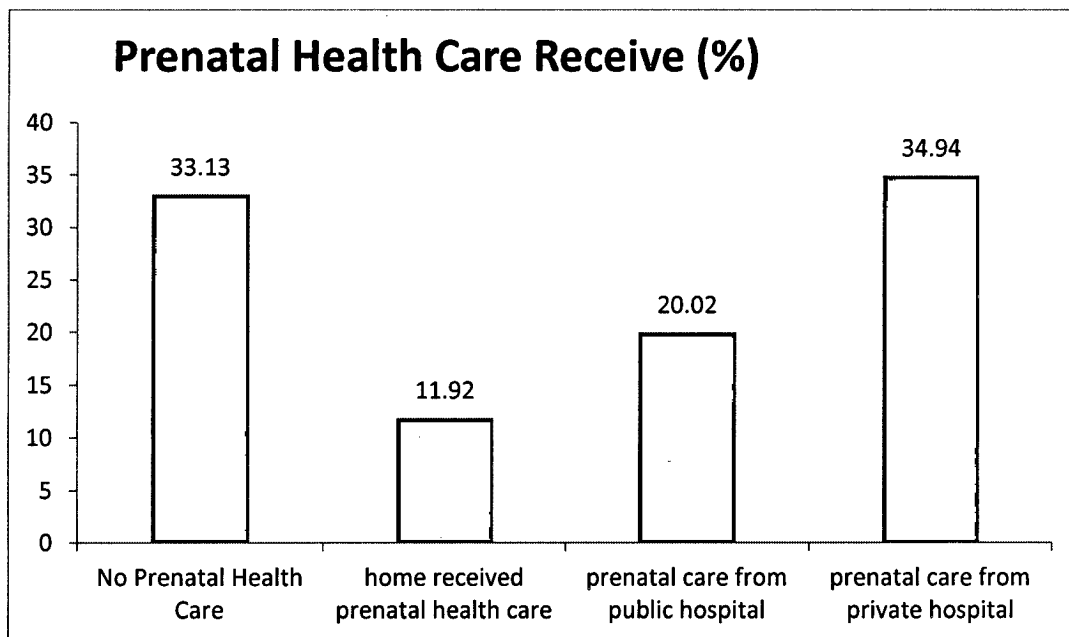
Education Level	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
No Education	44.6	13.5	19.8	22.1	100
Primary Education	26.2	14.1	22.2	37.5	100
Middle Class	19.8	11.4	24.1	44.8	100
Metric Education	16.2	10.3	22.4	51.1	100
Intermediate	13.9	8.1	19.4	58.6	100
Graduation	10.8	5.9	17.5	65.7	100
Total	35.3	12.5	20.5	31.7	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.2.3 Prenatal Health Care of Women Whose Husbands are not alive

Percentage distribution of prenatal health care service utilization in case of widow women is given below in graphical representation, which shows that 33.13 percent women receive no prenatal health care. However, 34.94 percent of widow women consult private hospital doctors for this service. For detailed spectrum see figure 4.1.

Figure 4.1: Prenatal Health Care Utilization of Widow Women



4.2.4 Education of Husband and Prenatal Health Care

Husband education has a positive relation with ANC utilization. The data shows that 55.30 percent of women receive prenatal health care having graduate husbands while in case of no education only 23.52 percent consult private doctors for this service. In case of Metric Education, the percentage shows that almost 37 percent women receive prenatal health care. It is noted that higher education of husband leads to more prenatal health care service utilization irrespective of service at home, public or private hospital. It also shows that education of husband creates awareness regarding preventive and conductive services utilization during pregnancy.

Table 4.7: Prenatal Health Care and Husband Education

Education Level	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
No Education	43.6	13.5	19.4	23.5	100
Completed Primary	38.5	14.5	20.8	26.1	100
Middle Class	29.7	12.9	23.7	33.8	100
Matric Education	29.0	11.8	22.4	36.9	100
Intermediate	26.0	9.7	19.1	45.2	100
Gradation	18.6	7.6	18.5	55.3	100
Above Graduation	20.9	8.1	16.8	54.2	100
Total	35.3	12.5	20.5	31.7	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.3 Husband's Nature of Occupation and Employment and Prenatal Health Care

4.3.1 Labor Force Participation and Prenatal Health Care

The table given below showed the percentage distribution of labor force participation and ANC utilization by dividing nature of employment into three main categories i.e. employed, unemployed and inactive. Interestingly the result shows that 31.20 percent of female receive private hospital prenatal health care having employed husband. In case of inactive the percentage is greater than 33.50 percent for female who visit private doctors for prenatal health care. It is surprising to see that wives of employed husbands are having lesser prenatal health care as compared to unemployed and inactive husbands, and for more detail, see table 4.8 given below.

Table 4.8: Labor Force Participation and Prenatal Health Care Utilization

Labour Force Participation	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
Employed	35.6	12.7	20.6	31.2	100
Unemployed	24.5	11.2	25.2	39.2	100
Inactive	34.8	10.5	21.2	33.5	100
Total	35.5	12.6	20.6	31.3	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.3.2 Nature of Employment and Prenatal Health Care Utilization

Nature of employment is directly linked with prenatal health care service utilization of wives. Table 4.9 shows that in case household head have employees the tendency to utilize prenatal health increase. As in this case more than 55 percent women receive prenatal health care from private hospital. However, table shows different nature of employment and its relation with dependent variable but in case of agriculture employment 45 percent of women received no prenatal health care. In agriculture sector the nature of employment is further categorized into three types including farmer, own cultivator and share cropper. It is evident that wives of agricultural workers are having lower prenatal health care as compared to others. Wives of employers are receiving higher prenatal health care. Thus nature of employment and prenatal health care has a relationship and prenatal health care is mainly affecting by the variation of employment status which is clear in following table 4.9.

Table 4.9: Nature of Employment and Prenatal Health Care Utilization

Nature of Employment	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
Employers	21.37	8.71	19.26	50.66	100
Self Employed	31.49	12.83	20.66	35.02	100
Paid Employee	33.98	11.58	23.13	31.32	100
Unpaid Family Worker	35.39	12.02	17.67	34.91	100
Agriculture	45.98	15.82	14.90	23.29	100
Total	35.60	12.65	20.56	31.20	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.3.3 Sector of Employment and Prenatal Health Care Utilization

The table shows the relationship between sector of employment and prenatal health care service utilization. In case of services sector the percentage is quite better than other sectors. For agricultural sector, 45.28 percent of wives did not receive antenatal health care service utilization. In case of Mining, only 27.96 percent of wives consult private sector hospital for this service. Hence, table 4.10 shows that mining and industrial sectors of husbands affecting positively their wives prenatal health condition.

Table 4.10: Sector of Employment and Prenatal Health Care Utilization

Sector of Employment	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
Agriculture	45.4	15.2	15.4	24	100
Mining	38.7	9.7	23.7	28	100
Industry	26.8	12.5	21.4	39.3	100
Services	32.3	11.5	22.9	33.4	100
total	35.6	12.7	20.6	31.2	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.3.4 Nature of Occupations and Prenatal Health Care Utilization

Occupational classification in the shape of highly skilled, skilled and unskilled falls in the category of individual level characteristics and have relationship with prenatal health care service. In case of unskilled occupation of husband, only 41.59 percent of wives didn't receive antenatal health care. Wives of highly skilled workers are receiving 42 percent from private hospitals which are higher than unskilled and only skilled workers. For more detail see table 4.11 given below.

Table 4.11: Nature of Occupations and Prenatal Health Care Utilization

Sector of Employment	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
High Skilled	27.7	9.3	21	42.0	100
Skilled	36.2	13.5	19.6	30.7	100
Un-Skilled	41.6	13.8	22.3	22.3	100
Total	35.6	12.7	20.6	31.2	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.4 Provincial and Regional Variables and Prenatal Health Care Utilization

4.4.1. Provinces and Prenatal Health Care

Prenatal health care status is analyzed from provincial perspective and table 4.12 indicates that Baluchistan and KPK are experiencing lower prenatal health care as compared to Punjab and Sindh. Punjab province has been found yielding more prenatal care in terms of private hospital. Interestingly Baluchistan is found having higher prenatal health care in terms of public hospitals (23 %) than Punjab and Sindh but lesser than KPK.

Table 4.12: Provinces and Prenatal Health Care Utilization

Provinces	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
KPK	41.6	8.2	27.5	22.7	100
Punjab	26.2	15.6	18.3	39.9	100
Sindh	35.2	13.0	16.6	35.2	100
Baluchistan	49.9	9.3	23.9	17.0	100
Total	35.3	12.5	20.5	31.7	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.4.2 Regional Variables and Prenatal Health Care

Regional distribution of prenatal health care service utilization is also depicted in below table, which confirms the results of above table and explains the differences between different regions where it is evident that women of rural areas

Table 4.13: Rural/ Urban Region and Prenatal Health Care Utilization

Regions	No Prenatal Health Care	At Home Assistance is Provided	Public Hospital Provided Health Care	Private Hospital Provided Health Care	Total
Urban	21.6	10.0	24.0	44.4	100
Rural	41.4	13.6	19.0	26.0	100
Total	35.3	12.5	20.5	31.7	100

Source: Pakistan social and living standards measurement survey (PSLM) 2013-14

4.5 Conclusions

Most of the socio-economic variables have a strong impact on antenatal health care utilization. Increase in level of education tends to increase in antenatal health care utilization rate, however the impact of women's level of education has higher impact than men's level of education. Increase in income and age has positive association with ANC rate. Those who work in industry have higher rates of ANC than those who do agricultural activities. These findings indicate, by investing in socio-economic indicators, Pakistan can achieve high ANC rate.

Chapter 5

MULTIVARIATE ANALYSIS

This chapter will discuss empirically obtained results from binary and multinomial logit models where estimated relationship between prenatal health care and nature of occupations and employment of husbands are discussed. Furthermore, the results obtained from OLS estimator for district level prenatal health care utilization has been discussed.

5.1 Empirically Obtained Results from Binary Logit Model

This section will discuss empirically obtained results from binary and multinomial logit model in some detail which are given as follows.

5.1.1 Relationship between Prenatal Health Care and Highly Skilled Workers

This section discusses relationship between prenatal health care and labor force participation of husbands and it is estimated by using binary logit model because our dependent variable is binary variable where 1 is assigned if women have received prenatal health care, and zero otherwise, and labor force participation comprise three variables i.e. employed, unemployed, and inactive in labor force. The study calculated the odd ratios of relevant variables, which are given in table 5.1 where all four models are given.

The estimated results are suggestive that gender of the head has significant and negative impacts on the likelihood to receive prenatal health care. It indicates that women of male headed household are less likely to receive prenatal health care where odd ratio is 0.84 which is less than which is indicative of the more likelihood of receiving prenatal care for female headed households. These results are quite supported by the table 4.1 given chapter 4 of this study. The studies of Biratu and

Lindstrom (2007); Danforth et al. (2009) and Kulunya et al. (2012) support these results. The estimated results for head education show that education of household head has highly significant impacts on the likelihood of women to receive prenatal health care. It is quite logical because an educated husband may provide proper care and treatment to their family members (see table 5.1 model A).

Education of the head has statistically significant effects on prenatal health care receiving where its odd ratio is greater than 1 which indicates that other things remaining same as the level of education of household head is increasing, the females of those households are more likely to receive prenatal health care. Similarly, education of husband has positive and significant impacts on prenatal health care, which is highly statistically significant, and odd ratio of this variable is greater than 1 which is evidently indicative of the positive impacts of husband education on his wife prenatal health care. Educated husband and head are more likely to provide prenatal health care to their females.

Age of pregnant women has significant impacts at age group ranging 15-16 and 26-35 years where odd ratio takes value greater than 1 which is indicative of positive impacts of respective age groups on prenatal health care utilization. Actually, this study generated three groups of age of the pregnant women younger age group (15-25 years), middle age group (26-35 years), and older age group (36-49 years). Older age group has been kept as reference category. The empirically obtained results of age are suggestive that younger and middle age group of women have positive and highly significant impact on the likelihood of receiving prenatal health care as compared to older age groups.

Education of these mother yields value of odd ratio greater than 1 and it shows that education of the female is playing positive and statistically significant impact on the probability of receiving prenatal health care. Intuitively, an educated woman has awareness about her health related issues and she may take more care of herself especially during pregnancy. But surprisingly education of the husband has been found statistically insignificant (see table 5.1 model A). These positive impacts of the female education is consistent with the literature [Essendi et al. 2010); Mpembeni et al. (2007)]. Further results are suggestive that those females, which have no experience of previously pregnancy, are more likely to receive prenatal health care.

The estimated results reveal that dependency ratio has highly significant impacts on prenatal health care and it has value of odd ratio greater than 1. Actually normal dependency ratio and medium dependency ratio has been introduced whereas severe dependency ratio has been kept as reference category. These results are suggestive that normal and medium dependency ratio are more likely to receive prenatal health care as compare to severe dependency ratio. It indicated that those households where dependency ratio is higher which means family which have more number of unproductive family members are less likely to provide prenatal health care to their pregnant females. It is quite logical that higher number of unproductive family members put pressure on the working members of the family which ultimately may cost health and education expenditures as well, and all these may affect negatively to prenatal health care utilization (see table 5.1 model A).

The study has used a dummy variable of female having experience of first pregnancy where it takes vale 1 if yes. The estimated results are suggesting that it contains odd ratio greater than 1 and highly statistically significant. It shows that those wives who have first experience of pregnancy are more likely to receive prenatal health care.

Moreover, assets variables have been found statistically highly significant and its values are found greater than 1 which shows those households which have physical assets are more likely to provide prenatal health care to their females.

The study has used two dummy variables for highly skilled workers, and skilled workers and whereas unskilled workers are kept as base category. The estimated results are suggestive that only skilled workers are found statistically significant and having odd ratio greater than 1 which is indicative of positive impacts skill of husband on prenatal health care utilization as compared to unskilled workers (see table 5.1 model A).

Area variable has been found statistically significant where urban area is assigned 1 and it has $RRR > 1$ which is indicative of more likelihood of having prenatal health care, and intuitively it recommends that females in urban areas are more likely to receive prenatal health care utilization. Furthermore, provincial variable also has statistically significant impact. The estimated results suggest that Punjab, KPK, and Sindh have $RRR > 1$ than that of Baluchistan. Intuitively it is suggestive that Punjab is more likely to receive prenatal health care than that of all provinces, and similarly KPK and Sindh are also more likely to receive prenatal health care than that of Baluchistan.

5.1.2 Relationship between Prenatal Health Care and Nature of Employment

Table 5.2 contains the estimation of model for the nature of employment and rests of the control variables are same in the model, now the study replaces some dummy variables which are indicators of nature of the employment of husband in earlier model.

The estimated results suggest that gender of household head is found statically insignificant, and sign of the variables are same as in earlier model. Further results of the education of the household head, education of the husband, and education of the mother has positive and statistically significant impacts on prenatal health care as same as in Model A. Odd ratios of these variables are found greater than 1 which are suggesting that overall education has positive and significant impacts on prenatal health care. Detail of all these educational variables can be seen in table 5.1 Model B.

The most of control variables have similar sign and significance as they have in model 5.1 dependency ratio, remittances, assets, and experience of first pregnancy and more or less area and provincial variables have similar type results on prenatal health care as in model A.

Now we stick ourselves on findings obtained from the variable of employment and prenatal health care utilization. This study employs self-employed, paid workers, unpaid workers and a joint dummy variable constructed from share cropper, own cultivator, and contract cultivator which is named agriculturalist have been introduced in model whereas employers are kept as reference category. The estimated findings show that all these introduced (aforementioned employment categories) are statistically significant. Odd ratios for all these variables found below 1, and. These impacts are suggesting that employers are more likely to provide prenatal health care to their wives than that of agriculturalists and self-employed, unpaid family workers (see table 5.1 model B)

5.1.3 Relationship between Prenatal Health Care and Sector of Employment

This section covers the relationship between prenatal health care and sector of employment (agriculture, mining, industry, and services) in which husbands of sampled women are working.

Similar to previous three models, in this model impacts of control variables are remaining more or less same in direction and significance. Employment sector variable comprises four dummies for agriculture, industry, mining, and services sectors whereas agriculture sector has been kept as reference category.

The empirically obtained results are suggestive of the positive and highly significant impacts of industry and services sector on the likelihood of receiving prenatal health care. It indicates that those husbands who are working in manufacturing sectors and services sectors are more likely to provide prenatal health care to their Wives than that of workers who are indulged in agriculture sector. It would be interesting to see that odd ratios are greater than 1 which is showing positive impacts of industry and services as compared to agriculture sector (see table 5.1 model C).

5.1.4. Relationship between Prenatal Health Care and Labor Force Participation

This section will discuss the findings of the relationship between prenatal health care and labor force participation (employed, unemployed, and inactive) whereas control variable are similar as they have been used in model A and B, and C models in table 5.1.

The study has employed two dummy variables unemployed and inactive workers and whereas employed workers are kept as base category. The estimated results recommend that those wives whose husbands are inactive are less likely to receive prenatal health care. Notably, odd ratio for inactive is below 1 which is suggesting

that employed workers are providing more prenatal health care to their wives, and for more detail see table 5.1 in Model D where odd ratios are given.

In sum, this section envelops the estimation of four binary logit models because dependent variable is in the form of binary variable. The findings make it evident that age and education of female, gender of head, education of husband and head of the family, dependency ratio, and assets of the households are found significant determinants of prenatal health care. Specifically, the central concerned variables nature of occupation (highly skilled, skilled, unskilled workers), nature of employment (unpaid family worker, self-employed, own cultivator, share cropper, and contact cultivator), and labor force participation (employed, Unemployed, and inactive workers), and finally sector of employment (agriculture, mining, industry, and services) are found significantly affecting the likelihood to utilize prenatal health care services. It indicated occupational and employment related differences affect the health care services. Especially workers who are indulged in agriculture sector have been found disadvantageous as compare to others in utilization of antenatal health care services in Pakistan.

Table 5.1 Results from Estimated Multinomial Logit Model by sub-groups

Correlates	Model 1		Model 2		Model 3		Model 4	
	Overall		Only urban		Overall		Only urban	
	Odd ratio	Std. Error	Odd ratio	Std. Error	Odd ratio	Std. Error	Odd ratio	Std. Error
Gender Head (male=1)	0.8453*	.09812	0.8526	.0991	.8492	.0986	.844**	.0934
Education Head (in years)	1.0102**	.00487	1.009**	.0049	1.009**	.0048	1.012***	.0047
Husband education (in years)	1.018***	.00513	1.01***	.0051	1.016***	.0050	1.015***	.0049
Mother age above 35 years is reference category								
Mother Age 15-25 years	1.109**	.04996	1.10**	.0502	1.10**	.0496	1.114**	1.0493
Mother age 26-35 years	1.098**	.04236	1.09**	.04244	1.093**	.0422	1.106***	.0421
Mother education (in years)	1.075***	.0047	1.07***	.0047	1.070 ***	.0047	1.069***	.0046
Dependency ratio (low dependency as reference category)								
Normal dependency ratio	1.0198	.03691	1.0259	.0373	1.0223	.0369	1.0237	.0363
Medium dependency ratio	1.142***	.04640	1.14***	.0464	1.144***	.04649	1.139***	.0456
Assets (holding=1)	4.16***	.4322	4.31***	.4466	4.162***	.4232	4.322***	.4324
No previous pregnancy (=1)	1.504***	.0675	1.49***	.0672	1.500***	.0673	1.489***	.1044
Within remit(=1)	.9191	.06713	.9209	.0672	.9227	.0674	.9098	.0628
Oversees remit(=1)	1.20**	.1105	1.22**	.1126	1.22**	.1126	1.22**	.1044

Correlates	Model 1		Model 2		Model 3		Model 4	
	Overall		Only urban		Overall		Only urban	
	Odd ratio	Std. Error	Odd ratio	Std. Error	Odd ratio	Std. Error	Odd ratio	Std. Error
Self employed			.735**	.1011				
Paid employed			.759**	.1033				
Unpaid family worker			.66***	.0957				
Agriculture			.68***	.0948				
skilled	1.045**	.00401						
High skilled	.9967	.0449						
			unskilled Skill Reference Category					
Mining					1.3666	.3078		
Industry					1.1752***	.0633		
Services					1.122***	.0360		
Unemployed							1.335	.2779
Inactive							.8678**	.0746
Area (urban=1)	1.58***	.0532	1.53***	.0529	1.5107***	.0528	1.576***	.0520
KPK	1.12***	.0518	1.11***	.0513	1.111**	.5113	1.1225**	.5034
Punjab	1.82***	.0703	1.829***	.0699	1.822***	.07014	1.841***	.0695
Sindh	1.60***	.0632	1.62***	.0646	1.627***	.06463	1.598***	.0623
			Baluchistan reference category					
Constant	.54039	.0701	.7543	.1401	.5212	.0664	.5507***	.0667

Correlates	Model 1		Model 2		Model 3		Model 4	
	Overall		Only urban		Overall		Only urban	
	Odd ratio	Std. Error	Odd ratio	Std. Error	Odd ratio	Std. Error	Odd ratio	Std. Error
LR chi2	3307.87 (20)		3322 (19)		3420 (18)		3424.10 (18)	
Pseudo R2	0.0931		0.0936		0.0935		0.0935	
N	28138		28138		28138		28138	

*** denote significant at 1 percent, ** denote significant at 5 percent, * denote significant at 10 percent

5.2 Results Obtained Estimated Multinomial Logit Model

Having discussed results obtained from binary logit model, now, the study discusses the results obtained from multinomial logit model because we have categorized prenatal variable into four categories (i.e. no prenatal health care, services at home, health care in public hospitals, and consult private doctors in hospitals) where no prenatal health care has been the reference category. The discussion on results is given below.

Table 5.2: Estimated Multinomial Logit Model (Labour Force Participation)

	Home Delivery		Public Hospital		Private Hospital	
	RRR	Std.	RRR	Std. E	RRR	Std. E
Gender of Head (male=1)	1.0003	.1715	0.773**	0.1013	0.8426	0.1067
Head Education	1.0108	.0073	1.0081	0.0058	1.016***	0.0050
Husband Education	1.0029	.0075	1.0057	0.0061	1.032***	0.0059
Mother age (15-25 years)	1.2456***	.0830	1.0517	0.0600	1.117**	0.0614
Mother age (26-25 years)	1.1329**	.0655	1.0523	0.0519	1.1431***	0.0544
Mother education	1.0261***	.0066	1.0597***	0.0055	1.084***	0.0052
Normal dependency	.9927	.0531	1.0576	0.0477	1.014	0.0434
Medium dependency	1.0746	.0636	1.1220**	0.0576	1.1881***	0.0572
Assets (holding=1)	1.4207**	.2169	2.5901***	0.3268	10.80***	1.2707
First Pregnancy	1.0716	.0709	1.481***	0.0801	1.726***	0.0870
Overseas Remittance	1.1858	.1553	1.208*	0.1235	1.2685**	0.1238
Within Remittance	.9727	.1008	0.819**	0.0731	0.9660	0.0797
Unemployed (husband)	1.394	.4291	1.2996	0.3188	1.3511	0.3225
Inactive (husband)	.8933	.1216	0.8458	0.0917	0.8721	0.0892
	Employed Reference Category					
Area (urban=1)	1.1367**	.0569	1.867***	0.0759	1.588***	0.0605
KPK	1.0474	.0812	1.169***	0.0630	1.136**	0.0690
Punjab	2.7939***	.1675	1.040	0.0496	2.564***	0.1277
Sindh	1.9191***	.1210	0.865***	0.0437	2.568***	0.1317
Baluchistan ref. category _cons	.1365***	.0257	0.355***	0.0517	0.114***	0.0164

The obtained results contain relative risk ratio of concerned variables where gender of the household head and education of the head are found statistically insignificant. It suggests that gender of head and education have no impact on home delivery. Further results obtained from husband education also have no impact on prenatal health care received at home delivery. Which are evident in table (5.2). But gender of the head has significant effects on prenatal health care received from public hospitals. It suggests that those households which are male headed are less likely to receive prenatal health care from public hospitals as compared to female headed households which can be seen that RRR is less than 1. Moreover, education of household head and husband are leaving positive and significant impacts on prenatal health care received from private hospitals where RRR is greater than 1. It shows that educated heads and husbands are more likely to receive prenatal health care from private hospitals.

Dummy variables of the age of mother are suggesting positive and significant impacts on the prenatal health care receive at home where relative risk ratio is greater than 1 for both categories (i.e. age group 15-25, and 26-35 years) in the case of at home delivery. It indicates that other things remaining same, younger women are more likely to receive prenatal health care at home as compare to older women (above 35 years old). Moreover, age of mother have similar results for prenatal health care receive from private hospitals but it has insignificant impacts on prenatal health care receive from public hospitals.

Education of mother has been found having $RRR > 1$ in all three categories which is indicative of positive impacts of education of mother on prenatal health care utilization. It suggests that those wives who are more educated are more likely to receive prenatal health care at home, from

public and private hospitals. Furthermore, those females, which have facing pregnancy first time, are more likely to receive prenatal health care.

The results of categories of dependency ratio where severe dependency ratio has been kept as reference category suggest that medium dependency ratio has been found significant effects on all categories of prenatal health care, and it is clear from table that RRR for medium dependency ratio is greater than 1 in all three multinomial cases. These recommend that those households, which have medium dependency ratio, are more likely to receive prenatal health care as compared to base category (severe dependency ratio).

The study has employed dummy variables of households, which received remittances from overseas and within country, and obtained results indicate that RRR of overseas is greater than 1 in category of prenatal health care received from public and private hospitals, and these results are significant as well. It is indicating that other things remain same, those households which receive remittances from abroad are more likely to receive prenatal health care utilization whereas results of within country remittances have significant effects only in public hospitals where $RRR < 1$.

Assets of households has statistically significant impacts on prenatal health care utilization in all three categories with statistically and $RRR > 1$. It indicates those households, which hold physical assets (i.e. radio, TV, air cooler etc.) are more likely to receive prenatal health care utilization.

Labor force participation of husband has been found statistically insignificant where two categories are introduces in the models (unemployed and inactive workers) and employed workers are kept as base category.

Area variable has been found statistically significant where urban area is assigned 1 and it has RRR>1 which is indicative of more likelihood of having prenatal health care from all three sources at home, public and private hospitals whereas provincial variable also has statistically significant impact. The estimated results suggest that Punjab, KPK, and Sindh have RRR>1 than that of Baluchistan. Intuitively it is suggestive that Punjab is more likely to receive prenatal health care than that of all provinces, and similarly KPK and Sindh are also more likely to receive prenatal health care than that of Baluchistan.

Table 5.3: Estimated Multinomial Logit Model (Sector of Employment)

	Home Delivery		Public Hospital		Private Hospital	
	RRR	Std. E	RRR	Std. E	RRR	Std. E
Gender HH	0.9604	.16941	.7816*	.1075761	.8580	.1139356
Head Education	1.0066	.0074	1.005	.0060457	1.013**	.0056857
Husband education	1.0073	.0077	1.003	.0063277	1.034***	.0061851
Mother age1	1.250***	.0846	1.033	.0601267	1.099*	.0613608
Mother age2	1.131**	.0663	1.0401	.0521985	1.121**	.0541227
Mother Education	1.027***	.0068	1.060***	.0057276	1.085***	.0053485
Normal						
dependency ratio	.9838	.0535	1.0560	.0486506	1.0185	.0444228
Medium						
dependency ratio	1.0649	.0639	1.135**	.0592188	1.195***	.0584508
Assets	1.3878**	.2152	2.566***	.3307747	10.05***	1.205259
First pregnancy	1.085	.0732	1.484***	.0823832	1.741***	.0898343
Overseas						
Remittance	1.0804	.1558	1.229*	.1357459	1.296**	.1361632
Within						
Remittance	.9949	.1081	.8253**	.0782372	.9854	.0859165
Mining	.9357	.3541	1.555	.4308311	1.519	.4311961
Industry	.9800	.0768	1.418***	.0984233	1.151**	.0732107
Services	.9420	.0446	1.396***	.0604727	1.0564	.0427028
Area (urban=1)	1.141**	.0609	1.6913***	.0728102	1.550***	.063210
KPK	1.0500	.0835	1.1442**	.0632278	1.111*	.0695822
Punjab	2.761***	.1681	1.0253	.0500209	2.530***	.1285299
Sindh	1.891***	.1210	.9023**	.0465013	2.600***	.1359
Constant	.1483***	.0288	.2948***	.0452421	.1117***	.016788

Table 5.4 contains the results obtained from multinomial logit model for employment sector of husband, and estimated results for demographic and some other socioeconomic variables are found more or less similar in direction and statistical significance as are found in table 5.3. But the results of employment sector of husband have some significant impacts on the likelihood of having impacts on prenatal health care.

Employment sectors are categorized in four categories where mining, industry, agriculture, and services sectors but agriculture sector has been kept as base category. Obtained results for mining has statistically insignificant whereas results of services and industrial sector has significant effects on having prenatal health care, and $RRR > 1$ for industry and services sector which is suggestive that other things remain same those wives whose husbands are attached or worked in industry, and services sector are more likely to have prenatal health care as compare to those households which are attached in agriculture sector.

Table 5.4 contains the results for skilled and unskilled husbands. The empirical results for other socioeconomic and demographic variables are more or less same as in last table. But the empirically estimated results for skilled workers are suggestive that those wives, whose husbands are high and skilled workers, are more likely to receive prenatal health care from public and private hospitals as compared to those wives whose husbands are unskilled workers.

Table 5.4: Estimated Multinomial Logit Model (Skill of Husband)

	Home Delivery		Public Hospital		Private Hospital	
Gender of HH	0.96358	0.169974	0.780*	0.107394	0.849	0.112799
Head education	1.0072	0.007507	1.007	0.006056	1.013**	0.005692
Husband education	1.0085	0.007819	1.009	0.006397	1.033***	0.006211
Mother age1	1.247***	0.084549	1.040	0.060498	1.113**	0.062221
Mother age2	1.1286**	0.066217	1.045	0.0524	1.13**	0.054601
Mother education	1.027***	0.00683	1.061***	0.00574	1.085***	0.00535
Normal dependency ratio	0.9809	0.053432	1.047	0.048185	1.019	0.04451
Medium dependency ratio	1.0663	0.064049	1.129**	0.058834	1.195**	0.058453
Assets	1.3907**	0.219693	2.811**	0.368103	9.386***	1.145875
First pregnancy	1.0897	0.073632	1.484***	0.082368	1.751***	0.09046
Within remittance	0.989	0.107643	0.818**	0.077515	0.983505	0.08573
Overseas remittance	1.071	0.154565	1.19	0.131382	1.275**	0.133926
High Skilled workers	1.197**	0.071711	1.053	0.050767	0.991	0.043856
Skilled workers	1.075	0.074991	1.161***	0.065826	0.843***	0.045952
Area (urban=1)	1.1408**	0.058343	1.859***	0.077203	1.602***	0.062484
KPK	1.0414	0.082568	1.188	0.065351	1.13**	0.070607
Punjab	2.740***	0.166931	1.023***	0.049756	2.581***	0.131139
Sindh	1.87***	0.119864	0.869***	0.044607	2.590***	0.135014
Constant	0.126***	0.025503	0.32***	0.050691	0.123***	0.019046

Table 5.5 has the estimation when dummy variables of nature of employment of husbands are included in models then impacts of socioeconomic variables are remained same. But the estimation suggests that paid employed, self employed, unpaid worker, and agriculture workers are found having $RRR < 1$ which suggests that wives of all these mentioned workers are less likely to receive prenatal health care utilization as compare to base category employers. These results also vary within workers aforementioned workers where wives of agriculture related workers are receiving lower likelihood to receive prenatal health care from public and private hospitals.

Table 5.5: Estimated Multinomial Logit Model (Skill of Husband)

	Home Delivery		Public Hospital		Private Hospital	
	RRR	SE	RRR	SE	RRR	SE
Gender HH	.9722	.1717	.7893*	.1088	.8527	.11339
Head Education	1.004	.0075	1.005	.0060	1.0136**	.00573
Husband education	1.0090	.00783	1.003	.0063	1.0353***	.0062
Mother age1	1.2703***	.0867	1.0375	.0608	1.0996*	.0618
Mother age2	1.1409**	.0671	1.0434	.0524	1.1215**	.0542
Mother Education	1.027***	.0068	1.059***	.0057	1.0857***	.0053
Normal dependency Ratio	.9957	.0545	1.0541	.0488	1.0217	.0448
Medium dependency Ratio	1.069	.0642	1.128**	.0588	1.1968***	.0585
Assets	1.371**	.2159	2.919***	.3819	9.9031***	1.2062
First pregnancy	1.085	.0734	1.473***	.0818	1.7446***	.0900
Within remittances	.9955	.1082	.8223**	.0779	.9843	.0858
Overseas remittances	1.0820	.1561	1.230*	.1358	1.291**	.1357
Self-employed	.9769	.2087	.8399	.1426	.6174***	.0941
Paid-employee	.8873	.1880	.9831	.1649	.6017***	.0907
Unpaid-familyworker	.8710	.1947	.7008**	.1256	.5851***	.0940
Agriculture	1.0187	.2189	.6821**	.1176	.5719***	.0885
Area (urban=1)	1.140**	.0600	1.745***	.0743	1.560***	.0626
KPK	1.0425	.0828	1.169***	.0645	1.1102*	.0694
Punjab	2.754***	.1669	1.0352	.0501	2.5357***	.1282
Sindh	1.882***	.1203	.8970**	.0461	2.6072***	.1359
cons	.1499***	.0430	.4079***	.0922	.1950***	.0412

5.3 Empirically Obtained Results from OLS for District Level Analysis

The second sample unit of this study is district level prenatal health care utilization and OLS has been employed to estimate the relationship between nature of employment and occupation in districts of Pakistan. Three models are estimated which are given in table 5 with the name of model A, model B, and Model C in columns.

The obtained results are suggestive that out female employment related variables ratio of females to male wages is found positive and significant at 10 percent significant level. Only in model A but in rest of two models it is found statistically insignificant. Actually we use female's ratio to male in labor force participation, females ratio to male in wage, and females ratio to male in high skilled jobs, and these variables are indicators of women empowerment. The results can be interpreted as the ratio of females to male in wage across all available labor force categories increases, other things remaining same, and the prenatal health care utilization will increase. It shows that those districts where females have freedom to work and yielding much higher wage than that male member, prenatal health care utilization would be higher in that district.

Further findings of the study are suggestive of the positive and highly significant impacts of female literacy rate in rural areas of districts. Those districts where literacy rate of the females increases then those respective districts have experience of higher prenatal health care utilization. Literacy rate of females has been found statistically insignificant.

Health facilities in any district has proved a significant factors as the estimated results are suggesting that those districts where ratio of basic and rural health centers increase that specific district yield higher prenatal health care than those where most of the population has been deprived of these health facilities. These basic health centers and hospitals play important and

significant role especially in the provision of prenatal health care utilization. Moreover, indicators of infrastructure such as facility of metallic roads and commercial banks are found statistically insignificant.

Now discussion is turning to important variables, which are occupation and nature of employment related variables. In model A given in table 5, we employed nature of employment where its impacts are found mix which are significant and insignificant as well because this study undertakes self-employed, paid workers, own cultivators, share cultivators, and contract cultivators. The estimated results for only own cultivators are found statistically significant and rests of indicators are found insignificant. People working as own cultivators in districts are found with negative sign and significant. It shows those districts where as the percentage of own cultivators increase, the prenatal health care reduces for those districts.

Model B is estimated where nature of occupation has been employed and three categories of workers highly skilled, skilled and unskilled workers in districts of Pakistan have been used. The estimated results are suggesting that only unskilled workers in district has been appeared as significant but having negative sign which is indicating that those districts where unskilled workers increases then those districts are experiencing less prenatal health care.

Finally in model C where we introduced two major sectors agriculture sectors and non-agriculture sector and this study uses agriculture sector whereas non-agriculture sector has been kept as reference category. The estimated results are suggesting that those districts where people are more involved in agriculture sectors then those districts are having experience of poor condition of prenatal health care in those districts. Finally we can witness that in all three models

those districts where unskilled, and agriculture related worker increases these districts are facing lesser prenatal health care.

The empirically obtained results from district dummies it is suggestive that Punjab and Sindh provinces are having positive and highly significantly impacts on prenatal health care utilization as compared to Baluchistan whereas the impacts of KPK province has been found statistically insignificant impact on prenatal health care utilization.

5.6. Prenatal health care: A District Level Analysis

Prenatal Health Care (D.V.)	Model A Coefficients	Model B Coefficients	Model C Coefficients
Ratio of female to male labor force	0.035073	-0.03182	-0.02639
Ratio of females to male wages	0.121889*	0.082648	0.08538
Ratio of females to males high skilled jobs	-0.04714	-0.02682	-0.0461
Ratio of health centres to population	0.023065*	0.042184	0.032294*
Urban female literacy	-0.08462	-0.07363	-0.06623
Rural female literacy	0.576625***	0.552825***	0.530553***
Province Punjab	17.97078**	21.14721**	18.35979**
Province Sindh	20.58964***	24.61648***	21.94286***
Province KPK	4.20937	6.211015	3.525875
agriculture participation of Low skilled workers		-3.57613	-0.23181*
Unskilled workers		-3.416*	
Self-employed	0.094779		
Ownwork	-0.67392**		
Share cultivators	-0.28662		
Contract cultivators	-0.77186		
Paid workers	-0.20909		
Metallic road	-0.01799	-0.01433	-0.01179
Commercial bank	0.041125	0.037325	0.041482
cons	119.8715**	445.0269	100.0413***

Note: *= 10 % significance, **= 5 % significance, ***= 1% significance

Chapter 06

CONCLUSION AND RECOMMENDATIONS

The study on the relation between nature of the occupation and employment of husband and prenatal health care service utilization of their wives has been viewed thoroughly in this endeavor. Considering it as the basis for developing strong policy implications for the policy makers in order to overcome the key areas where there is need of improvement, this chapter will suggest some policy recommendations on the basis of the obtained results.

6.1 Concluding Remarks

The main objective of this study is to analyze the relation between nature of the occupation and employment of husband and prenatal health care service utilization of their wives. As Pakistan having male dominant society, the role of male in providing prenatal health care to their wives is critical. For meeting the objective of this research work two types of analysis has been conducted 1) micro level analysis where unit of analysis pregnant women, and 2) Districts level analysis where unit of analysis is districts, and The data of 28138 pregnant women has been collected from PSLM 2012-13 whereas for district level analysis data has been taken from different sources PSLM, PDHS, MICS, and provincial development statistics for the district of respective province.

This study has done analysis in two ways 1) Bivariate analysis where cross tabulation has been made to find out the relationship of socioeconomics variables of household level and individual level, and 2) multivariate analysis where binary logit and multinomial logit model has been

applied to find out the empirically obtained or observed relationship between husbands nature of occupations and employment.

This study constructed dependent variable in two ways 1) binary variable where value of 1 is assigned if women have received prenatal health care utilization, and 2) a categorical variable where four categories are generated i.e. no prenatal health care, at home delivery, received assistance from public hospitals, and assistance received from private doctor or hospital. Further our independent also has been used in manifold: 1) nature of occupation (highly skilled, skilled, unskilled workers), 2) labor force participation (i.e. employed, unemployed, and inactive), 3) nature of employment (employers, self-employed workers, unpaid workers, own and share cropper, and contract cultivator), 4) sector of employment (i.e. agriculture, industry, mining, and services).

The empirically obtained finding from binary and multinomial logit model is suggestive that gender of the head, education of the head, education of the husband, age of the females, dependency ratio, household assets are significant determinants on the likelihood of receiving prenatal health utilization. Moreover, regional and provincial dummies are also found significantly impacts on the prenatal health care. Urban areas are found having positive impacts and Punjab and Sindh are found having positive and significant effects on prenatal health care utilization,

Most importantly our main variables skilled and highly skilled, unskilled workers are appeared as having significant impacts on prenatal health care where skilled workers are found having more utilization of prenatal health care. Moreover, agriculture sector has been disadvantageous in terms of prenatal health care. Further, nature of employment such as employers are appeared

as having received more prenatal health care than that of others. Finally labor force participation also has significant impacts on prenatal health care. In sum prenatal health care is predominantly affected by the occupation and variation in employment of the husbands.

Moreover, findings received from district level analysis are suggestive that women empowerment indicators such as ratio of females to male in wage, and female literacy rate are coming out as significant determinants. Health facility available in district is also playing its significant role in determine prenatal health care utilization at district level.

The main variables occupation, nature of employment (skilled and unskilled labor) and agriculture and non-agriculture sector shows significant impact on prenatal health care service utilization at district level.

6.2 Policy Recommendations

Based on obtained results this study is suggestive of some policy implications, which are given below.

- 1) Education of husband and wife has been found positively affecting and significantly. Therefore, there is need to increase the education level of especially females so that they may be aware of the importance of antenatal health utilization.
- 2) Descriptive and empirical findings suggest that occupations of the spouse have important and significant impacts on the antenatal health care utilization. Increase level of employment enhances the income level of husbands, and they plays significant role to meet antenatal health care.

- 3) Government must improve basic rural health units and provide facilities regarding prenatal health care utilization.
- 4) Agriculture related workers must be given more prenatal facilities.
- 5) Mother education has come as powerful indicator therefore education must be increased which plays important role as well.
- 6) General suggestion is that public health departments must play their effective role to spread awareness of antenatal health care utilization.

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