Status of Maternal Health & Health Seeking Behaviour among the Ever-Married Women (15-49) in Rural Jammu and Kashmir

Thesis submitted to the Jawaharlal Nehru University
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DOCTOR OF PHILOSOPHY

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DECLARATION

*I, **RAJ KUMAR**, do hereby declare that the thesis entitled* **"Status of Maternal Health & Health Seeking Behaviour among the Ever-Married Women (15-49) in Rural Jammu and Kashmir"** *submitted to the School of Social Science, Jawaharlal Nehru University, New Delhi for the degree of **DOCTOR OF PHILOSOPHY**, embodies the result of bonafide research work carried out by me. No part of the thesis has been submitted to any other university/institution in part or full for the award of other degree or diploma.*

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It is hereby recommended that the thesis may be placed before the examiner for evaluation.

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This Thesis is Dedicated to my Parents

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Dated *(Raj Kumar)*

Table of Contents

List of Abbreviations

ANC	Antenatal Care
APL	Above Poverty Line
ASHA	Accredited Social Health Activist
ASHA	Accredited Social Health Activist
CDDK	Clean Disposable Delivery Kit
CHC	Community Health Centre
DLHS	District Level Household Survey
EAG	Empowered Action Group
GOI	Government of India
GPS	Global Positioning System
IFA	Iron and Folic Acid
IPHS	Indian Public Health Standard
J & K	Jammu and Kashmir
JSSK	Janani Shishu Suraksha Karyakaram
JSY	Janani Suraksha Yojana
MCH	Maternal Health Care
MDGs	Millennium Development Goals
MHC	Maternal Health Care
MMR	Maternal Mortality Rate
MOHFW	Ministry of Health & Family Welfare
NFHS	National Family Health Survey
NFHS	National Family Health Survey
NRHM	National Rural Health Mission
PCA	Principal Component Analysis
PHC	Primary Health Centre
PNC	Postnatal Care
SC	Sub Centre
SC	Scheduled Caste
SDGs	Sustainable Development Goals
SMGS	Shri Maharaja Gulabh Singh
SRS	Sample Registration System
ST	Scheduled Tribe
TT	Tetanus
Uts	Union Territories
WHO	World Health Organisation

List of tables

List of Figures

List of Maps

Chapter I: Introduction

1.1 Introduction

"Women are not dying of diseases we cannot treat….. They are dying because societies have yet to decide that their lives are worth saving."

Mahmoud Fathalla,

Ex-president, International Federation of Obstetricians and Gynaecologists

The year 2019 imprints two significant achievements in the field of maternal health: fifty years since UNFPA started tasks, and 25 years since the milestone International Conference on Population and Development (ICPD) in Cairo (UNFPA 2019).

In the year 1987, when policymakers, health experts, and development professionals assembled in Nairobi (FCI 2007), the capital city of Kenya to introduce the worldwide activity, maternal mortality[1] was not a noteworthy national or global need. It was frequently the disregarded segment of maternal-child health programmes, as supported by Maine and Rosenfield in their fundamental 1985 article (FCI 2007), "Where is the M in MCH?" (Rosenfield and Maine 1985). At the Nairobi meeting, a gathering of worldwide organisations propelled for the development of the safe motherhood initiative to decrease the burden of maternal deaths and morbidity in developing countries (FCI 2007), (Review, 2003). The next breakthrough comes regarding the reduction of maternal mortality at the international level during the year 2000 as the United Nations Millennium Development Goals (MDGs). Goal five of the MDGs calls for the reduction of maternal mortality by 75 per cent between the year 1990 to 2015 (Filippi, Chou, Ronsmans, Graham, & Say, 2016).

Notwithstanding the generous advancement in the decrease of maternal mortality, challenges remain. The most recent improvement in the field of maternal health after the due date of MDGs lessening maternal mortality is Sustainable Development Goals (SDGs) for post-2015 to 2030 period. The Sustainable Development Goals (SDGs) are

[1] *According to WHO definition, "maternal is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes (2002)"*

more extensive than the MDGs motivation, with a more prominent number of non-health objectives and a solid spotlight on disparity reduction and the new plan incorporates an absolute reduction in maternal mortality as a marker of advancement (Filippi et al., 2016).

Numerous women still experience the ill effects of genuine medical problems during pregnancy and labour. In 2015, an expected 303000 women died globally because of pregnancy and child-birth related issues. Most of these deaths, 99 percent occurred in low and middle-income nations, with 64 percent happening in the WHO African region (WHO 2015). Diminishing maternal mortality essentially relies on guaranteeing that women approach quality care before, during and after labour. WHO prescribes that women must start the first antenatal visit in the first trimester of pregnancy referred to as an early antenatal check-up (WHO 2018). Such care empowers the early administration of conditions which may antagonistically affect pregnancy, hence conceivably lessening the danger of intricacies for women and infants during and after labour. In any case, worldwide, it is evaluated that over 40 per cent of women do not receive early antenatal care in 2013. Most recent accessible information propose that while in most high income and upper-middle income nations are helped by such skilled health personnel (WHO, 2018).

Albeit maternal mortality is presently extremely uncommon occasions in developed nations, they, sadly, stay normal occasions in developing nations (Cook, Dickens, and Fathalla, 2003). Most recent assessments of the maternal mortality proportion demonstrate that the number of maternal deaths per 100,000 live births diminished universally by around 45 percent between the years 1990 to 2013, with reductions saw in all pieces of the world (WHO 2015). Albeit huge, this rate of abatement is probably not going to prompt the accomplishment of the focus on 75 percent decline by 2015 (WHO 2015). However, the absolute number of maternal deaths because of pregnancy-related causes have decreased from 523000 during the year 1990 to 289000 in 2013 worldwide (WHO 2015).

Under SDGs, the global community have set a goal to reduce the women deaths due to pregnancy-related cause to below seventy per thousand live births by 2030. Nevertheless, in spite of a drop of 45 per cent in maternal mortality ratio since 1990, still, there is a noteworthy local imbalance exist. Sub-Saharan Africa and South Asiaare the two major contributors to maternal deaths due to preventable pregnancy-related causes, i.e. 62 per

cent and 24 per cent, respectively. (Goli, Rammohan and Moradhvaj 2018). One-third of the maternal deaths in the world occur in two countries, i.e. India is the largest contributor with 17 per cent, and Nigeria contributes 14 per cent to the global maternal mortality (Goli, Rammohan and Moradhvaj 2018).

Most of the maternal deaths happening in developing countries are preventable. To ensure a safe pregnancy, women should have to go through several antenatal check-ups to ensure the proper growth of foetus and diagnostic of any maternal complications which can be lethal to the existence of women and her baby. At the time of delivery, there should be trained health personnel who can monitor and supervise the process of childbirth. Time around delivery is very crucial because most of the complications arise during this period. Ensuring skilled attendants at birth can prevent many maternal deaths. It is also important that delivery should be happening at enabling an environment where every sort of preventive and emergency can be handle (Silal, et al. 2012). Very low utilisation of maternal health care (MHC) services in developing countries like India is the major reason for a large number of maternal deaths, and the threat of obstetric morbidity is even greater. The latest estimates of the National Family Health Survey (NFHS) have found that one out of five women who have delivered their baby five-year preceding survey received full antenatal care (ANC) in India. The coverage of safe delivery[2] and postnatal care (PNC) has increased substantially during the last decade after the inception of the National Rural Health Mission (NRHM). However, there is a huge regional and local level variation in MHC services utilisation in the country. Jammu and Kashmir is one of the eighteen high focussed states under NRHM in the country. The coverage of MHC services in Jammu and Kashmir is better than the national level. And the percentage of full antenatal care[3] 26.8 per cent and deliveries assisted by trained health personnel 87.5 per cent higher than the national level.

Several studies at the national and international level have found that health care seeking behaviour is determined by several underlying background characteristics of women(Addai 2000), (Wondimu, Girma and Agedew 2017), (Silal, et al. 2012), (Hazarika 2011). Therefore, in the present study, the status of maternal health and factors

[2]*Delivery assisted by a trained health personnel.*
[3] *Full Antenatal Care Includes having received four ANC visits, at least one TT injection and having taken IFA tablets or syrup for 100 or more days.*

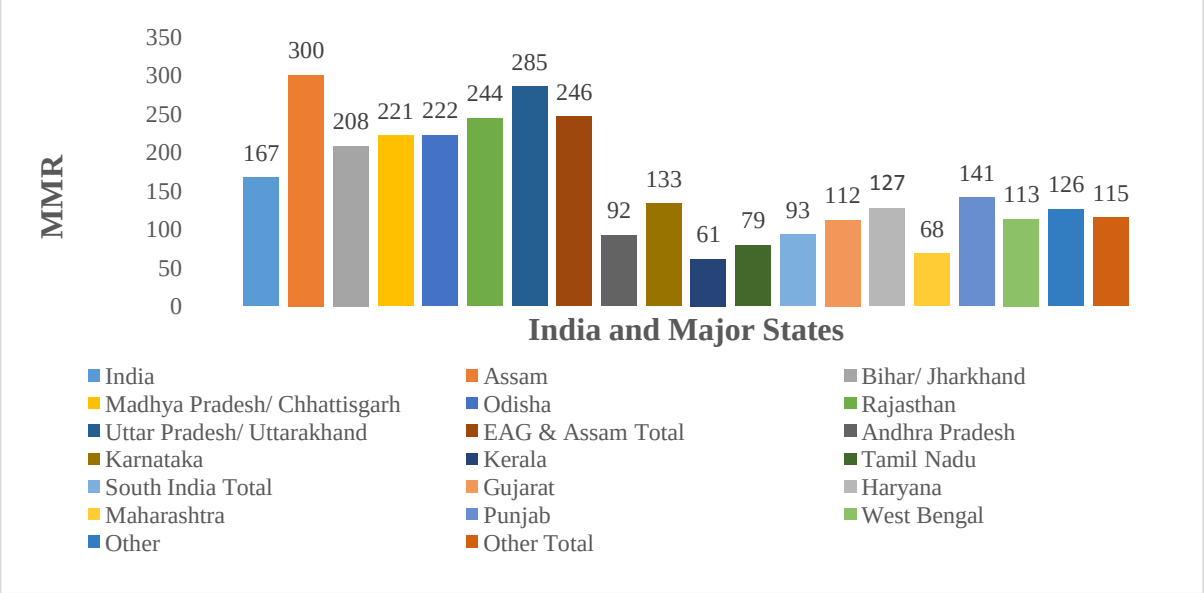
associated with health care seeking behaviour will be examined in the rural area of Jammu and Kashmir.

1.2 Statement of the Problem

In the present study, the issues that haveundertaken for research are nature of availability, accessibility andutilisation of various MHC service such as, ANC, intrapartum, and PNCand the prevalence of obstetric morbidity in rural Jammu and Kashmir.

India is the largest contributor to maternal deaths, and the latest estimates have shown that there are 167 women dies per 100000 live births in the country (SRS, 2011-13). The Government of India collects data on maternal deaths through the Sample Registration System (SRS). Figure 1.1 depicts the Maternal Mortality Ratio (MMR) for the major states of the country. Assam records the highest MMR, i.e. 300 maternal deaths per one lakh live births, followed by Uttar Pradesh/Uttarakhand, Rajasthan, Odisha, Madhya Pradesh and Bihar/Jharkhand. The subtotal of Empowered Action Group (EAG) states and Assam records 246 deaths per one lakh live births.

Figure 1-1 Maternal Mortality Ratio, India & Major States



Source: Sample Registration System, 2015.

The figure demonstrates the clear divide between southern states of the country to the rest of India, and Kerala records the lowest MMR 61 among the major states followed by Maharashtra, Tamil Nadu, Andhra Pradesh and subtotal for southern states is below 100 MMR (Fig. 1.1). The subtotal of MMR for the other states includes, for instance, Gujarat,

Haryana, Maharashtra, Punjab, West Bengal and other is 115 maternal deaths per one lakh live births (Fig.1.1). India has signed several international commitments to bring down the high maternal deaths, for instance, Alma Ata declaration, Safe motherhood initiative, MDGs and SDGs. To realise these commitments, the Government of India brought the first National Health Policy 1982 (NHP, 1982), to enhance the primary health care infrastructure in the initial period of the eighties. During the last decade, several initiatives have been undertaken to enhance the accessibility and coverage of MHC services, for instance, Janani Suraksha Yojana (JSY), Janani Shishu Suraksha Karyakaram (JSSK) and introduction of Accredited Social Health Activist (ASHA) worker under NRHM. These schemes have brought down maternal deaths substantially and enhanced the coverage of MHC services extensively in the rural area. But the results of these interventions are not equally distributed, and there are still a large number of women don't receive essential services such as ANC, institutional delivery and PNC, especially the most vulnerable women's belong to socially, economically weaker section of the society and in the hard to reach rural mountain area.

There is no estimates of MMR for Jammu and Kashmir available in the existing secondary sources of datasets. However, the data on MHC services utilisation and prevalence of maternal morbidity has collected through several national level surveys from time to time. The coverage of MHC services in Jammu and Kashmir is better than the national level, though state lags behind several states and union territories and it is one of the eighteen high focused states. The state contains more than seventy per cent of the rural population living in the villages where the main source of health care services in the public health centres. The availability of health infrastructure in plain and high population density area is generally better than hilly and mountainous and sparsely populated area.

Several studies have found that rural women less likely receive MHC services compared to their counterpart those live in the urban area. But very limited studies have conducted to examine the existing gap in MHC services utilisation within the rural area. Inside rural areas, there is a substantial inconsistency between plain and mountain setting and women living in the mountain area confront with multiple obstacles to get care during the pregnancy, for instance, physical barriers to reach a health facility, socio-cultural and economic barriers.

1.3 Global Scenario

Table 1.1 and 1.2 explain the scenario of maternal mortality and MHC services coverage globally. A substantial number of maternal mortality rate decline can be noticed from the year 1990 to 2013. Maternal mortality Ratio is recorded exceptionally high, i.e. 210 maternal deaths per 100,000 live births worldwide. According to the world health statistics report, 2015, the decrease in the MMR is recorded in all the WHO regions from the year 1990 to 2013. However, this decline is uneven among different regions, and it is highest in the African region 500 to as low as 17 per one lakh live births in the Europeanregion.

Southeast Asian Region also displays a decline in MMR from 520 in the year 1990 to 190 per one lakh live births in the year 2013 (Table 1.1). Though the highest number of maternal mortality recorded from this region in which India is the highest contributor regionally and globally. There is an enormous disparity between high and low-income countries. Inhigh-incomecountries, maternal mortality is a very rare event, and on the other hand, in low-income countries, maternal death is a common event, and many more times have been suffering from maternal morbidity for a lifetime.

Maternal mortality is a preventable human loss through timely intervention and some preventive measures. To lessen maternal deaths in low-income countries, international institutions like the World Health Organisation (WHO) has recommended a systematically monitoring of pregnancy through antenatal check-ups (ANC) and delivery conducted by a skilled health care provider. These huge number of preventable maternal deaths which have been happening in the developing and low-income countries could be preventable if the coverage of MHC services enhanced among the mothers. Although several initiatives have been taken by the international and the national agencies of different governments to enhance the coverage of MHC services. There are still a big number of women in a low-income settingwho deliver their baby out of health institutions without any assistance from trained health personnel.

Table 1. 1: Global Scenario of Maternal Mortality Ratio.

WHO Region	1990	2000	2013
African Region	960	820	500
The Region of the Americas	110	81	58
Southeast Asia Region	520	340	190
European Region	42	29	17
Eastern Mediterranean Region	340	300	170
Western Pacific Region	110	78	45
Income Group			
Low Income	900	740	450
Lower Middle Income	500	380	240
Upper Middle Income	120	93	57
High Income	24	18	17
Global	**380**	**330**	**210**

Source: World Health Statistics, 2015.

Table 1. 2: Global Scenario of Maternal Health Care Services Coverage.

WHO Region	Any Visit (%)	At least 4 Visits (%)	Safe Delivery (%)
African Region	77	48	51
The region of the Americas	96	90	96
Southeast Asia Region	77	70	68
European Region	…	…	98
Eastern Mediterranean Region	78	48	67
Western Pacific Region	95	…	96
Income Group			
Low Income	75	40	51
Lower Middle Income	78	67	64
Upper Middle Income	94	…	97
High Income	…	…	99
Global	**83**	**64**	**74**

Source: World Health Statistics, 2015.

Developed world reports the universal coverage of services such as antennal care and assistance at the time of delivery, i.e. safe delivery (Table 1.2). Globally more than one-third of pregnant women have been not receiving four ANC check-ups recommended by the World Health Organisation (WHO). And one-fourth of women deliver their baby without any assistance from trained health personnel (Table 1.2).Consequently, It becomes very clear that the maternal mortality in the developed and high-income countries where universal coverage of MHC services, are very rare and on the other hand in low-income countries where a huge number of women's do not access the required

services at the time of pregnancy record high maternal deaths and severe obstetric morbidity.

Therefore, it is the moral duty of all policymakers, planners and the governments of all low income and developing countries to formulate the policies, how to enhance the accessibility, availability, affordability and utilisation of MHC services which can cut the preventable maternal deaths and obstetric morbidity.

1.4 Study Area

Jammu & Kashmir State is one of the oldest State of Indian Union. The all-out region of Jammu and Kashmir state is 2,22,236 Sq. Km. Which incorporates 37,555 Sq. Km. under the occupation of China in Leh and 78,115 Sq. Km. under the control of Pakistan and 5,180 Sq. Km. given over by Pakistan to China. The state is encompassed by a few foreign nations, for example, Pakistan in the West, Afghanistan in the Northwest and China in the Northeast. Jammu and Kashmir is situated between 32^0 to 72^0 Longitudes and 72^0 to 80^0 Latitude. Geographically the State of Jammu and Kashmir has separated into three regions viz; Jammu, Kashmir and Ladakh (GOI, Annual Progress Report 2012-13 2013).

According to the latest census 2011, the total population of Jammu and Kashmir is 1.25 crore which comprises of 27.38 per cent urban population and more than two-thirds living in a rural part of the state. Decadal population growth in the state is 23.64 (Table 1.3). J & K is one of the least densely populated states in the country, and it is 124 person per sqkm, according to the 2011 census (Table 1.3). Sex ratio in the state has recorded very low that is 889 female per 1,000 male. The one-third population is illiterate in the state. The proportion of the marginal communities of the total population in the state is 7.38 per cent for Scheduled Castes and 11.91 per cent Scheduled Tribe (Table 1.3).

The district Kathua has selected for micro-level study is the gateway of Jammu and Kashmir. The district has named after it's headquartered town Kathua. The district is having a long southern border with the Himachal Pradesh and Punjab; the district has inherited many similarities from these neighbouring states. The district has unique status among all other districts of Jammu and Kashmir and serves as a gateway for rest of the country to enter in the state through its famous township Lakhanpur.According to 2001 census, the district comprised of four tehsils namely; Basholi, Billawar, Hiranagar and

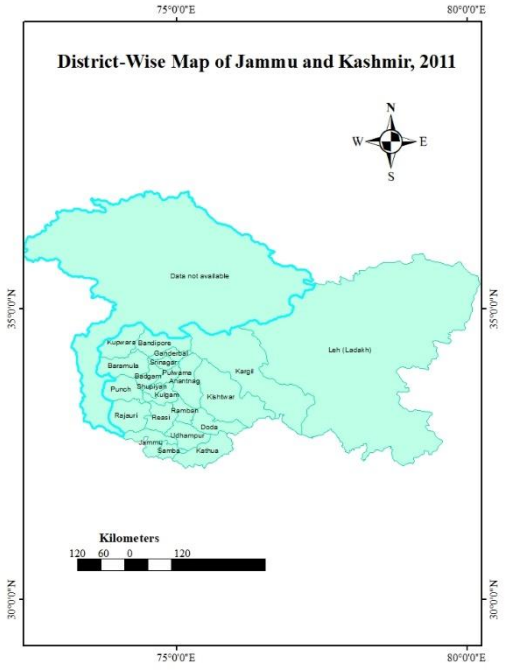
Kathua. After 2001 census tehsil Bani has carved out by detaching 33 villages from tehsil Basholi.

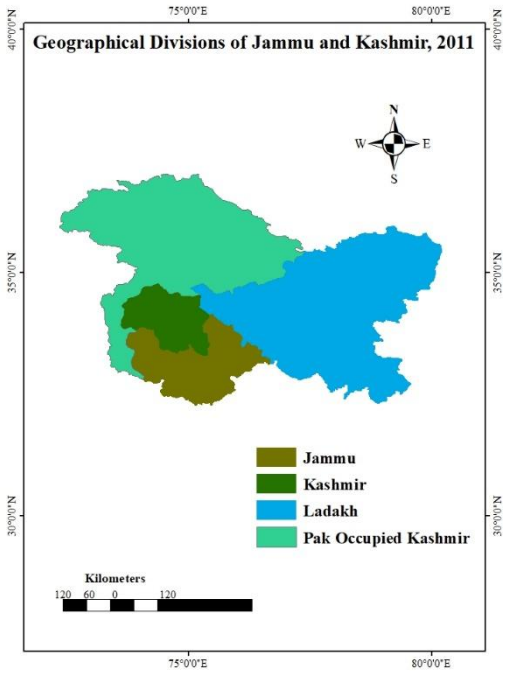
Table 1. 3: Important Statistics of Study Area

Indicator	Jammu and Kashmir	Kathua
No. of Villages	6553	512
Number of Towns	122	6
Total Population	1,25,41,302	6,16,435
Percentage of Urban Population	27.38	14.55
Decadal Population Growth	23.64	20.53
Area (in sq Km.)	2,22,236.00	2502
Population Density	124	246
Sex Ratio	889	890
Literacy Rate	67.16	73.09
Scheduled Caste (%)	7.38	22.91
Scheduled Tribe (%)	11.91	8.65

Source: Census of India, 2011.

Map 1.1 **Map 1.2**



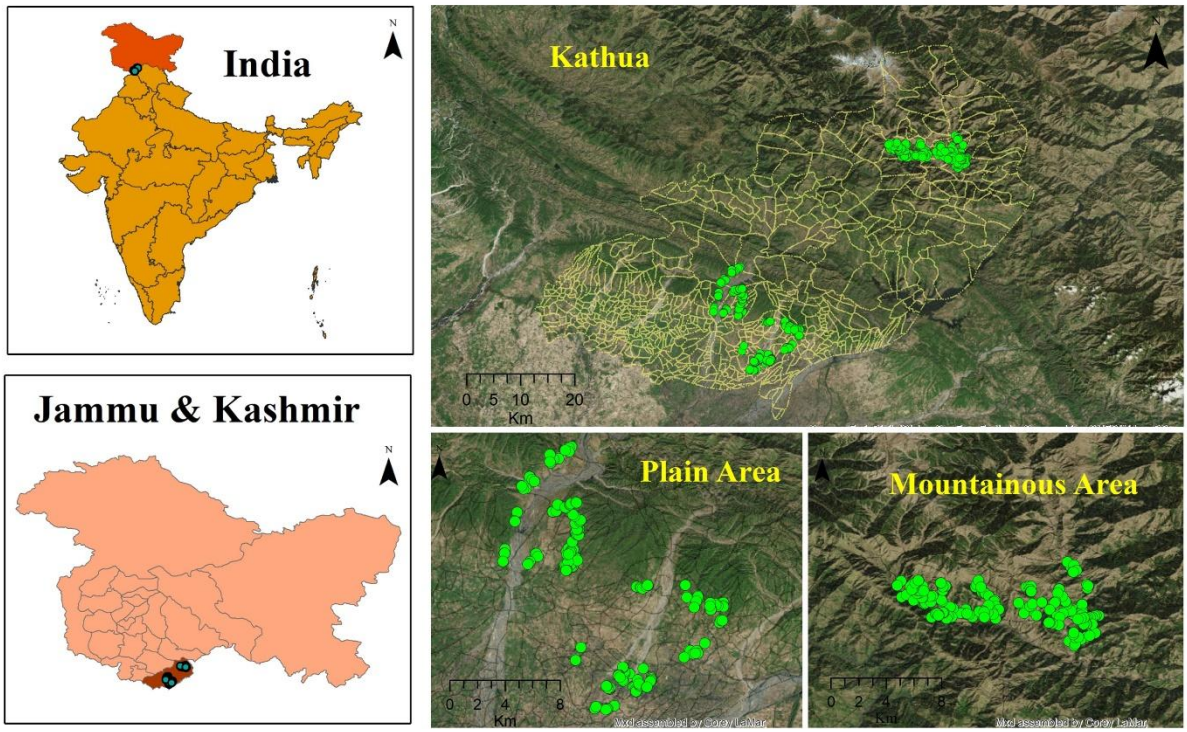


Source: Census of India, 2011

District further divided into eight community development blocks. These blocks are Bani, Duggan, Basholi, Billawar, and Lohai Malhar: the hilly terrain, Barnoti, Kathua and

Hiranagar, lies in the plain area. According to the 2011 census, there are 6553 total villages in the state on the other hand in district Kathua there are 512 villages. The total population of the district is 6, 16,435, comprises around fifteen per cent of the urban population living in the six towns. Decadal population growth is 20.53 as per 2011 census (Table 1.3).

Map 1.3: Location Map of the Study Area



Source: Census of India, 2011, Google Earth and Sample Household Coordinate Points through GPS.

Why Jammu and Kashmir?

Jammu and Kashmir is one of the highly focused states under the umbrella programme NRHM.The main thrustof the "NRHM is to provide accessible, affordable, accountable, effective and reliable primary health care and bridging the gap in rural health care through the creation of Accredited Social Health Activist (ASHA) (Kumari and Pal 2016)." Data on Maternal Mortality Rate (MMR) for state Jammu and Kashmir is not available. Though data has been collected on the utilisation of services like ANC, delivery care, postpartum care and obstetric morbidity throughout the country from time to time.According to the latest estimates of NFHS-4, 2015-16, just one-fourth of ever-married women who had delivered their baby five-year preceding survey received full ANC in Jammu and Kashmir. In case of coverage of delivery care, 87.1 per cent and 87.8

per cent of women in the state delivered their last live birth in the health institution and delivery assisted by trained health professional respectively. One-fifth of women in the state had not received check-up after delivery during their last live birth.

A composite index has been computed through Principal Component Analysis (PCA) method comprises of the following MHC services variables:

- Four or more than four ANC visits
- At least two TT injections
- IFA tablets for at least 100 days.
- Full ANC
- Institutional delivery
- Safe Delivery
- And postnatal check-up after delivery

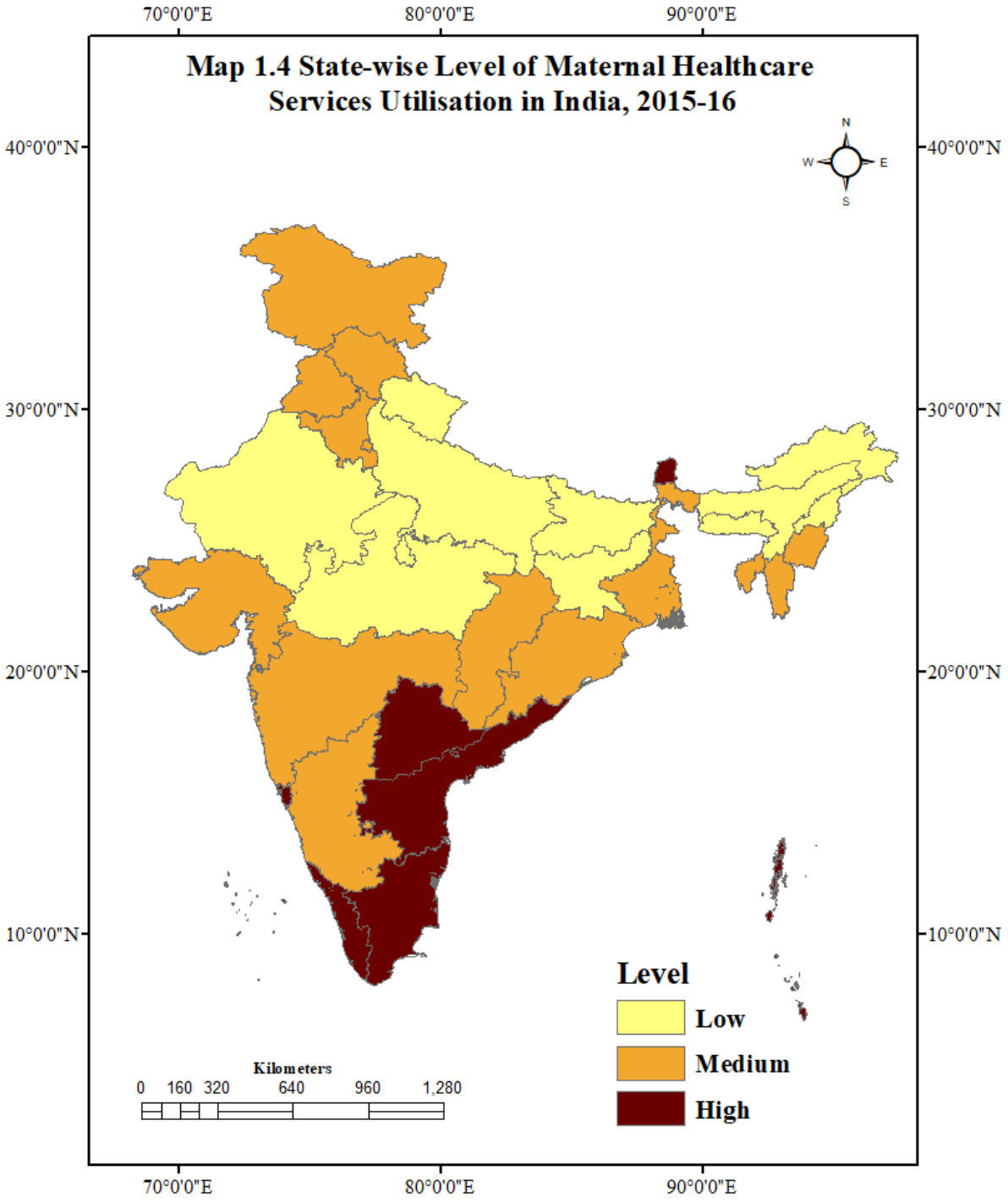
The above variables of MHC services have used to understand the level of coverage in Jammu and Kashmir compared to the other states and UTs. Among the total thirty-six states and union territories, Jammu and Kashmir lie almost middle of the ranking at a sixteenth position which is better than its neighbouring Himalayan states Himachal Pradesh at twentieth and Uttarakhand which ranked thirty-first.

Table 1.4 and map 1.4 explain the factor score and rank of states and union territories in MHC services utilisation. Southern states and union territories (UTs) of the country record higher level of maternal health care services utilisation, for example, Lakshadweep top-ranked followed by Kerala among the state's top-ranked, Goa, Puducherry, A & N Islands, Tamil Nadu, Andhra Pradesh, Sikkim the only state from the north, Telangana and Chandigarh. These states and UTs of the country are also better performers in other areas of human development indicators like high literacy rate, better health care infrastructure and low population growth.

Table 1. 4: State Wise Composite Index of Maternal Health Care Services Utilization, India, 2015-16

State	Factor Score	Rank
Lakshadweep	1.63899	1
Kerala	1.53689	2
Goa	1.47277	3
Pondicherry	1.30673	4
Andaman & Nicobar Islands	1.15246	5
Tamil Nadu	0.95102	6
Andhra Pradesh	0.8943	7
Sikkim	0.88707	8
Telangana	0.77531	9
Chandigarh	0.66396	10
Punjab	0.62868	11
Maharashtra	0.44605	12
Dadra & Nagar Haveli	0.42395	13
Karnataka	0.37751	14
Delhi	0.32864	15
Jammu & Kashmir	**0.23262**	**16**
Orissa	0.19926	17
Gujarat	0.18401	18
Mizoram	0.10138	19
Himachal Pradesh	0.10046	20
West Bengal	-0.05014	21
Manipur	-0.10586	22
Haryana	-0.21243	23
Daman & Diu	-0.23616	24
Chhattisgarh	-0.25681	25
India	**-0.32555**	**26**
Tripura	-0.43563	27
Rajasthan	-0.55239	28
Assam	-0.6094	29
Madhya Pradesh	-0.71116	30
Uttarakhand	-0.90958	31
Meghalaya	-1.0673	32
Uttar Pradesh	-1.17119	33
Jharkhand	-1.23464	34
Bihar	-1.51638	35
Arunachal Pradesh	-2.15412	36
Nagaland	-2.7533	37

Source: Computed from NFHS-4, IIPS, 2015-16



Source: National Family Health Survey-4, IIPS, 2015-16.

The development indicators like literacy rate in the states like Kerala can compare to the developed nations of the world.

Level of MHC services utilisation in Jammu and Kashmir demonstrates moderate performance, and the state ranked at the sixteenth position among other states and UTs. Most of the eighteen high focussed states belong to the medium level of MHC services utilisation. States belongs to this category surrounds the low performing states of the country. In the north along with Jammu and Kashmir, Himachal Pradesh, Punjab and Haryana record medium level coverage (Table 1.4 & Map 1.4).

All ten lowest-ranked states belong to the central and north-eastern parts of the country. Majority of these states come under EAG states under NRHM. Coverage of MHC services in these states record below the national level (Table 1.4).

Nagaland is the worst performing state followed by Arunachal Pradesh, Bihar, Jharkhand, Uttar Pradesh, Meghalaya, Uttarakhand, Madhya Pradesh, Assam and Rajasthan. These are the state in which the prevalence of maternal mortality is very high. These states have also been lacking in basic healthcare infrastructure accompanied by poverty, illiteracy, and high population growth.

Similar variables of MHC services have used to compute the composite index for district-level analysis. Table 1.5 examines the district-wise level of MHC services utilisation in Jammu and Kashmir.

There is a large variation in MHC services coverage across the districts in the state. Based on the composite index, it has found that the top five districts include Pulwama, Badgam and Srinagar from Kashmir valley and Kathua and Jammu from Jammu region. These districts are characterised by the relatively plain area, high urban population, high literacy rate, the low proportion of the tribal population compared to the other districts. Jammu and Srinagar are the capital city of the states for winter and summer, respectively.

On the other hand bottom, five districts include Doda worst performing followed by Reasi, Ramban, Rajouri and Kishtwar. All these districts fall in the high priority districts[4] of the state except district Reasi. All the low performing districts belong to Jammu region of the state. These districts are characterised by the rugged and mountainous topography accompanied by high tribal population, low literacy rate, inadequate health infrastructure and high rural population. Two districts of Ladakh region include Leh ranked seven and

[4] *The bottom 25% of the districts in every State according to the ranking of districts based on composite health index have been identified as High Priority Districts (HPDs).*

Kargil at the thirteenth position among the twenty-two districts of the state (Table 1.5). The district Kathua is one of the top performers in coverage of MHC services and positioned at the third place among twenty-two districts of the state.

Table 1. 5: District Wise Composite Index of Maternal Health Care Services Utilization in Jammu and Kashmir, 2015-16.

District	PCA Score	Rank
Pulwama	0.91629	1
Badgam	0.90354	2
Kathua	0.85395	3
Jammu	0.82868	4
Srinagar	0.78356	5
Baramula	0.73827	6
Leh	0.69882	7
Shupiyan	0.6565	8
Ganderbal	0.60776	9
Kulgam	0.43219	10
Udhampur	0.38588	11
Kupwara	0.31067	12
Kargil	0.27775	13
Bandipore	0.27305	14
Anantnag	0.1391	15
Jammu and Kashmir	**0.0716**	**16**
Samba	-0.02257	17
Punch	-0.39042	18
Kishtwar	-1.3011	19
Rajouri	-1.39159	20
Ramban	-1.51274	21
Reasi	-1.52502	22
Doda	-2.73416	23

Source: Computed from NFHS-4, IIPS, 2015-16

1.5 Conceptual Framework

Different scholars and research bodies have developed several models and theories worldwide to understand the phenomena of healthcare seeking behaviour and its determinants (Aday and Andersen 1974), (McCarthy and Maine 1992), (Thaddeus and Maine 1994). These models provide insight into the determinants of MHC seeking behaviour and access to health care services utilisation.

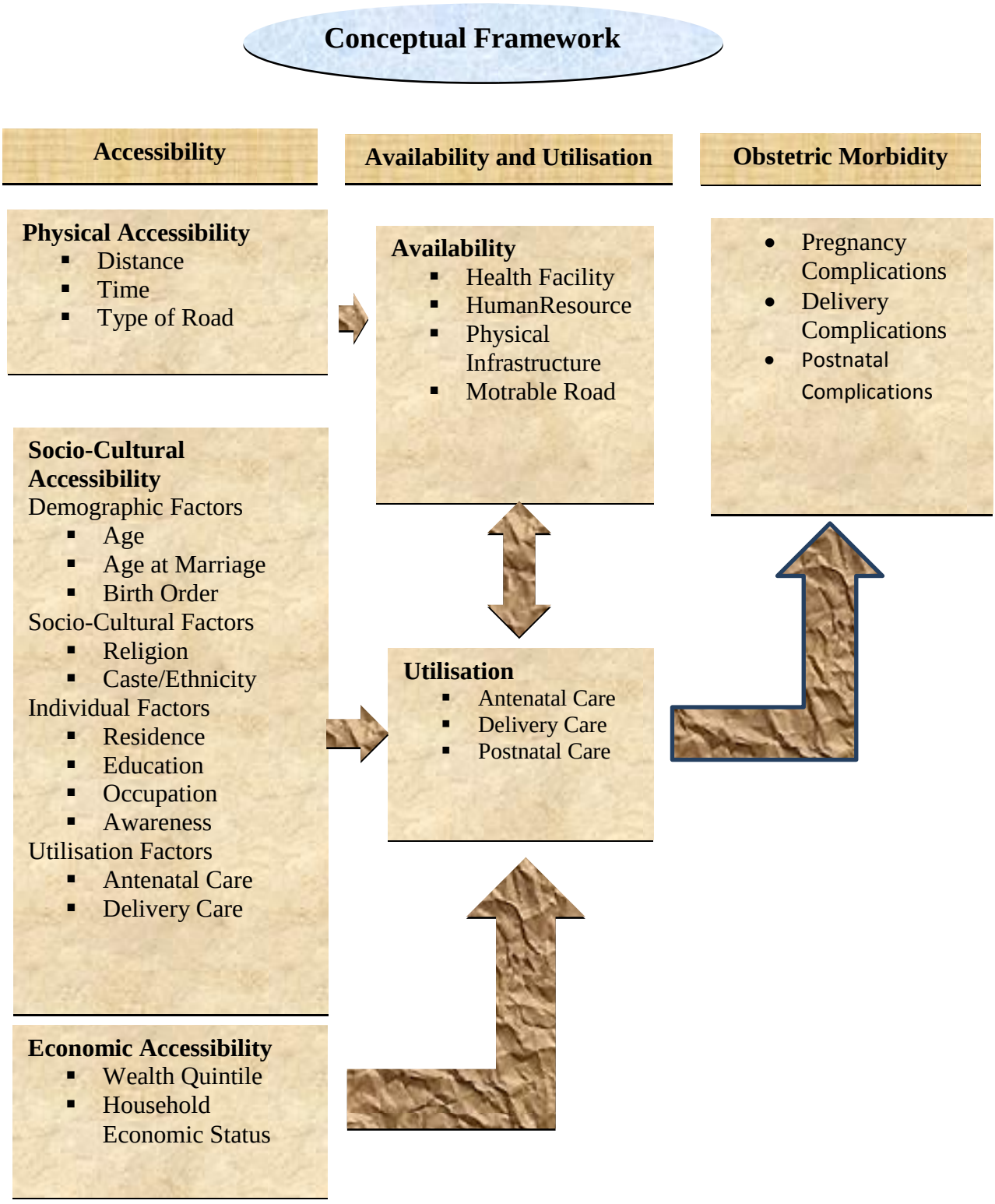
(Aday and Andersen 1974)"A framework for the study of access to medical care," They describe the framework of the access is more political than operational, and it starts from

the formulation of health policy which includes financing, education, workforce and organisation, passing through characteristics of health care delivery system including resources volume and distribution, and organisation including entry and structure. The third component of access is "characteristics of the population at risk, i.e. predisposing (mutable, immutable), enabling (mutable, immutable) and need (perceived and evaluated) and finally the outcomes, i.e. actual utilisation of health care services and consumers satisfaction with these services (Aday and Andersen 1974)."

Another conceptual model on maternal mortality has been presented by(Thaddeus and Maine 1994)**.** Three delays model suggested that maternal mortality is the result of delays in seeking timely emergency care. They have given a comprehensive model to understand numerous variables which can create a delay in seeking emergency care during complication and divided into three stages of delay in seeking emergency care. The model suggested that women's socio-cultural and economic background characteristics (for example women autonomy, distance to the health facility, household economic status, opportunity cost and perceived quality of care) play an important role in the first delay to decide seeking emergency care. Physical accessibility and barrier to reach health facility (for example, distance and time to reach health facility and mode of transportation, condition of the road, cost of transportation, etc.) is the second delay.

They describe the third delay as delay in receiving adequate medical care after reaching a health facility. In emergency health of women have already deteriorated due to the first and second delay and if they do not get adequate health care, it might cause the death of women. Factors which contribute to this delay are the inadequate referral system, shortfall in human resources and shortage of equipment and drugs. Although all three delays will contribute to maternal mortality, however, anyone of them can prove fatal. This framework of three delays only discusses the situation created after the onset of complications and not discussed preventive healthcare seeking behaviour.

(Gabrysch and Cambell 2009) Extended the three delay model to preventive care and argued that determinants of seeking health care are different for preventive and emergency care. They reviewed the literature on determinants of facility use and identified twenty variables determining healthcare seeking behaviour.



They found that socioeconomic variables like age of women, birth order, religion, ethnicity, place of residences are frequently researched variables because these variables are easy to measure. However, a variable like women autonomy is the least researched variable because of complicated measurement. They further categorised these

variablesunder four categories 1) socio-cultural factors, 2) perceived benefit/need, 3) economic accessibility and 4) physical accessibility.

The recent development in the delay model is the incorporation of a new approach "near misses" in maternal mortality (Pacagnella, et al. 2012). They suggested that the gap in maternal mortality between developed and developing countries is due to the differences in time taken to handle emergency obstetric complications (Pacagnella, et al. 2012). Near misses can be a substitute variable for maternal deaths, giving a higher amount of samples for analysis. Particularly, cases remain present to give evidence after the incidents, comprising the difficulty they confronted to reach a health facility. Collecting data by verbal autopsies to an in-depth interview with the survival of near-miss in recent studies can give the real picture of the government programmers. The reduction in maternal deaths and improving access to MHC services is the necessary condition for development and reducing poverty, in a few cases near miss can perpetuate poverty. The economic burden enhanced by the near-miss or severe obstetric morbidity, for example, cost of medical budget, drugs, transportation for a long time can impact household budget severely.

a) Physical accessibility

Physical barriers to access health facilities, distribution of health facilities and health providers, inadequate referral system determine the health care seeking behaviour of women significantly (Patel and Ladusingh 2015), (Gage J. Anastasia et al. 2006). The present study includes some variables to examine the association between physical accessibility to the health centre and MHC services. The variables included in the analysis for physical accessibility are distance, time and type of road to reach the health centre, and motorable road.

b) Socio-Cultural Accessibility

Socio-cultural factors are the most widely explored in the literature nationally and globally. Socio-cultural factors determine an individual's behaviour in seeking healthcare. Women's belong to different socio-cultural background responds differently for their healthcare needs as evidenced from the literature (Silal, et al. 2012). Literature suggested that the socio-cultural status of women in a society strongly influence the risk of maternal mortality. Socio-cultural accessibility further classified into demographic factors, for

instance, age of women, age at marriage and birth order of women. (McCarthy and Maine 1992) In their frameworks termed these variables as determines the reproductive status of women? They suggested that women of very young age, older women, low birth order or having no children and having too many children are at high risk of maternal mortality.

Under socio-cultural heading religion and caste/ethnicity of women have included. Individual factors like place of residence, education level, occupation and awareness level of women have considered for analysis. Additionally, utilisation factors have also considered for analysis. It has found that utilisation of antenatal care services enhances the probability of institutional delivery and postnatal care.

c) Economic Accessibility

According to the three delay model households, economic situation contributes to the first and second delay (Thaddeus and Maine 1994). The economic cost of delivery can influence health care seeking behaviour of women significantly. It has found in the literature as a common variable to measure economic accessibility and utilisation of MHC services. A significant positive association has been found between household economic status and women' health care seeking behaviour (Gabrysch S. et al. 2009).

d) Availability

Coverage of MHC services very much depends upon the availability, quantity and quality of health care services. Rural areas of the country and Jammu and Kashmir suffers from the unequal distribution of health centres. Several health facilities have been functioning without the required number of human resources and basic physical infrastructure and facilities like a regular supply of electricity and water. Non-availability of required human resource and bad quality of medical services can, directly and indirectly, influence the health care seeking behaviour of women. Under the heading of availability distribution of health facilities, human resources, physical infrastructure at these health centres will examine in detail.

e) Utilisation

The utilisation of motherly health care services determined by the physical, socio-cultural and economic factors of women. It is recommended to expected mothers that they should

have to go for regular antenatal check-ups for monitoring and supervising of the fetus growth,which is useful to reduce the risk of maternal mortality and morbidity. Antenatal check-ups are helpful in early detection of any possible complication which could be lethal to mothers and their newborns. Delivery should be in a medical institution and conducted by trained health professionals, and postnatal check-up after delivery is the essential components of MHC services.

f) Outcome

The third dimension of the conceptual framework is the prevalence of obstetric morbidity. Although deaths of women due to pregnancy-related causes are now becoming a rare event after the international community has taken numerous initiative, the prevalence of obstetric morbidity remains high (FCI 2007).

"According to WHO, obstetric morbidity is morbidity in a woman who has been pregnant regardless of the site or duration of the pregnancy from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes."The contemporarystudy will try to understand the prevalence of obstetric morbidity in rural Jammu and Kashmir.

1.6 Objectives

The major objectives of the current research work are:

- To explore the pattern of availability and quality of maternal health care services in the study area.
- To understand the association between accessibility (physical, socio-cultural and economic) and utilisation of maternal health care services in rural Jammu and Kashmir.
- To understand whether socio-cultural and economic factors have any influence on the health seeking behaviour of mothers.
- To examine the prevalence of obstetric morbidity in Jammu and Kashmir.

1.7 Research Questions

- What is the geographical distribution and quality of maternal health care services in rural Jammu and Kashmir?
- What is the relationship between accessibility (physical, socio-cultural and economic) and the maternal health-seeking behaviour?
- What is the level of maternal health care services utilisation among the ever-married women's according to their socio-economic background characteristics?
- What is the level of prevalence of obstetric morbidity among ever-married women in rural Jammu and Kashmir?

1.8 Major Database

To comprehend the above objectives and the research questions two sorts of data, i.e. secondary as well as primary, have been used in the contemporary analysis.

a) Secondary Data Sources

- National Family Health Survey (NFHS-4), IIPS, 2015-16
- Rural Health Statistics, Ministry of Health and Family Welfare, Government of India, 2005 & 2015-16.
- Census of India, 2011.
- District Level Household Survey (DLHS-3), 2007-08

The secondary database of rural health statistics has used to examine the rural primary health care infrastructure in Jammu and Kashmir. Another major secondary source of data has used in the contemporary study is the recent round of NFHS-4, 2015-16 to comprehend to coverage of MHC services in Jammu and Kashmir.

b) Primary Data Sources

For micro level study field survey has been conducted from March 2017 to July 2017 in the rural areas of tehsil Kathua (Plain setting) and Bani (Mountain setting) of the district Kathua. The major thrust for the field survey is to comprehend the role of geographical setting to influence the healthcare seeking behaviour of women. The target group of the population was ever-married women who had delivered a baby one-year preceding survey. Eligible women’s were asked for various questions extended from their socio-

economic condition to availing of various MHC services and maternal morbidity they had suffered during their last live birth preceding one year of the survey.

1.9 Methodology

a) Sample Design and Selection

Foremost, the state of Jammu and Kashmir was selected for the contemporary study. The composite index was computed from several variables of maternal health care services for the states and union territories of India. Jammu and Kashmir has ranked sixteenth among the thirty-six states and union territories. Subsequently, the district Kathua was selected based on the performance of maternal health care service utilisation, Kathua was one of the high performing districts in Jammu and Kashmir.From the selected district, two tehsils,i.e. Bani (Mountainous and 100 per cent rural) and Kathua (Plain and most urbanised) were selected for the comparative study of the mountain and plain within the rural area of the district.Two blocks each from Bani (Block Bani & Duggan) and Kathua (Block Kathua & Barnoti) were selected one each from near and away from the tehsil headquarters.

Table 1. 6: Tehsil Bani and Kathua at a Glance

	Bani	**Kathua**
Total Population	45971	210628
Decadal Population Growth	25.34	15.82
Percentage of Urban Population	0	33.18
Percentage of Rural Population	100	66.82
Sex Ratio	935	866
Child Sex Ratio	973	795
Literacy Rate	54.82	78.83
Male Literacy Rate	69.25	84.85
Female Literacy Rate	37.1	72.57
Percentage of Scheduled Caste Population	15.25	28.5
Percentage of Scheduled Tribe Population	28.64	6.67

Source: District Census Handbook, Kathua, 2011.

Table 1.6 clarifies the characteristics of the study area, tehsil Bani and Kathua. The total population of tehsil Kathua is four to five times higher than Bani, accompanied by the one-third urban population. Tehsil Bani is a hilly area which characterizes with low population density and no urban population. However, the sex ratio in the tehsil Bani is

much better than Kathua, where it is alarmingly low. Very low literacy rate in tehsil Bani and case of female literacy rate, more than sixty per cent of females are illiterate.

Table 1. 7: Sampling Framework and Sample Size

District	Terrain	Tehsil	Block	Village Code	Village Name	No. of Households	Population	Sample (400)
Kathua	Mountain	Bani (200)	Bani	1771	Asooh	164	954	5
			Bani	1779	Bani	390	2093	31
			Bani	1761	Barmota	295	1781	3
			Bani	1770	Chandal	365	2077	3
			Bani	1778	Gatti	460	2447	17
			Bani	1769	Kanthal	459	2584	19
			Duggan	1781	Bari	236	1312	3
			Duggan	1766	Begoga	215	1147	1
			Duggan	1768	Bholri	186	1074	18
			Duggan	1784	Chaloge	332	1900	10
			Duggan	1782	Dulangal	191	1074	9
			Duggan	1767	Madhota	73	438	9
			Duggan	1763	Dhaggar	243	1431	16
			Duggan	1765	Dhaman	127	642	22
			Duggan	1768	Duggan	275	1545	24
			Duggan	1780	Surjan	546	3134	10
	Plain	Kathua (200)	Kathua	1899	Badalha	219	1138	11
			Kathua	1896	Chak Sardar Desa Singh	541	2727	9
			Kathua	1900	Chak Drab Khan	267	1454	14
			Kathua	1847	Chak Sajjan	263	1332	7
			Kathua	1897	Changrah	490	2528	15
			Kathua	1845	Janglote	1297	7693	10
			Kathua	1849	Kharot	726	3549	21
			Kathua	1947	Khukhiyal	325	1769	4
			Kathua	1843	Logate	404	1928	9
			Barnoti	1814	Budhi	721	3805	15
			Barnoti	1821	Dabwal	56	287	7
			Barnoti	1791	Bhorthain	509	2508	8
			Barnoti	1792	Forlain	1234	6462	30
			Barnoti	1794	Jakhale	290	1647	4
			Barnoti	1793	Rakh Hushiari	438	1941	4
			Barnoti	1818	Merth	373	1795	13
			Barnoti	1816	Nanan	174	768	19

Source: Census of India, 2011 and Primary Field Survey, 2017.

b) Data Collection

The following two methods were used to collect the primary data for the empirical study in the tehsil Kathua and Bani:

Structured Questionnaire:to collect data for the micro-level analysis of factors affecting healthcare-seeking behaviour of women. Data collected through a structured questionnaire, which incorporated the information on the respondent's household socio-cultural, and economic aspects. The next section dealt with physical accessibility, which includes questions on distance and time to health centres and the Motorable road from respondents home. The third section contained information about the utilisation of MHC services such as ANC, delivery care, PNC, and prevalence of obstetric morbidity in the tehsil Kathua and Bani.

In-Depth Interviews: Apart from the direct questions through a structured questionnaire, target respondents and other community members who play an important role in women's health care seeking behaviour were interviewed during the field survey. The in-depthinterview has the benefit of seeking information randomly on the subject, which could not be measured or accommodated through a structured questionnaire.

Reference Period: women who had given last live birth one-year preceding primary field survey were included in this study. The rationale behind conducting interviews of only those mothers who had given birth one year preceding one year survey was to get the maximum possible information.

c) Data Analysis

Boththe sources of data secondary as well as primary was analysed by using different software and statistical tools, for instance, SPSS, Arc GIS, Microsoft office. Primary data after field survey was entered in the SPSS and cross-tabulation was done to get the final table for analysis. Some widely used techniques are graphs, cross-tabulation, percentage, and maps.

Principal Component Analysis (PCA), has been used to make a composite index for MHC services utilisation to rank the states at the national level and districts in Jammu and Kashmir. **Binary Logistic Regression**

Binary logistic regression has been used to show the influence of women's socio-economic background characteristics on their healthcare seeking behaviour. It helps to identify the net effect of particular independent variables over the dependent variables. In this study, women's socio-economic background characteristics have taken as the independent variables and three indicators of MHC services containing full ANC, safe delivery and PNChave been taken as dependent variables. The dependent variable has been converted into a binary variable (if No = 0 and Yes = 1). It is calculated only in the case of dichotomous variables where the response have given in the form of "Yes" or "No". In all independent variables, the first category of variables has been taken as the reference category.

The binary logistic regression model was used to understand the association between women's background characteristics and utilisation of MHC services in Jammu and Kashmir. In the present study,it is expressed by the following equation form:

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3.....+ B_nX_n + ui$$

Where "Y" denotes dependent variables, and B_0 is the constant term.

$B_1, B_2, B_3.....B_n$are the regression coefficient, andui is the error term.

$X_1, X_2, X_3.....X_n$are the independent variables.

Apart from this Arc GIS 9.3 version and SPSS software has been used for making maps and data analysis, respectively.

1.10 Variable Names

The following variables have been taken for analysis in the contemporary study:

a) Dependent Variables

Three major dependent variables have been taken for binary logistic regression analysis are:

- Full Antenatal Care
- Safe Delivery
- Postnatal Check-up

b) Independent Variables

- Distance to Health Facility
- Time Taken to Reach Health Facility
- Distance to Motorable Road
- Time Taken to Reach Motorable Road
- Type of Road
- Age of Respondent
- Age at Marriage
- Birth Order
- Religion
- Caste/Ethnicity
- Residence
- Education of Respondent
- Occupation of Respondent
- Awareness
- Antenatal Care
- Delivery Care
- Wealth Quintile

1.11 The Organisation of the Thesis

The present study contains six chapters:

The first chapter is the introduction, which comprises research problem, objectives and research questions of the study, database, methodology, conceptual framework, sampling and the brief description of the research setting.

Chapter Two contains the review of existing literature on the provisioning of health infrastructure and determinants of maternal health care services utilisation.

ChapterThreeenvisages the provisioning of primary health care infrastructure in Jammu and Kashmir. In which the growth of health centres, the shortfall in human resources, and the quality of health facilities available at health centres will examine.

Chapter Four will deal with the macro-level analysis based on latest NFHS data of the utilisation of MHC services and the prevalence of obstetric morbidity in Jammu and Kashmir.

Chapter Five will discuss the results and findings of primary data analysis for rural areas ofselected tehsils, i.e. Kathua and Bani for micro-level analysis.

Chapter Six will discuss the major findings of the thesis and policy recommendations.

1.12 Limitations of the Study:

The present study has some limitations which should be addressed, but due to the lack of secondary data availability and limited period for field survey remains. The first problem has been faced to get the secondary data on healthcare infrastructure at the district level for Jammu and Kashmir. There was no recent dataset for district-level availability and quality of healthcare infrastructure. In the present study, only those women were interviewed who had given live birth one-year preceding survey in the rural area of the Tehsil Kathua and Bani. As the reference period for the eligible respondents was one-year preceding survey to get the sample in hard to reach mountain area especially in Tehsil Bani accompanied with very low population density, no transportation facility and rugged topography was not an easy task. Therefore just 400 women were interviewed for the current study. Another major challenge was to ask women about the complications they had faced during their last live birth one-year preceding survey because several respondents didn't respond appropriately, and data recorded was a perception based.

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Chapter II: Review of Literature

2.1 Introduction

Childbearing is one of the risky encounters that ladies participate in while conveying new life to this world (Wondimu, Girma and Agedew 2017), (Ayele, et al. 2014). It is regularly connected with inconveniences that may cause incapacities, morbidities and mortalities (Wondimu, Girma and Agedew 2017). Maternal health is one of the utmost imperative indicators of the human development index (HDI) and the improvement of maternal health in developing countries is the priority of many national and international health policies. At the global level, millennium development goal five,which related to maternal health, set a target of reducing MMR by seventy-five per centfrom 1990 to 2015. As we all know that, for the development of any society, the good health of their citizens is essential, likemuchother development indicators. Ninety-nine per cent of maternal deaths globally have been taking place in developing countries of the world, anddeveloped countries contribute only one per cent of maternal death. It shows that the mortality of mothers during their pregnancy, delivery or after delivery is preventable through some interventions from the government.

Before proceeding to the core chapter analysis, it becomes essential to read and understand the literature comprehensively on the topic undertaken to study. There is several studies have done on the status of maternal health and healthcare seeking behaviour in high and low-income countries worldwide. However, some determinants of maternal healthcare-seeking behaviour are more frequently explored, for example, socio-cultural, economic and individual factors. The determinants of physical accessibility like distance and time between home and health institution and type of road are the least explored variables in the literature.

2.2 Rural Health Care Infrastructure

India has achieved high economic growth after the economic policy shifts since the early nineties. Subsequently, the Government of India (GOI) has introduced several programmes and schemes to enhance the coverage of health services and reduce the burden of maternal and child mortality in particular. Though providing affordable health care to the population was the priority of the Government of independent India. The vast

majority rural area of the country had been suffering from the shortage of health institutions and required human resources. Therefore, after the Alma Ata declaration in the late seventies, the focus of the governments and policymakers shifted towards primary healthcare. Subsequently, announced several initiatives for instance "National Health Policy (NHP) in 1983; the national nutrition policy in 1993; the national policy on Indian system of medicine and homeopathy and drug policy 2002; introduction of simple health insurance schemes for the poor in 2003; the inclusion of health in the common minimum programme of the central government in 2004. In 2005, India propelled a flagship programme called the National Rural Health Mission (NRHM). In 2008, the Union Labour Ministry also launched the Rashtriya Swasthya Bima Yojana (RSBY), a health insurance scheme for those Below Poverty (BPL**)**(Chatterjee 2013)**."**

The performance of the general health system in rural areas is of incredible importance it is accessible, open and affordable to people in areas where the private health sector is virtually non-existent (except for a couple of quacks)(Feachem, et al. 2017). As spread out by the India constitution, the public provision of health care is a duty shared by the state, central and local governments, even though it is adequately a state obligation as far as a delivery concern. State and local governments account for about seventy-five per cent and the centre for about a twenty-five per cent of public spending on health; however, there are enormous variations across states (Sankar and Kathuria 2004).

As part of its welfare policy, the government of India adopted the central guiding principle of the Bhore committee that no individual should be denied medical care because of his inability to pay for it. Further, in 1969, the GOI appointed a committee under Dr A L Mudaliar to review the health services and make recommendations. The committee observed that rural services were not popular among the doctors, and that, "…where the positions are not actually vacant, the incumbents with rare exceptions look upon it as a period of forced labour until they can manage to find their way to a more congenial posting in a city hospital or the health department" (Sathyamala 2008). The committee concluded that since it would not be possible to provide primary health care to the vast rural population, the scarce resources would be better spent on strengthening the district hospitals (Sathyamala 2008).

In India, the healthcare services are divided under the concurrent list and state list. While some areas like population control and family welfare, medical education, and quality

control of drugs in the state list, others such as public health and hospitals fall in the state list (Bhandari and Dutta 2007).

Availability of health centres is only a significant condition, yet not satisfactory, to guarantee delivery of medical services. Access to existing medical institutions is a similarly significant determinantof seeking health care services, especially for those who live in rural and hard to reach areas.The facility of an emergency vehicle to move genuine patients to referral centres are very rare, and the all-weather road does not connect several health centres. Open transportation between PHC/CHC to the District/State emergency clinics is sporadic and rare. Private vehicle is costly. Numerous PHCs/CHCs don't have basic facilities, for instance, telephone or wireless communications. The current general primary health system in rural areas is very unreliable and undependable for access o health centres, particularly in an emergency situation (KV and Dileep 2005).

2.3 **Physical Accessibility and Utilisation of Maternal Health Care Services**

Improving the quality of health care services and access to health care provider are priority concerns under the NRHM initiative by the Government of India since 2005. It appears that significant progress has been achievedand public health facilities become more accessible and affordable, which enhance the coverage of MHC services, especially among the poor and marginalised sections of the society. Establishment and operation of a wide network of health centres and provisioning of the services nearer to the clients, but lack of easy transportation facilities require longer travel time to reach out at health facilities still poses as a constraint in accessing care (Mohammad 2005).

It has been explained that maternal death is the result of three delays in seeking emergency care at the time of delivery. In which physical access to reach the health centre, for instance, distribution of health institutions, transport, financial cost and distance to health centres plays an important role in seeking MHC services. Rural areas, especially the hard to reach mountainous regions, are missinggood road connectivity and transportation is associated with the second delay, which affects the healthcare seeking behaviour of women. Many women want to get MHC services during pregnancy don’t receive services due to the physical access and barriers they face to reach health centres(Pacagnella, et al. 2012).

Physical accessibility also differs according to the residence of women which also show an imperative role in their healthcare seeking behaviour, in urban areas, there is no problem of physical access to health care centre on the other hand in rural areas women facing barriers such as long travel distance, lack of road connectivity and transport vehicle. In a study in Uganda, the women living in rural areas are less likely to use ANC services as a comparison to their counterpart living in urban areas(Edward 2011). As we all know that in rural areas road network and transportation system is not good for seeking any health care services people face a lot of obstacles to reach health facility also affect the utilisation of MHC services in rural areas.

Lalmalsawmzauva & Nayak (2006), Classified the whole country into the various zone by road density and then he found that in the area of high road density are more accessible to MHC services compared to low road density area. It shows that all these factors like road network and geographical factors like relief features of a particular area should be taken into account while framing reproductive health-related policy and programme.

Another study by Say & Raine, (2007), found that women from urban areas were more wealthy, educated, aware and also near to health care service which helps them to use MHC service more frequently than their counterpart women from rural areas. Rural women face multiple barriers to seek MHC services due to high poverty, illiteracy, no media exposure accompanied by the unequal distribution of health centres.

(Arthur 2012)He discussed the factors which affected antenatal care utilisation in Ghana and found that even after the introduction of free MHC services in the country, their utilisation among the rural women, not increased at a significant level. The article suggested that alongside the policy for the better availability of drugs and doctors at the health centres. The government should increase the number of drugs and medicines and also increase the number of doctors ensuring the minimum time to wait for women to services because women's in rural and poor areas don't have too much time to spare for services who may have to go to other important work.(Kumbani, et al. 2013)In their study in rural Malawi explored why the women in Malawi prefer home delivery without trained attendants, although they all go to the health centre for their ANC check-up. They took a detailed interview of mothers who had given their last live birth at home without any assistance from trained health personnel. They found that the major hindrance in the way

of institutional delivery is the onset of labour at night, rapid labour, rainy season, socio-cultural factors, transportation and health worker's attitude towards their patients are some of the major obstacles which restrict the accessibility to the health centre and delivers at home. Several studies in diverse parts of the world displays a similar result that urban womenmore likely receiveMHC services as compared to rural women where health care facilities unequally distributed and facilities are lacking in human resources, physical infrastructure and long-distance to health facility with less road connectivity (Chimankar and Harihar 2011), (Hazarika 2011), (Tewodros, Mariam and Dibaba 2009), (Elo 1992), (Mekonnen and Mekonnen 2002).

In the developing countries, like India which comprises of seventy per cent rural population, it becomes essential for the policymakers and the government to concentrate more on rural health care infrastructure which ultimately raises the utilisation of MHC services. In nearly all the previous studies in different developing countries, one thing which is found common everywhere is low accessibility and utilisation of all type of maternal health care service which ultimately leads to a large number of maternal mortality and morbidity during their reproductive period.

Geography poses big challenges to the delivery of health services and is a well-documented marker of inequity (Byrne, Hodge, Soto, & Morgan, 2014). (Simkhada, et al. 2007)In their article, a systematic literature review on factors affecting accessibility to antenatal care found that residence of women, transport and distance to the hospital are the significant predictors of seeking ANC.

A study from Haiti found that odds of being institutional delivery and attended by trained health personnel have significantly declined with growing distance to the nearest health institution. To enhancing the MHC services utilisation, the government should improve the road infrastructure alongside providing health centres (Anastasia & Marie, 2007). The distance to hospital determines health care seeking behaviour in two ways first as to reach health facility in mountainous areas, and second, it costs high to rural population financially and timely (Anastasia & Marie, 2007). The availability of a health facility nearby has a solid outcome on the odds of getting ANC visits but does not affect delivery care. This finding may be because a lot of health facilities in the rural areas don't have the desired number of staffs, with a lack of basic facilities, medicines needed to be required for conducting the delivery (Anastasia & Marie, 2007).

Apart from the availability of health centre, distance and time to reach a motorable road also contribute to healthcare seeking behaviour of women. The probability of MHC services utilisation is high, where asphalt road connectivity to health facility compared to their counterpart. A similar study also found that women who reported transportation are a problem for not using healthcare services are less likely received healthcare services compared to their counterpart (Woldemicnel and Tenkorang 2009).

2.4 Socio-Cultural Accessibility and Utilization of Maternal Health Care Services

The utilisation of MHC services is affected not only by physical accessibility but also by demand-side factors for services, which is determined largely by socio-economic factors, personal health beliefs, and perception of illness (Mishra & Retherford, 2008). In the contemporary study to understand the association between women background characteristics and their healthcare seeking behaviour, the review of the existing literature has been done.

Age of Women

(Elaine, Rogan and Olvena 2004) In their study found that younger mother who was 15 to 19 years old are two times more likely to use MHC services than mother's that are 45 to 49 years old age. (Elo 1992) In his study also proved that older women reported low coverage of MHC services compared to the younger.(Mekonnen and Mekonnen 2002)In Ethiopia also found that the age of women have negatively correlated with utilisation of MHC services, and old age women are less likely to use MHC services than their counterpart women of young age group. It perhaps due to the experience of more pregnancy among the women of old age group and feel not essential to health care services than women of the young age group who are much aware with the benefits of modern MHC services. (Rai, et al. 2013)In his study age of mother found as one of the significant factors which affected their access to MHC services and found that women belonging from middle age group are more likely to use MHC services than women who are much older or younger age group. It perhaps due to the women from younger age group are less aware and knowledgeable which affects their access to health care services and women from older age group may consider it not necessary because of their experience during an earlier pregnancy.

(Jat, Nawi and Sebastian 2011) In their study on factors affecting MHCutilisation in Madhya Pradesh that women of younger age group are more likely to use MHC services than their counterpart women from old age group. It could be due to the lack of experience, more educated and more exposure to modern media which makes women of younger age group more accessible to MHC services than women from old age group who are less educated, fewer media exposure and no experience of previous birth encourage them less to use MHC services.

Datta and Manna (2012), in their study in rural West Bengal,also found that the age of women was significantly associated with ANC, delivery care and PNC services.

Hazarika (2011), in his study factors determining the use of skilled care during delivery, found that women from very young and old age group received low safe delivery care compared to middle age group women. Age of women was also found a significant predictor in many other studies in developing countries like Ghana in Africa (Addai 2000).

Age at Marriage

Globally more than seven hundred million women alive today were married before the eighteen years of age. Around 250 million, which constitutes one-third of the total women in reproductive age have entered into the union before the age of fifteen years (UNICEF 2014). India accounts for one-third of the total child marriage globally, and it is also common in other South Asian and Sub-Saharan Africa countries (UNICEF, 2014). Child brides have been less likely to receive MHC services. A study based on four countries two each from south Asia and Africa found that women who married before the age of fifteen years less likely receive MHC and institutional delivery services compared to those who married after fifteen years of age (UNICEF 2014). However, a study from African country Ghana found that age at marriage of women is not a significant predictor. Although, women married before 20 years of age have been less likely received MHC services utilisation compared to those married after 20 years of age (Addai 2000).

A study based on a demographic survey from four South Asian countries has found that age at marriage is a significant determinant of MHC services seeking behaviour. Women who have married before 18 years of age have less likely received maternal healthcare services compared to those who married as an adult. Low utilisation of MHC services

among girls having age at marriage is less than 18 years could be due to lack of decision making power, limited empowerment and access to economic resources (Godha, et al. 2016). More than seventy per cent of births in India has been given by women aged below 18 years at the time of marriage. Low age at marriage also significantly compromise the health of mothers and their new-borns. Baby born to women having age at marriage below 18 years has suffered more likely from diarrhoea, malnutrition, mortality and low birth weight (Raj, et al. 2010). Although young women confront more risk of life and maternal death compared to the middle age women, young women are less likely receive MHC services compared to the middle and old age women (Santhya and Jejeebhoy 2003). Another study from five states of India has been conducted to understand the relationship between age at marriage and women reproductive health. The study has found that women who had married before eighteen years of age are less likely received institutional delivery compared to their counterparts (Santhya, Ram, et al. 2010).

Birth order

Birth order of women also affects their healthcare seeking behaviour and utilisation of MHC services significantly in several previous studies. Women having a pregnancy-related complication during their last birth also encourage them to use antenatal care services (Edward 2011). (Elo 1992)In his study found that as the parity of women enhances their chance of access to MHC services decline in Peru; on the other hand, women with low parity are more likely receive MHC services in Peru. He suggested that the availability of modern techniques and other essential equipment for MHC has increased tremendously nowadays, and younger women have more access to these techniques when they start bearing a child.

On the other hand, women having higher birth order who are not going through with these modern techniques might be feeling less comfortable.

(Elaine, Rogan and Olvena 2004), have also mentioned in their study in the Philippines that the number of living children and utilisation of MHC services are negatively associated. And with the increasing parity of women, their chances of using antenatal care and delivery care is declining; it generally reveals that higher birth order women less likely prefer for hospital delivery or assistance of any other professionals than who have their first birth. It may be due to their experience of earlier pregnancy without any

complications which encourage them to deliver outside the institution. (Mekonnen and Mekonnen 2002) In his article, utilisation of MHC services in Ethiopia have also found a negativeassociation between birth order of women and their healthcare seeking behaviour. They found that the coverage of MHC services recorded higher among first birth order women, and it declined with increasing birth order Women.Manithip, et al. (2011) have discussed factors associated with antenatal care use and found that parity of women very much affect their accessibility to MHC services, and stated that women from higher birth order are more confident to manage their pregnancy-related problem at their own and not interested in going to antenatal care services. But the first birth order womenno experience of previous birth that makes them more concern about their health issues, they started bearing children recently and have more knowledge about pregnancy make them go to antenatal care in the health centre.

Rai, et al. (2013) in their study determinants of MHC services in Malawi have found contradictory results, that the birth order of women and interval between two deliveries have not strongly correlated with their antenatal care utilisation but with PNC utilisation was higher among adolescent mothers who have given their first birth. Edward (2011) has observed in his study in the Philippines that women who face some problem during their last birth are more likely to ANC care utilisation than those who have delivered their last child without any serious problem.

Jat, Nawi, & Sebastian (2011) in their study observed that women more utilise MHC services during their second birth than first birth, but after the second birth of women, the utilisation of MHC services has declined with enhancing birth order of women. In this way,it has found that in almost all the previous studies found that the coverage of MHC services declines with enhancing the birth order of women. (Chimankar and Harihar 2011) In Uttarakhand have found that birth order of women's and antenatal care utilisation are negatively correlated. (Hazarika 2011) In his study found that birth order of women's significantly associated with skilled attendants. As the birth order of women's going increase their chance of attending skilled personnel decrease. Shah & Belanger (2011), In their study,have also found that birth order and utilisation of MHC services negatively correlated and results are statistically highly significant.

Navaneetham & Dharmalingam (2002), have also found that birth order and utilisation of MHC services are negatively correlated and women's from first birth order have more

likely received MHC services than subsequently higher birth order. Several other studies at the national and international level have found that birth order of women is an important factor of their healthcare seeking behaviour (Addai 2000), (Godha, et al. 2016). Another study from the Indian states include Jharkhand, Chhattisgarh and Uttaranchal found that birth order of women and their healthcare seeking behaviour are negatively associated and results are highly significant (A. Pandey, N. Roy and D. Sahu, et al. 2004).

Place of Residence

As we all know that in developing countries like India, where the majority population of the country, about seventy per cent lives in the rural area, and only about thirty per cent lives in an urban area. It becomes essential for all policymakers and government to concentrate more on the rural area for their efforts to enhance the primary healthcare infrastructure and facilities, which ultimately improve the utilisation of MHC services. It has found in every previous study done in developing countries that coverage of the MHC services is low in the rural areas compared to the urban areas, which leads to a large number of maternal mortality and morbidity in the rural women during their reproductive period. In a study in Uganda, the women living in rural areas have received low coverage of antennal care services compared to those who live in the urban area (Edward 2011).

It is a well-known fact that in rural areas road network and transportation system is not good for seeking any health care services people face a lot of obstacles to reach health facility also affect the utilisation of MHC services in rural areas.

Further, the urban population is characterised with more well off, better educated, well aware of their healthcare needs and also near to health care provider, which helps them to use MHC service more frequently. On the other hand, the rural areas have been suffering from high poverty, lack of education and awareness related to health issues accompany with lack of required health infrastructure which ultimately hinders the utilisation of MHC services (Say and Raine 2007)

Arthur (2012) have explored about the factors which affect antenatal care utilisation in Ghana and find that even after the introduction of free MHC services in the country, their utilisation among the rural women has not increased at a significant level. He recommended that alongside the policy for the availability of drugs and doctors in the health centre which encourage the expectant mothers to go health centre, the Government

should maintain the quantity and quality of health facilities which ensure a minimum standard of healthcare. The Government, alongside policymakers, should try to minimise cost and time, spend to wait for health services at the health centres. Because women's in rural and poor areas do not have too much time to spare for services who may have to go to other important work.

Kumbani, Bjune, Chirwa & Odland (2013), in their study in rural Malawi, explored why the women in Malawi prefer home delivery without trained attendants, although they all go to the health centre for their antenatal care. They interviewed women who had delivered their last live birth in their home without any assistance from trained health personnel. It has been found that the major hindrances in the way of institutional delivery are; onset of labour at night, rapid labour, rainy season, socio-cultural factors, transportation and health worker's attitude towards their patients are some major obstacle which restricts the accessibility to the health centre and delivers at home. Chimankar & Harihar (2011) In their study, have found the place of residence of women significantly influence the utilisation of antenatal care when the effect of other factors controlled. Urban women were more likely to receive antenatal care compared to rural women. Hazarika(2011),In his study, found that place of residence significantly associated with utilisation of institutional and safe delivery and urban women more likely receive delivery care compared to those who live in the rural areas. Navaneetham and Dharmalingam (2002) in another study in south Indian states, Karnataka and Andhra Pradesh significantly influence the MHC services utilisation. But the study found inconsistent results and urban women less likely receive MHC services than rural women.

Tewodros, Mariam and Dibaba (2009) in their study in Ethiopia, have also found that the coverage of MHC services is low among the rural women in Africa also compared to the urban women. It might be due to the better availability of health care services in urban areas or other possible factors.

Elo (1992) and (Mekonnen and Mekonnen (2002),In their studies, they also discussed the socio-economic background of women and their effect on MHC services utilisation and have also found low coverage of MHC services among the rural women compared to their counterpart living in an urban setting. A study based on demographic survey data from four countries including India, Pakistan, Bangladesh and Nepal has found that women living in rural areas of these countries recorded low coverage of MHC services compared

to the women living in urban areas are less likely received antenatal, delivery and postnatal care compared to urban women (Godha, et al. 2016). A study based on NFHS 3 from three newly created states during the year 2004 include Chhattisgarh, Jharkhand and Uttaranchal found that rural women are less likely received MHC services utilisation compared to their counterpart urban women (A. Pandey, N. Roy and D. Sahu, et al. 2004).

Education of Women

Education is the utmost significant indicator of development anywhere and any situation because it makes women aware of the advantage of MHC services utilization and the disadvantage of not using it, that's why it has highly correlated with MHC service utilization which exhibits in almost all previous studies (Elaine, Rogan and Olvena 2004), (Tewodros, Mariam and Dibaba 2009).

It has been shown in the several studies that schooling of women is one of the strongest determinants of MHC servicesutilisation and found that as the year of schooling of women increase their probability of receiving MHC also enhance. Women schooling also helps them to enhance their living standard which ultimately improves access to financial and other resources because educated women are more likely to marry with richer men who increase their chance to access to health care utilisation.Another important fact is that the education of women make her more knowledgeable enhance awareness about the benefits of MHC services and educated mothers are well informed about the complications during childbirth (Elo 1992).

A study from Africa has found the similar results as the women education have positively correlated with their utilisation of MHC services, but author argued that if the health care services available in proximity it reduce the advantage of education significantly (Byheston Phillips, 2002). Another fact about the high positive correlation of women from the urban area, good education and wealthier household with MHC services utilisation is that women from urban areas and wealthier household have more chance to get an education(Dange 2010)(Lbnouf and Maarse 2006). Titaley, Dibley, & Robert(2010),in their study in Indonesia,have found that attendants of trained personnel for home deliveries differ among women's with their socio-economic background and their education level. They have found that trained attendants did not assist high

proportion of women from the low level of education and on the other hand,the high proportion of women with a high level of education were assisted by trained personnel during delivery.(Mekonnen and Mekonnen 2002)Have also suggested that women having a good level of education were more likely accessible to MHC servicesin a comparison to their counterpart who haveno education or low level of education in Ethiopia. All these studies which have been done in the different situation of different countries one thing depict, that the education level of women plays a noteworthy part in access to MHC services. (Rai, et al. 2013) Singh et al. (2011) there is a large number of explanations for how women education can improve their accessibility to MHC services, education develops the confidence of women to decide their health issues, and it also enhances their communication with their husband and other family members on their health-related issues. After a detailed literature review, I reached at the point if we can increase the female literacy level of developing countries which is very low in comparison to the developed countries we automatically able to make women more accessible to maternal health care services utilisation.

Chakrabarti & Chaudhuri (2007), in their study in north-eastern states of India,have found that the education level of womenis significantly associated with institutional delivery. With increasing education level of women, their chance of institutional delivery also increases.

Manithip, et al. (2011) has also found that education is a significant factor in maternal health care services utilisation and educated women are more likely to receive MHCservices than illiterate women. Educated women are more aware of their health-related issues than illiterate women.Chimankar and Harihar (2011),in Uttarakhand, found that education of women and ANCutilisation by women are positively correlated when the effect of other factors controlled. Women having a high and secondary level of education are three and seven times more likely received ANC than illiterate women in Uttarakhand., Hazarika (2011), in his study,has also found that odd ratio increase with increasing level of education of women in India and the result is significant. Shah and Belanger (2011), in their study, also mentioned that the education of women significantly affects their accessibility and utilisation of MHC services. Similar results have also been found from southern India (Navaneetham and Dharmalingam, 2002).

Religion of Women

In a particularplace, there is also the difference among women who belong to different religious groups in accessibility and utilisation of MHC services. It perhaps due to their social, cultural, and traditional beliefs which make women able to more or less to access the MHC services. Mekonnen & Mekonnen (2002), in his study in Ethiopia, found that significant variation among women belonging to different religions for MHC services utilisation. Women arewho belong to "orthodox/Catholic, Muslims and protestant exhibit greater use of maternal health care services than women belonging to religion who follow traditional beliefs." Rai et al. (2013) have also found some variation in healthcare seeking behaviour among the different religious group of women to MHC services; women from Muslim and church beliefs of central Africa more likely receive MHC services compared to those belonging to the catholic religious beliefs.Jat, Nawi and Sebastian (2011) and Elo (1992) religious beliefs of women are the significant determinants of their healthcare seeking behaviour in Ethiopia. Women belonging to rural areas are more dependent on their traditional treatment, which is negatively correlated with MHC services utilisation. Influence of traditional beliefs attributed to the spiritual explanations of an event in rural areas and religion of people living in rural areas towards maternal health**.**Rai, et al. (2013)women belong to the Muslim religion in Uttarakhand are less likely access to institutional delivery than those who belong from other religion. Muslim women who live in urban areas are also less accessible to MHC services than their counterpart women those who belong from other religion; this clearly shows that religious beliefs of particular religion control healthcare seeking behaviour of women belong to that particular religious group. Chakrabarti and Chaudhuri (2007),havealso found significant variation across women of a various religious group and found that Muslim women in north-eastern states are less likely go to health facility than women from Hindu and other religious groups. Hazarika (2011),has found that women from the Muslim religious group in India are less likely received skilled attendants at birth compared to other religious groups. Shah and Belanger (2011), in his study, found that scheduled tribe women from north-eastern states of India are two times higher utilisation of MHC services than tribal women from central India.

In general variation in utilisation of MHC services among various religious groups could be related to dissimilarity in their social and cultural beliefs, which ultimately leads to the

variation of MHC services utilisation. There is strong need of intervention from the government of concerning countries to remove this variation of MHC services utilisation among the religious groups that improve awareness and change these social group-specific health restraining beliefs norms and behaviours which restrict women access to MHC services. A study in African country Ghana has found that a woman belongs to the traditional religious group have received low coverage of MHC services compared to other religious groups (Addai 200).

Caste/Ethnicity of Women

Caste group of women in several studies have shown a noteworthy impact on their accessibility and utilisation ofMHC services. Women belonging to a marginal section of the society (For instance, SC, ST and OBC) are more probably less educated, belongto the lowest strata of society and most deprived communities in various dimensions of development. Jat, Nawi and Sebastian (2011)in their study have found that Scheduled Tribe and Scheduled Caste women in India have recorded minimum coverage of MHC services, such as ANC, institution delivery and PNC. Low coverage of MHC services among these communities reflects their vulnerability more to maternal mortality and morbidity. Scheduled caste, Scheduled Tribe and other backward class women face more hardship to access the MHC services due to their socially, culturally and economically low status in the society. The tribal women bear the burden of high maternal deaths and low coverage among them is the major cause of concern. Rai, et al. (2013), caste group is not a strongdeterminant of ANC services, but for the other two components, delivery care and postnatal care, the caste of womenhave proven as a stronger predictor in Uttarakhand. Women belong to SC, ST, and OBC are less likely to use MHC services, which have also been found in several previous studies.

Chakrabharti and Chaudhuri (2007), in their study in north-eastern states of India,have found that women from backward classes like SC, ST are less likely to go to institutional delivery than women from other caste groups. Hazarika (2011), in his study,has also found that caste group of women significantly affect the accessibility and utilisation of MHC services in India and the scheduled tribe women haverecorded low percentage of institutional deliveries. Women from scheduled caste and other backward classes have also recorded low coverage of institutional deliveries compared to those who belong to general caste group and other.Navaneetham and Dharmalingam (2002),in their study,have

found that scheduled tribe and scheduled caste women are less likely to deliver their child in health institutions than women from other caste groups in Karnataka and Andhra Pradesh.

Baral, et al. (2010) in their study in Nepal have also found that women belong to upper-caste Hindu are more likely to deliver their baby in health institution compared to the lower caste Hindu women. (Baral, et al. 2010).

Husband's Education

Apart from the education level of women, the education level of a spouse can also be an important factor in seeking MHC services.The education level of the husband has shown a significant influence on the women level of MHC services utilisation in many previous studies. A study from India on determinants of MHC services utilisation have found that husbands education up to the matriculation increase the probability of antenatal care services utilisation ten per cent, postnatal care by eight per cent and delivery care by seven per cent (Shariff and Singh 2002).Another study from Malawi has found that adolescent women whose husband were educated, recorded better coverage of antenatal care services compared to those whose husbands were uneducated (Rai, et al. 2013). A study from Nigeria has also found that the husband's education level is a noteworthy determinant of antenatal care services utilisation. It has shown that women having educated spouse recorded better utilisation MHC services compared to an uneducated spouse (Babalola, Adeyoju and Makumi). Education of husband determines the household economic status, his level of awareness related to health issues of women, which could be helpful to encourage women for seeking healthcare during pregnancy appropriately. A study from three states in India includes Jharkhand, Chhattisgarh and Uttaranchal have found that the education level of the husband is significantly associated with seeking ANC care during pregnancy. Women had spouse having education above matriculation two times more likely receive ANC check-up compared to those whose husband education below matric and results were statistically significant (A. Pandey, N Roy and D. Sahu, et al. 2004).

Occupation of Women

A study from Ghana found that occupation of women didn't have much influence on their utilisation of MHC services. The percentage of women received antenatal care were not

much different for women engaged in a different occupation like professional/ clerical/ sales worker, manual and domestic work and those who are engaged in the agricultural sector (Addai 2000). A study from Malawi on MHC services utilisation by adolescent women found that the status of women occupation was not a significant predictor (Rai, et al. 2013). Unpublished work from Nigeria has also found that the occupation of women is a significant determinant of MHC services utilisation. Although it varies according to the rural-urban setting, and the occupation of women is a significant determinant of antenatal care utilisation in rural Nigeria, and it was insignificant in urban areas (Babalola, Adeyoju and Makumi).

Woman Awareness

Awareness level of women related to their health care needs and media exposure such as frequency of reading newspaper, listening radio, watching television can change their healthcare seeking behaviour. In several previous studies from the developed and developing countries have found that media exposure is a significant determinant of maternal healthcare services utilisation. A study from India, based on its three newly created states include Jharkhand, Chhattisgarh and Uttaranchal during the year 2004, have found that the association between media exposure and MHC services utilisation is statistically highly significant. The women exposed to media exposure were 1.8 times more likely received ANC compared to those who didn't have any media exposure (A. Pandey, N. Roy and D. Sahu, et al. 2004).

2.5 Economic Accessibility and Utilization of Maternal Health Care Services

The financial condition of the household is one of the strongest predictor variables for MHC services utilisation. It has been found in many studies that the financial condition of the family positivelyassociated with the women MHC seeking behaviour. Rai, et al. (2013)in their study in Malawi have found that the probability of havingMHC services enhanced with the increasing financial situation of the family. Women belong to the rich household several times more likely to receive MHC services than those belonging to the poorer household. Low utilisation of MHC services among the poor is may be due to given less priority to preventive care especially for women in comparison to other daily needs, and lack of resources restricts family to spend as low as possible on their health.

On the other hand,rich women have recorded better coverage of MHC services because of their better financial condition.Neelanjan (2006) have also explored the perceived barriers to utilisation of MHC services and found that the household economic status of women shows a significant role in their utilisation of MHC services. He suggested that financial barriers about transportation, availability of health care staff and services highly influence womenhealthcare seeking behaviour. Mohanty (2012), in his study on cost effect on MHC utilisation in Empowered Action Group states,has found that 25 per centof women who had delivered outside the health institution for their last live birth cited the cost of delivery as the major reason for non-institutional delivery. He has also found that after the inauguration of various health-related programmes under the NRHM which encourage safe delivery through cash transfer schemes in the country leads to reduce the cost of MHC services in EAG states. After the inauguration of NRHM in high focused states maternal health care servicesutilisation have been showing an increasing trend and meanwhile records decline in delivery at the private health institutions this depicts the influence of how the economic status of the household can restrict women to access the MHC services which have not sufficient economic resources. Arthur (2012), have also explored the effects of wealth on antenatal care utilisation in Ghana and found that after the introduction of free MHC services policy in Ghana in 2008, the financial condition of household did not influence the health care seeking behaviour significantly. Despite the free provision of MHC services, low coverage has recorded among the poorest women in Ghana, and at the same time, the percentage of increase has recorded very low. It depicts that providing free MHC services are not enough to solve the problem has been faced by the poorest women to access the services. Chakrabarti & Chaudhuri (2007), have also found in their study that women household economic condition has a large influence on their utilisation of MHC services.

Chimankar & Harihar (2011) in their study in Uttarakhand have found that the financial situation of women family and MHC services utilisation are positively associated with each other and results were highly significant. The reason for this is that women from rich household have greater purchasing power, also more educated, more aware ofMHC services and their benefits than poor women. Hazarika (2011),in his study,also found that women household economic condition and safe delivery positively correlated. Rich women more likely deliver their baby by the assistance of trained health personnel compared to their counterpart belongs to the poor household. Similar results have been

found in several other studies (Shah and Belanger, 2011), (Dange, 2010) and (Ladusing and Singh, 2007).

Simkhada, et al. (2007), in their literature review on access to antenatal care services,have found a significant relationship between financial determinants and ANC utilisation. They found financial constraints are the major factors in not availing ANC services during pregnancy. Cost of services, including transportation and laboratory tests, were major factors influencing ANC seeking behaviour.

(Goli, Rammohan and Moradhvaj 2018) In their hospital-based study in Uttar Pradesh, India have found that 55 per cent of institutional deliveries are caesarean and cost incurred on caesarean is much higher than normal delivery. They have suggested that financial support under JSY is not enough to bear the high cost of delivery. Even though poor spend less money and go to thegovernment facility and less utilisation of MHC services compared to the rich, they have beenspending a very high percentage of their total income on maternal health care services.

Leone, James and Padmadas (2013), in their study, have discovered that over eight per cent of households in India spending money on MHC services and women who have sought MHC from the private facility spends four times more money compared to those who got MHC services from public health institutions. Paper further, discovered that MHC services utilisation is a major burden on household income in rural areas and varies across states and communities (Leone, James and Padmadas 2013). A large number of other studies has been conducted in developing countries found that women household economics is a highly significant determinant of maternal healthcare-seeking behaviour (Godha, et al. 2016).

2.6 **The utilisation of Antenatal Care**

The utilisation of antenatal care services is a significant predictor of a safe delivery. Women having more antenatal check-up are more likely received institutional delivery and postnatal check-up compared to those who don’t go for antenatal check-ups. There is a highly significant association between the number of antenatal check-ups and safe delivery. A study from India found that women who had three or more antenatal check-ups three times more likely received safe delivery compared to those who didn’t (A. Pandey, N. Roy and D. Sahu, et al. 2004). Ram & Singh (2005), a study based on a

national level dataset from Uttar Pradesh has found that women who received some antenatal care services more likely go to the hospital for institutional delivery or take assistance from trained health personnel and results were statistically significant. Antenatal check-ups also enhance the probability of getting information about the signs and symptoms of obstetric morbidity, which can help to reduce the chance of maternal deaths and morbidity.

2.7 **Obstetric Morbidity**

"A standard definition for maternal morbidity does not exist, nor does the literature report maternal morbidity systematically in a commonly agreed upon approach (Chou, et al. 2016) (Chou, et al. 2016). Maternal mortality and morbidity are usually defined as mortality and morbidity that occur during pregnancy, delivery and the post-delivery period within 42 days. Reproductive morbidity includes gynaecology morbidity, Maternal (or obstetric) morbidity and contraceptive morbidity. Maternal morbidity, which is a part of reproductive morbidity, is generally defined as any illness or injury caused by, aggravated by, or associated with pregnancy or childbirth. Maternal mortality, defined as death during pregnancy or childbirth, or within 42 days after giving birth, can include direct causes (acute problems such as obstetric complications) and indirect causes (problems that are not necessarily caused by the pregnancy, but rather aggravated by the pregnant state, such as anaemia or malaria). Sexually transmitted diseases, including HIC/AIDS, are gynaecologic morbidities. These definitions are quite broad. By beginning with a wide scope, it may be easier to capture all of the possible consequences that reproductive morbidity and maternal morbidity could have (Reed, Koblinsky and Mosley, 2000)."

In a systematic analysis of large-scale international database suggests that Haemorrhage and indirect causes of maternal deaths are the largest contributors globally. Among the direct cause of maternal mortality, haemorrhage was the leading cause, trailed by hypertensive disorders and sepsis and regional estimates varied substantially (Say, Chou, et al. 2014), the study further found that about one-fourth of all haemorrhage death happened during delivery and the remaining during the delivery time or postpartum period.

It has been suggested that for each woman die from pregnancy-related causes, 20 or 30 women suffer from maternal morbidity. The true extent of maternal morbidity is unknown (Say, Chou, et al. 2014).

Bang, et al. (2004) have tried to measure maternal morbidity among home delivery in rural India, through the help of community health worker. They found nearly 15 per cent of women who deliver out of health institutions in rural areas potentially need emergency obstetric care for safe motherhood. One-fourth of women in rural areas need non-emergency medical services, and it should be available to non-institutional delivery. To a larger degree, the threat of maternal death from complications arising during pregnancy touches women in every country of the world (Reed, Koblinsky and Mosley, 2000). A study self-based on the national level dataset of third-round National Family Health Survey (NFHS) has put some questions regarding self-reported morbidity. It has been tried to found the variation in the level of maternal morbidity across different socio-economic background characteristics of women and results compared between EAG states and other states of India. The study found that there was no noticeable variation between EAG and other states of the country for maternal morbidity. Apart from this, there was no much difference in the prevalence of maternal morbidity between the socio-economically disadvantaged and advantaged group of women (Jain, Goli and Arokiasamy, 2012).

2.8 **Research Gaps**

The above discussion on the review of the literature shows that there is a large number of studies have been done on the accessibility and utilisation of maternal health care services throughout the world. However, not much research studies have done in the state Jammu and Kashmir. The socio-cultural, and economic factors are the most widely researched determinants of health care seeking behaviour of women in the previous studies. In India, there is no dataset which collects the data on variables of physical accessibility such as the distance and time taken to reach health centres. It has been found in the above review of literature that there is no empirical study which captures the gap of maternal healthcare services utilisation within rural areas. Most of the studies based on the secondary dataset examined the variation between rural-urban areas. Therefore, the contemporary study will try to fill the existing gap in the literature through an empirical study in Jammu and

Kashmir to understand the existing gap in maternal health care services utilisation within rural areas based on a geographical setting between plain and mountain area.

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Chapter III: Primary Health Care Infrastructure in Rural Jammu and Kashmir

3.1 Introduction

The first section of this chapter discusses the Indian Public Health Standard (IPHS) Norms prescribed by the Government of India (GOI) for the three-tier rural primary health care system in the country. The next section will examine the distribution number of health centres, such as Sub Centre (SC), Primary Health Centre (PHC) and Community Health Centre (CHC) (Majumder, Amlan, 2014). The chapter will further inspect, the growth of health centres by five year plans from the mid-eighties at the national level and in Jammu and Kashmir. Thirdly, the chapter will try to find out the shortfall in human resources at these health institutions in India and Jammu and Kashmir. The fourth section will examine the availability of primary health institutions, distance between village and health centres. This section will further examine the essential required facilities at the health centres in India and Jammu and Kashmir. Lastly, the chapter will examine the average rural population covered by health centres in India and Jammu and Kashmir.

The year 2018 marked the 40th year of Alma-Ata declaration for primary health care is the key global intervention for attaining optimal health outcome (Watch 2011). On its 30th year in 2008 World Health Organisation (WHO), published a report named "Primary Health Care Now More Than Ever" was devoted to Primary Health Care (Watch 2011).

"India being a signatory to Alma Ata Declaration is committed to attaining Health for all through the primary health care approach. The ultimate objective of a health-care delivery system is to ensure that the rich and the poor are treated alike; poverty does not become a disabilityand wealth is not an advantage towards the accessibility of health care (GOI 2011)." The immediate aftermath of Alma Ata declaration India has taken the initiative to improve its primary health care system through enhancing the number of health centres during the initial phase of the eighties substantially.

India has made remarkable economic progress in the last two decades, despite, commendable achievement in economic growth and development, its public healthcare spending is lagging behind other emerging economies (Chatterjee 2013). Consequently, the majority of Indians get their medical needs fulfilled by spending out of pocket

(Doorslaer, et al. 2007). High out of pocket expenditure on medical needs of the population is one of the major reason for rural poverty in the country. Two-third of the total population of the country lives in rural areas where only sources of healthcare are public sector health centres. Although the majority population lives in the rural area, there is a huge rural-urban gap in the quantity and quality of healthcare services. For example, urban India has four times more doctors and three times more nurses than rural India (Chatterjee 2013). Though Indian doctors and other medical professionals are in great demand globally, the country was unable to provide affordable healthcare to its population. Therefore, to enhance the provisioning, accessibility and affordability to primary health care services in the rural area the Government came up with the new policy initiative under the banner of NRHM, launched in the year 2005.

Under NRHM, the Government applied the holistic and integrated approach to address the problem of unmet medical needs of the rural area. Indian Public Health Standard (IPHS) norms have been placed to ensure the minimum standard of healthcare services. Several programmes and schemes have been launched under NRHM especially for marginalised and disadvantaged group of population. For example, Janani Suraksha Yojana (JSY), Accredited Social Health Activist (ASHA) community health worker and Janani Shishu Suraksha Karyakaram (JSSK). Therefore, Provisioning of promotive, preventive, curative and rehabilitative services to the rural population is the major objective under NRHM. All these initiatives have been taken to improve the health of the rural population in general and maternal and child health care services in particular.

Primary health care delivery system in rural areas suffers froma shortage of infrastructure. There is a huge shortfall in terms of physical infrastructure and human resources at the existing health centres in the rural areas, and very few health centres have been functioning according to the IPHS guidelines (Bhandari and Dutta 2007)

Just the existence of health centres are not sufficient or guarantee the delivery of required services to the rural population. Along with socio-economic accessibility, physical accessibility significantly determines the healthcare seeking behaviour. Physical access plays a significant role, especially in the hard to reach mountainous areas. Lack of road infrastructure accompanies with the unavailability of transportation facility at the health centres such as ambulance to carry serious patients home to the health centre, and between health centres are the major issue in the rural area. Several health centres don’t

have even basic essential facilities such as a regular supply of water, electricity and telephone. The existing public health system in a rural area has, therefore, become very unreliable and undependable for access to healthcare facilities, especially in an emergency case (KV and Dileep, 2005).

Inadequate and poorly maintained health centres is one of the major barriers for MHC services utilisation, which primarily focus on maternal and child health care services for the poor.

3.2 Rural Health Care System Norms in India

The public health care delivery system in India is divided into three levels, i.e. Primary, Secondary and Tertiary level. In the presentstudy, we have considered only the three-tier primary rural health care system as we know that India is an agrarian country having two-third population is residing in the rural areas, whose health care needs are fulfilled by the three-tier rural health care system. Further, our topic of interest is the status of maternal health and healthcare seeking behaviour in rural Jammu and Kashmir, which depends wholly on the three-tier system. Three-tier rural health care system constitutes SCs, PHCs and CHCs.

Sub Centre is the widely distributed health facility and entry point to the health care system for the majority population. Major responsibilities assigned to the SCs are enhancing the interaction between communities and service providers to bring the behavioural change. SC provides promotive and preventive health services, such as maternal and child health care services(KV and Dileep, 2005).According to the IPHS guidelines, the SC has to cover 5000 population in plain and 3000 tribal population areas (Table 3.1). A male and female health worker/ANM is required for the proper functioning of the SC (Table 3.1).

At the subsequent level, PHC is the first point of contact for the community with the medical officer. The PHCs are supposed to provide integrated preventive and curative health care services. PHC is a four to six bedded health centre and referral unit for six SCs. An average rural population recommended to a PHC is 30,000 and 20,000 for plain and tribal/mountainous regions, respectively (Table 3.1). A medical officer is supported by 14 paramedical and other staff (IDFC 2014).

At the top of the three tier primary health care system comes the CHC which provides specialised services in the rural areas as per the IPHS guidelines, a Community Health Centre should have "four medical specialists, i.e. physician, surgeon, gynaecologist and paediatrician supported by 21 paramedical and other staff (Majumder 2006). The CHC is a 30 indoor bedded facility with one operation theatre, X-ray, labour room and laboratory facilities." Community Health Centre serves as a referral unit for four PHCs and also provides the facility for obstetric care and specialist consultations (GOI 2015). Population norms for CHC are 120,000 for plain and 80,000 for mountain/tribal regions (Table 3.1).

Table 3. 1: Population Norms as Per Government of India for Health Centres

IPHS Norms for Health Centres		
Health Centre	**Average Rural Population**	
	Urban/Plain Area	Rural/Tribal/Hilly Area
Sub Centre (Most peripheral contact point between the primary health care system and community operated by one female health worker/ANM and one male health worker)	5000	3000
Primary Health Centre (A referral unit for sub centre 4-6 bedded staffed by a medical officer in charge and 14 subordinate paramedical staff)	30000	20000
Community Health Centre (A 30 bedded hospital/referral unit for 4 PHC's with specialised services)	120000	80000

Source: http://vikaspedia.in/health/health-directory/rural-health-care-system-in-india?content=small

3.3 Distribution of Health Centres

It has been discussed in detail in the previous section that the three-tier health care system is the backbone of the public health sector in the rural area, which serves the rural population. As the population of the country is growing the need to increase these health centres have also been growing.

Table 3.2 describes the distribution of health centres, across the states and UTs of the country before NRHM and after ten years of NRHM. The table displays that the health infrastructure across the states and the national level has increased over the ten years, at this time there is 153,655 SCs, 25308 PHCs and 5396 CHCs, have been providing healthcare services to more than eight crores rural population, i.e. 68.84 per cent of the total population. However, interestingly in states and UTs like Delhi, Lakshadweep,

Table 3. 2: State-wise number of health centres functioning during the year 2005 and 2015.

	SC		PHC		CHC	
Name of States/UTs	**2005**	**2015**	**2005**	**2015**	**2005**	**2015**
A & N Islands	107	122	20	22	4	4
Andhra Pradesh	12522	7659	1570	1069	164	179
Arunachal Pradesh	379	286	85	117	31	52
Assam	5109	4621	610	1014	100	151
Bihar	10337	9729	1648	1883	101	70
Chandigarh	13	16	0	0	1	2
Chhattisgarh	3818	5186	517	792	116	155
D & N Haveli	38	56	6	7	1	1
Daman & Diu	21	26	3	3	1	2
Delhi	41	27	8	5	0	0
Goa	172	209	19	21	5	4
Gujarat	7274	8063	1070	1247	272	320
Haryana	2433	2569	408	461	72	109
Himachal Pradesh	2068	2065	439	500	66	78
Jammu & Kashmir	1879	2265	334	637	70	84
Jharkhand	4462	3957	561	327	47	188
Karnataka	8143	9264	1681	2353	254	206
Kerala[1]	5094	4575	911	827	106	222
Lakshadweep	14	14	4	4	3	3
Madhya Pradesh	8874	9192	1192	1171	229	334
Maharashtra	10453	10580	1780	1811	382	360
Manipur	420	421	72	85	16	17
Meghalaya	401	428	101	110	24	27
Mizoram	366	370	57	57	9	9
Nagaland	394	396	87	128	21	21
Orissa	5927	6688	1282	1305	231	377
Pondicherry	76	54	39	24	4	3
Punjab	2858	2951	484	427	116	150
Rajasthan	10512	14407	1713	2083	326	568
Sikkim	147	147	24	24	4	2
Tamil Nadu	8682	8706	1380	1372	35	385
Telangana		4863		668		114
Tripura	539	1017	73	91	10	20
Uttar Pradesh	20521	20521	3660	3497	386	773
Uttaranchal	1576	1848	225	257	44	59
West Bengal	10356	10357	1173	909	95	347
All India	**146026**	**153655**	**23236**	**25308**	**3346**	**5396**

Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2005 and 2015.

Note: 1 Because of the implementation of standardisation of health institutions, some of the PHCs were changed to CHCs with more facilities and patient attendance have been changed to Taluka Hospitals.

Pondicherry, and Sikkim health centres either remain the same or decline from before NRHM period. Currently, Along with other states and UTs Jammu and Kashmir has also recorded a surge in health infrastructure after the inception of NRHM.

3.3.1 District Wise Distribution of Health Centres in Rural Jammu and Kashmir

Table 3.3 demonstrates the number of health centres district wise in Jammu and Kashmir during 2007-08 and the year 2015. To compare the increased number of health centres, the data from District Level Household Survey (DLHS-3) 2007-08 and rural health statistics 2015 have been used for analysis. Several districts during 2007-08 and 2015 are different due to the formation of new districts from the existing one. Over this short span of the period, tremendous increase in Sub centre has observed, and number of SCs are six times increase in 2015 (SCs = 2269) compared to the year 2007-08 (SC = 368) (Table 3.3). The number of PHC's increased threefold in 2015 (PHC's = 637) compared to the year 2007-08 (PHC's = 222) figure. The table additionally displays that 11 CHC's have been added to the existing number in the state during the year 2015 (CHC's = 84) compared to the year 2007-08 (CHC's = 73) (Table 3.3).

Winter capital of the state district Jammu records the highest number of Sub Centres 203, followed by Kupwara 196, Reasi 151, Kathua 148 and, Baramulla 137 (Table 3.3). The bottom five districts with the lowest number of Sub-centres include Ganderbal 43, followed by Bandipore 45, Shupiyan 47, Pulwama 54, and Kishtwar 57 (Table 3.3).

In the case of Primary Health Centres, the maximum number of PHCs are in the district Baramulla 54, followed by Badgam 50, Jammu 45, Anantnag 40, and Kupwara 39 (Table 3.3). The districts having the lowest number of PHCs are Shupiyan 10, followed by Samba 13, Bandipore 13, Leh 16, and Kishtwar 16 (Table 3.3).

Community Health Centre provides specialised medical services to the rural population. The number of CHCs in the state varies significantly district wise. The highest number of CHCs are available in the district Badgam 09, trailed by Jammu 08, Kupwara 07, Reasi 07, and Baramulla 06. On the other hand, in districts like Srinagar 01, Kishtwar 01, Ganderbal 01, Udhampur 02 and Shupiyan 02 are the bottom five districts to availability of CHCs (Table 3.3).

Table 3. 3: District-wise Number of Health Centres in Jammu and Kashmir, 2007-08 and 2015.

Districts	SC		PHC		CHC	
Year	2007-08	2015	2007-08	2015	2007-08	2015
Anantnag	33	123	15	40	12	5
Badgam	27	114	21	50	6	9
Baramula	27	137	20	54	8	6
Doda	27	105	14	33	7	3
Jammu	17	203	17	45	6	8
Kargil	24	119	5	16	3	4
Kathua	26	148	21	35	3	5
Kupwara	28	196	19	39	5	7
Leh	28	106	8	16	1	3
Pulwama	26	89	18	36	5	3
Punch	31	112	18	32	3	3
Rajouri	28	151	15	37	6	7
Srinagar	16	63	12	29	3	1
Udhampur	30	112	19	35	5	2
Bandipore		45		13		3
Ganderbal		43		19		1
Kishtwar		57		16		1
Kulgam		91		28		3
Ramban		54		19		3
Reasi		73		22		2
Samba		77		13		3
Shupiyan		47		10		2
Total	**368**	**2265**	**222**	**637**	**73**	**84**

Source: Computed From DLHS-3, 2007-08, and Rural Health Statistics, 2014-15.

3.3.2 Plan Wise Trend and Growth of Health Centres

Since independence GOI has adopted planned based economic system. During the initial phase of the eighties, there was a policy change in the healthcare system of the country influenced by the Alma Ata declaration of health for all by 2000 AD. The sixth five-year plan was to a great extent conceded that there is serious dissatisfaction with the existing model of medical and health services with its emphasis, specialisation and super specialisation and highly trained doctors which is availed of mostly by the well to do classes. It has been realised that it is this model which is depriving the rural areas and the poor people of the benefits of good health and medical services. The plan gave priority to the development of a community-based health system and advocated availability of health services to the rural population on a priority basis. The training of a large cadre of first-

level health workers selected from the community and supervised by MPWs and medical officers of the PHCs.No further linear expansion of curative facilities in urban areas; this would be permitted only in exceptional cases dedicated by real felt need (Gangolli, Duggal and Shukla 2005).

Following the Alma Ata declaration (1978), the Government of India brought the first time after three decades of independence National Health Policy (NHP, 1982). The following seventh five-year plan (seventh plan, 1985-90) immediately after NHP, 1982 has recorded unprecedented growth in the number of health centres at the national level and in Jammu and Kashmir (Table 3.4). The number of Sub-centresincreases by 54 per cent, PHC by 105 per cent, and CHC by 151 per cent during the seventhfive-year (1985-90) plan compared to the sixth five-year plan (1981-1985) in the country. On the other hand, a similar pattern appears in Jammu, and Kashmir number of SCs has increased by 140 per cent, PHCs by 116 per cent and CHCs by 74 per cent during seventh five-year plan (1985-90) (Table 3.4).

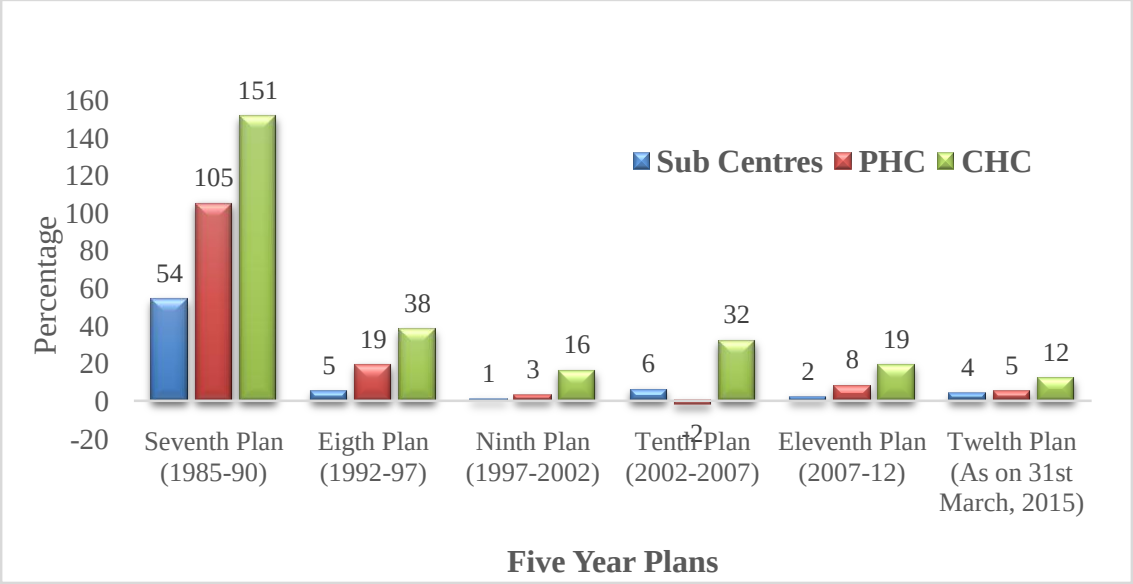
By the mid of the twelfth five-year plan (As on 31stMarch 2015) there is more than one and a half lakh (SCs = 1, 53,655), (PHCs = 25,308) and (CHCs = 5396) have been functioning in the rural areas of the country. On the other hand, in Jammu and Kashmir, includes 2265 SCs, 637 PHCs and 84 CHCs have been functioning at the same time (Table 3.4). The percentage growth for CHC during the last three and half decades has recorded greater compared to SCs and PHC's in the country.

Table 3. 4: Plan-wise trend of health centres increase in Jammu and Kashmir and India.

	India			Jammu and Kashmir		
Five Year Plans	**SCs**	**PHCs**	**CHCs**	**SCs**	**PHCs**	**CHCs**
Sixth Plan (1981-85)	84376	9115	761	609	123	19
Seventh Plan(1985-90)	130165	18671	1910	1460	266	33
Eighth Plan (1992-97)	136258	22149	2633	1700	335	45
Ninth Plan (1997-2002)	137311	22875	3054	1700	337	53
Tenth Plan (2002-2007)	145272	22370	4045	1888	374	80
Eleventh Plan (2007-12)	148366	24049	4833	1907	396	84
Twelfth Plan (As on 31st March, 2015)	153655	25308	5396	2265	637	84

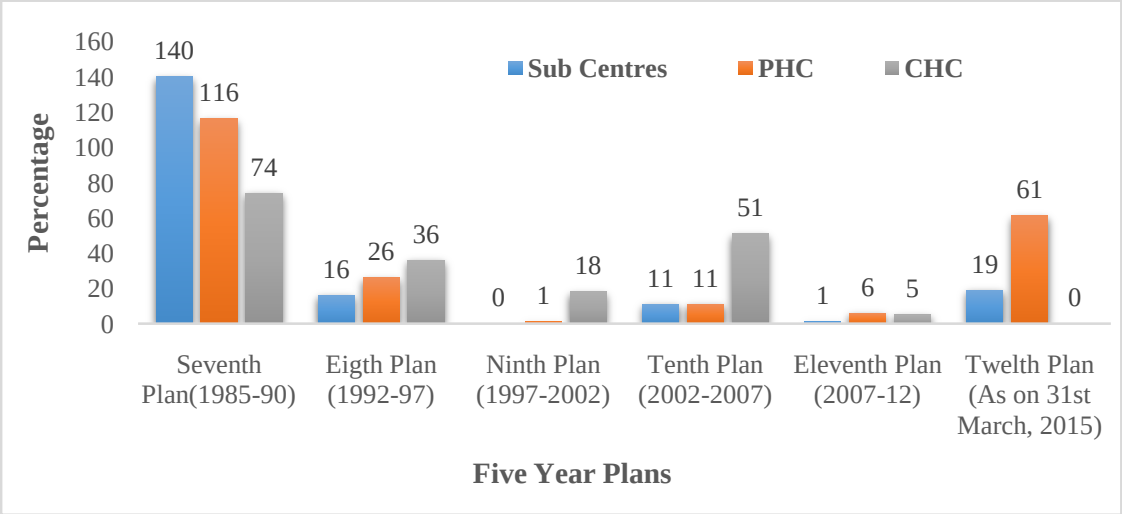
Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2005 and 2015.

Figure 3. 1: Growth of Health Centres by Five Year Plans in India



Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2015.

Figure 3. 2: Growth of Health Centres by Five Year Plan Wise in Jammu and Kashmir



Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2015.

During the eighth (the Year 1992-97) and tenth five-year plans (the year 2002-07), there is a high percentage of growth has recorded for CHC (Table 3.4). However, after the inception of National Rural Health Mission NRHM in the year 2005, unprecedented growth has recorded for PHC's in Jammu and Kashmir (Table 3.4 & Fig. 3.2).

3.4 Human Resource

The previous section about health care infrastructure growth has shown that there is a policy change during the eighties and last decade and focus of successive Governments shift to rural healthcare infrastructure. A large number of health centres have been opened in the rural areas of the country.

Despite the increase in healthcare infrastructure and the well-developed administrative system, good technical skills in many fields and an extensive network of the Government institutions for research, training, diagnostics and other services, the health outcome is still behind the set goals (Satpathy and Venkatesh 2006). The quality and existence of services to promote health, prevent illness or to cure and rehabilitate depend on the skills, knowledge and motivation of human resources availability (Satpathy and Venkatesh 2006). The only route to attaining ongoing Sustainable Development Goals (SDG's) for maternal and child health is through the health worker, and there is no shortcut.

3.4.1 The Shortfall in Health Infrastructure and Human Resources in India

Now let's take a look at the human resources required and in a position to make these health centres function properly at the national level and in Jammu and Kashmir. To make the public healthcare services accessible and affordable to a marginal section of the society in rural areas of the country, a flagship programme NRHM has been launched during the year 2005. To ensure the minimum quality standard of health care services at the health centres, the Government of India come up with Indian Public Health Standard (IPHS) norms.

Table 3.5 and figure 3.3 describes the healthcare infrastructure and human resources required, in position and shortfall during the year 2005 and 2015 at the national level. During the year 2005, Sub-Centres and Primary Health Centres were surplus. However, in the case of Community Health Centres, there was more than forty per cent shortfall in the country (Table 3.5). In the year 2015, there is a shortfall in all three types of rural health centres and the percentage of shortfall come down for CHC's in the country.

Table 3.5 and figure 3.3 further explain the required, in position and shortfall in the workforce required to the functioning of the available health centres appropriately at the national level. Health worker (female)/ANM at the sub centre is must to proper

functioning of the centre. The table display that during the year 2005, there was 16.2 per cent of the required ANM was not in position. Although this shortfall has been appropriately addressed by the year 2015 and there is surplus ANM at the SCs at the national level. There was a huge shortfall in the male health worker at the sub centre during 2005, i.e., 57.4, and it further surges in the year 2015 to 63.8 per cent. At the same time, the number of male health worker at the Sub Centre decline in the year 2015 compared to the year 2005 (Table 3.5 & Fig. 3.3).

According to the IPHS guidelines, a PHC should have a female and male health assistant. Interestingly, the number of female and male health assistant has decreased from the year 2005 to 2015 (Table 3.5) at the national level. The shortfall in the female health assistant increased from 14.4 per cent in 2005 to 47.2 per cent in 2015. Fifty per cent of the required male health assistants at the PHC's have not in the position in the year 2015, which was four times higher compared to 2005 figure 13 per cent.

According to the IPHS norms, a PHC should have a doctor. The number of doctors required as per the available PHC's in the country is 23109 and 25308 in the year 2005 and 2015 respectively. The number of doctors has increased from the year 2005 to the year 2015 (Table 3.5). There was a shortfall of the doctor in the year 2005 4.9 per cent which has been addressed during the year 2015 and surplus number of the doctors in position as compared to the required number at the national level (Table 3.5 & Fig 3.3).

At the next level comes the Community Health Centre (CHC) where specialised services are provided. As per the existing number of CHC's during the year 2005 and 2015, the total specialists should be 12888 and 21584 respectively. The required number of specialists has increased almost double in the year 2015 compared to the year 2005. Despite, double increase in the requirement of the specialists, the number of specialists in position during this period has not increased significantly. And the percentage of the shortfall for specialists has enlarged by 69.3 per cent in the year 2005 to 81.1 per cent in the year 2015 at the national level (Fig. 3.3).

If we look at the individual level for the shortfall of specialists at the CHC, then we will find that the shortfall in all the four specialists has increased from the year 2005 to 2015 at the national level. The community health centres at the national level are facing a huge shortfall for specialists. Surprisingly, the number of surgeons in position at the CHC has

declined from the year 2005 (surgeon = 1154) to the year 2015 (surgeon = 896). And the percentage of the shortfall for the surgeon is 64.2 per cent and 83.4 per cent in the year 2005 and 2015 respectively.

More than three fourth of CHC's in 2015 are functioning without obstetricians and gynaecologists in the country. The shortfall has increased from the year 2005; it was 63.1 per cent to more than three fourth in the year 2015 (Table 3.5 & Fig. 3.3).

In the case of physicians and paediatricians, the situation is very much similar, and 72.2 and 77.8 per cent of CHC's in the year 2005 were functioning without physicians and paediatricians in the country, respectively. The shortfall further augmented in the year 2015 to 83 and 82.1 per cent for physicians and paediatricians, respectively, in the country (Table 3.5 & Fig 3.3).

For proper functioning of health centres, other staffs like radiographer, pharmacists, laboratory technicians and nurses plays an important role. Unavailability of these staffs can cause hurdle in realising the basic goal of the health centres. More than sixty per cent of the required number of radiographers in the country at the CHC's were not in position during the year 2005 and 2015, i.e., 62.4 per cent and 60.2 per cent respectively at the national level (Fig 3.3), though the number of radiographers has increased over time, the percentage shortfall decline at a very slow rate.

In case of the pharmacists required at the PHC's and CHC's one-third of the required pharmacists were not in the position in the year 2005, i.e., 33.4 per cent. However, the percentage of the shortfall has decreased, and in the year 2015, it was 24.7 per cent (Table 3.5 & Fig. 3.3).

The number of laboratory technicians in position at PHC and CHC has increased from 12284 in the year 2005 to 17154 in 2015 (Table 3.5). In 2005 there was more than fifty per cent shortfall (53.8 per cent) of required laboratory technicians which came down to 44.1 per cent in the year 2015 (Table 3.5 & Fig. 3.3).

Nurses/midwife at PHC and CHC plays an important role in the functioning of the health centres. More than two times increase in the number of nurses at the health centres in position have recorded in the year 2015 (65039) compared to the year 2005 (28930) (Table 3.5). More than one-third required nurses at the health centres were not in position

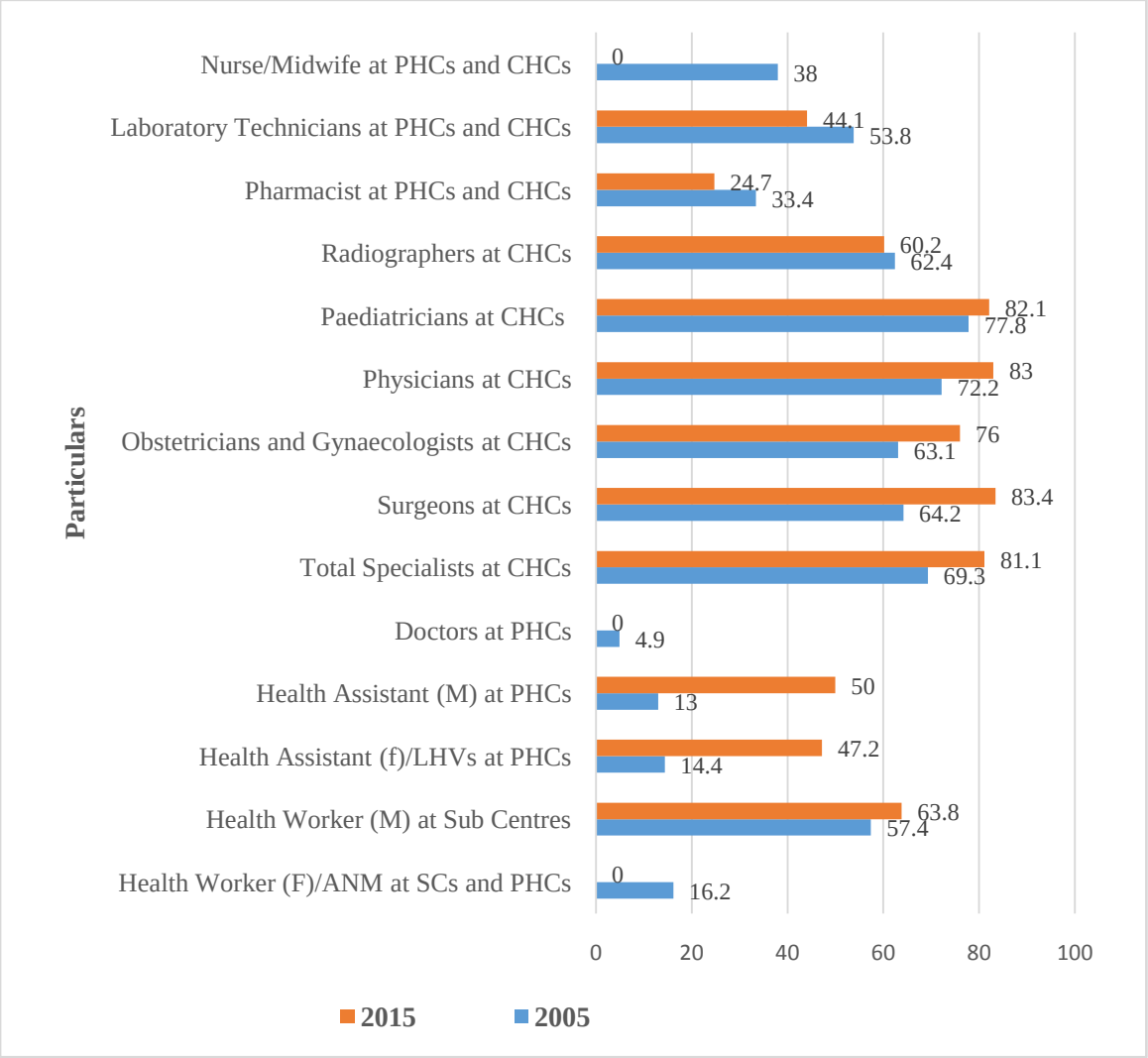
during the year 2005, 38 per cent at the national level (Fig 3.3). However, in the year 2015, the number of nurses/midwife in position at the PHC's and HC's are recorded surplus than the required number in the country (Table 3.5 & Figure 3.3).

Table 3. 5: Shortfall in Health Infrastructure and Human Resources in India, 2005 and 2015.

	Required		In Position (P)		Shortfall	
Particulars	**2005**	**2015**	**2005**	**2015**	**2005**	**2015**
Sub-Centres	134108	179240	142655	153655	Surplus	25585
Primary Health Centres	22349	29337	23109	25308	Surplus	4029
Community Health Centres	5587	7322	3222	5396	2365	1926
Health Worker (F)/ANM at Sub Centre and PHCs	165764	153655	138906	193191	26858	Surplus
Health Worker (M) at Sub Centre	142655	153655	60756	55657	81899	97998
Health Assistant (f)/LHVs at PHCs	23109	25308	19773	13372	3336	11936
Health Assistant (M) at PHCs	23109	25308	20086	12646	3023	12662
Doctors at PHCs	23109	25308	21974	27421	1135	Surplus
Total Specialists at CHCs	12888	21584	3953	4078	8935	17506
Surgeons at CHCs	3222	5396	1154	896	2068	4500
Obstetricians and Gynaecologists at CHCs	3222	5396	1189	1296	2033	4100
Physicians at CHCs	3222	5396	895	918	2327	4479
Paediatricians at CHCs	3222	5396	715	968	2507	4428
Radiographers at CHCs	3222	5396	1337	2150	2009	3246
Pharmacist at PHCs and CHCs	26582	30704	17708	23131	8874	7573
Laboratory Technicians at PHCs and CHCs	26582	30704	12284	17154	14298	13550
Nurse/Midwife at PHCs and CHCs	46658	63080	28930	65039	17728	Surplus

Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2005 and 2015.

Figure 3. 3: Human Resources Shortfall at the Health Centres in India, 2005 & 2015



Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2005 and 2015.

3.4.2 The Shortfall in Health Infrastructure and Human Resources in Jammu and Kashmir

Jammu and Kashmir is one of the eighteen high focussed states under NRHM. The percentage of the rural population is higher than the national level accompanied by low population density, and rugged topography Jammu and Kashmir is one of the least accessible states. Three tiers rural health care system caters to the medical needs of the rural population of the state. As the population is considered as the basic criteria to determine the required number of health centres and workforce. It becomes essential to assess the growth of health centres and required the workforce to function these centres appropriately over the period. The data from rural health statistics 2005, the year in which the National Rural Health Mission (NRHM) flagship programme was introduced to

strengthen the rural health care system and 2015 after ten years of its implementation has been undertaken to analysis.

Table 3.6 and figure 3.4 expounds, the required, in position and shortfall in health care infrastructure and workforce at these centres during the year 2005 and 2015 in rural Jammu and Kashmir. A number of the health centres in Jammu and Kashmir was substantially higher than the required in the year 2005, and 2015 (Table 3.6). There is no shortfall in health centres in the state.

Required number of Female health worker/ANM at SCs and PHCs increased over ten years of period. However, female health worker/ANM positioned at SCs and PHCs were insufficient, and numbers were less than required during the year 2005. In the year 2015, the number of female health worker/ANM amplified substantially from 2005, and it is surplus than the required number in position (Table 3.6). Ideally, there should be a male health worker at every SC as per IPHS recommendations. However, in Jammu and Kashmir, more than three-fourths of the SCs have been functioning without a male health worker, and shortfall persists during the last decade (Table 3.6 & Fig. 3.4). Despite, the inauguration of NRHM in 2005, the shortfall in male health worker has not been addressed,and situations prevail analogous as it was in the year 2005 (Table 3.6).

Preferably, a female health assistant and male health assistant should be available at the Primary Health Centres as per the IPHS guidelines. Even though the number of female health assistant/LHV at the PHCs have increased from the year 2005 to 2015 in Jammu and Kashmir (Table 3.6). The shortfall in female health assistant/LHV has not addressed appropriately and persists despite the introduction of NRHM in 2015, i.e. 81 per cent and 82.1 per cent during the year 2005 and 2015 respectively in Jammu and Kashmir (Fig 3.4). There was no shortfall of male health assistant at the PHCs during the year 2005, but in the year 2015 there is 88.2 per cent of required male health assistants have not in positioned in the state (Fig. 3.4).

Ideally, according to the IPHS norms, there should be a doctor at every PHC. As the number of the PHC’s in the state has increased over the period, the requiredseveral doctors in these PHCs also increased. The table shows that the doctors positioned at the PHC’s in 2005 and 2015 are surplus than the required number in the state (Table 3.6).

The Community Health Centre provides health services at the secondary level, and it is at the top of the hierarchy in the primary rural health care system. The CHC provides specialised services, and it is the first point of contact for the rural population with a specialist. Preferably, a CHC must have a surgeon, an obstetrician and gynaecologist, paediatrician and physician. Table 3.6 illustrates that the number of total specialists required and in position has increased from the year 2005 to 2015 in Jammu and Kashmir (Table 3.6). The total required specialists in the state during the year 2005 and 2015 are 280 and 336 respectively. However, the total specialists in a position substantially below the required number and they were 142 and 167 in 2005 and 2015 respectively. If we look at the shortfall figure, it is visible that around fifty per cent of the total required specialists were not in a position during 2005 and 2015 in Jammu and Kashmir (Table 3.6 & Figure 3.4).

Table 3. 6: The Shortfall in health centres and human resources in Jammu and Kashmir, 2005 & 2015.

	Required ®		In Position (P)		Shortfall (R-P)	
Particulars	2005	2015	2005	2015	2005	2015
Sub-Centres	1176	2009	1879	2265	Surplus	Surplus
Primary Health Centres	196	327	334	637	Surplus	Surplus
Community Health Centres	49	81	70	84	Surplus	Surplus
Health Worker (F)/ANM at Sub Centre and PHCs	2213	2902	1588	4362	625	Surplus
Health Worker (M) at Sub Centre	1879	2265	377	531	1502	1734
Health Assistant (f)/LHVs at PHCs	334	637	62	114	272	523
Health Assistant (M) at PHCs	334	637	334	75	0	562
Doctors at PHCs	334	637	643	834	Surplus	Surplus
Total Specialists at CHCs	280	336	142	167	138	169
Surgeons at CHCs	70	84	37	43	33	41
Obstetricians and Gynaecologists at CHCs	70	84	26	50	44	34
Physicians at CHCs	70	84	46	40	24	44
Paediatricians at CHCs	70	84	33	34	37	50
Radiographers at CHCs	70	84	61	239	9	Surplus
Pharmacist at PHCs and CHCs	404	721	456	872	Surplus	Surplus
Laboratory Technicians at PHCs and CHCs	404	721	95	763	9	Surplus
Nurse/Midwife at PHCs and CHCs	824	1225	68	1184	756	41

Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2005 and 2015.

The table further elucidates the shortfall in specialists during the year 2005 and 2015 in Jammu and Kashmir. Nearly fifty per cent of the required surgeons at CHC's were not in a position in the year 2005, i.e. 47.1 per cent and 2015; it is 48.8 per cent in the state (Fig. 3.4). It shows that shortfall in the availability of surgeon at CHC's marginally increases despite ten years of NRHM in 2015.

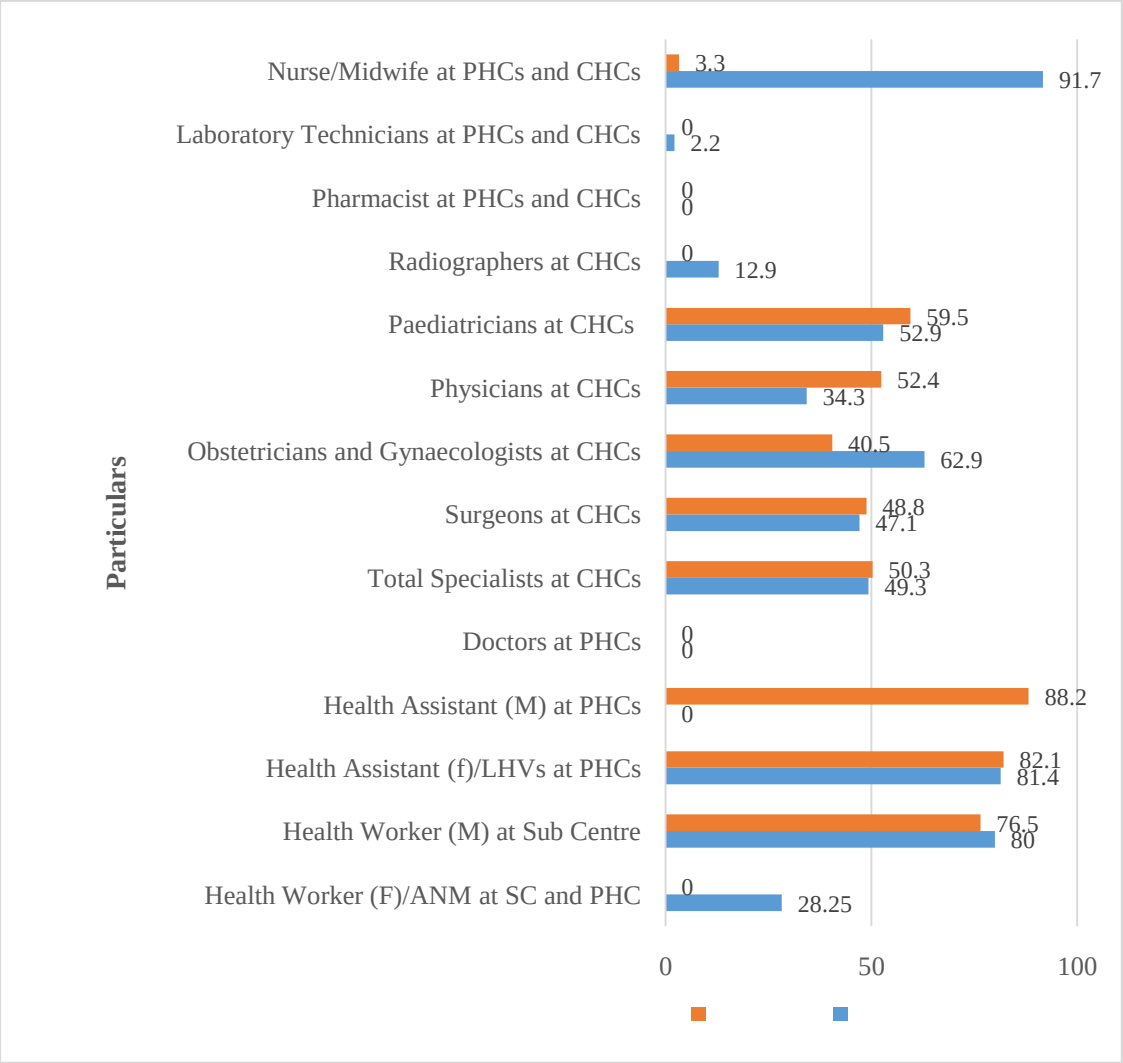
Obstetricians and gynaecologist are primarily concerned with maternal and child health care; their shortfall can cause unnecessary inconvenience for pregnant women at delivery. Despite, the government's numerous initiatives to enhance the coverage of maternal and child health care services and institutional delivery, health centres have been suffering from a shortage of specialists persistently in the state. However, the shortfall in obstetricians and gynaecologist has declined from 62.9 per cent in the year 2005 to 40.5 per cent in 2015 (Table 4.6 & Fig. 3.4). Still, more than one-third of the CHCs are functioning without any obstetricians and gynaecologist in Jammu and Kashmir.

The non-availability of the physicians at CHC's is another major concern. The shortfall of physicians has increased in Jammu and Kashmir over the ten years. In 2005, one third, i.e. 34.3 per cent of required physicians were not in a positioned in the state, but this shortfall enhanced in 2015, and more than fifty per cent of required physicians are not in a position in the state (Table 3.6 & Fig 3.4).

In the case of the availability of paediatrician at CHC, 52.9 per cent and 59.5 per cent of CHCs in the year 2005 and 2015 respectively has been functioning without paediatrician in Jammu and Kashmir (Fig 3.4). Therefore, the shortfall in the availability of paediatrician in the state has increased slightly over the period.

There was a shortfall of 12.9 per cent in the required number of radiographers at the CHCs in the year 2005, but in 2015 there are surplus radiographers in the position in Jammu and Kashmir (Table 3.6). The requirement of pharmacists at PHCs and CHCs have increased with increasing health centres in the state. There was no shortfall in 2005 for pharmacists, and a similar situation also prevailed in 2015 (Table 3.6 & Fig 3.4). Laboratory technicians are also surplus in position than required in the year 2015. The very high shortfall has been observed for nurse/midwife at PHC's and CHCs in the year 2005, i.e. 91.7 per cent which has declined in 2015 to just 3.3 per cent in Jammu and Kashmir (Table 3.6 and Fig. 3.4)

Figure 3. 4: Human Resources Shortfall at the Health Centres in Jammu and Kashmir, 2005 & 2015



Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2005 and 2015.

3.5 Health Facilities Available at Health Centres in Jammu and Kashmir

It has been found in the previous section of this chapter that the number of health centres in Jammu and Kashmir has increased significantly during the last three decades. There was no shortfall in the number of required health centres in the state. Although in case of required human resources, the huge shortfall has been recorded especially for the specialist at the Community Health Centres in Jammu and Kashmir. Although the number of health centres increased tremendously in the state, most of these health centres are unequally distributed, people have to walk the long distance to meet their basic medical needs. Along with unequal distribution and shortfall in human resources, these health centres lack in basic maintenance and facilities, for instance, pucca Government building, regular supply of water and electricity, essential equipment and drugs.

This section examines the availability of health centres and basic essential facilities which should be there.

3.5.1 Building Position at the Health Centres

Health centre facility building is the first requirement for the smooth functioning of any health system. In rural India, many health centres don't have even the Government building, and it is functioning in a rented building which is lacking in basic requirements for the functioning of centres such as electricity and water supply. The evaluation of SCs by the National Council of Applied Economic Research (NCAER), Delhi revealed that SCs operating in rented buildings don't have a conducive working environment due to lack of space and equipment and furniture facilities (Satpathy and Venkatesh 2006).

As per rural health statistics data for the year, 2016 shows that around one-third of total Sub Centres don't have even government building in India and they are functioning in rented building or voluntary panchayat building (Fig. 3.5). The percentage for PHCs and CHCs functioning in the Government building is 82.9 per cent and 95.1 per cent respectively in India (Fig 3.5).

On the other hand in Jammu and Kashmir situation is more pathetic where sixty per cent of SC's and one-fourth of PHC's are functioning without the government building. However, all the CHC's in the state are functioning in the government building (Fig. 3.5).

Figure 3. 5: The Percentage of Health Centres in Government Building, 2015

Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2014-15.

3.5.2 Facilities and Services at Sub-Centres in Jammu and Kashmir

Access to health centres varies across space because access to health care is affected by where health professionals are located (supply) and where people reside (demand), and neither health facilities nor population is uniformly distributed in rural areas (Luo and Fahui 2003).

Jammu and Kashmir isone of the least densely populated states,and population density is much lower than the national level. The average number of villages covered by a sub centre in Jammu and Kashmir is less than the national average (Table 3.7). The average number of villages covered by the SC has come down in the year 2015 (3 villages per SC) compared to the year 2005 figure (3.54 villages per SC) (Table 3.7). It can be noticed from the table that the average rural area covered by the SC in Jammu and Kashmir is five to six times higher than the national level (Table 3.7), this unprecedented higher average rural area covered by the SC in the state might be due to data non-availability from Pakistan occupied Kashmir. However, figures come down for the average rural area covered by the SC from 117.77 Sq. Km. in the year 2005 to 97.7 Sq. Km. in the year 2015 in Jammu and Kashmir (Table 3.7).

Although SC is the first point of contact for a rural population with the rural health care system. Average radial distance covered by the SC in rural Jammu and Kashmir is three times higher than the national level. At the national level average, radial distance covered by the SC is 2.64 Km. and 2.54 Km. in the year 2005 and 2015 respectively. Whereas the figure in Jammu and Kashmir is 6.12 Km., and 5.58 Km. in the year 2005 and 2015 respectively. However, the radial distance covered by the SC has come down in Jammu and Kashmir (Table 3.7).

Table 3. 7: Average number of villages, average rural area and average radial distance covered by a Sub Centre in Jammu and Kashmir and India, 2005 & 2015.

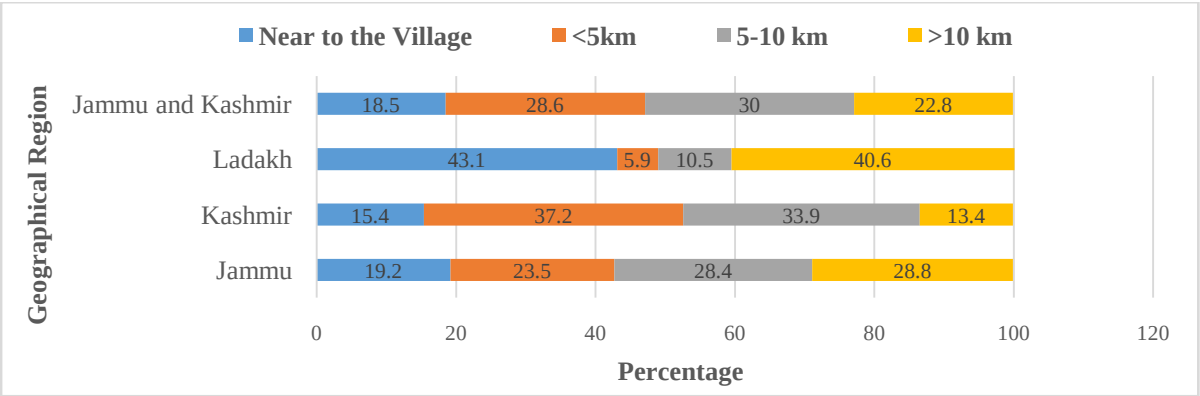
	Jammu and Kashmir		India	
Year	2005	2015	2005	2015
Average Number of Villages covered by a Sub Centre	3.54	3	4.48	4
Average Rural Area [Sq. Km.] - covered by a - SC	117.77	97.7	21.86	20.27
Average Radial Distance [Km.] - covered by a - SC	6.12	5.58	2.64	2.54

Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2005 and 2015.

3.5.3 Distance to Sub Centre from Village in Jammu and Kashmir

Sub-centre is the most peripheral health facility and the first contact of point for the patient. The essential human resource required at sub-centre includes an ANM with midwifery skills and a male health worker. Sub-centre is the first contact of point for pregnant women for pregnancy registration, child immunisation and other required services and counselling for pregnancy monitoring and management. Although there is no shortfall in the number of sub-centreshave observed,and an average population covered by a Sub Centre is as per IPHS norms in Jammu and Kashmir. In more than one-fifth of the village in the state reported distance to a Sub-centre is more than ten kilometres (Fig 3.6). The percentage of villages having sub-centre nearby is 18.5 per cent, more than one fourth 28.6 per cent of villages have recorded less than five kilometres, and 30 per cent have reported distance between five to ten kilometres (Fig. 3.6). If looking at the regional variation in the availability of sub-centre, it will find that the highest percentage of villages 43.1 per cent having SC nearby is in Ladakh region which is geographically largest and demographically least densely populated. The percentage of villages having SC nearby has recorded 19.2 per cent and 15.4 per cent in Jammu and Kashmir region respectively (Fig. 3.6). The figure further explains that the percentage of villages having sub-centre within five kilometres is seven times higher in the Kashmir region 37.2 per cent compared to Ladakh 5.9 per cent and in Jammu, it is 23.5 per cent. One-third of the village in Kashmir region have reported distance to sub centre between five to ten kilometres, more than one fourth in Jammu and one-tenth in Ladakh region of the state.

Figure 3. 6: Region Wise Percentage of Villages and Distance to Sub Centre in Jammu and Kashmir



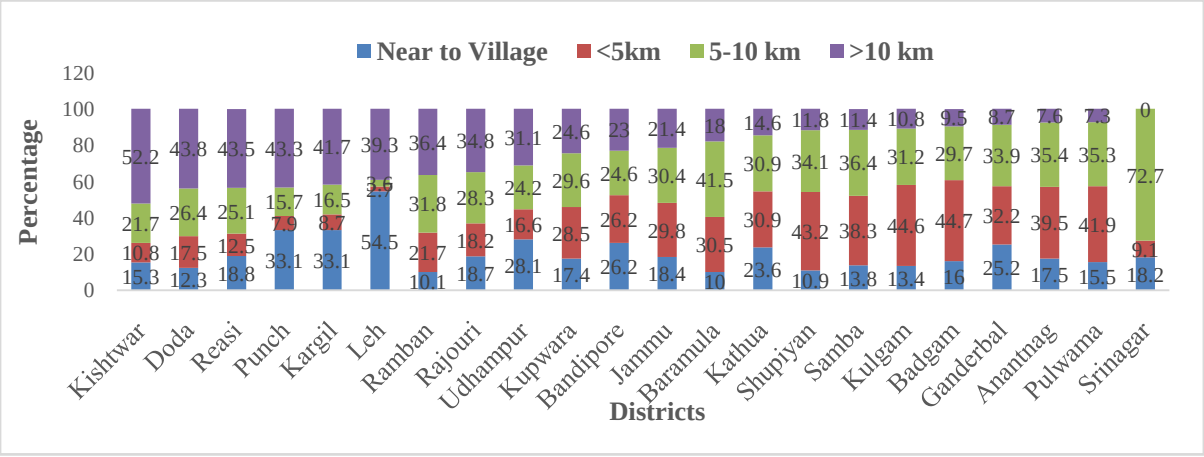
Source: Computed From the Census of India, 2011.

Distance to sub-centre in more than forty per cent of villages in Ladakh region is more than ten kilometres. The region characterised with a vast geographical area with population density is 3 and ten persons per square kilometre in two districts of the region Leh and Kargil respectively. Despite the very low average population covered by health centres in these two districts. People have to travel a long distance to get basic healthcare services. In Jammu region distance to sub-centre, more than ten kilometresis recorded from 28.8 per cent of villages, and it is lowest in the valley 13.4 per cent (Fig. 3.6).

3.5.4 District-Wise Percentage of Villages and Distance to Sub Centre in Jammu and Kashmir

Figure 3.7 describes the percentage of villages and distance to SC district wise in Jammu and Kashmir. More than fifty per cent of the village in district Leh have a sub-centre nearby to the village, and it is one third for districts like Kargil 33.1 per cent and Punch 33.1 per cent (Fig 3.7). On the other hand, the lowest percentage of villages having sub-centre nearby village is recorded in district Baramulla 10 per cent, followed by Ramban, Shupiyan, Doda and Kulgam (Fig. 3.7). However, SC is the most peripheral contact of point for preventive and promotive care in districts like Kishtwar more than fifty per cent of villages reported distance to SC is more than ten kilometres. Other districts where the distance between village to SC more than ten kilometres are Doda 43.8 per cent, Reasi 43.5 per cent, Punch 43.3 per cent, Kargil 41.7 per cent, Leh 39.3 per cent (Figure 3.7). Under NRHM these districts come under the high priority districts are Rajouri, Doda, Ramban, Kishtwar, Punch and Leh.

Figure 3. 7: District wise Percentage of Villages and Distance to SC in Jammu and Kashmir.



Source: Computed From the Census of India, 2011.

3.5.5 Facilities at Sub Centres in Jammu and Kashmir

Sub centre is the most peripheral health centre providing preventing and promotive health services to the rural population. In Jammu and Kashmir, there is no shortage of sub-centre has been observed and an average population covered by a Sub Centre is optimum as per the IPHS guidelines. However, the distance to an average rural area covered by the SC is higher in the state compared to the national level. This section will examine the availability of required facilities at the SC in Jammu and Kashmir.

Table 3.8 describes the percentage of Sub Centres having the availability of different sorts of basic facilities in Jammu and Kashmir and at the national level. Availability of residential quarter at the health facility could improve the punctuality of staff at the health facility. Therefore, a living quarter for an ANM at the SC becomes essential. However, in Jammu and Kashmir, only ten per cent of SC's having quarter (Table 3.8). Whereas at the national level, more than fifty per cent of SCs with ANM quarter available.

Further, only two-third of SC's having quarter are actually in use where ANM has been living at the national level and in Jammu and Kashmir (Table 3.8). The SC should have function according to IPHS norms guidelines. However, the percentage of SCs functioning as per the IPHS norms at the national level is one fifth. Surprisingly, on the other hand, in Jammu and Kashmir, there is no SC functioning as per the IPHS norms (Table 3.8).

Table 3. 8: Availability of facilities at Sub Centres in Jammu and Kashmir, 2015

Particulars	India		J & K	
	N	%	N	%
Number of SCs Functioning	153655		2265	
SCs with ANM quarter	84078	54.7	227	10
SCs with ANM living in SC Quarter*	54939	65.3	154	67.8*
SCs Functioning as per IPHS Norms	31742	20.7	NA	NA
SCs without Regular Water Supply	43695	28.4	1290	57
SCs without Electricity	39295	25.6	1013	44.7
SCs without All-weather Motorable Approach Road	17250	11.2	672	29.7

Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2014-15.

A very high percentage of SCs in Jammu and Kashmir are functioning without regular water supply, i.e. 57 per cent and electricity 44.7 per cent (Table 3.8). On the other hand, at the national level situation of regular water supply and electricity is better.

The previous section discussed distance to sub centre from a village has shown that a large number of villages have no facility of sub centre level nearby and in some cases, it is more than ten kilometres from a village. Table 3.8 explains that thirty per cent of functioning SCs in Jammu and Kashmir does not connect to all-weather motorable approach road (Table 3.8). On the other hand, at the national level road connectivity is better and just 11.2 per cent of SCs without all-weather motorable approach road.

3.5.6 Facilities and Services at Primary Health Centres in Jammu and Kashmir

Primary Health Centre is the first point of contact for a rural population with the medical officer. The PHC is more sparsely located health centre compared to the Sub Centre. As it has been seen earlier in this chapter that around one-fourth of PHCs in Jammu and Kashmir are functioning in a rented building without any Government building. It becomes essential to understand the provision of PHC and the facilities required at these health centres in Jammu and Kashmir.

Table 3.9 examines the average number of villages, the number of SCs, average rural area, and average radial distance covered by a PHC in Jammu and Kashmir and India during the year 2005 and 2015.The average number of villages covered by a PHC in Jammu and Kashmir is better than the national level (Table 3.9). Whereas in Jammu and Kashmir, the average number of villages covered by a PHC is 19.92 villages and ten villages per PHC in the year 2005 and 2015 respectively (Table 3.9). At the national level percentage is higher, i.e. 27.63 villages and 25 villages per PHC in the year 2005 and 2015 respectively. The average number of Sub Centres covered by a PHC has also come down from the year 2005 (5.63 SC) to the year 2015 (4 SC) (Table 3.9).

The average rural area covered by a PHC has come down at the state and the national level. However, in Jammu and Kashmir the average rural area covered by a PHC come down at higher pace from the year 2005 (662.53 Sq. Km.) to the year 2015 (347.4 Sq. Km.). The reason for this high decline in average rural area covered by a PHC is the growth of PHC during the last decade in the state (Table 3.9).

Table 3. 9: The Average number of villages, number of PHCs, average rural area and average radial distance covered by a PHC in Jammu and Kashmir and India, 2005 and 2015.

	Jammu and Kashmir		India	
Year	**2005**	**2015**	**2005**	**2015**
Average Number of Villages covered by a PHC	19.92	10	27.63	25
Number of Sub Centres per PHC	5.63	4	6.17	6
Average Rural Area [Sq. Km.] - covered by a - PHC	662.53	347.4	134.94	123.1
Average Radial Distance [Km.] - covered by a - PHC	14.52	10.51	6.55	6.26

Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2005 and 2015.

The table further explains the average radial distance covered by a PHC in Jammu and Kashmir and at the national level. The radial distance covered by a PHC is higher in Jammu and Kashmir compared to the national level. However, the radial distance covered by a PHC has come down from 14.52 Km. to 10.51 Km. in the year 2005 to 2015, respectively (Table 3.9).

3.5.7 Distance to Primary Health Centre from Village in Jammu and Kashmir

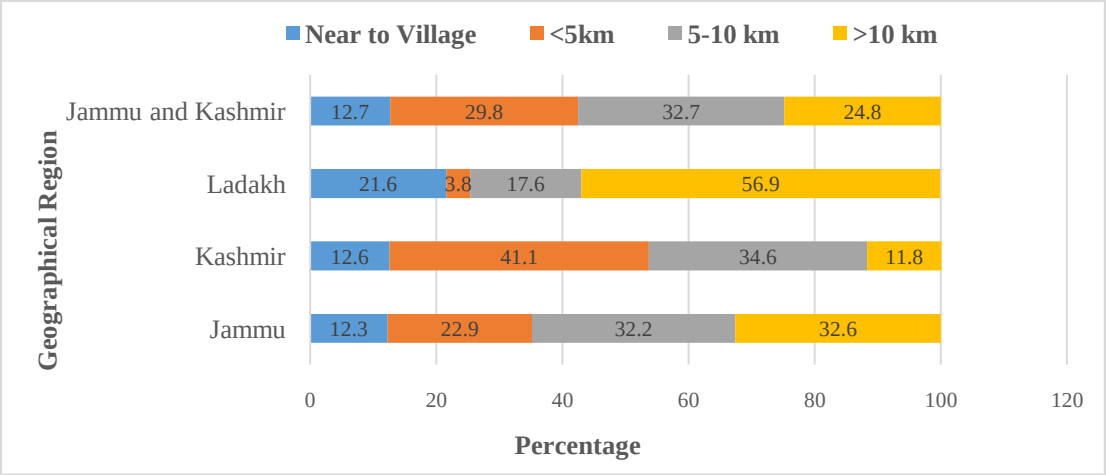
Figure 3.8 below explains the percentage of villages and the distance to Primary Health Centre in Jammu and Kashmir. In Jammu and Kashmir, the percentage of villages having PHC nearby is 12.7 per cent (Fig. 3.8). Around thirty percent of villages have the distance to PHC is less than five kilometres, in one-third of villages in the state, people have to travel to five to ten kilometre to get contact with PHC (Fig. 3.8). One-fourth of villages in the state is more than ten kilometres away from the PHC facility (Fig. 3.8).

The regional variation in the percentage of villages and distance to the PHC, display that in Ladakh region in sixty percent of the villages the distance to a PHC is more than ten kilometres (Fig 3.8). One-fifth of the villages in Ladakh region has PHC facility nearby of the village.

In Kashmir valley, the percentage of villages having a PHC nearby is 12.6 percent, the highest percentage of villages 41.1 percent having a PHC within a distance of five kilometres. More than one-third of the village's record distance to a PHC between 5-10 kilometres and 11.8 percent has recorded distance to PHC more than ten kilometres in the valley (Fig. 3.8).

The third region is Jammu, which is topographically less rugged and demographically dominated by the Hindu religious group. The percentage of villages having a PHC nearby and within five kilometres are 12.3 percent and 22.9 percent respectively. Around one-third of villages report distance to a PHC between 5-10 kilometres and more than ten kilometres (Figure 3.8).

Figure 3. 8: Region Wise Percentage of Villages and Distance to PHC in Jammu and Kashmir



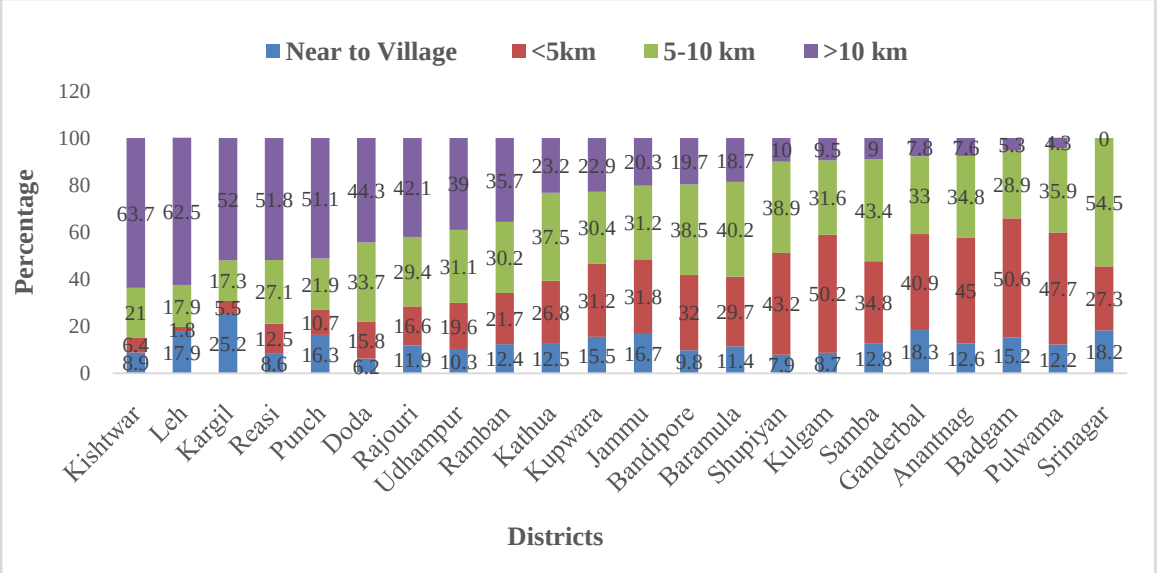
Source: Computed from District Census Handbook, Census of India, 2011.

3.5.8 District-Wise Percentage of Villages and Distance to Primary Health Centres in Jammu and Kashmir

Figure 3.9 below describes the percentage of villages and distance to Primary Health Centre district wise in Jammu and Kashmir. According to the census of India, 2011, 12.7 per cent of villages in Jammu and Kashmir have had a PHC in the village. If we look at the district-wise data, the percentage of villages having PHC nearby, it is found that one-fourth of the villages in the district Kargil has a PHC facility. The percentage of villages having a PHC facility nearby the village is observed fifteen to twenty percent in districts like Ganderbal, Srinagar, Leh, Jammu, Punch, Kupwara and Badgam (Fig 3.9). The next category of districts is in which the percentage observed is ten to fourteen percent are Samba, Anantnag, Kathua, Ramban, Pulwama, Rajouri, Baramula and Udhampur (Fig. 3.9). The percentage of villages having a PHC facility nearby village is less than one-

tenth, in districts like the lowest in Doda followed by Shupiyan, Reasi, Kulgam, Kishtwar, and Bandipore (Fig 3.9).

Figure 3. 9: District wise Percentage of Villages and Distance to PHC in Jammu and Kashmir.



Source: Computed from District Census Handbook, Census of India, 2011.

The figure further explains that in high priority districts under NRHM distance to PHC is more than ten kilometres in the majority of villages. The percentage of villages having a distance to PHC more than ten kilometres is highest in district Kishtwar 63.7 per cent, followed by Leh 62.5 per cent, Kargil 52 per cent, Reasi 51.8 per cent and Punch 51.1 per cent (Figure 3.9). On the other hand, in the district Srinagar there is no village having the distance to PHC is more than ten kilometres. Other districts are having a very low percentage of villages from where the distance to PHC is more than ten kilometres are Pulwama 4.3 per cent, Badgam 5.3 per cent, Anantnag 7.6 per cent, Ganderbal 7.8 per cent and Samba 9 per cent (Figure 3.9).

3.5.9 Facilities at Primary Health Centres in Jammu and Kashmir

The primary health centre is functioning as the intermediator between the Sub Centre (SCs) and the Community Health Centre (CHCs) in the primary health care system in rural areas. There was no shortfall in the required number of PHCs and the doctors at the PHCs in Jammu and Kashmir as discussed before. Nevertheless, the large number of

PHCs in the rural areas still lack in basic essential facilities like labour room, operation theatre, beds, electricity and regular water supply.

Table 3.10 illustrates, the percentage of Primary Health Centres (PHC's) having or not having the availability of the required basic health infrastructure at a facility in the country and Jammu and Kashmir.According to IPHS norms, PHC must have a labour room to cater to women in rural areas who come to delivery at a health facility. The percentage of PHC having labour room is 70.4 per cent at the national level, which displays clearly that around thirty percent of PHCs have been functioning in rural areas are without labour room (Table 3.10). On the other hand, in Jammu and Kashmir, the situation is more pathetic, and fifty per cent of PHCs have been functioning without the facility of the labour room (Table 3.10).

More than sixty percent of PHCs are functioning without the facility of the operation theatre in the country, and the percentage of PHCs having operation theatre is 39 per cent (Table 3.10). On the other hand, in the case of Jammu and Kashmir, only two per cent of PHC's having the facility of operation theatre (Table 3.10).

The PHC is a 4-6 bedded health facility. The percentage of PHC's having at least four beds is 70.3 per cent and 60.3 per cent at the national level and Jammu and Kashmir, respectively (Table 3.10). Further, the percentage of PHC's without a regular supply of water and electricity is higher in Jammu and Kashmir compared to the national level (Table 3.10).

Physical accessibility to the health facilities in rural areas accompanied by rugged topography and least road density is one of the major challenges to address in Jammu and Kashmir. There is a large number of facilities in rural Jammu and Kashmir which do not connect with the all-weathermotorable road. The percentage of PHC's without all-weather motorable approach road is double in Jammu and Kashmir 15.4 per cent compared to the national level 6.9 per cent (Table 3.10).

Non-availability of essential facilities like telephone and computer at the health centre could be inconvenient at the time of emergency. Very few percentages of PHC's in Jammu and Kashmir having the facility of telephone and computer and the percentage is three to four times lower than the national level (Table 3.10).

Table 3. 10: Availability of facilities at Primary Health Centres at the National Level and in Jammu and Kashmir, 2015.

	India		J & K	
Particulars	**N**	**%**	**N**	**%**
Number of PHCs Functioning	25308		637	
PHCs With Labour Room	17815	70.4	328	51.5
PHCs With Operation Theatre	9875	39	13	2
PHCs With At least 4 Beds	17796	70.3	384	60.3
PHCs Without Electricity	1107	4.4	81	12.7
PHCs Without Regular Water Supply	1773	7	94	14.8
PHCs without All-weather Motorable Approach Road	1756	6.9	98	15.4
PHCs With Telephone	13276	52.5	97	15.2
PHCs With Computer	14293	56.5	120	18.8
PHCs With Referral Transport	11036	43.6	362	56.8
PHCs With RKS	21057	83.2	615	96.5
PHCs Functioning as per IPHS Norms	5245	20.7	NA	NA

Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2014-15

A very high percentage of PHCs in rural areas are functioning without any facility of the referral system. In case of emergencynon-availability of referral system could be fatal to a patient who reaches the health facility at a crucial stage. The percentage of PHC's having facility of referral system shows that more than forty and sixty per cent of PHC's are functioning without any referral system in Jammu and Kashmir and at the national level (Table 3.10).

The Government of India, under the ministry of health and family welfare, have launched NRHM in 2005. To make health facilities more accountable and efficient introduced a scheme Rogi Kalyan Samities under NRHM. The major insight behind this scheme is to improve the service provision and the functioning in public health facilities, enhance accountability and increase participation (GOI 2015). The percentage of PHC's having RKS is higher in Jammu and Kashmir compared to the national level.

Interestingly, no Primary Health Centre (PHC) in Jammu and Kashmir is currently functioning according to the IPHS norms guidelines. However, at the national level, one-fifth of PHC's have been functioning according to IPHS norms guidelines.

3.5.10 Facilities and Services at Community Health Centres in Jammu and Kashmir

The Community Health Centres provide specialist services through surgeons, obstetricians and gynaecologist, paediatricians and physicians. Community Health Centre represents the uppermost tier in three tiers rural primary health care system. The sparsely populated rural area of Jammu and Kashmir is one of the major challenges to provide specialised health care services close to the communities. To get specialised services, people in rural areas have to travel for a long distance, which cost them financially and emotionally. In Jammu and Kashmir, the facility of Community Health Centre level located in tehsil headquarter town.

Table 3.11 examine the average number of villages, number of PHC's, average rural area and average radial distance covered by a CHC in Jammu and Kashmir and India in 2005 and 2015. The average number of villages covered by a Community Health Centre in Jammu and Kashmir is very low as compared to the national level, i.e. 78 villages and 119 villages respectively in the year 2015 (Table 3.11). The number of villages per CHC has declined in Jammu and Kashmir and the national level over the period (Table 3.11).

Number of PHCs per CHC in Jammu and Kashmir has gone up from 4.77 during the year 2005 to 8 PHCs per CHC in the year 2015 (Table 3.11). During the last decade after the inception of NRHM in Jammu and Kashmir, the unprecedented growth of PHC's has happened. On the other hand, at the national level, the number of PHCs covered by a CHC has declined, and it was 7.17 during the year 2005 and currently, it is 5 PHCs per CHCs in the country (Table 3.11).

Table 3. 11: The average number of villages, number of PHC's, average rural area and average radial distance covered by a CHC in Jammu and Kashmir, and India, 2005 and 2015.

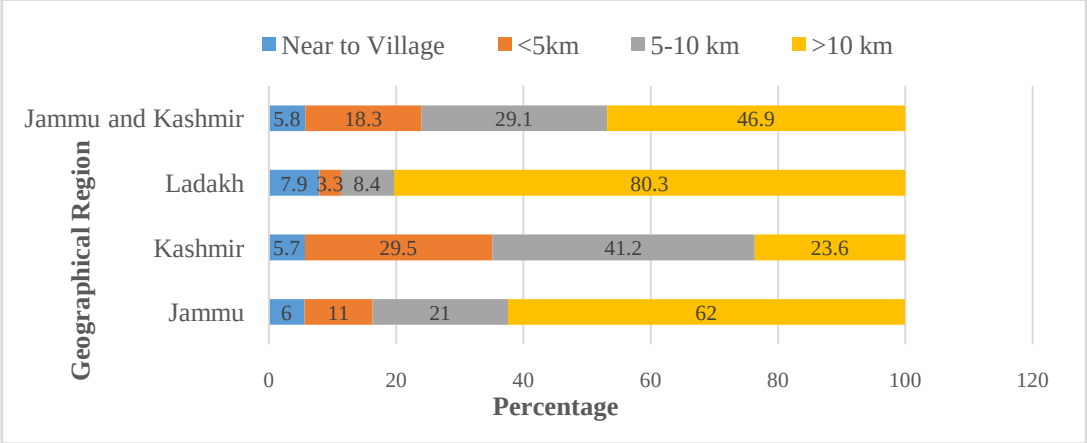
	Jammu and Kashmir		India	
Year	**2005**	**2015**	**2005**	**2015**
Average Number of Villages covered by a CHC	95.03	78	198.2	119
Number of PHC per CHC	4.77	8	7.17	5
Average Rural Area [Sq. Km.] - covered by a - PHC	3161.23	2634	967.82	577.3
Average Radial Distance [Km] - covered by a - PHC	31.72	28.95	17.55	13.55

Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2005 and 2015.

3.5.11 Distance to Community Health Centre from Village in Jammu and Kashmir

Figure 3.10 below explains the percentage of villages and distance to CHC in three geographically, demographically and socially distinct regions of Jammu and Kashmir. The percentage of villages having a facility of CHC nearby and within five kilometres of distance is 5.8 and 18.3 percent respectively. The percentage of villages from where the distance to CHC between five to ten kilometres is 29.1 percent in Jammu and Kashmir. According to the latest rural health statistics analysis, the highest percentage of villages having the distance to a CHC has reported more than ten kilometres in Jammu and Kashmir.

Figure 3. 10: Region Wise Percentage of Villages and Distance to CHC in Jammu and Kashmir



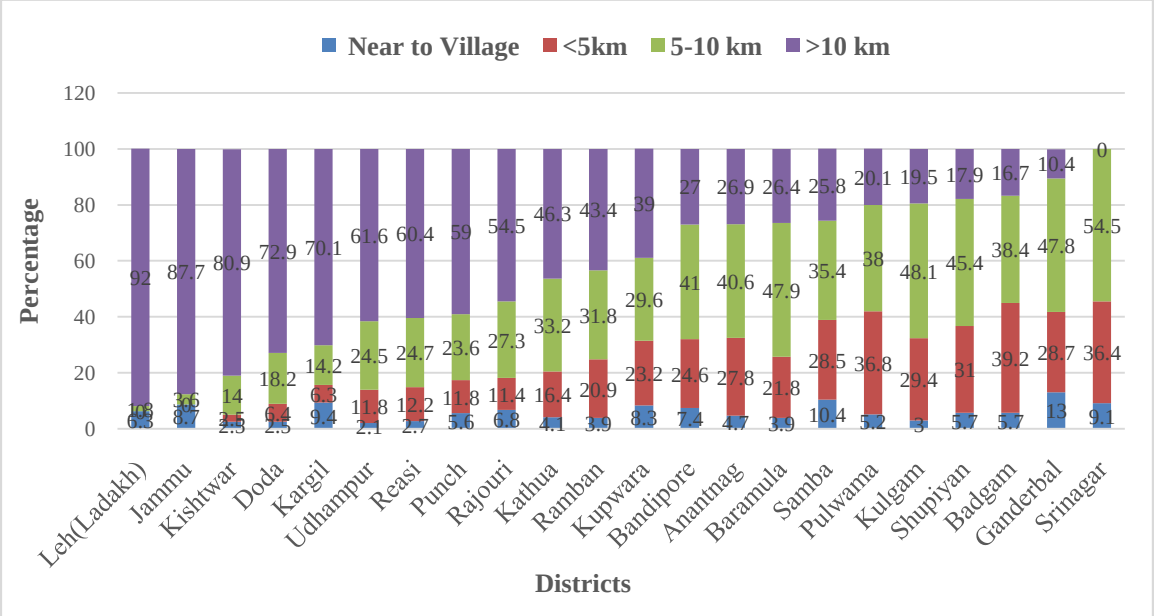
Source: Computed from District Census Handbook, Census of India, 2011.

In addition to this, the figure explains the regional variation of the distance between villages and CHC facility in the state. Ladakh the geographically the largest and demographically the least densely populated region of the state observed that more than eighty percent of the villages reported distance to CHC more than ten kilometres (Fig 3.10). The percentage of villages having CHC nearby in all the three regions is almost similar with little margin of less or more. In case of distance to CHC from the village have observed better in the valley compared to the other two regions in the state. Kashmir is the smallest geographical division with the highest population and population density among the three regions. In Jammu division, more than one-fifth villages reported distance to CHC between five to ten kilometres. Here also a large number of villages have

the distance to CHC is more than ten kilometres, and the percentage is more than sixty percent (Fig. 3.10).

There is a huge inter-district variation for the percentage of villages having a distance to CHC more than ten kilometres in the state. The districts such as Leh, Jammu, Kishtwar, Doda, Kargil, Udhampur and Reasi are having a higher percentage of villages where the distance to Community Health Centre is more than ten kilometres (Figure 3.11). On the other hand, there is no village in district Srinagar, having a distance to the CHC is more than ten kilometres, followed by Ganderbal, Badgam, Shupiyan and Kulgam (Figure 3.11).

Figure 3. 11: District wise Percentage of Villages and Distance to PHC in Jammu and Kashmir.



Source: Computed from District Census Handbook, Census of India, 2011.

3.5.12 Facilities at Community Health Centres in Jammu and Kashmir

In the precedingdiscussion, it has been discussed that the distance from the village to a CHC where specialised health care services are available in Jammu and Kashmir is a major challenge to reach. More than ten kilometres of distance from a village to a health facility in an area where transport and road infrastructure is not favourable with rugged topography is more than enough to determine the healthcare seeking behaviour of a person. Besides this large number of CHCs in the state are functioning without their full

potential, because of the shortage of human resources, required physical infrastructure, equipment and drugs. Therefore, this section will deal with the availability of required facilities at CHC in Jammu and Kashmir in detail.

Table 3.12explains the number and the percentage of CHC's having recommended and essential facilities at the national level and Jammu and Kashmir. At the national level, there are only 13.9 per cent of CHC's having all the four required specialists (Table 3.12). On the other hand, in Jammu and Kashmir, more than one-third of CHC' having all four specialists in position (Table 3.12). It displays that there is a huge shortage of specialists at CHCs, which should be addressed appropriately.

Functional operation theatre in the CHC is an essential component of the health centre. However, one-fifth of CHCs in Jammu and Kashmir are functioning without functional operation theatre, and the percentage of CHCs having operational theatre is 79.8 per cent (Table 3.12). On the other hand, at the national level, the percentage of CHC's having functional operation theatre is slightly better than the state. All the CHC's in Jammu and Kashmir have functional labour room, which is better than the national level, where nine per cent of CHC's are functioning without a functional labour room (Table 3.12).

Community Health Centre should have at least 30 beds. However, the percentage of CHC's having at least 30 beds in Jammu and Kashmir is 56 per cent means 44 per cent of existing CHC's in the state are functioning without the recommended capacity of beds (Table 3.12). On the other hand, at the national level situation is better and more than seventy per cent of CHC's having at least 30 beds (Table 3.12). In the case of availability of functional X-Ray machine in Jammu and Kashmir almost every CHC having this facility, on the other hand, just fifty per cent of CHC's having this facility at the national level (Table 3.12).

One of the major challenges the Indian health system is coping with is to retain the workforce at health centres in rural areas. Because, in the rural areas due to lack of modern facilities like better school, road connectivity, availability of consumable goods and above all less incentive discourage staff to serve in rural areas. A CHC should have a residential facility for staff. More than fifty per cent of CHC's in the country is functioning without the availability of quarters for specialists. Moreover, just thirty per cent with specialists doctors living in quarters at the national level. Similar results also

appear from Jammu and Kashmir in the case of CHC's with residential quarters and the percentage of CHC's with specialists doctors living in quarters is 52.4 per cent and 42.9 per cent respectively (Table 3.12).

Table 3. 12: Availability of facilities at Community Health Centres in Jammu and Kashmir, 2015

	India		J & K	
Particulars	**N**	**%**	**N**	**%**
Number of CHCs Functioning	5396		84	
CHCs With All Four Specialists	751	13.9	29	34.5
CHCs With Computer Statistical Asst. For MIS/Accountant	4224	78.3	60	71.4
CHCs With Functional Laboratory	5024	93.1	84	100
CHCs With Functional Operation Theatre	4473	82.9	67	79.8
CHCs With Functional Labour Room	4913	91	84	100
CHCs With Functional Stabilization Units for New-born	1862	34.5	76	90.5
CHCs With New-born Care Corner	4240	78.6	67	79.8
CHCs With At least 30 Beds	3933	72.9	56	66.7
CHCs With Functional X-Ray Machine	2707	50.2	82	97.6
CHCs With Quarters for Specialist Doctors	2613	48.4	44	52.4
CHCs With Specialists Doctor Living in Quarters	1721	31.9	36	42.9
CHCs With Referral Transport Available	5022	93.1	84	100
CHCs With Registered RKS	4925	91.3	84	100
CHCs Functioning as Per IPHS Norms	1420	26.3	0	0
CHCs Having a Regular Supply of Allopathic Drugs For Common Ailments	5158	95.6	84	100
AYUSH Drugs for Common Ailments	3590	66.5	40	47.6

Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2014-15.

All the Community Health Centres are having the availability of referral transport, registered with RKS and regular supply of allopathic drugs for the common ailment in Jammu and Kashmir, which is better than the national level (Table 3.12).

Surprisingly, in Jammu and Kashmir, there is not a single CHC functioning as per the Indian Public Health Standard (IPHS) norms guidelines. However, at the national level, more than one-fourth of CHCs have been functioning as per the IPHS norms guidelines (Table 3.12).

3.6 Average Rural Population Covered by Health Centres

India Public Health Standard (IPHS) norms guidelines recommend an average rural population should have covered by a health centre. As mentioned earlier, there are different population norms for plain and mountainous/tribal areas. At the national level,

an average rural population covered by health centres are 5426, 32944 and 154,512 by SC, PHC and CHC respectively, are higher than the prescribed IPHS norms.

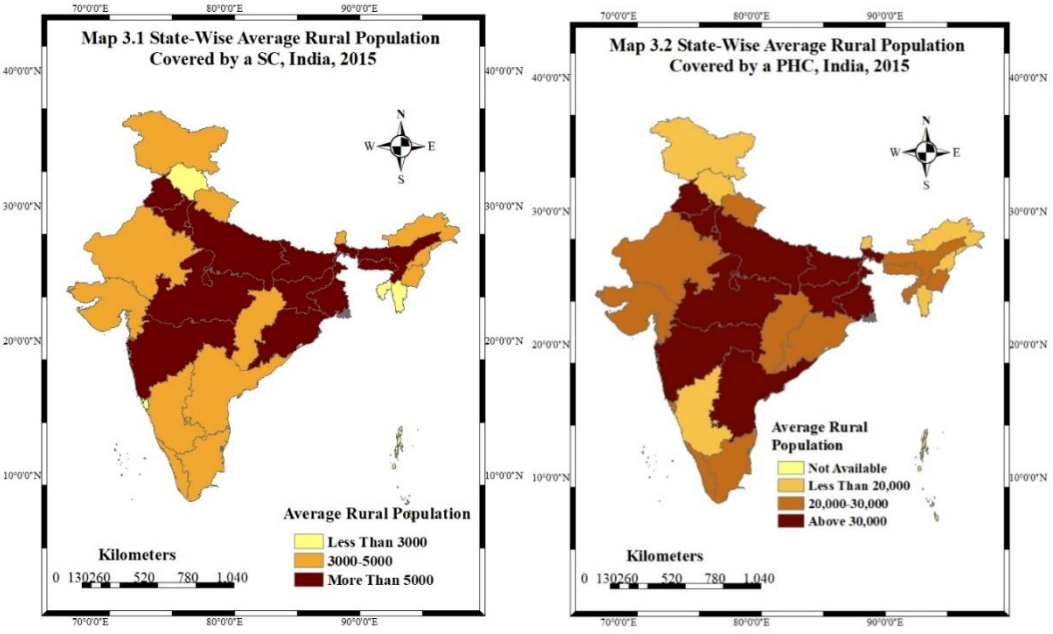
3.6.1 State-wise, an Average Rural Population, Covered by Health Centres in Jammu and Kashmir

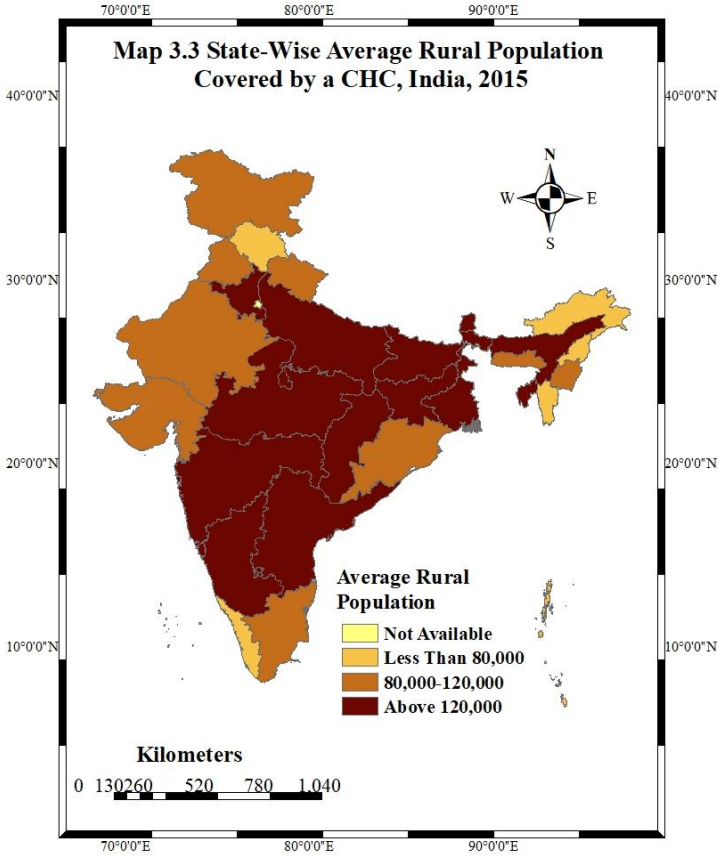
Map 3.1 depicts state-wise an average rural population covered by the SC at the national level. The major states and union territories where an average rural population covered by the SC is less than prescribed IPHS guidelines are Lakshadweep (SC =1010), followed by Mizoram, Chandigarh, A & N Islands, Daman & Diu, Goa, Tripura and Himachal Pradesh. On the other hand, in the states and UT's where an average rural population covered by the SC is more than prescribed norms are mostly belonged to eighteen high focussed states where health infrastructure is weak and high population density. Bihar records highest average rural population covered by the SC (9491) followed by Uttar Pradesh, Pondicherry, Haryana, Jharkhand and West Bengal (Map 3.1).

In the case of state-wise, an average rural population covered by a PHC shows very much similar pattern (Map 3.2). Again Lakshadweep records lowest an average rural population covered by a PHC (PHC = 3535), followed Arunachal Pradesh, Mizoram, A & N Islands, Nagaland, Himachal Pradesh, and Jammu and Kashmir (Map 3.2). On the other hand, states with an average rural population covered by a PHC more than the prescribed IPHS norms are Delhi highest (PHC = 83808), followed by Jharkhand, West Bengal, Bihar, Madhya Pradesh, Uttar Pradesh and Punjab.

Map 3.3 explains, the average rural population covered by a CHC state wise in India. Here, also lowest average population covered by a CHC in Lakshadweep (CHC = 4714), followed by Chandigarh, Arunachal Pradesh, Daman & Diu, Mizoram, A & N Islands, Nagaland, Kerala, Himachal Pradesh and Meghalaya (Map 3.3). On the other hand, the very large an average rural population covered by a CHC in Bihar highest (CHC = 13,19,163) followed by Sikkim, Uttar Pradesh, Andhra Pradesh, Telengana, D & N Haveli, Karnataka and West Bengal (Map 3.3).

This section finds that an average rural population recommended to health centres as per IPHS norms have not followed yet. Health centres are overburdened at the national level. There is a similar pattern for all sorts of health centres among the states.





Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2014-15

The average rural population covered by the health centres is above prescribed norms among empowered action group states and states lies in the north Indian Gangetic plain where population density is very high. On the other hands, the average rural population covered by a health centre is as per the IPHS norms guidelines or less than norms have found in the southern states, western states, northeast and northern hilly states of Jammu and Kashmir, Himachal Pradesh and Uttarakhand.

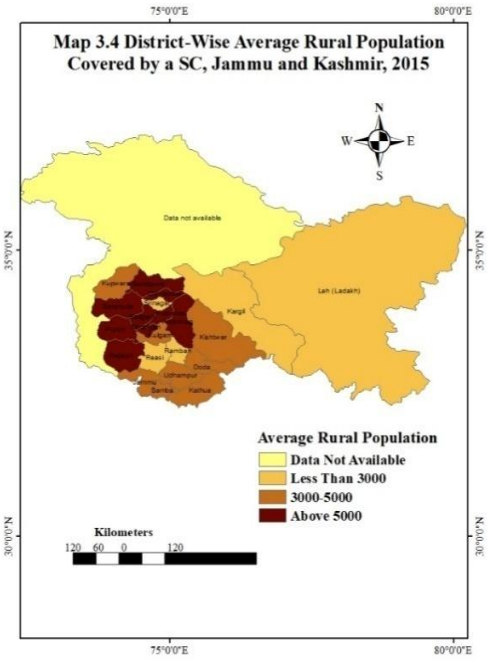
3.6.2 District-wise an Average Rural Population, Covered by Health Centres in Jammu and Kashmir

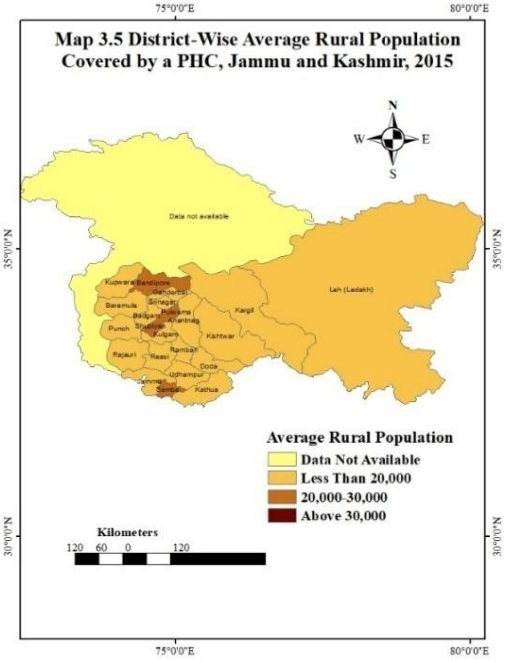
In the previous section, it has been seen that an average rural population covered by health centres in Jammu and Kashmir is less than the national level. There is a huge inter-district variation for the average rural population covered by health centres. For example, an average rural population covered by the SC varies from 275 in district Srinagar to 8888 in Pulwama. This variation might be due to other district-level factors. Map 3.4 explains an average rural population covered by the SC district wise in Jammu and Kashmir. An average rural population covered by the SC is lesser than recommended norms in the districts like Srinagar, Leh, Kargil, Reasi and Ramban (Map 3.4). On the other hand, districts along the international border and lies in the Kashmir valley seems higher average population covered by sub-centres than recommended norms (Map 3.4).

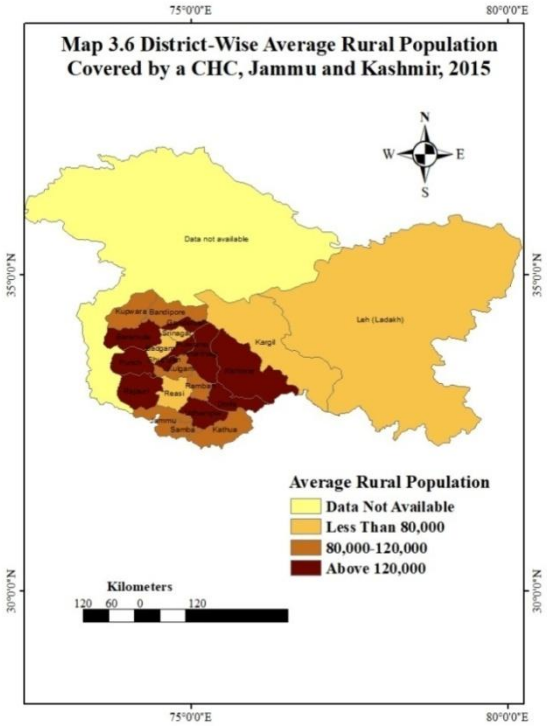
It has been found that after the inception of the NRHM, primary health centres recorded the highest growth in Jammu and Kashmir. An average rural population covered by the PHC in the state is very low than IPHS norms. Pulwama records the highest average rural population covered by a PHC is 25262, followed by Bandipore, Shupiyan, and Samba (Map 3.5). In these districts, an average rural population covered by the PHC is as per the IPHS norms. In all other districts of the state, an average rural population covered by the PHC is below the IPHS norms. Fortunately, there is no district in the state where an average rural population covered by a PHC is more than IPHS norms (Map 3.5).

Map 3.6 describes, the district-wise an average rural population covered by a CHC in Jammu and Kashmir. A similar pattern for CHC is also observed from the districts like Srinagar, Leh, Kargil, Reasi and Badgam where an average rural population covered by a CHC is lower than prescribed IPHS norms. On the other hand, Ganderbal record highest average rural population covered by the CHC in the state, i.e. 2, 50,407, other

districtswith higher population are Udhampur, Punch, Kishtwar, Rajouri, Pulwama, Anantnag, and Baramulla (Map 3.6).







Source: Rural Health Statistics, Ministry of Health and Family Welfare, 2014-15.

3.7 Conclusion

The number of health centres in Jammu and Kashmir has increased tremendously during the last decade. However, only 40.8 per cent of the total Sub Centres and 76.3 per cent of Primary Health Centres have been functioning in the Government building in Jammu and Kashmir, and the percentage is lower than the national level. The average number of villages, rural area and radial distance covered by health centres were higher in Jammu and Kashmir compared to the national level, which affects the physical accessibility to the health centres. In Jammu and Kashmir, the distribution of health centres was not equal, and a very high percentage of villages recorded distance to most widely distributed health centre like Sub Centre more than ten kilometres from villages in the districts like Kishtwar, Doda, Reasi, Punch, Kargil and Leh. Apart from this, many health centres are not even connected by the motorable road, which can be the major concern for the government to at least connect PHC level health centres by road connectivity. Basic infrastructure like a residential quarter for the staff, electricity and regular supply of water was not available at the health centres, which can discourage doctors and other staff from serving in the rural areas especially rural mountain area. Although the number of health centres has increased tremendously after the inauguration of NRHM, the shortfall in human resources persist, and a very high percentage of required specialists at the CHCs were not in the position in the state. Although an average rural population covered by health centres, i.e. Sub Centres, Primary Health Centres and Community Health Centres in Jammu and Kashmir was better than recommended by the IPHS guidelines. These health centres are facing challenges of required physical infrastructure and human resources for instance only 56 per cent of available CHCs had recommended thirty beds, 52.4 per cent had residential quarters for specialists, and 34.5 per cent of CHCs had all the four specialists required at the Community Health Centre. And lastly, there was no health centre whether it was Sub Centre, Primary Health Centre or Community Health Centre in Jammu and Kashmir which fulfilled the criteria of Indian Public Health Standards Guidelines.

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Chapter IV: Accessibility and Utilisation of Maternal Health Care Services in Jammu and Kashmir: A Macro-Level Analysis

4.1 Introduction

In the preceding chapter, the status of primary health care infrastructure in Jammu and Kashmir has been discussed. There is a huge growth of primary healthcare institutions reported since the eighties after the Alma Ata declaration and national health policy 1982. Although there is no shortage of primary healthcare institutions in the state and more health centres are available than required.

Nevertheless, Jammu and Kashmir has been facing huge shortfall for specialists at the Community Health Centres and other paramedical staffs. Several health centres don't have even basic essential facilities like labour room and operation theatre etc. An average rural population covered by health centres in Jammu and Kashmir is better than the national level, and it is as per the IPHS guidelines.

After discussing the provisioning of rural health care infrastructure in rural Jammu and Kashmir, the present chapter of the study will deal with the accessibility and utilisation of MHC services in Jammu and Kashmir at the macro level. Apart from this, the chapter will also discuss the prevalence of obstetric morbidity in the state. The chapter based on the latest round of NFHS-4, 2015-16. The chapter will try to understand the association between women socio-cultural and economic background characteristics and utilisation of MHC services. It has been found in the literature nationally and globally that women background characteristics play an important role in their healthcare seeking behaviour (Addai, 2000), (Chakrabarti and Chaudhuri, 2007), and (Anson, 2004).

Literature has suggested that women belong to rural area, very young and old age group, higher birth order, low age at marriage, Scheduled Tribe (ST)/Scheduled Caste (SC), illiterate, low household economic status, no media exposure are less likely receive MHC services compared to the women who belong to urban area, middle age group, low birth order, higher age at marriage, literate, high household economic status and media exposure (Celik and Hotchkiss, 2002), (Chimankar and Harihar, 2011), (Dange, 2010), (Data and Manna, 2012), (Edward, 2011) and (Elaine, Rogan and Olvena, 2004).

India is still the major contributor to global maternal mortality and morbidity. Therefore the Government of India (GOI) has proclaimed many flagship programmes to enhance the coverage of MHC services, especially among the women from socially and economically underprivileged group. National Health Mission (NHM), which was initially known as NRHM, was launched in the year 2005,is envisaged to improve rural health care infrastructure and bring primary health care close to communities. A new cash transfer scheme named JSY has been launched to address the issue of unequal access to maternal and child health care services, under this scheme beneficiary are entitled to get cash incentive in case of institutional delivery. A study from Indian Human Development Survey wave 1 (2004-05) before the launch of JSY and wave 2 (2011-12) has shown that there is a noteworthy decline in socioeconomic inequalities in the utilisation of MHC services in the country. The coverage enhanced at a higher rate among the poorer and marginalised communities after the commencement of the JSY scheme for whom particular it has been brought (Jain, et al. 2016).

4.2 Distribution of Ever-Married Women (Age 15-49 years) in Jammu and Kashmir

Univariate analysis is carried out to seek the description of a single variable regarding the applicable unit analysis. It shows the simple frequency description of the sub-categories within broad variables, i.e., the percentage distribution of individual variables (Majhi, 2013).

In the latest round of NFHS-IV which has been carried out in, 2015-16 interviewed 23800 ever-married women (15-49 years) in the state who had given birth to a baby five year preceding the survey. Demographically, Kashmir is the largest region, and the largest sample of women has also been taken from that region followed by Jammu. Despite, geographically the largest region of the state, Ladakh contributes few samples, because of its very low proportion in the population of the state. Biologically it has been arguing that very young and old age women are more prone to maternal mortality and lifelong morbidity, because of their physical and mental condition to bear pain and trauma during pregnancy and delivery. Almost similar percentage distribution of women is recorded for the first three five year age group of women. The percentage of women having delivery starts declining from (30-34 years) age group steadily, and the oldest group (45-49 years) contributes less than one-tenth.

Table 4. 1: Percentage Distributions of Ever-Married Women Aged (15-49 Years) by Selected Background Characteristics, in Jammu and Kashmir, 2015-16 (N=23800)

Background Characteristics	N	%	Background Characteristics	N	%
Geographical Region			**Caste Group of Women**		
Jammu	10603	44.6	Scheduled Tribe	3633	27.2
Kashmir	11358	47.7	Scheduled Caste	1856	13.9
Ladakh	1839	7.7	Other Backward Castes	1136	8.5
Age of Woman			Other	6746	50.5
15-19	4156	17.5	**Women Occupation**		
20-24	4283	18.0	Agricultural Work	1079	15.1
25-29	4254	17.9	Non-Agricultural Work	6062	84.9
30-34	3347	14.1	**Household Wealth Index**		
35-39	3185	13.4	Poorest	2002	8.4
40-44	2425	10.2	Poorer	5622	23.6
45-49	2150	9.0	Middle	6473	27.2
Birth Order			Richer	5290	22.2
1	2586	18.2	Richest	4413	18.5
2	4258	29.9	**Full ANC**		
3	3575	25.1	No	4750	75.6
4+	3825	26.9	Yes	1530	24.4
Residence			**Delivery by Caesarean Section**		
Urban	4325	18.2	No	4350	69.3
Rural	19475	81.8	Yes	1930	30.7
Education of Women			**Place of Delivery**		
Illiterate	7760	32.6	Non Institutional	993	15.8
Primary	1311	5.5	Institutional	5284	84.2
Secondary	12167	51.1	**Safe Delivery**		
Higher	2562	10.8	N0	970	15.5
Religion of women			Yes	5307	84.5
Hindu	5557	23.3			
Muslim	17023	71.5	**Note**: The figures may not add to total due to multiple response or missing cases		
Other	1220	5.1	• Unweighted cases		

Source: Calculated from NFHS-4 (2015-16).

Table 4.1 explained the percentage of women in each birth order and found that the lowest percentage is recorded for first birth order women 18.2 per cent and the highest for second birth order women 29.9 per cent. More than one-fourth of women belong to the third and fourth birth order in Jammu and Kashmir. According to the census of India 2011, more than one-fourth of the total population of 27.8 per cent of the state is residing in urban areas. In the presentanalysis, more than eighty percent of the sample is recorded

from rural areas, 81.8 per cent and the remaining 18.2 per cent samples are from the urban area.

Education of women is a significant predictor of their healthcare seeking behaviour. One-third of interviewed women are illiterate. Unexpectedly, more than fifty percent of surveyed women have secondary 51.1 per cent level education, and the percentage of women having primary level education, 5.5 per cent is very low. One-tenth of surveyed women had higher education.

Islam is the dominant religious identity of the state particularly in Kashmir division followed by Hinduism which concentrates in Jammu region, Buddhist in Ladakh region and other minor religious identities with negligible proportion which clubbed into other categories. More than seventy percent of surveyed women belong to the Muslim religious group followed by around one fourth belongs to Hinduism and just 5.1 per cent to other religious groups.

The table further explains the proportion of women belongs to different social identities. The percentage of women belongs to marginal section SC, ST and OBC comprising 49.5 percent of total sampled women. Within the marginalsection, the largest social group is Scheduled Tribe women contributes 27.2 per cent, followed by Scheduled Caste 13.9 per cent and 8.5 per cent belongs to Other Backward Classes. More than fifty percent sampled women belong to other social groups in Jammu and Kashmir.

The next background characteristic is the occupation of women. Women occupation is categorised as one who is engaged in agricultural work, and all other includes in non-agricultural work. The table shows that a very high percentage of sampled women have been working in the non-agricultural sector 84.9 per cent and just 15.1 per cent in the agricultural sector in Jammu and Kashmir.

NFHS dataset provides household wealth index computed from household assets and divided index into five categories from the poorest to richest. Less than ten percent of women belong to the poorest household 8.4 per cent, followed by richest household 18.5 per cent, Richer 22.2 per cent, poorer 23.3 per cent and the highest percentage of women belongs to middle 27.2 per cent category. The aggregate figure shows that more than two-thirds of sampled women belong to the middle and rich household in Jammu and

Kashmir. The table further clarifies that just one-fourth of women in Jammu and Kashmir received full antenatal care during their last live birth in Jammu and Kashmir.

4.3 Antenatal Care Services in Jammu and Kashmir

4.3.1 Components of Antenatal Care

Antenatal care (ANC) is "the systematic supervision of pregnant women during pregnancy to monitor the progress of foetal growth and to ensure the wellbeing of the women and the foetus (WHO 2018), (GOI, 2010)." Antenatal care is also termed as "prenatal care" refers to a regular check-up of women during their pregnancy by a doctor or any other trained health personnel, which is recommended for pregnant women during pregnancy. Antenatal care services allow doctor or midwife to a regular check-up of pregnant women and detect any possible complication which can create any problem during pregnancy, birth or after birth that benefits both mother and their child to live safe lives.

Antenatal care service has not only detected any potential complication early, but it is also helpful to pregnant women to receive regular medical information related to physiological changes in pregnancy, biological changes, and prenatal nutrition. Regular ANC check-ups of women during their pregnancy reduce the chance of maternal mortality, child mortality, low weight birth, as well as congenital disabilities and many other pregnancy-related complications.

According to the guidelines of the ministry of family and health welfare, the Government of India (GOI) to front line health workers, registration of pregnancy must be as soon as possible after conception, and first ANC check-up must be in the first three months of the pregnancy. If we look at the latest data from NFHS 4, 2015-16 we are still not able to register hundred per cent pregnancies both at the national and state level, it is 84.3 percent and 89.5 percent in India and Jammu and Kashmir respectively (Table 4.2).

Table 4. 2: Percentage of Mothers Received Different Components of ANC for Their Last Live Birth in Jammu and Kashmir and India, 2015-16.

ANC Components	Rural	Urban	Jammu and Kashmir	India
Pregnancy Registered	88.9	92.5	89.5	85.3
Received MCP Card	88.8	89.1	88.8	89.3
Any ANC	89.9	93.7	90.9	82.7
ANC in First Trimester	74.1	84.8	76.8	58.6
2 or More TT Injection	80.0	86.7	81.6	83
100 or More IFA Tablets	29.5	32.4	30.2	30.3
At least 4 ANC Visit	78.7	89.2	81.3	51.2
Full ANC[1]	26.0	29.4	26.8	21
ANC Received From Skilled Provider[2]	89.1	94.5	90.4	94.5

Source: Computed from NFHS 4, 2015-16.

Note: [1] for last live birth in the five years preceding survey, the mother received four or more antenatal checks, received at least one TT injection, and took IFA tablets or syrup for at least 100 days.

[2] The skilled provider includes a doctor, ANM, nurse, midwife and lady health visitor.

At the time of pregnancy registration at health centres, the staff at health centre has to provide Mother and Child Protection Card (MCP) to the woman and write down all the necessary information about the pregnant women. The percentage of women who have got MCP card at the national level is 88.7 percent and figure for Jammu and Kashmir is 88.7 percent. The percentage of women having any ANC visit in Jammu and Kashmir has been recorded higher than the national level, i.e. 90.9 and 82.7 per cent in the state and India, respectively (Table 4.2).

In the case of first antenatal check-up of pregnantwomen, it should take place as soon as the pregnancy is suspected and every woman should be encouraged to visit health provider if she thinks she is pregnant. The first ANC check-up should be in the first three months of the pregnancy (GOI, 2010). Antenatal check-ups in the first trimester of pregnancy in India and Jammu and Kashmir has recorded 58.6 percent and 76.7 percent, respectively (Table 4.2). Coverage of two or more TT injections has recorded less in Jammu and Kashmir compared to the national level (Table 4.2). Less than one-third of women have taken IFA tablets for 100 or more days during their last live birth preceding five years of survey in the state and country. According to the new WHO guidelines, women with normal pregnancy have to a minimum of four ANC visits during their pregnancy to trained health personnel. Coverage of at least four ANC visits in Jammu and Kashmir has recorded more than eighty percent on the other hand percentage is as low as little above fifty percent at the national level (Table 4.2). However, one can observe

within the staterural-urban divide of coverage of at least four ANC visit, and the gap is ten percentage points.

Coverage of full ANC is not showing any encouraging result at both state and the national level. Only a few more than one fourth 26.8 per cent in Jammu and Kashmir and one fifth 21 per cent in India have received full ANC services (Table 4.2). However, the percentage of women received ANC care from a skilled health provider in Jammu, and Kashmir, 90.4 per cent have recorded low compared to the national level, 94.5 per cent (Table 4.2). Low coverage of full ANC has recorded among the rural women in the state compared to urban women (Table 4.2). A rural-urban divide appears clearly in the utilisation of MHC services in Jammu and Kashmir.

4.3.2 Antenatal Care Services by Health Provider in Jammu and Kashmir

Tables 4.3 explain the percentage of women who have received ANC care by providers in Jammu and Kashmir. More than eighty percent of women have received ANC from a doctor, 8.6 per cent from ANM/Nurse/Midwife/LHV and 9.6 per cent from other health providers. In the urban area, more women receive ANC check-ups from the skilled health providers compared to the rural women in the state. If we look at the national level percentage than we will find that 79.2 percent of women have received ANC care from the skilled health provider, which is lower than Jammu and Kashmir.

Table 4. 3: Percentage of Mothers Received ANC by Provider in Jammu and Kashmir, 2015-16.

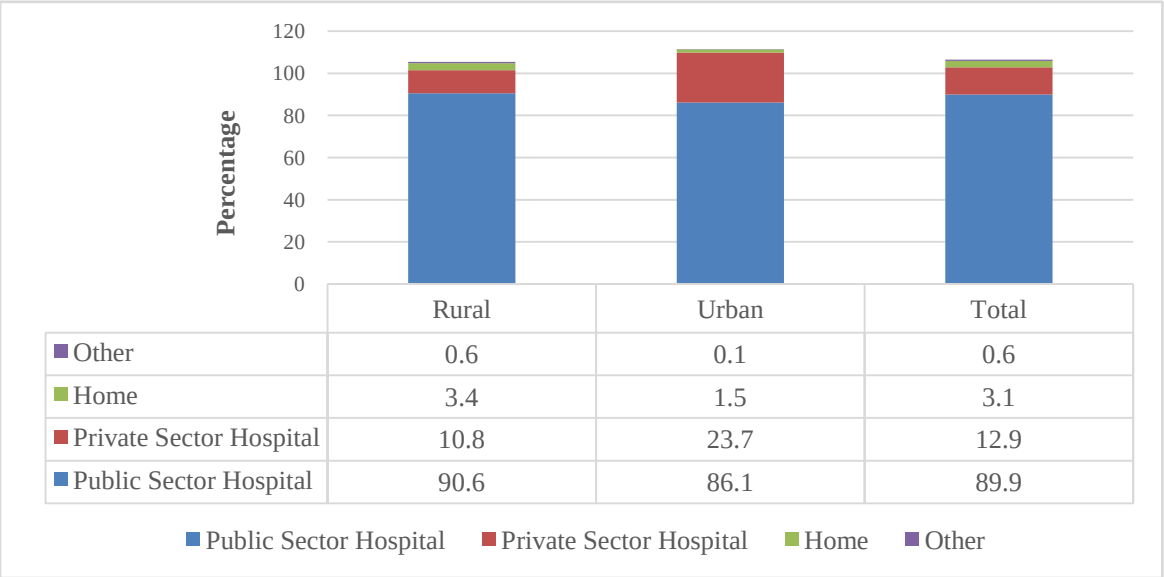
ANC Provider	Rural	Urban	J & K	India
Doctor	79.7	88.3	81.8	58.8
ANM/Nurse/Midwife/LHV	9.4	6.2	8.6	20.4
Other	10.9	5.5	9.6	20.8
Skilled Provider	89.1	94.5	90.4	79.2

Source: Computed from NFHS 4, 2015-16.

4.3.3 Place of Antenatal Care

Figure 4.1 explains the place of ANC received by mothers during their last live birth in Jammu and Kashmir. It has noticed that the majority population of the state lives in rural areas where the only source of healthcare services are public health centres.

Figure 4. 1: Type of Place for ANC visits in Jammu and Kashmir, 2015-16



	Rural	Urban	Total
Other	0.6	0.1	0.6
Home	3.4	1.5	3.1
Private Sector Hospital	10.8	23.7	12.9
Public Sector Hospital	90.6	86.1	89.9

Source: Computed from NFHS 4, 2015-16.

Ninety per cent of mothers have received ANC from public sector hospital and one eighth from private sector hospital in Jammu and Kashmir. In the urban area, the percentage of women who have received ANC from the private sector is 23.7 per cent are two times higher than rural areas 10.8 per cent of the state (Fig. 4.1).

4.3.4 Services and Counselling during Antenatal Care Visits

Table 4.4 explains the percentage of women who have received various ANC services during their ANC visits to a health facility in Jammu and Kashmir. More than ninety-fivepercent of women have received various services during antenatal care visits like blood pressure measured, a blood sample taken, a urine sample taken and abdomen examine in Jammu and Kashmir (Table 4.4). The percentages of women who have weighted during their ANC visits are slightly less than ninety percent. The percentage of women who received various services during their ANC visits have recorded low in rural areas compared to the urban areas of the state.

Table 4. 4: Percentage of Mothers Received Antenatal Services During ANC Visits, Jammu and Kashmir, 2015-16.

Services	Urban	Rural	Total
Weight Measured	92.8	85.2	87.2
Blood Pressure Measured	98.4	95.1	96
Blood Sample Taken	98.4	96.2	96.8
Urine Sample Taken	98.9	96.4	97
Abdomen Examined	98.1	94.8	95.7
Number of Women	1407	4041	5449

Source: Computed from NFHS 4, 2015-16.

To enhance the coverage of maternal health care services and create a link between communities and health care system, a community health worker named ASHA has been introduced under the umbrella programme NRHM. ASHA worker is the first contact of point for pregnant women to get entry into the health care system in the village. One of the several tasks assigned to ASHA is to instruct pregnant women on several things to increase institutional delivery, breastfeeding, keeping baby warm and family planning.

More than eighty percent of women have received advice on institutional delivery in Jammu and Kashmir, whereas the figure for a rural and urban area is 78.4 and 87 per cent respectively. The percentage of women who have received advice through any health personnel is cord care 62.9 per cent, breastfeeding 79 per cent, and keeping the baby warm 73.3 per cent in Jammu and Kashmir (Table 4.5). There is not much difference between rural and urban area of the state to get advice on various maternity care.

Table 4. 5: Percentage of Mothers received a different type of advice from Community Health Worker in the last three months during their last live birth, in Jammu and Kashmir, 2015-16.

Advice	Urban	Rural	Total
Institutional Delivery	87	78.4	80.4
Cord Care	63.5	62.7	62.9
Breastfeeding	77.4	79.4	79
Keeping the Baby Warm	72.7	73.5	73.3
Family Planning	61.7	60.7	60.9
Number of Women	**585**	**1962**	**2547**

Source: Computed from NFHS 4, 2015-16.

Apart from providing various services during ANC visits to pregnant women, the health care provider is expected to give information regarding possible pregnancy complications and where to go in case of an emergency. Table 4.6 explains the percentage of women

received information on several pregnancy complications like vaginal bleeding, convulsions, prolonged labour, severe abdominal pain and high blood pressure during antenatal visits.

To reduce the maternal mortality and morbidity, it should be the priority of health providers to make women aware of danger signs of pregnancy and place to go after experiencing any sign. If we look at the table, we will find that less than fifty percent of women have got information about pregnancy complications like vaginal bleeding 42.4 per cent, convulsions 40.7 per cent, prolonged labour 47 per cent severe abdominal pain 48.1 per cent and high blood pressure 56.7 per cent in Jammu and Kashmir (Table 4.6).

Fifty per cent of women received information about where to go in case of experiencing pregnancy complication in the state (Table 4.6). In rural areas, the percentage of women who received information about danger signs during pregnancy is lower than in urban areas (Table 4.6).

Table 4. 6: Percentage of Mothers Received Information Obstetric Complications During Their Last Live Birth in Jammu and Kashmir, 2015-16.

Pregnancy Complication	Urban	Rural	Total
Vaginal Bleeding	45.6	41.3	42.4
Convulsions	43.9	39.5	40.7
Prolonged Labor	49.3	46.2	47
Severe Abdominal Pain	51.8	46.8	48.1
High Blood Pressure	62.5	54.6	56.7
Where to go if Experienced Pregnancy Complications	55.6	48.8	50.6
Number of Women	1407	4041	5449

Source: Computed from NFHS 4, 2015-16.

4.3.5 District-wise Coverage of Antenatal Care Components

Jammu and Kashmir is a socially, economically and geographically highly diverse state, for example, the state is divided into three regions by nature, and i.e. Jammu, Kashmir and Ladakh. Socio-culturally these regions are different from each other, for instance, Jammu predominantly Hindu religious majority, Kashmir Muslim and Ladakh Buddhist majority region. Therefore, it becomes essential to examine the district and regional level pattern of MHC services utilisation in Jammu and Kashmir.

Table 4.7 and Figure 4.2 displays district wise coverage of ANC care services in Jammu and Kashmir. More than ninety per cent of women have received at least four ANC visits report from the districts like Pulwama, Shupiyan, Badgam, Baramulla, Kulgam, Ganderbal, Kathua, Leh, Srinagar, Udhampur, and Bandipore (Table 4.7). On the other hand, the lowest percentage of women who have at least four ANC visits has reported from district Doda 36.7 per cent lowest followed by Ramban, Kishtwar, Rajouri, and Reasi (Table 4.7). If we look at the coverage of an ANC visit in the first trimester of the pregnancy district Pulwama top with more than ninety percent of women have received first ANC check-up in the first trimester of pregnancy followed by Shupiyan, Kulgam, Baramulla, and Srinagar (Table 4.7). The district Doda again recorded the lowest coverage of an ANC visit in the first trimester of the pregnancy 42 per cent, followed by Reasi, Rajouri, Ramban, and Kishtwar (Table 4.7).

Additionally, the table explain the coverage of at least two doses of Tetanus (TT) injections district wise (Table 4.7). District Badgam top the table with 94 per cent of women have received two TT injections during their last live birth, followed by district Pulwama, Shupiyan, Baramulla, and Leh (Table 4.7). The percentagehas recorded between eighty and ninety percent for the majority districts such as Leh, Srinagar, Kargil, Ganderbal, Jammu, Kupwara, Kulgam, Kathua, Bandipore, Anantnag, and Udhampur. The lowest coverage of TT injections has recorded in the district Doda 57.1 per cent trailed by Rajouri, Samba, Reasi, Ramban, Punch, and Kishtwar (Table 4.7).

Table 4. 7: District Wise Utilization of Antenatal Care Services in Jammu and Kashmir, 2015-16.

Districts	Four or More ANC Visit	ANC first Trimester	IFA At least 100 Days	Two or More TT Injections	Full ANC	Number of Women
Anantnag	82.5	76.7	11.7	82.2	10.9	465
Badgam	95.7	86.3	19.7	94	18.6	263
Bandipore	90.3	83.1	15.7	83.2	14.1	197
Baramula	95.2	86.8	31	90.4	30.5	373
Doda	36.7	42	9.1	57.1	5.3	219
Ganderbal	94.5	81.2	13.1	85.6	12.5	148
Jammu	83.9	84.4	56.7	85.6	51.9	649
Kargil	83.6	82	28.6	87.4	26.2	56
Kathua	93.3	82.7	56.6	83.5	52.4	287
Kishtwar	54.4	64.1	17.2	78	15.8	125
Kulgam	95.1	87.2	20.5	84.1	19.8	208
Kupwara	87.7	81.3	19.5	85.4	18.1	349
Leh	91.7	76.9	30.4	87.8	25.7	53
Pulwama	98.3	92.3	30	93.9	29.2	199
Punch	73.8	70.5	39.3	77	33.2	374
Rajouri	56.2	55.8	19.1	62.4	12.5	428
Ramban	50.8	62.1	17.9	75	15.4	156
Reasi	57.7	54.2	35.9	74.3	26.7	218
Samba	76.7	71.9	47.3	69.8	36.7	156
Shupiyan	96.4	88.9	21.7	91.6	20	117
Srinagar	91	85	27.1	87.8	23.4	568
Udhampur	90.5	78.3	50.5	81.8	48	288
J & k	**81.3**	**76.8**	**30.2**	**81.7**	**26.8**	**5896**

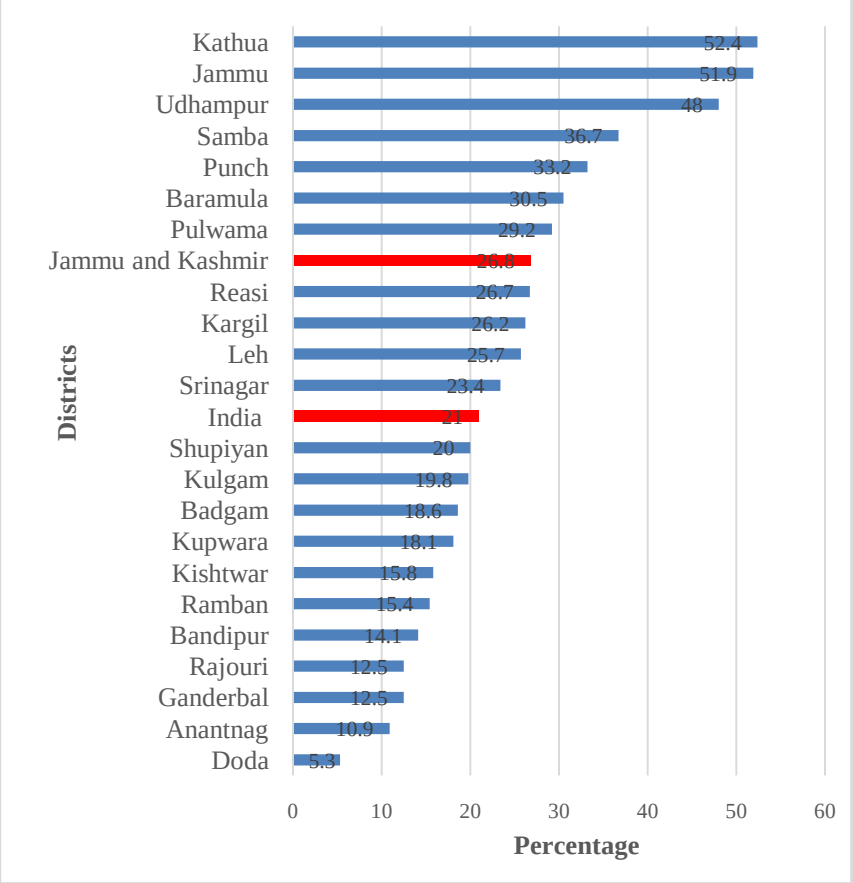
Source: Computed from NFHS 4, 2015-16.

It appears from the table that the coverage of IFA tablets/syrup for at least 100 days is low compared to the other components of ANC, previously discussed in Jammu and Kashmir. Coverage of IFA tablets/syrup for at least 100 days has noted highest in the districts of Jammu division in the state with district Jammu 56.7 per cent top the table trailed by Kathua and Udhampur with coverage is more than fifty percent (Table 4.7). The percentage of women who had consumed IFA tablets/syrup for at least hundred days in the majority districts of the state does not exceed forty per cent and the lowest records in the district Doda 10 per cent followed by Anantnag, Ganderbal, Bandipore, and Kishtwar (Table 4.7).

Figure 4.2 explains the district wise coverage of full ANC in Jammu and Kashmir. Coverage of full ANC in Jammu and Kashmir is higher than the national level, and it is

26.8 per cent in the state compared to one fifth at the national level during their last live birth five-year preceding survey (Fig. 4.2).

Figure 4. 2: District wise Percentage of Full ANC in Jammu and Kashmir, 2015-16



Source: Computed from NFHS 4, 2015-16.

More than fifty per cent of women in district Kathua and Jammu have received full ANC followed by Udhampur, Samba, Punch, Baramulla and Pulwama (Fig. 4.2). Another category of the districts where coverage has recorded between the state and national level percentage are Reasi, Kargil, Leh, and Srinagar (Fig. 4.2). Fifty per cent of the districts in the state record coverage of full ANC below the national average. The district Doda is one of the high priority districts under NRHM records the lowest coverage of full ANC, and only one out of twenty women have received full ANC in the district. The district Doda followed by Anantnag, Ganderbal, Rajouri, Bandipore, Ramban, Kishtwar, Kupwara, Badgam, Kulgam, and Shupiyan records full ANC coverage below the national level (Fig. 4.2).

4.3.6 Region-wise Coverage of Antenatal Care Components in Jammu and Kashmir

Jammu and Kashmir has three administrative divisions, i.e. Jammu, Kashmir and Ladakh, each division is unique in culturally and geographically. Table 3.8 explains the utilisation of ANC components division wise in Jammu and Kashmir. Better coverage of ANC visits in the first three months of pregnancy and at least four ANC visits have reported from the Kashmir valley, followed by Ladakh and Jammu (Table 4.8). Around three-fourths of women have received at least two doses of TT injections in Jammu division, which is lower than Kashmir 87.4 per cent and Ladakh 87.6 per cent. Next essential component of ANC is consumption of IFA tablets/syrup for at least 100 days. The only component in which Jammu division has recorded a higher percentage of 38.8 per cent followed by Ladakh 29.5 per cent and the meagre percentage has recorded in Kashmir division i.e. 21.5 per cent (Table 4.8).

Table 4. 8: Region-wise Coverage of Antenatal Care Components in Jammu and Kashmir, 2016-17.

Region	ANC in First Trimester	4+ ANC Visit	2 or more TT injection	100 or More IFA Tablets	Full ANC
Jammu	78.6	71.1	75.8	38.8	33.6
Kashmir	87.2	91.4	87.4	21.5	20
Ladakh	81.5	87.5	87.6	29.5	26
Total	**83.1**	**81.3**	**81.7**	**30.2**	**26.8**

Source: Computed from NFHS 4, 2015-16.

One-fifth of women have received full ANC in Kashmir, which is the lowest among three divisions followed by more than one fourth in Ladakh and one third in Jammu division of the state (Table 4.8). Shallow coverage of full ANC in the Kashmir division has recorded due to very low IFA tablets/syrup consumption, which is the essential component of full ANC.

4.3.7 Antenatal Care Services According to Women Socio-Economic Background Characteristics

In developing countries like India where seventy per cent of the population is living in rural areas belongs to thousands of social groups speaking different languages and having different socio-cultural traditions and beliefs regarding pregnancy, childbirth and illness, with high illiteracy especially female, high economic inequality. It becomes imperative to see the utilisation level of antenatal care according to women socioeconomic background characteristics.Several studies from developing countries have shown that the utilisation of ANC care varies with women background characteristics (Ye, et al. 2010), (Woldemicnel and Tenkorang 2009), (Titaley, Dibley and Robert, 2010) and (Jat, Nawi and Sebastian, 2011).

Table 4.9 describes the percentage of women who have received the recommended essential components of ANC services and their background characteristics in Jammu and Kashmir. The components of ANC have taken into consideration are Four or more ANC visits, at least two TT injections, at least 100 IFA tablets and full ANC.

Ideally, four ANC visits are recommended to women with a healthy pregnancy. First ANC visit should be in the first three months of the pregnancy to detect possible obstetric complications at the earliest.And the last ANC visit should be at around 37^{th} weeks or near the expected date of delivery to ensure that the appropriate advice and care providing to manage and prevent problems such as birth after 42 weeks of pregnancy, which carries an increased risk of fetal death, multiple births, and abnormal position of the baby (Lincetto, et al. n.d.).Although a number of the antenatal visits depends upon whether the pregnancy is healthy or having any complication, in case of any pregnancy complication number of the ANC visits could be increased from the minimum four visits.

Table 4.9 explains the component at least four ANC visits during pregnancy according to women socio-cultural and economic background characteristics. The coverage of at least four ANC visits is higher among the middle age group of women and lower among the very young and old age group. Coverage of at least four ANC visit during pregnancy is showing a decreasing trend with increasing birth order of women in Jammu and Kashmir. The highest coverage recorded among women with first birth order 86.0 per cent, and it decreases up to 68.5 per cent among women of four or more birth order (Table 3.9). It is

evident from table 3.9 that coverage of at least four ANC visits is better in the urban areas compared to the rural areas of the state. Education of women has found a significant determinant of healthcare seeking behaviour of women in several studies nationally and globally. The percentage of illiterate women who have received at least four ANC visits is the lowest, and it increases with an increased education level of women (Table 4.9). Religious beliefs and traditions significantly influence the health care seeking behaviour of women. The coverage of at least four ANC visits in Jammu and Kashmir recorded better among women belong to Muslim and other religious groups compared to Hindu religious groups (Table 4.9).

In many previous studies, it has found that coverage of MHC services is lowest among the marginalised groups of population SC/ST compared to the general population in India. Low coverage of at least four ANC visits have recorded among women belongs to Scheduled Tribe, and Scheduled Caste in Jammu and Kashmir (Table 4.9). Percentage of at least four ANC visits according to women occupation shows that lowest percentage 81.2 per cent has recorded among women belongs to no work category and women engaged in non-agricultural activities has recorded highest percentage 94.2 per cent and 88.0 per cent who participated in agricultural activities in Jammu and Kashmir (Table 4.9).

The percentage is also showing an increasing trend with women media exposure and less than two-thirds of women having no media exposure have received four ANC visits, and it increases to who have partial and full media exposure, i.e. 83.8 per cent and 89.7 per cent respectively in Jammu and Kashmir. Economic accessibility is one of the significant factors affecting healthcare seeking behaviour of women in the developing countries where out of pocket expenditure on health care is very high. Percentage of women who have received at least four ANC check-ups shows a positive relationship with household wealth quintile in the state. Just 54.0 per cent of women from the poorest household have sought four or more ANC visits, and the highest percentage ninety percent has recorded among the wealthiest household women in Jammu and Kashmir (Table 4.9).

Apart from at least four ANC visits, Tetanus injections and IFA tablets for at least 100 days are two other interventions that are recommended to pregnant women. More than eighty percent of women in Jammu and Kashmir have received two doses of TT injections during their last live birth five-year preceding survey. If we look at the

coverage of TT injections according to women socio-economic characteristics, then we will find that the percentage of women from a young age group is higher compared to middle and old age group women. Better coverage of TT injections among young mothers may be due to their first-time pregnancy, and they get two recommended doses that are not necessary for mothers who have multiple pregnancies. Coverage of TT injection is also showing a decreasing trend with increasing birth order of women and has recorded highest among first birth order women 86.6 per cent and lowest 72.6 per cent among four or more birth order women (Table 4.9).

More than eighty percent of rural and urban women have received two or more TT injections, and the coverage is better among urban women compared to rural women (Table 4.9). Education, as usual, is showing a positive relationship with the utilisation of TT injection and percentage is showing an increasing trend with the education level of women (Table 4.9). In case of a different religious group, women belong to other than Hindu and Muslim have the highest percentage of having two or more TT injection followed by Muslim and lowest coverage is recorded among Hindu religious group in Jammu and Kashmir (Table 4.9). Percentage of women received two doses of TT injection by their ethnic group shows coverage is lowest among Scheduled Caste group followed by Scheduled Tribe, and highest has recorded among women from other than these two caste groups in Jammu and Kashmir (Table 4.9). The coverage of TT injection according to women occupation shows that the highest coverage report among women engaged in non-agricultural work 87.0 per cent followed by who are engaged in agricultural work 82.4 per cent and the lowest is recorded among non-working 81.8 per cent (Table 4.9). Less than three fourth 73.9 per cent of women having no media exposure have received two doses of TT injection in the state, and it increase among partial and full media exposure categories of women 82.6 per cent and 87.2 per cent respectively. Household wealth quintile and coverage of TT injection are also showing a positive relationship. Therefore coverage is increasing with increasing household wealth quintile in the state. Around one-thirdwoman who belongs to the poorest wealth quintile has not received two doses of TT injections, and it has recorded the highest among women from the richest wealth quintile, i.e. 86.6 per cent (Table 4.9).

Third critical intervention under ANC package is the consumption of IFA tablets for at least 100 days during pregnancy. In Jammu and Kashmir, just 30.2 per cent of women

who had delivered their baby five-year preceding survey consumed at least 100 IFA tablets. If we look at the coverage by women socioeconomic background characteristics, then we will find that it varies significantly. Low coverage of IFA tablets has documented among women from old and young age group, higher birth order, belong to rural areas, less educated, Muslim religious group, Scheduled Caste and Scheduled Tribe, engaged in agricultural work, no media exposure and women from the poorest household wealth quintile in Jammu and Kashmir (Table 4.9). Better coverage of IFA tablets has reported among the women belong to middle age group, low birth order, urban area, higher education, Hindu and other religious group, Scheduled Caste, non-agricultural occupation, high media exposure and women from higher household wealth quintile in Jammu and Kashmir (Table 4.9).

Table 4.9 also clarifies the coverage of full ANC according to women background characteristics in Jammu and Kashmir. In Jammu and Kashmir, more than one fourth 26.8 per cent of women who had delivered their baby five-year preceding survey has received full ANC which does not seem an encouraging figure (Table 4.9). Women belong to the old age group (35-49 years) have received low utilisation of full ANC compared to the young (< 20 years) and middle age group (20-34 years) in Jammu and Kashmir (Table 4.9).

Birth order of women has found highly significant determinants of ANC utilisation in several studies. Coverage of full ANC is showing a decreasing trend with increasing birth order of women in Jammu and Kashmir (Table 4.9). It is highest among the first birth order women 31.8 per cent and has recorded as low as 14.4 per cent among women belongs to four or more birth order women in Jammu and Kashmir (Table 4.9).

Table 4. 9: Percentage of Mothers Received Antenatal Care by Background Characteristics in Jammu and Kashmir, 2015-16.

Background of Women	Characteristics	4+ ANC Visit	Two TT Injections	100+ IFA Tablets	Full ANC	Sample
Age Group	<20 Years	68.6	84.9	27.7	26.2	76
	20-34 Years	81.8	82.0	31.2	27.9	4710
	35-49 Years	78.6	79.6	25.7	21.7	990
Birth Order	1	86.0	86.6	35.2	31.8	1869
	2	83.8	81.4	31.6	28.2	1942
	3	78.7	81.1	28.1	24.5	1111
	4+	68.5	72.6	17.7	14.4	854
Residence	Urban	90.6	85.5	32.4	29.4	915
	Rural	79.3	80.9	29.5	25.9	4861
Education	Illiterate	71.5	77.2	19.7	16.5	1951
	Primary	82.6	78.4	26.7	24.5	367
	Secondary	86.0	84.2	33.2	30.1	2889
	Higher	90.3	87.0	48.8	42.9	569
Religion	Hindu	77.8	79.0	49.0	43.7	1282
	Muslim	81.6	82.1	22.7	19.9	4190
	Other	88.0	87.0	50.4	47.1	304
Ethnicity	ST	69.3	72.0	22.9	17.1	1213
	SC	76.5	76.8	43.9	38.3	479
	OBC	87.2	88.1	39.2	35.1	270
	Other	83.8	83.7	29.3	37.9	1845
Occupation	No Work	81.2	81.8	31.5	28.4	1427
	Non Agricultural Work	94.2	87.0	53.5	50.6	69
	Agricultural Work	88.0	82.4	23.4	21.9	221
Media Exposure	No Exposure	65.3	73.9	16.0	12.8	1027
	Partial	83.8	82.6	33.7	30.1	3827
	Full Exposure	89.7	87.2	31.1	28.6	922
Wealth Index	Poorest	54.0	67.6	15.5	11.6	564
	Poorer	76.9	78.2	19.8	16.7	1439
	Middle	85.7	84.6	25.1	22.9	1547
	Richer	88.1	85.9	31.5	28.3	1186
	Richest	90.0	86.6	49.4	44.7	1040
Total		**81.1**	**81.6**	**30.2**	**26.8**	**5776**

Source: Computed from NFHS 4, 2015-16.

The utilisation of full ANC is low among women who belong to rural areas of the state compared to those who belong to urban areas (Table 4.9). As usual with the increasing education level of women utilisation of full ANC is also showing increasing trend and

coverage vary from 16.5 per cent among illiterate women to 42.9 per cent among women who have higher education (Table 4.9). Less than twenty percent of women belong to Muslim religious group in the state has reported full ANC utilisation, which is less than half of the percentage of women, belongs to Hindu and other religious groups (Table 4.9). This unexpected result is due to the very low rate of IFA tablets/syrup consumption for at least 100 days among Muslim women in the state.

Tribal women all across the country have been facing hardship to get the appropriate MHC services timely due to their different sort of disadvantage. It has found in several studies carried out in India that ST women were the most vulnerable and shallow coverage of ANC components have recorded among them (Chakrabarti and Chaudhuri, 2007). Similar patterns appear in Jammu and Kashmir, where very low coverage of full ANC has recorded among the tribal women 17.1 per cent (Table 4.9). Better coverage of full ANC has recorded among other caste groups of women. Surprisingly, a high percentage of full ANC has recorded among the women belong to SC group 38.3 per cent in the state (Table 3.9). This inconsistent result could be due to the affiliation of different caste and tribe group to the various major religious groups. As we have noticed before those women from the Muslim religious group are less likely received full antenatal care compared to Hindu women. As Scheduled Caste group wholly belong to Hindu religious group and most of the tribal population belong to the Muslim Religious group in Jammu and Kashmir.

Women occupation and utilisation of full ANC shows that women who are engaged in non-agricultural sectors record more than fifty per cent coverage of full ANC in Jammu and Kashmir (Table 4.9).

Awareness about ANC services plays an essential role in women healthcare seeking behaviour. Table 4.9 explains that the coverage of full ANC among women having no media exposure is shallow, i.e. 12.8 per cent. On the other hand, women having some media exposure records better utilisation of full ANC in Jammu and Kashmir (Table 4.9).

Household wealth quintile and coverage of full ANC are showing the positive relationship, and coverage is increasing from the poorest to the wealthiest household. Only one-tenth of women belong to the poorest family have reported utilisation of full

antenatal care, and on the other hand, coverage is four-times higher among women belongs to the wealthiest family in Jammu and Kashmir (Table 4.9).

From the abovediscussion, it has been noticed that women from young and old age group, higher birth order, rural area, less educated, Scheduled Tribe, working in the agricultural sector, no media exposure and women from the poorest household are less likely received components of antenatal care in Jammu and Kashmir compared to their counterpart.

4.4 Delivery Care Services in Jammu and Kashmir

Mothers who deliver their baby out of health facilities are at greater risk because of most of the maternal deaths occur during the time around childbirth (Lincetto, et al). Reducing MMR and enhancing institutional deliveries and delivery attended by trained health personnel are the major objectives of several national and international interventions. To realise these objectives, the Government of India had brought a flagship programme NRHM during the year 2005. Several sub-schemes, like JSY, JSSK and ASHA, have been launched under NRHM to enhance the coverage of institutional delivery and reduce the financial burden borne by low-income families on the expenses of institutional delivery.

4.4.1 Place of Delivery and Delivery Conducted by..?

Table 4.10elucidates the place of delivery and assistance provider at the time of delivery in Jammu and Kashmir. More than three-fourths of women in Jammu and Kashmir deliver their last live birth in a public health facility. The majority deliveries in the rural and urban areas of the state have been in the public sector hospital, i.e. 77.2 and 81.3, respectively (Table 4.10). The percentage of women delivered in private health facility during their last live birth in Jammu and Kashmir is very low, i.e. 7.5 per cent. It has been a well-known fact that the rural area has been lacking in the provision of private health facilities. Therefore, the meagre percentage of women has delivered in a private facility in rural areas of the state (Table 4.10). On the other hand, in urban areas, a substantial number of women delivered in a private health facility, i.e. 15.9 per cent (Table 4.10). The percentage of institutional delivery in Jammu and Kashmir is 85.7 per cent, which comprises 97.2 per cent and 82 per cent in urban and rural areas of the state, respectively (Table 4.10).

The rural area of the state still lacks universal coverage of institutional delivery, and 18 per cent of women in rural areas have delivered at home during their last live birth in Jammu and Kashmir (Table 4.10). On the other hand, in an urban area, it is just 2.8 per cent. Delivery should be conducted by the trained health professional. In Jammu and Kashmir, 87.6 per cent of women have sought the assistance of trained health personnel at the time of delivery (Table 4.10). The significant variation between rural-urban women has been observed and low coverage of safe delivery among rural women compared to the urban women in Jammu and Kashmir (Table 4.10).

Table 4. 10: Percentage of Institutional Deliveries and Deliveries Assisted by Trained Health Personnel in Jammu and Kashmir, 2015-16.

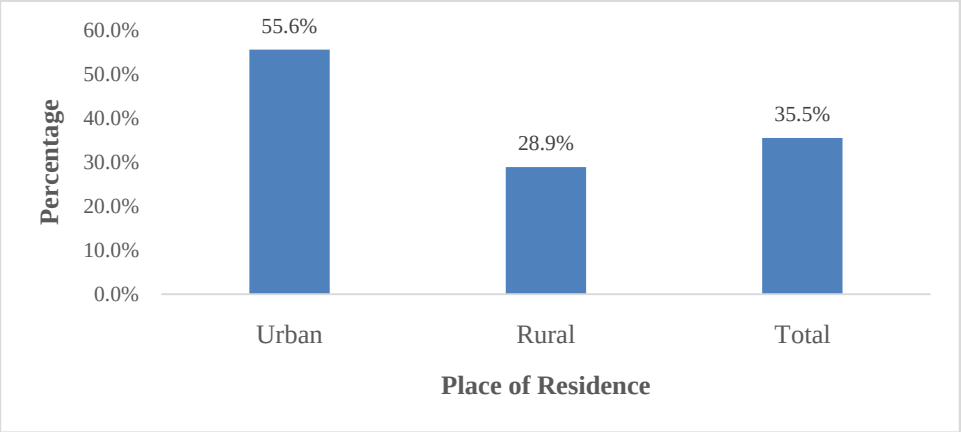
Place of Delivery	Urban	Rural	Total
Public Health Facility	81.3	77.2	78.2
Private Health Facility	15.9	4.8	7.5
Institutional Delivery	97.2	82	85.7
Home	2.8	18	14.3
Delivery Assisted By			
Skilled	97.8	84.3	87.6
Unskilled	2.2	15.7	12.4

Source: Computed from NFHS 4, 2015-16.

4.4.2 Prevalence of Caesarean Section Deliveries in Jammu and Kashmir

Severe obstetric morbidity increases with an increasing number of caesarean section deliveries. The majority of these risks are attributable to that associated with placenta accrete and the need for a hysterectomy (Silver, et al. 2006). Figure 4.3 below explains the percentage of women having caesarean section delivery in the state. More than one-third of women in Jammu and Kashmir has delivered their baby through caesarean section. Figures are alarming in urban areas of the state where more than fifty percent of deliveries have reported caesarean section (Table 4.10). Although the percentage of caesarean section deliveries in rural areas have recorded, half of the urban area, still more than one fourth 28.9 per cent women have delivered through caesarean section (Table 4.10).

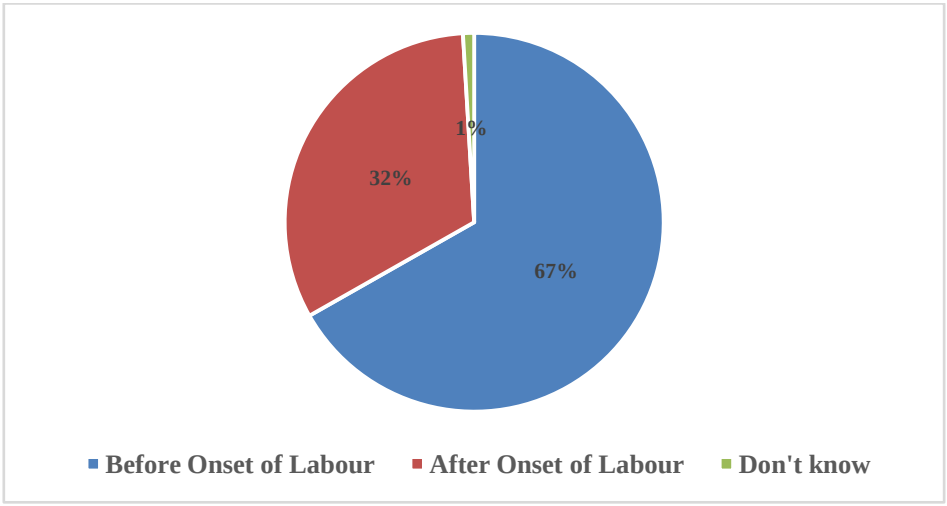
Figure 4. 3: The Percentage of Caesarean Section Deliveries in Jammu and Kashmir, 2015-16



Source: Computed from NFHS 4, 2015-16.

Around one-third of women who had caesarean delivery reported that the decision of caesarean section delivery had been taken after the onset of labour pain in Jammu and Kashmir (Fig. 4.4).

Figure 4. 4Timing of Decision to have a Caesarean Section Delivery in Jammu and Kashmir, 2015-16



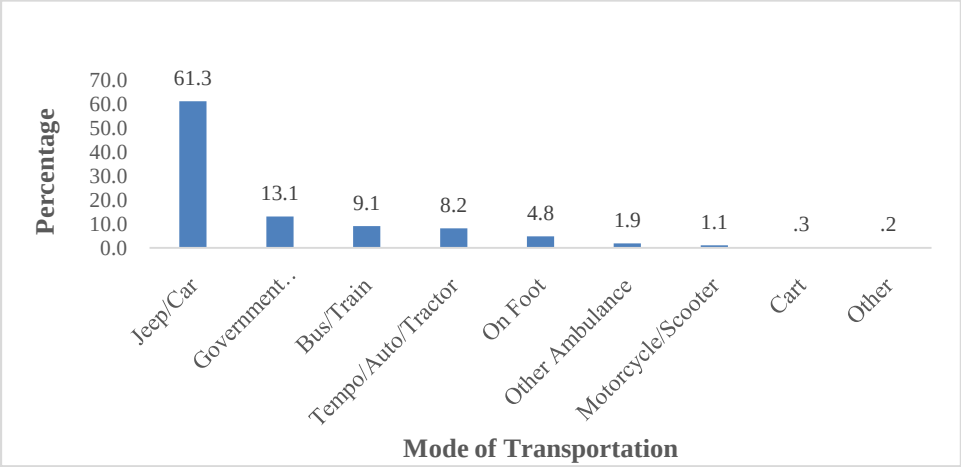
Source: Computed from NFHS 4, 2015-16.

4.4.3 Mode of Transportation for Institutional Delivery

Under NRHM, a scheme named JSSK has been launched to provide the mode of transportation, to pregnant women to reach health facility and between the health facilities and leave back at home (NRHM, 2012-13). Reaching health facility at the time

of delivery is one of the major barriers for pregnant women, especially in the rural and hard to reach rural mountainous area. Figure 4.5 below explains that more than sixty percent of women had used jeep/car to contact the health facility for delivery in Jammu and Kashmir (Fig. 4.5). Despite, the provision of Government ambulance for a pregnant lady to reach health facility under JSSK, just 13.1 per cent of women have used an ambulance in Jammu and Kashmir. Other modes of transportation have been used by women to reach health facility for institutional delivery is Bus/Train 9.1, Tempo/Auto/Tractor 8.2 and on foot 4.8 per cent in the state (Fig. 4.5).

Figure 4. 5: Mode of Transportation for Institutional Deliveries in Jammu and Kashmir, 2015-16



Source: Computed from NFHS 4, 2015-16.

4.4.4 Delivery Care According to Women Background Characteristics in Jammu and Kashmir

It has been found in the literature that women socio-cultural and economic background characteristics significantly affect their healthcare seeking behaviour at the time of delivery (Addai, 2000), (Tewodros, Mariam and Dibaba, 2009), and (Shariff and Singh, 2002).

Table 4.11 explains the association between the coverage of delivery care and women background characteristics in Jammu and Kashmir. Place of delivery includes public and private health facilities and institutional delivery consisting of both the facilities.

Percentage of women who have delivered in health facility and safe delivery by their age group shows that women of younger age group (<20 years) and old age group (35-49 years) are less likely delivered in health facility or seeking assistance from skilled health professional during delivery compared to middle age group (20-34 years) of women (Table 4.11). The very low percentage of delivery is recorded in private health facility across different age group although more than one-tenth of women from old age group delivered in private health facility and percentage for the younger age group is as low as 1.7 per cent (Table 4.11).

Birth order of women and place of delivery and safe delivery is showing a negative relationship and percentage for all variable decrease with increasing birth order of women in Jammu and Kashmir. Percentage of institutional delivery ranges from 93.4 per cent among first birth order to 71.2 per cent for four and more birth order women (Table 4.11). Percentage of safe delivery is also showing similar patterns for the birth order of women in Jammu and Kashmir (Table 4.11).

Virtually universal institutional and safe delivery coverage has recorded from the urban area of the state, i.e. 97.6 per cent and 97.9 per cent, respectively (Table 4.11). On the other hand, in a ruralarea, more than fifteen percent of women had delivered their baby outside health facility without any assistance from skilled professional (Table .411). Very few women from rural areas have delivered in private health facility on the other hand in an urban area the percentage of women who have delivered in private health facility is three times higher in Jammu and Kashmir (Table 4.11).

The education level of women and percentage of institutional and safe delivery shows a positive relationship, and the percentage is showing an increasing pattern with the increasing education level of women in Jammu and Kashmir (Table 4.11). The lowestpercentage has recorded among illiterate women, and little more than three-fourths of women in the state have institutional and safe delivery 76.8 per cent and 76.9 per cent, respectively (Table 4.11). Institutional delivery and safe delivery is increasing with education, and more than ninety-fivepercent coverage has recorded among women with higher education, i.e. 96.9 per cent and 98.5 per cent, respectively (Table 4.11). Percentage of deliveries by health facility is showing that women from higher education are more likely delivered in a private health facility compared to women from the less educated group. High deliveries in the private health facility among highly educated

women could be due to the perception among women of better quality compared to a public health facility.

The table also illuminates the coverage of place of delivery by the different religious group. Percentage of women having safe delivery or institutional delivery has recorded highest among women belongs to other religious group followed by Muslim and the lowest is recorded among women of Hindu religious group in Jammu and Kashmir (Table 4.11). More women have delivered in the private sector hospital other than Hindu and Muslim religious group. As usual, around one-fourth of women from Scheduled Tribe have delivered their last baby without any assistance of trained health personnel out of health facility (Table 4.11). Percentage of safe delivery and institutional delivery has also recorded low among SC women, i.e. 83.9 per cent and 87.2 per cent, respectively in the state (Table 4.11). On the other hand, women of other caste groups have 89.6 per cent safe delivery and 88 per cent institutional delivery in Jammu and Kashmir (Table 4.11). Percentage of delivery in a private health facility has recorded two times higher among women from general caste group compared to the Scheduled Tribe and Scheduled Caste group in Jammu and Kashmir (Table 4.11).

The occupation of women and institutional delivery and safe delivery explains that universal coverage of institutional and safe delivery has recorded among women who engaged in non-agricultural work (Table 4.11). More than one-third of women under non-agrarian work have delivered their baby in private health facilities. Ninety percent of women who are working in the agricultural sector deliver their last baby either in a health facility or assisted by trained health personnel in Jammu and Kashmir (Table 4.11). On the other hand, women who are not working or not engaged in any activities reported the lowest institutional and safe delivery in Jammu and Kashmir (Table 4.11).

Table 4. 11: Place of Delivery According to Women Background Characteristics in Jammu and Kashmir, 2015-16.

Background Characteristics of Women		Public Hospital	Pvt. Hospital	Institutional Delivery	Safe Delivery	Sample
Age Group	<20 Years	78.1	1.7	79.8	79.8	86
	20-34 Years	79.9	7.8	87.7	88.4	5080
	35-49 Years	73.2	12	85.2	85.5	1111
Birth Order	1	83	10.4	93.4	93.8	1997
	2	79.4	10	89.4	90.8	2064
	3	78.5	5.3	83.8	83.9	1214
	4+	66.8	4.4	71.2	71.3	1002
Residence	Urban	80.9	16.7	97.6	97.9	966
	Rural	77.9	5.7	83.6	84.4	5311
Education	Illiterate	73.3	3.5	76.8	76.9	2230
	Primary	83.7	2.6	86.3	86.4	402
	Secondary	82.9	8.6	91.5	92.4	3047
	Higher	72	24.9	96.9	98.5	598
Religion	Hindu	79	6.5	85.5	87.3	1413
	Muslim	78.8	8.9	87.7	87.7	4540
	Other	72.5	16.5	89	94.4	324
Ethnicity	ST	72.4	1.7	74.1	76.2	1,079
	SC	81.7	2.1	83.9	87.2	684
	OBC	82.6	5.7	88.3	91	353
	Other	78.5	9.5	88	89.6	5561
Occupation	No Work	78.2	8.4	86.6	87.3	1551
	Non Agricultural Work	61.5	38.5	100	100	69
	Agricultural Work	82.6	7.4	90	90	233
Media Exposure	No Exposure	66.6	2.6	69.2	69.4	1228
	Partial	81.6	8.1	89.7	90.4	4095
	Full Exposure	79.9	16.4	96.3	97.1	954
Wealth Index	Poorest	56.5	1.1	57.6	57.7	719
	Poorer	76.7	2.7	79.4	79.5	1594
	Middle	85.2	4.1	89.3	89.4	1620
	Richer	83.9	10.7	94.6	95	1251
	Richest	77.5	18.8	96.3	98.5	1093
Total		**78.7**	**8.4**	**87.1**	**87.8**	**6277**

Source: Computed from NFHS 4, 2015-16.

Media exposure and chances of institutional and safe delivery are also showing a positive result. Women having no media exposure have recorded low coverage and percentage is showing an increasing trend with partial and full media exposure (Table 4.11). Women

having some media exposure more probably deliver in the private health facility and the percentage is 16.4 percent for women having full media exposure, and it is negligible among those having no media exposure, i.e. 2.6 per cent (Table 4.11).

Household wealth index and availing of institutional and safe delivery positively associated (Table 4.11). More than forty percent of women belong to the poorest section of the state are not assisted by any trained health personnel during their last live birth (Table 4.11). Chances of availing safe delivery are showing an increasing trend with household wealth quintile, and it is almost universal coverage of safe delivery among women belongs to the richest wealth quintile in the state (Table 4.11). Around one-fifth of women from richest wealth quintile has delivered their baby in the private health facility in Jammu and Kashmir. On the other hand, very few women have delivered in the private facility from the poorest household in the state.

4.4.5 District Wise Coverage of Delivery Care in Jammu and Kashmir

Table 3.12 clarifies district wise, safe delivery and type of institution for institutional delivery in Jammu and Kashmir. Moreover, the table additionally clarifies the level of caesarean section delivery among different districts of the state. In case of the safe delivery summer capital of the state district, Srinagar tops the list with almost universal coverage of safe delivery followed by Badgam, Leh, Ganderbal, Kathua and winter capital district Jammu has recorded 95.2 per cent of safe delivery (Table 4.12). Majority districts have reported ninety percent of safe delivery in Jammu and Kashmir. One can comprehend the inter-district variation of safe delivery from the way that on the one hand universal coverage accounted from the district Srinagar, meanwhile, more than one third deliveries in the districts like Doda 56.7 per cent Reasi, Ramban, and Kishtwar did not receive any help from trained health personnel during their last live birth (Table 4.12).

The table further shows the percentage of district wise place of delivery, whether it was home or institutional delivery. The percentage of home delivery recorded very high among the high priority districts of the state, for instance, Doda 48.2 per cent of women delivered at home during their last live birth. Other districts with high home deliveries are Ramban 38 per cent, Kishtwar 35.6 per cent, Reasi 35.1 per cent and Punch and Rajouri (Table 4.12). On the other hand, districts like Srinagar, Badgam, Leh, Jammu and

Baramulla records the meagre percentage of home delivery less than five per cent (Table 4.12).

Table 4. 12: District wise Percentage of Mothers Received Delivery Care for Their Last Live Births in Jammu and Kashmir, 2015-16.

	Place of Delivery		Type of Institution				
Districts	Home	Institutional Delivery	Public	Private	Safe Delivery	C-section	Sample
Doda	48.2	51.8	49	2.8	51.7	13.5	270
Jammu	4.1	95.9	83.1	12.8	95.9	32.3	202
Kathua	7.6	92.4	88.5	3.9	92.4	24.1	256
Kishtwar	35.6	64.4	64	0.4	64.4	17.5	281
Punch	19.3	80.7	78.2	2.5	80.7	26.2	420
Rajouri	21.6	78.4	74.4	4	78.3	25.4	330
Ramban	38	62	59.4	2.6	62	12.9	318
Reasi	35.1	64.9	61.6	3.3	64.9	20	373
Samba	9.5	90.5	76.7	13.8	90.5	30.8	251
Udhampur	16.1	83.9	77.2	6.7	83.9	19.2	303
Anantnag	7.5	92.5	87.7	4.8	92.5	32.8	263
Bandipore	9.8	90.2	75.7	14.5	90.2	34.2	301
Baramula	5	95	82.8	12.2	95	43.1	234
Badgam	3.7	96.3	89.9	6.4	96.3	52.1	278
Ganderbal	5.3	94.7	91.5	3.2	94.7	49.9	322
Kulgam	8.7	91.3	86.2	5.1	91.3	33	276
Kupwara	6.5	93.5	73.9	19.6	93.5	34.5	344
Pulwama	5.1	94.9	82.1	12.8	94.9	56.6	242
Shupiyan	6.1	93.9	79.4	14.5	93.9	44.9	263
Srinagar	0.5	99.5	78.7	20.8	99.6	75.2	200
Leh	3.7	96.3	95.2	1.1	96.3	21.6	242
Kargil	14.4	85.6	83.8	1.8	85.6	12	308
J & K	**12.3**	**87.7**	**78.6**	**9.1**	**87.8**	**35.5**	**6277**

Source: Computed from NFHS 4, 2015-16.

In the case of institutional deliveries, districts, Srinagar has universal coverage 99.5 per cent followed by Leh, Badgam, Jammu and Baramulla (Table 4.12). Bottom five districts in institutional delivery are district Doda 51.8 per cent followed by Ramban, Kishtwar, Reasi and Rajouri (Table 4.12). Additionally, one-fourth of institutional deliveries in district Srinagar and Kupwara happened in private health facilities trailed by Shupiyan, Bandipore and Samba (Table 4.12).

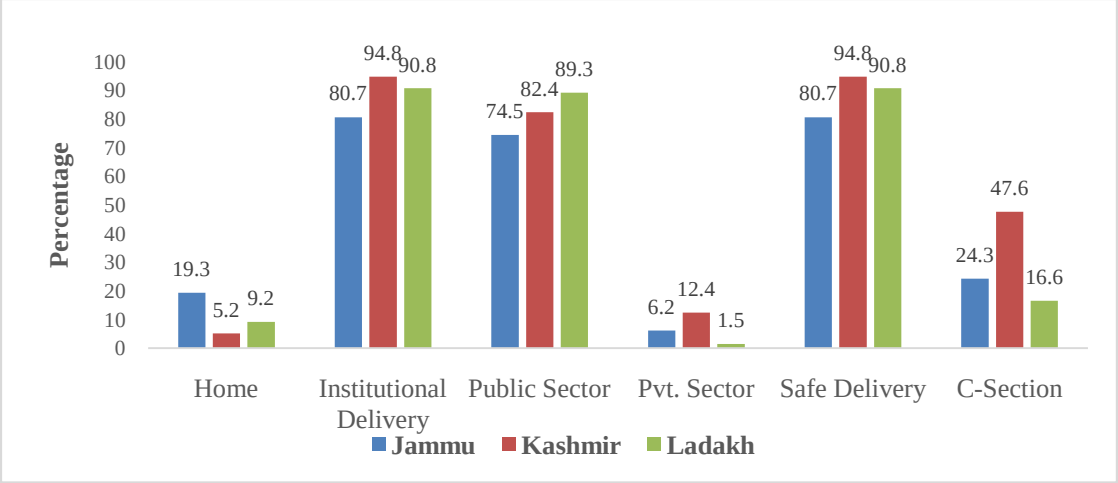
More than one-third of deliveries in the state are cesarean section delivery, which is a very high percentage (Table 4.12). The percentage of cesarean delivery is unacceptably high in the districts like Srinagar 75.2 per cent followed by Pulwama 56. 6 per cent,

Badgam, Ganderbal, Shupiyan, Baramulla, Kupwara, Bandipore, and Kulgam (Table 4.12).

4.4.6 Region-wise Coverage of Delivery Care

Figure 4.6 explains the region-wise place and type of delivery in Jammu and Kashmir. In the case of delivery, Kashmir valley outperforms Jammu and Ladakh (Fig. 4.6). The figure shows that the percentage of home delivery in Jammu region is four times higher than the Kashmir valley and two times higher than Ladakh region (Fig. 4.6). Level of institutional and safe delivery has recordedsimilarly in all three regions. More than ninety per cent of deliveries in Kashmir and Ladakh are institutional deliveries, and in the Jammu region, it is 80.7 per cent (Fig. 4.6).

Figure 4. 6: Region-wise Coverage of Delivery Care and C-section Deliveries in Jammu and Kashmir, 2015-16



Source: Computed from NFHS 4, 2015-16.

Even Ladakh, which is geographically least accessible and very low population density performs better than Jammu region, and more than ninety percent deliveries are institutional and safe (Fig 4.6).

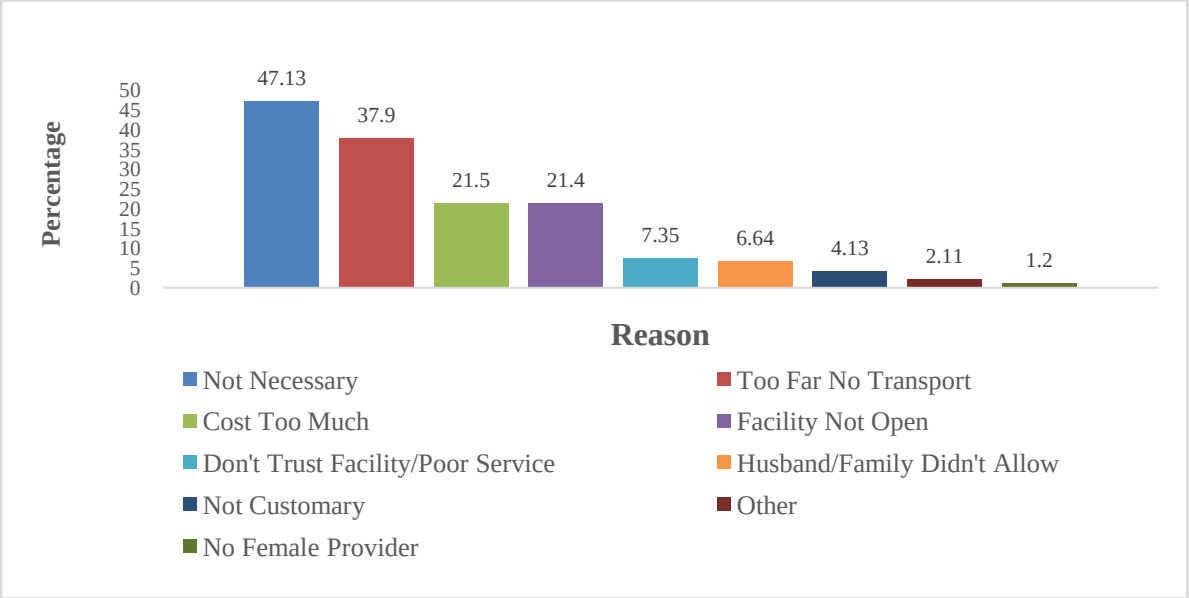
Percentage of deliveries in a private sector hospital is recorded double in Kashmir division compared to Jammu division and ten times higher to the Ladakh region (Fig. 4.6). The figure further explains the percentage of women having caesarean section delivery. High coverage of institutional delivery also accompanied by unacceptably high

47.6 per cent of Caesarean section deliveries in the valley (Fig. 4.6). Around one-fourth of women in Jammu region also delivered through caesarean section (Fig. 4.6).

4.4.7 Reasons for Non-Institutional Delivery

Figure 4.7 below explains the reasons for not availing institutional delivery in Jammu and Kashmir. The above analysis of delivery care has shown that one-eighth of women in Jammu and Kashmir have not delivered in the health facility or taken any assistance from trained health personnel during their last live. And the percentage varies across women socio-cultural, economic background characteristics, districts, and regions of the state. Despite, the Government's numerous initiatives at facility and community level to universal safe and institutional deliveries. Women healthcare seeking behaviour governs by their perceptions, beliefs and other socio-economic factors. One of the major reasons cited by women who have not to deliver in the health facility is not necessary 47.1 per cent (Fig. 4.7). Physical accessibility is a major issue to avail institutional delivery in the mountainous state like Jammu and Kashmir. More than one-third of women who have delivered outside the health facility too far, no transport is the reason for non-institutional delivery (Fig. 4.7).

Figure 4. 7: Reasons for not Availing Institutional Delivery in Jammu and Kashmir, 2015-16



Source: Computed from NFHS 4, 2015-16.

Note: the percentage total is not hundred per cent due to multiple responses.

It has mentioned in the earlier analysis that poor utilisation of MHC services has recorded among the poorest women. It has found in many previous studies that the household economic status of women determines their healthcare seeking behaviour significantly (Arthur, 2012), (Chimankar and Harihar, 2012). The third major reason for not availing institutional delivery is the cost of institutional delivery (Fig. 4.7).

The majority population of the state lives in rural areas. One-fifth of women responded that health facility did not open at the time of delivery is the reason for non-institutional delivery (Fig. 4.7). Other reasons for not availing institutional delivery are don't trust facility/ poor service 7.35 per cent, husband/family didn't allow 6.64 per cent, not customary 4.13 per cent, Other 2.11 per cent and no female provider 1.2 per cent (Fig. 4.7).

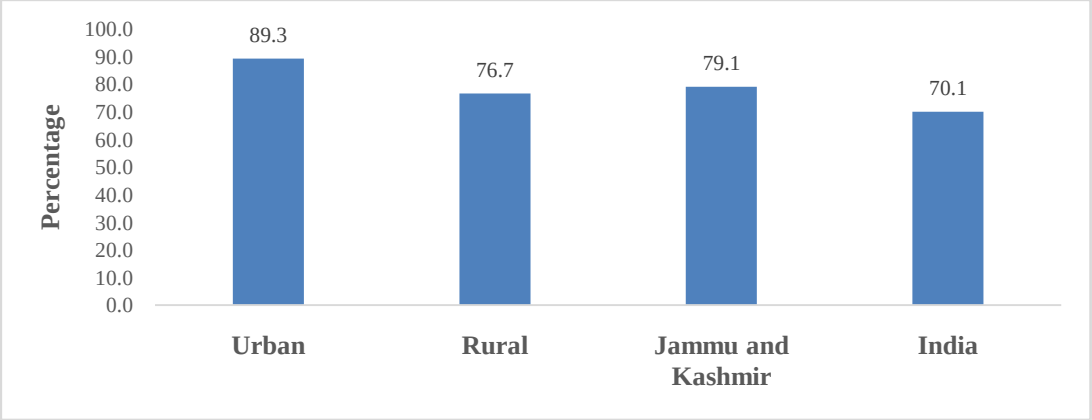
4.5 Postnatal Care in Jammu and Kashmir

As defined by the World Health Organization (WHO, the postpartum period or puerperium is the period that begins immediately after delivery of the placenta and lasts up to 42 days."“Postnatal care is provided for both mother and child, its main elements varying according to the time during the postpartum period when it is given (Fort, Kothari and Abdehhahim, 2006). The period around the childbirth and the first week after delivery is a crucial time for mothers and their child. Around sixty per cent and two-thirds of maternal and neonatal deaths occur during the delivery to the first week immediately after delivery. The major cause of deaths during immediate after delivery is the postpartum haemorrhage (Fort, Kothari and Abderrahim 2006).

4.5.1 Postnatal Care in Jammu and Kashmir

Figure4.8 below explains the coverage of postnatal check-up after delivery in Jammu and Kashmir. In Jammu and Kashmir, around eighty percent of women have received PNC during their last live birth (Fig. 4.8). Coverage is as usual recorded better among urban women, 89.3 per cent compared to rural women, and 76.7 per cent. Although coverage of postnatal check-up in Jammu and Kashmir is better than the national level, around one-fifth of women did not receive a postnatal check-up in the state, and it is around one fourth in the rural area (Fig 4.8).

Figure 4. 8: The percentage of Postnatal Check-up in Jammu and Kashmir, 2015-16

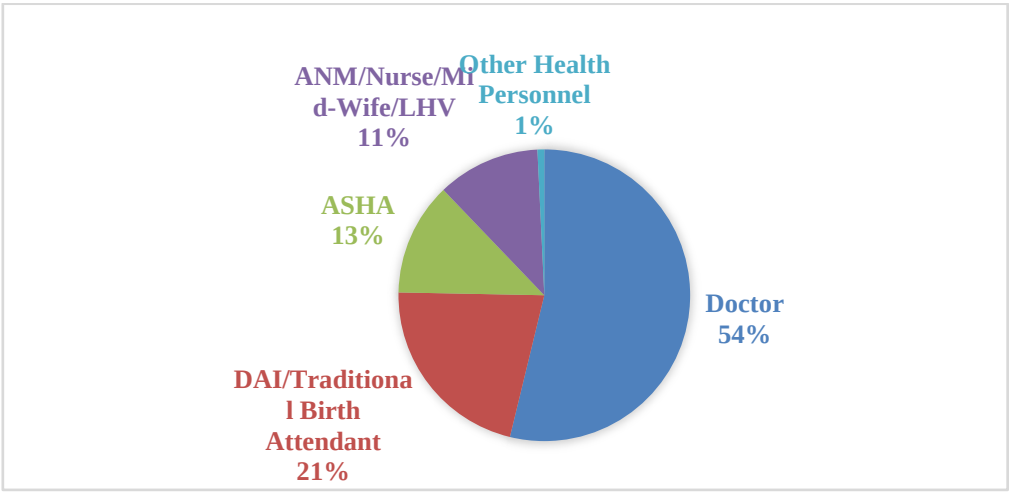


Source: Computed from NFHS 4, 2015-16.

4.5.2 Provider of Postpartum care

Figure 4.9 describes the coverage of PNC in Jammu and Kashmir by the health provider. The figure explains that two-thirds of women in the state have received postnatal check-up from the skilled health provider which comprises doctors 54 per cent, ANM/Nurse/Mid Wife/LHV 11 per cent and one per cent other health personnel. One-third of women in the state have received postnatal check-up from unskilled providers, which comprise of Dai/traditional birth attendant 21 per cent 13 per cent from ASHA worker in the state (Fig. 4.9).

Figure 4. 9: The Percentage of Postnatal Check-up by Health Provider in Jammu and Kashmir, 2015-16



Source: Computed from NFHS 4, 2015-16.

4.5.3 Postnatal Care According to Women Socio-Economic Background Characteristics in Jammu and Kashmir

Postnatal care is care provided to the mother after delivery. It becomes essential to check the health of the mother after delivery and ensure their health. However, the level of postnatal care varies according to the women socio-economic and cultural background characteristics significantly.

Table 4.13 explains the percentage of women who have received postnatal check-up during their last live birth according to their socio-cultural and economic background characteristics in Jammu and Kashmir. Overall percentage shows that eighty percent of women has received a PNC check-up in the state. Age of women has been a significant determinant of postnatal check-up in several studies undertaken in a different setting (Navaneetham and Dharmalingam, 2002), (Nambe and Malanga et al. 2012). More than three fourth of women have received postnatal check-up across all age group in Jammu and Kashmir (Table 4.13). Nevertheless, the level of postnatal coverage seems low among the very young (<20 years) and old age (35-49 years) group of women. It has suggested in the literature that very young and old age mothers are at a greater risk of maternal mortality, because of their biological factors. Better coverage of postnatal care seems among the middle age group (Table 4.13).

Birth order of women is negatively associated with the coverage of postnatal check-up after delivery in Jammu and Kashmir (Table 4.13). Therefore, the percentage of first birth order women having postnatal check-up is the highest at 85.1 per cent. The percentage declines steadily with increasing birth order of women, and it is 64.6 per cent for women having at least four pregnancy (Table 4.13). The table shows better coverage of postnatal check-up in an urban area 89.3 per cent compared to the rural area, 76.7 per cent in Jammu and Kashmir (Table 4.13).

The education of women and the coverage of postnatal check-up in Jammu and Kashmir are showing a positive relationship (Table 4.13). Illiterate women are less likely received postnatal check-up during their last live birth compared to literate mothers (Table 4.13). The percentage gap between the illiterate and women having higher education is twenty percentage points in Jammu and Kashmir (Table 4.13). Religious beliefs and traditions are also significant factors of MHC services utilisation. The utilisation of postnatal care

among the different religious group is not showing significant variations. Though women from a religious group other than two major religious identities of the state, i.e. Muslim and Hindu has recorded higher utilisation 85.8 per cent followed by Hindu religious group 81.1 per cent and the lowest percentage has reported among Muslim religious group 79.3 per cent in Jammu and Kashmir (Table 4.13).

Ethnic affiliation of women in India has shown a significant relationship with their healthcare seeking behaviour (Chimankar and Harihar, 2011). Generally, women belong to marginal sections SC/ST receive low coverage of MHC services compared to the other caste groups. Similar findings appear from the table below in Jammu and Kashmir where lowest coverage of postnatal check-up records among the Scheduled Tribe women 63.5 per cent followed by Scheduled Caste 72.8 per cent lower than OBC and other caste groups (Table 4.13).

The occupation of women and utilisation of postnatal care has shown that women who have not engaged in any work or who engaged in the agricultural sector recorded low percentage of postnatal check-up compared to women in a non-agricultural sector (Table 4.13). There could be multiple reasons for low coverage among women's engaged in the agriculture sectors. Women working in the agriculture sector generally belong to a low-income family; they don't have much time to spend on their health-related issues, especially preventive care.

Exposure to media is also showing a positive association with utilisation of postnatal care in Jammu and Kashmir (Table 4.13). Women's having media exposure are twenty-three percentage points more likely received postnatal check-up compared to those who don't (Table 4.13).

Poor women's are less likely to go to postnatal check-up it could be due to less utilisation of antenatal and delivery care among them leads to less information about benefits of postnatal care. In most of the cases,low-income families don't feel necessary to go health facility until there are obstetric complications. Utilisation is showing an increasing trend with household wealth quintile, and more than ninety percent of women from the richest household received postnatal care during their last live birth in Jammu and Kashmir (Table 4.13).

Table 4. 13: Percentage of Ever-Married Women who Received Postnatal check-up by Background Characteristics in Jammu and Kashmir, 2015-16.

Background Characteristics of Women		Postnatal Check-up[1]	Sample
Age Group	<20 Years	77.2	76
	20-34 Years	80.8	4710
	35-49 Years	75.9	990
Birth Order	1	85.1	1869
	2	82.1	1942
	3	78	1111
	4+	64.6	854
Residence	Urban	89.3	915
	Rural	76.7	4861
Education	Illiterate	69.9	1951
	Primary	81.9	367
	Secondary	83.8	2889
	Higher	89.9	569
Religion	Hindu	81.1	1282
	Muslim	79.3	4190
	Other	85.8	304
Ethnicity	ST	63.5	769
	SC	72.8	527
	OBC	81.8	276
	Other	78.4	4,311
Occupation	No Work	79.6	1427
	Non-Agricultural Work	96	69
	Agricultural Work	79.8	221
Media Exposure	No Exposure	63.2	1027
	Partial	82.8	3827
	Full Exposure	86	922
Wealth Index	Poorest	51.7	564
	Poorer	72.8	1439
	Middle	81.5	1547
	Richer	85.7	1186
	Richest	90.2	1040
Total		**79.9**	**5776**

Source: Computed from NFHS 4, 2015-16.

[1]*Based on the last live birth in the five years preceding the survey. Postnatal checks are checks on the woman's health within 42 days of the birth.*

4.5.4 District-wise Coverage of Postnatal Care in Jammu and Kashmir

Table 4.14 presents the district-wise percentage of women having a check-up after delivery during their last live birth in Jammu and Kashmir. In Jammu and Kashmir still, more than one-fifth of women did not receive postnatal check-up during their last live birth five years preceding survey. If we observe district wise coverage of postnatal check-up in Jammu and Kashmir, the percentage varies from the highest in district Ganderbal 93.9 per cent to the lowest in district Doda 49.2 per cent (Table 4.14). The top five best performing districts in postnatal check-up coverage are Ganderbal, followed by Leh, Badgam, Jammu and Srinagar (Table 4.14). On the other hand, the bottom five districts include Doda lowest followed by Reasi, Kishtwar, Ramban and Rajouri. District Kathua ranked sixth among the twenty-two districts of Jammu and Kashmir in case of postnatal check-up coverage (Table 4.14).

Table 4. 14: District Wise Percentage of Postnatal Care in Jammu and Kashmir, 2015-16.

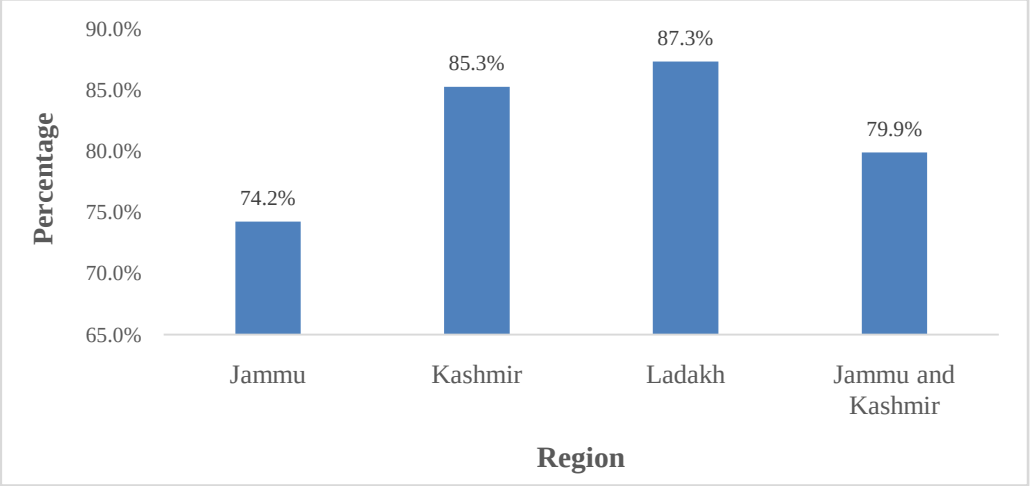
Districts	Yes	No	Sample
Ganderbal	93.9	6.1	322
Leh	92.0	8.0	242
Badgam	90.5	9.5	278
Jammu	88.3	11.7	202
Srinagar	88.0	12.0	200
Kathua	87.9	12.1	256
Bandipore	85.1	14.9	301
Anantnag	84.8	15.2	263
Samba	84.6	15.4	251
Kupwara	82.9	17.1	344
Kargil	82.9	17.1	308
Baramula	82.3	17.7	234
Pulwama	82.0	18.0	242
Udhampur	81.6	18.4	303
Kulgam	81.0	19.0	276
Shupiyan	80.9	19.1	263
Punch	74.3	25.7	420
Rajouri	65.9	34.1	330
Ramban	62.1	37.9	318
Kishtwar	61.4	38.6	281
Reasi	54.8	45.2	373
Doda	49.2	50.8	270
Jammu and Kashmir	**79.9**	**20.1**	**6277**

Source: Computed from NFHS 4, 2015-16.

4.5.5 Region-wise Coverage of Postnatal Care

Figure4.10 presents, the percentage of women having a postnatal check-up after delivery region-wise in Jammu and Kashmir. Despite, a physically most inaccessible and least densely populated region of the state Ladakh leads in coverage of postnatal check-up,i.e. 87.3 per cent followed by Kashmir valley 85.3 per cent and the lowest coverage recorded in Jammu region where more than one-fourth of women did not receive postnatal check-up during their last live birth (Fig. 4.10).

Figure 4. 10: Region-wise Coverage of Postnatal Check-up in Jammu and Kashmir, 2015-16



Source: Computed from NFHS 4, 2015-16.

4.6 District-wise Coverage of Maternal Health Care Services Utilisation in Jammu and Kashmir

To understand the composite picture of district wise level of maternal healthcare services utilisation in Jammu and Kashmir. A Principal Composite Index (PCA) analysis has been carried out; comprising several components of antenatal care, delivery care and postnatal care services has been discussed in this chapter. A composite index comprises of the following variables of maternal health care services utilisation:

- Four or more than four ANC visits
- At least two TT injections
- IFA tablets for at least 100 days.
- Full ANC
- Institutional delivery
- Safe Delivery
- And postnatal check-up after delivery

Table 4. 15: District Wise Composite Index of MHC Services Utilization in Jammu and Kashmir, 2015-16.

District	PCA Score	Rank
Pulwama	0.91629	1
Badgam	0.90354	2
Kathua	**0.85395**	**3**
Jammu	0.82868	4
Srinagar	0.78356	5
Baramula	0.73827	6
Leh	0.69882	7
Shupiyan	0.6565	8
Ganderbal	0.60776	9
Kulgam	0.43219	10
Udhampur	0.38588	11
Kupwara	0.31067	12
Kargil	0.27775	13
Bandipore	0.27305	14
Anantnag	0.1391	15
Jammu and Kashmir	**0.0716**	**16**
Samba	-0.02257	17
Punch	-0.39042	18
Kishtwar	-1.3011	19
Rajouri	-1.39159	20
Ramban	-1.51274	21
Reasi	-1.52502	22
Doda	-2.73416	23

Source: Computed from NFHS-4, IIPS, 2015-16

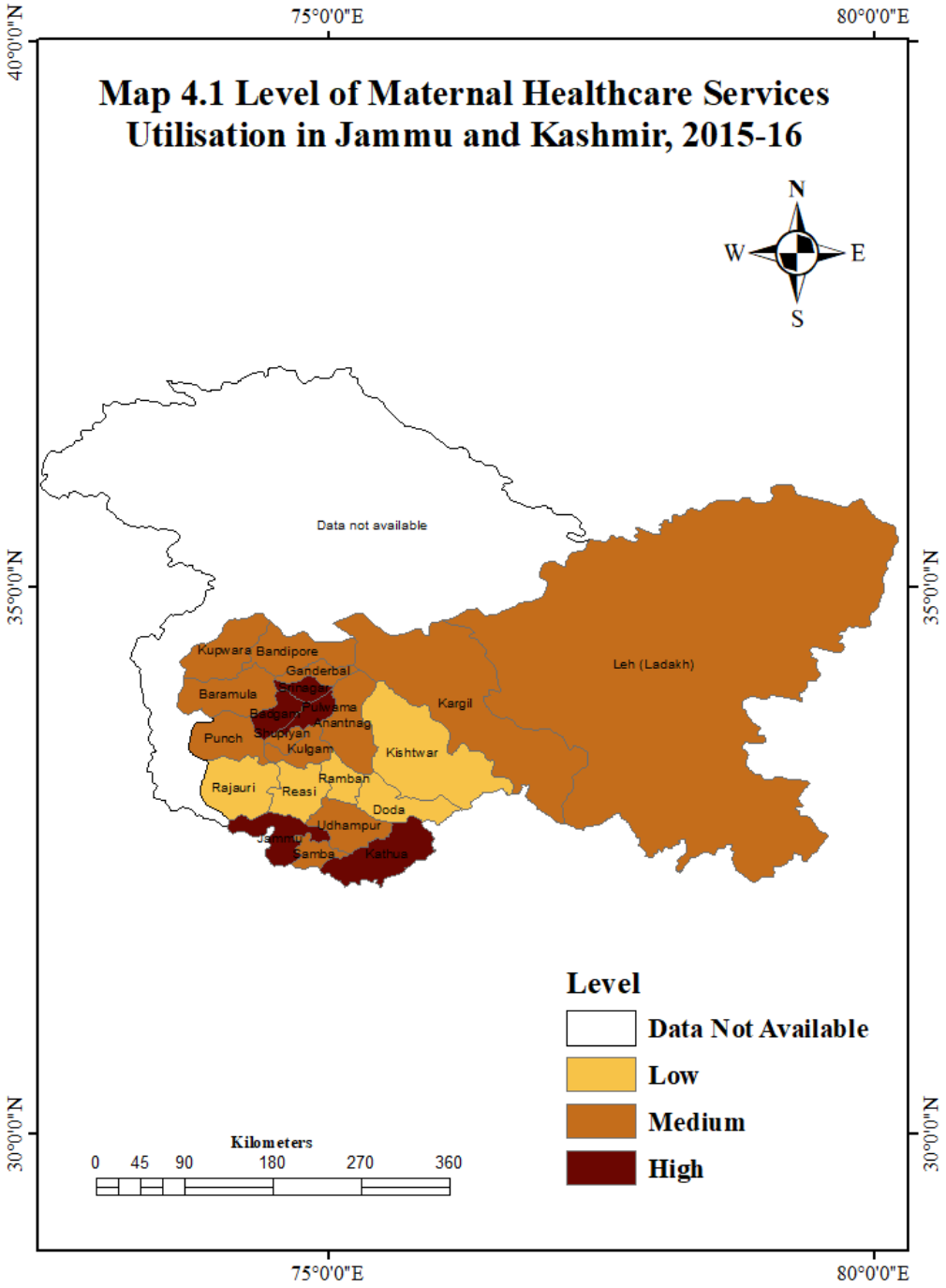
There is a large variation in MHC services coverage across the districts in the state. Based on the composite index, it has been found that the top five districts include Pulwama, Badgam and Srinagar from the Kashmir valley and Kathua and Jammu from Jammu region (Table 4.15). These districts are characterised with the relatively plain area, high urban population, high literacy rate, the low proportion of the tribal population compared to the other districts. District Jammu and Srinagar are the winter and summer capital districts of the state.

On the other hand bottom, five districts include Doda worst performing followed by Reasi, Ramban, Rajouri and Kishtwar (Table 4.15). All these districts fall in the high priority districts[2] of the state except district Reasi. All the low performing districts belong

[2]*The bottom 25% per cent of the districts in every State according to the ranking of districts based on composite health index have been identified as High Priority Districts (HPDs).*

to Jammu region of the state. These districts are characterised with rugged and mountainous topography accompanied by high tribal population, low literacy rate, inadequate health care infrastructure and high rural population. Two districts of Ladakh region include Leh ranked seven and Kargil at the thirteenth position among the twenty-two districts of the state (Table 4.15).

The district Kathua is one of the top performers in coverage of maternal health care services utilisation. Therefore, it has been selected to understand the micro-level analysis of the status of maternal health and healthcare seeking behaviour among ever-married women who had delivered their baby one-year preceding primary field survey.



Source: National Family Health Survey-4, IIPS, 2015-16

4.7 Obstetric Morbidity

Maternal mortality has declined significantly during the last two decades, especially after the initiatives were taken under the Millennium Development Goals (MDG's) in 2001 (WHO 2018). Recent development under this direction has come under the new

initiatives Sustainable Development Goals (SDGs) for post-2015 to 2030 period. Reducing maternal mortality and enhancing the coverage of MHC services are the major targets under this recent intervention (WHO 2018). Though maternal mortality is now a very rare event, the persistence of obstetric morbidity is still the big concern.

This section will examine the prevalence of obstetric morbidity in Jammu and Kashmir. National Family Health Survey (NFHS) asked the respondents several questions related to maternal complications during pregnancy, delivery and the postpartum period.

"Maternal mortality and morbidity are usually defined as mortality and morbidity that occur during pregnancy, delivery and the post-delivery period within 42 days. Reproductive morbidity includes gynaecology morbidity, Maternal (or obstetric) morbidity and contraceptive morbidity. Maternal morbidity, which is a part of reproductive morbidity, is generally defined as any illness or injury caused by, aggravated by, or associated with pregnancy or childbirth. Maternal mortality, defined as death during pregnancy or childbirth, or within 42 days after giving birth, can include direct causes (acute problems such as obstetric complications) and indirect causes (problems that are not necessarily caused by the pregnancy, but rather aggravated by the pregnant state, such as anaemia or malaria). Sexually transmitted diseases, including HIV/AIDS, are gynaecologic morbidities. These definitions are quite broad. By beginning with a wide scope, it may be easier to capture all of the possible consequences that reproductive morbidity and maternal morbidity could have (Reed, Koblinsky and Mosley 2000)."

During pregnancy, women go through some antenatal visits to a health facility. An antenatal check-up is performed by trained health personnel to check the health of woman and foetus. Duringthese check-ups, several tests like blood test and urine test are done to diagnosis progress of foetus growth and early detection of any possible complications which could be life-threatening for mother and her baby. Despite, proper monitoring and diagnosing women's are not a hundredpercent safe. The probability of being suffered from an unusual obstetric complication is always there.

4.7.1 Prevalence of Obstetric Morbidity in Jammu and Kashmir

Table 4.16 presents obstetric complications during pregnancy, delivery and post-delivery within two months of the period in Jammu and Kashmir. One in six women who had delivered their baby during a fiveyears preceding survey has reported difficulty with

daylight vision in the state, which is higher than the national level figure where it is one in nine women (Table 4.16). The complication of daylight vision in urban area 17.1 per cent is recorded higher compared to rural areas, 16.1 per cent (Table 4.16). Percentage of women who have reported convulsion during pregnancy is also noted higher in Jammu and Kashmir 17.3 per cent compared to the national level of 16.5 per cent (Table 4.16). Around one-fifth of women in rural areas have been suffering from the problem of convulsion, and it prevails less among women residing in urban areas. Swelling of hands, legs, body or face is the major pregnancy complication has been reported by women in Jammu and Kashmir and percentage is higher compared to the national level (Table 4.16). One-third of women have experienced the problem of swelling in Jammu and Kashmir, and the problem is a little more in the urban area, 34.8 per cent compared to rural area 32.3 per cent (Table 4.16).

Table 4.16 further describes the percentage of women having a complication at the time of delivery in Jammu and Kashmir. NFHS 4 included several questions related to obstetric complications. The present analysis has included the percentage of women who have suffered from the breech presentation, prolonged labour, and excessive bleeding at the time of delivery. Breech presentation refers to the position of the baby at the time of delivery is not normal, which is head comes first. In general, 3 to 5 per cent of pregnant women experience breech baby between 37-40 weeks of gestation. If women are suffering from the breech presentation, then the caesarean section is considered as the prefered means of delivery instead of vaginal delivery. In Jammu and Kashmir percentage of women who have experienced breech presentation during their last delivery is recorded at 15.6 per cent three to five times higher than the expected rate (Table 4.16). The table further shows that the percentage of women who have experienced breech presentation is recorded higher in Jammu and Kashmir 15.6 per cent compared to the national level, 12.7 per cent (Table 4.16). In the case of the breechpresentation, there is no gap between rural and urban women.

Table 4.16 further explains the prevalence of complication of prolonged delivery in Jammu and Kashmir. Prolonged labour pain could be dangerous to the mother and her foetus in many ways. Women with prolonged labour are vulnerable to intrauterine infection, injuries and trauma in the maternal birth passages (e.g. cervical tears and vaginal tears), postpartum haemorrhage and post-partum infection. Medical professionals

have established timelines for what is considered a "Normal Progression" of labour. However, this normal progression of delivery sometimes does not progress as per the timelines,and when it exceeds 14 to 20 hours of labourpain, it is termed as prolonged labour. Many times in a situation like prolonged labour, medical professionals must take other interventions like Caesarean section delivery to avoid inconvenience. Prolonged delivery was experienced by thirty percent of women in Jammu and Kashmir compared to 42.3 per cent at the national level (Table 4.16). The prevalence of prolonged delivery complication among the rural women of the state is ten percentage points higher than their counterpart who live in urban areas, i.e. 33.1 per cent and 23.7 per cent, respectively (Table 4.16).

Table 4. 16: The Percentage of Women Experienced Obstetric Complications during Their last Live Birth, Jammu and Kashmir, 2015-16.

Obstetric Complications	Urban	Rural	J & K	India
Pregnancy Complications				
Had difficulty with daylight vision	17.1	16.1	16.3	10.9
Had convulsions not from fever	11.4	19.2	17.3	16.5
Had swelling of the legs, body or face	34.8	32.3	32.9	31.8
Delivery Complications				
Experienced a breech presentation	15.6	15.6	15.6	12.7
Experienced prolonged labour	23.7	33.1	30.8	42.3
Experienced excessive bleeding	19.9	27.8	25.8	33.9
Postnatal Complications				
In the first two months after delivery had: massive vaginal bleeding	16.8	18.5	18.1	19.7
In the first two months after delivery had: very high fever	11	16.1	14.8	15.2

Source: Computed from NFHS 4, 2015-16.

Excessive bleeding from the uterus refers to symptoms of significant blood loss that occur within 24 hours of childbirth or to loss of more than about 2 pints of blood. More than one fourth 25.8 per cent of women have experienced excessive bleeding at the time of delivery during their last live birth five-year preceding survey in Jammu and Kashmir (Table 4.16). On the other hand, at the national level, more than one third, 33.9 per cent of women have experienced excessive bleeding during delivery (Table 4.16). The prevalence of excessive bleeding experienced at the time of delivery is higher among the rural women 27.8 per cent compared to their counterpart who lives in urban areas 19.9 per cent of the state (Table 4.16).

Two variables have been taken to examine the prevalence of postpartum complications, i.e. experienced massive vaginal bleeding and very high fever within two months after delivery by women. Failure of the placenta to detach spontaneously from the uterus is the major cause of postpartum haemorrhage (Combs and Laros 1991). The percentage of women who have experienced massive vaginal bleeding in the first two months after delivery is 18.1 per cent and 19.7 per cent in Jammu and Kashmir, and India respectively (Table 4.16). The percentage gap between rural-urban areas seems not very wide, and the percentages of women experienced massive vaginal bleeding in the first two months of delivery are 18.5 per cent and 16.8 per cent respectively (Table 4.16). The percentage of women experienced very high fever during the first two months after delivery is low in Jammu and Kashmir 14.8 per cent compared to the national level, 15.2 per cent (Table 4.16).

4.7.2 Region-wise Prevalence of Maternal Morbidity in Jammu and Kashmir

To understand the regional level prevalence of maternal morbidity, the districts from each region has clubbed, and the aggregate percentage obtained. The state has divided into three regions, i.e. Jammu, Kashmir and Ladakh. Table 4.17 presents the region-wise prevalence of maternal morbidity in Jammu and Kashmir. More than one-fifth of women have suffered from convulsion in the Jammu region, 13.6 per cent in Kashmir and the lowest percentage has noted in Ladakh region 10.9 per cent (Table 4.17). The swelling of legs, body or face has been experienced by 34. 5 per cent of women in Jammu, 31.8 per cent in Kashmir and 20.5 per cent in the Ladakh region of Jammu and Kashmir (Table 4.17). The problem of daylight vision during pregnancy has recorded higher in Kashmir 19.2 per cent, followed by Jammu 13.6 per cent and Ladakh 10.0 per cent (Table 4.17).

The table further shows the prevalence of delivery complications. For the prevalence of delivery complications, the Jammu region of the state records high percentage and low prevalence in Ladakh region (Table 4.17). One-Sixth of women in the state has experienced breech presentation, and the percentage is four times higher in Jammu 19.4 per cent compared to Ladakh 5.3 per cent, and it is 12.1 per cent in Kashmir region (Table 4.17). The regional gap in the prevalence of prolonged labour can be observed from the table. Very high prevalence of complication of prolonged delivery has been experienced by the women's in Jammu region, i.e. 40.9 per cent during their last live birth, which is three times higher than Ladakh (Table 4.17). More than one-fourth of women in the state

have experienced excessive bleeding at the time of delivery. Similar, regional variation like prolonged labour can be observed from the table lowest in Ladakh 12.0 per cent, followed by Kashmir 15.5 per cent and more than one-third of women in Jammu region has experienced excessive bleeding which is twice and thrice higher than Kashmir and Ladakh region respectively (Table 4.17).

Massive vaginal bleeding after delivery is a major cause of concern for high maternal mortality. Women's have been suffering from postnatal complications is more in Jammu region compared to the other two regions.

Table 4. 17: Region Wise Percentage of Women Experienced Obstetric Complications during Their last Live Birth, Jammu and Kashmir, 2015-16.

Obstetric Complications	Jammu	Kashmir	Ladakh	Total
Pregnancy Complications				
Had convulsions not from fever	21.2	13.6	10.9	17.3
Had swelling of the legs, body or face	34.5	31.8	20.5	32.9
had difficulty with daylight vision	13.6	19.2	10	16.3
Delivery Complications				
Experienced a breech presentation	19.4	12.1	5.3	15.6
Experienced prolonged labour	40.9	21.3	12.9	30.8
Experienced excessive bleeding	36.6	15.5	12	25.8
Postpartum Complications				
In the first two months after delivery had: massive vaginal bleeding	22.6	13.8	12.8	18.1
In the first two months after delivery had: very high fever	18.2	11.7	8.7	14.8

Source: Computed from NFHS 4, 2015-16.

The percentage of women who have experienced massive vaginal bleeding during their last live birth in Jammu and Kashmir is 18.1 per cent. The regional variation shows that the prevalence of massive vaginal bleeding 22.6 per cent of women have experienced in Jammu region, 13.8 per cent in Kashmir region and 12.8 per cent in the Ladakh region of the state (Table 4.17). One-seventh of women in the state has experienced very high fever after birth in the state.

4.7.3 District Wise Prevalence of Maternal Morbidity in Jammu and Kashmir

The prevalence of maternal morbidity is not uniform phenomena across the state Jammu and Kashmir. As we have seen in the previous section of this chapter that the prevalence of obstetric morbidity is high in the Jammu region of the state. Table 4.18 examines the

prevalence of obstetric morbidity in Jammu and Kashmir district wise. To understand the overall rank of the districts for the prevalence of obstetric morbidity. Applying Principal Component Analysis (PCA) has made a composite index comprises of several variables related to pregnancy, delivery and postpartum complications. Variables included in the analysis are:

- Convulsion not from fever during pregnancy.
- Swelling of the legs, body or face during pregnancy.
- Difficulty with daylight vision during pregnancy.
- A breech presentation at the time of delivery.
- Prolonged labour at the time of delivery.
- Excessive bleeding at the time of delivery.
- In the first two months after delivery hada very high fever.
- In the first two months, after delivery had massive vaginal bleeding.

Table 4.18 presents the percentage of women who experienced obstetric morbidity, i.e. pregnancy, delivery and postpartum complications during their last live birth district wise in Jammu and Kashmir. The percentage of women reported prolonged delivery like severe delivery complication is very high in the districts like Ramban 56 per cent, Rajouri 52.4 per cent, Doda 44.6 per cent, Kishtwar 44.5 per cent and Punch 43.9 per cent (Table 4.18).

Table 4.18 and map 4.2 explains the ranking of districts according to their factor score obtained through PCA index computed of several variables of obstetric morbidities. The high priority districts of the state record the high prevalence of obstetric morbidity, for instance, the district Ramban ranked one followed by Rajouri, Kishtwar, Punch and Reasi (Table 4.18 & Map 4.2). It has found in the above discussion that very low coverage of maternal health care services utilisation found in these high priority districts.

Table 4. 18: The District Wise Prevalence of Obstetric Morbidity in Jammu and Kashmir, 2015-16.

Districts	Swelling[3]	Daylight vision[4]	convulsions[5]	Breech presentation	Prolonged labour	Bleeding[6]	Bleeding[7]	Fever[8]
Doda	34.0	16.7	29.9	15.9	44.6	37.1	17.2	21.9
Jammu	31.3	11.3	10.0	21.9	36.4	36.2	21.3	7.7
Kathua	25.4	7.9	9.4	23.5	34.7	30.3	21.2	9.4
Kishtwar	47.0	35.2	51.7	23.2	44.5	48.5	25.4	37.8
Punch	41.3	14.6	25.0	18.9	43.9	40.9	20.5	23.1
Rajouri	39.1	10.6	25.4	16.9	52.4	38.1	26.8	25.4
Ramban	50.4	31.5	50.5	28.4	56.0	50.5	24.1	41.7
Reasi	36.6	17.2	32.5	12.8	33.6	36.4	25.5	22.7
Samba	29.6	5.9	11.3	11.3	31.9	34.3	22.1	6.8
Udhampur	22.2	8.0	7.9	20.1	33.8	24.1	23.8	11.9
Anantnag	26.6	14.0	4.4	10.4	20.4	15.9	16.2	5.6
Bandipore	46.8	23.0	22.8	17.7	36.4	25.4	15.4	22.5
Baramula	27.3	18.1	18.9	9.8	26.6	20.7	16.4	10.3
Badgam	35.3	26.1	16.7	10.3	12.9	14.7	14.6	14.5
Ganderbal	27.1	23.5	14.3	12.3	20.8	12.3	13.9	16.0
Kulgam	27.2	15.4	9.7	8.5	18.8	15.9	9.3	5.8
Kupwara	34.7	32.3	28.1	16.4	29.3	20.7	13.5	22.1
Pulwama	24.2	9.8	7.5	12.6	19.7	10.9	8.1	8.0
Shupiyan	25.7	9.2	5.7	8.6	15.0	9.7	6.9	3.2
Srinagar	37.3	17.4	9.1	13.0	15.1	9.1	14.3	10.4
Leh	21.6	10.8	7.7	7.5	11.0	9.0	12.7	7.7
Kargil	19.5	9.2	13.9	3.2	14.7	14.7	12.9	9.6
Total	**32.9**	**16.3**	**17.3**	**15.6**	**30.8**	**25.8**	**18.1**	**14.8**

Source: Computed from NFHS-4, 2015-16.

On the other hand, low prevalence of obstetric morbidity found in the districts like Shupiyan ranked lowest followed by Leh, Kulgam, Kargil and Pulwama (Table 4.18 & Map 4.2). All the districts with a high prevalence of obstetric morbidity belong to Jammu region of the state. On the other hand, low prevalence of obstetric morbidity in the districts of Kashmir region (Table 4.18 & 4.19).

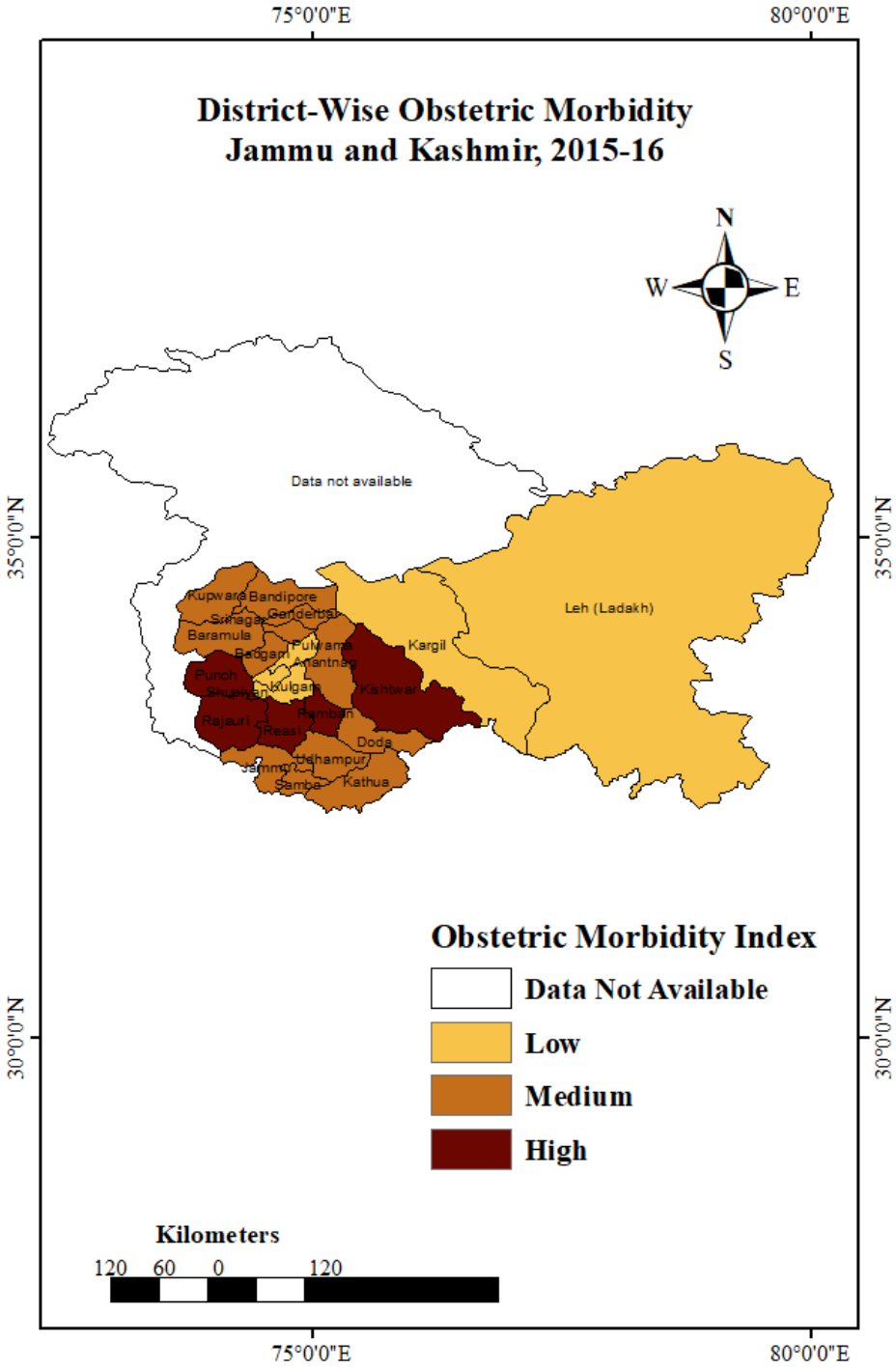
[3] *During pregnancy had swelling of the legs, body or face.*
[4] *During pregnancy had difficulty with daylight vision.*
[5] *During pregnancy had convulsions not from fever.*
[6] *During Delivery experienced excessive bleeding.*
[7] *In the first two months after delivery had: massive vaginal bleeding.*
[8] *In the first two months after delivery had: very high fever*

Table 4. 19: Obstetric Morbidity Index

Districts	Factor Score_	Rank
Ramban	1.90565	1
Rajouri	1.43905	2
Kishtwar	1.42569	3
Punch	1.00646	4
Reasi	0.76929	5
Jammu	0.76473	6
Kathua	0.71984	7
Doda	0.64444	8
Udhampur	0.59147	9
Samba	0.38911	10
Bandipore	0.15401	11
Kupwara	-0.3651	12
Baramula	-0.4423	13
Anantnag	-0.6918	14
Ganderbal	-0.83506	15
Srinagar	-0.86903	16
Badgam	-0.94779	17
Pulwama	-0.99098	18
Kargil	-1.08518	19
Kulgam	-1.11072	20
Leh	-1.16358	21
Shupiyan	-1.30821	22

Source: Computed from NFHS 4, 2015-16.

Map 4.2



Source: Computed from NFHS 4, 2015-16.

4.8 Determinants of Maternal Health Care Services Utilisation in Jammu and Kashmir

In the literature on factors affecting maternal health care seeking behaviour of women belongs to different social, economic and geographical setting has shown that these factors determine coverage of MHC services in a numerous way. Then, for the presentstudy, it becomes essential to present some insights into the factors which are most prominent in the literature to affect the maternal health care services utilisation in Jammu and Kashmir. Therefore, to analyse the determinants of maternal healthcare services, utilisation binary logistic regression analysis has applied. The prerequisite condition for binary logistic regression is the dependent variables should be dichotomous. In the present analysis, the dependent variables are full ANC, Safe delivery and postnatal check-up.

To analyse the results of the binary logistic regression odds ratio has taken as explanatory figures from the table. For a categorical explanatory variable, the odds show the probability of increasing maternal health care utilisation services for a given category (e.g. Rural) relative to that for a reference category (e.g. urban). In the case of continuous variable such as the age of women, it shows the probability of increasing utilisation of maternal health care services for a unit increase of the variable. An odds ratio of greater than one for a category signifies its positive effect on the dependent variable and a value less than one indicates its negative effect.

4.8.1 The Association between Socio-Economic, Demographic and Individual Factors with Full Antenatal Care

Table 4.20 explains the result of the binary logistic regression models in which (Exp b) has explained as an odds ratio. Understanding the association between various socio-economic, demographic and individual factors and the probability of full ANC services utilisation, three models have built.

In the first model, only demographic factors like age of respondent, age at marriage and birth order along with the place of residence have considered. In the second model, more predictors of socio-economic includes in the analysis like religion, caste and household

wealth quintile. The third and final model further added some individual level predictors in the analysis.

The probability of seeking full antenatal care shows a positive association with full ANC in the table and odds are positive for all age groups of women compared to the reference category age group. However, the association between the age of the woman and the utilisation of full ANC is statistically non-significant. In the first model age at marriage and birth order of woman aresignificantpredictors. Woman having aged at marriage is 19 years, and above are more likely received full ANC compared to the reference category and results are significant (Table 4.20). Birth order of women and the probability of full ANC utilisation are negatively associated, and results are statistically highly significant in the first model. Women having the first baby are more likely received full ANC, and as the birth order of women enhance their chance of seeking full ANC decline (Table 4.20). Women belong to urban areas are more likely received full ANC compared to their counterpart to rural women (Table 4.20).

Age at marriage after adding socio-economic predictors in the second model is still significantly positively associated with full ANC (Table 4.20). Level of significance for birth order has changed in the second model, although the association is negative. Women's religious affiliation and household economic status are significantpredictors in the second model. Women's belong to Muslim, and other religious groups are less likely received full ANC compared to those belongs to Hindu religious group and results are significant (Table 4.20). Household wealth quintile has recorded highly significant predictor in the second model, and as the women household economic status raise their probability of seeking full ANC significantly enhance (Table 4.20). The probability of women having full ANC is two and half times and four and half times higher for those who belong to rich and the richest household respectively compared to the poorest household and results are highly significant (Table 4.20).

In the third model, the individual factor has been added to check the neteffect of the predictors on full ANC. The education level of women is a significant predictor in the third model, and it is positively associated with utilisation of full antenatal care.

Table 4. 20: Odds Ratio from Binary Logistic Regression Analysis for Full ANC

Demographic Factors	%	Model 1	Model 2	Model 3
Age of Respondents				
15-19 *Ref*	26.2			
20-24	24.8	1.392	1.066	1.626
25-29	30	1.598	1.237	1.593
30-34	27.1	1.654	1.358	1.593
35 and Above	21.7	1.311	1.038	1.23
Age at Marriage				
18 Years and Less *Ref*	20.3			
19 Years and Above	29	1.287**	1.229*	1.119
Birth Order				
1 *Ref*	31.8			
2	28.2	.788***	0.835	0.734
3	24.5	.776**	0.876	0.83
4+	14.4	.446***	.616**	0.621
Residence				
Rural *Ref*	25.9			
Urban	29.4	1.138	0.846	0.856
Socio-Economic Factors				
Religion				
Hindu *Ref*	43.7			
Muslim	19.9		.632***	.634 **
Other	47.1		.726*	0.979
Caste/Ethnicity				
ST/SC *Ref*	25.8			
Other	37.4		0.989	1.086
Wealth Index				
Poorest *Ref*	11.6			
Poorer	16.7		1.487**	0.699
Middle	22.9		1.980***	0.763
Richer	28.3		2.600***	0.784
Richest	44.7		4.400***	1.467
Individual Factors				
Education of Respondent				
Illiterate *Ref*	16.5			
Primary	24.5			1.128
Secondary	30.1			1.494*
Higher	42.9			1.945*
Respondent's Occupation				
Agricultural Work *Ref*	21.9			
Non-Agricultural Work	29.3			1.306
Husband Education				
Illiterate *Ref*	15.2			
Primary	26.5			1.812
Secondary and Above	30.8			1.133
Husband Occupation				
Agricultural Work *Ref*	17.4			
Non-Agricultural Work	31.1			1.336
Mass Media Exposure				
No Exposure *Ref*	12.8			
Any Exposure	29.8			1.12
Constant		**0.218**	**0.212**	**0.168**

Source: Computed From NFHS-4, India, and Jammu and Kashmir 2015-16.
Notes: *, **, ***Significance at p <0.05; p <0.01; p <0.001 levels, respectively.

Women having higher education are twice more likely received full ANC and odds are (odds = 1.945), and results are consistent with many previous studies across the globe (Addai 2000). Undoubtedly, this positive association of more education on full antenatal care utilisation can be largely attributed to the fact that educated women tend to be more informed and have a better understanding of the advantages of antenatal care (Addai 2000).

The religious identity of women also displays significant result and women belongs to the Muslim community are less likely received full ANC compared to Hindu women (Table 4.20). Woman occupation is not a significant predictor in the model. Although, odds of women working in the non-agricultural sector are higher (odds = 1.306) and more likely received full antenatal care. Husband's education is also positively associated with seeking full antenatal care in Jammu and Kashmir. The probability of seeking full antenatal care among women having a husband working in the non-agricultural sector is higher compared to those working in the agricultural sector.

Exposure to mass media is also not a significant predictor in the model. However, women's having any media exposure are more likely received full antenatal care compared to those who have no media exposure (odds = 1.120) (Table 4.20).

4.8.2 The Association between Socio-Economic, Demographic and Individual Factors with Delivery Care

Table 4.21 explains determinants of safe delivery through binary logistic regression model and results interpret through odd ratio. In the first model, demographic factors along with the place of residence are a highly significant predictor of safe delivery. Women's belong to middle and old age group are more likely to received safe delivery compared to the young age group (15-19 years). Odds are significantly higher for 25-29 year (odds = 2.838), 30-34 years (odds = 3.769) and 35 and above (odds = 3.244) results are highly significant (Table 4.21). Age at marriage is also a highly significant predictor in the model and women's having aged at marriage is 19 years, and above are more likely safe delivery compared to women of marriage age 18 years and less (Table 4.21).

Birth order of women a highly significant predictor and it is negatively associated with safe delivery. Odds are decreasing with increasing birth order of women can be observed from the table. The probability of having safe delivery is three times higher among urban

women's (Odds = 3.919) compared to those who are living in rural areas, and results are highly significant.

In the second model age of respondents are showing the insignificant result. Although odds are higher for all age groups compared to very young age respondents. The results are statistically significant for the oldest age group 35 years and above (Odds = 1.349). The level of significance for age at marriage predictor decrease after adding socio-economic predictor. However, women having aged at marriage is above the legal age of marriage 19 years, and above are more likely received safe delivery (Odds = 1.349). Birth order of women again showing a negative association with safe delivery and odds are declining with increasing birth order of women and results are significant (Table 4.21). Place of residence is a significant predictor, and the probability of being safe delivery is two times higher in urban areas (Odds = 2.059) compared to rural areas, and results are significant. Religious background is also a significant predictor and women belongs to Muslim (odds = 1.076) and other (odds = 2.809) religious groups are more likely received safe delivery compared to those who belong to Hindu religious group.

Caste of women is showing an insignificant predictor in case of safe delivery. Household wealth quintile is a highly significant predictor, and the probability of safe delivery is increasing steadily with household wealth quintile. The probability of safe delivery is two, four, six and sixteen times higher for poor, middle, rich, and the richest household women, respectively (Table 4.21).

In the final model, we add some more individual predictor in the analysis. Age of women is an insignificant predictor in the model, although, the odds ratio is higher for all age group compared to very young age group reference category. Women married at aged 19 years, and above are more likely received safe delivery compared to their counterpart and results are not significant statistically.

Table 4. 21: Odds Ratio from Binary Logistic Regression Analysis for Safe Delivery

Demographic Factors	%	Model 1	Model 2	Model 3
Age of Respondents				
15-19 *Ref*	79.8			
20-24	85.1	1.625	1.454	1.45
25-29	88.6	2.838***	1.821	1.699
30-34	90	3.769***	1.673	1.554
35 and Above	85.5	3.244***	1.349**	1.46
Age at Marriage				
18 Years and Less *Ref*	76.8			
19 Years and Above	91.2	1.670***	1.349**	1.452
Birth Order				
1 *Ref*	93.8			
2	90.8	.602***	.744*	0.796
3	83.9	.315***	.576***	.456**
4+	71.3	.165***	.438***	.408**
Residence				
Rural *Ref*	84.4			
Urban	97.9	3.919***	2.059***	2.160*
Socio-Economic Factors				
Religion				
Hindu *Ref*	87.3			
Muslim	87.7		1.076	1.052
Other	94.4		2.809***	1.403
Caste/Ethnicity				
ST/SC *Ref*	79.5			
Other	85.3		.863	0.874
Wealth Index				
Poorest *Ref*	57.7			
Poorer	79.5		2.064***	1.557
Middle	89.4		3.905***	2.843***
Richer	95		6.515***	3.375***
Richest	98.5		16.307***	4.815***
Individual Factors				
Education of Respondent				
Illiterate *Ref*	76.9			
Primary	86.4			1.809
Secondary	92.4			1.332
Higher	98.5			2.512
Respondent's Occupation				
Agricultural Work *Ref*	90			
Non-Agricultural Work	87.9			1.001
Husband Education				
Illiterate *Ref*	77.6			
Primary	80.6			0.815
Secondary and Above	90.5			0.882
Husband Occupation				
Agricultural Work *Ref*	77			
Non-Agricultural Work	91.1			1.212
Mass Media Exposure				
No Exposure *Ref*	69.4			
Any Exposure	91.7			1.784**

Utilisation Factors				
Full ANC				
No *Ref*	85			
Yes	95.3			2.498***
Constant		**2.805**	**0.947**	**0.64**

Source: Computed From NFHS-4, India, and Jammu and Kashmir 2015-16.
Notes: *, **, ***Significance at p <0.05; p <0.01; p <0.001 levels, respectively.

Birth order of women is still a significant predictor and odds are showing a negative association with increasing birth order of women and results are significant (Table 4.21). The probability of safe delivery in urban areas (odds = 2.160) is two times higher compared to rural areas, and results are significant. Religion is an insignificant predictor and women belongs to Muslim, and other religious groupsare more like safe delivery compared to Hindu religious group. Religious background in many previous studies also found a significant impact on women's decision making to seek delivery care in many previous studies (Addai 2000).

Household wealth quintile is again highly significant predictor, and women's of higher wealth quintile are more likely received safe delivery. The probability of seeking safe delivery positively associated with household wealth quintile and results are highly significant (Table 4.21).

Education of women is positively associated with safe delivery. Women having some education are more likely to received safe delivery than illiterate women. The odds are (odd = 1.809) for primary level education, (odd =1.332) for secondary and (odd = 2.512) for the higher education level of women and results are insignificant. Women's engaged in non-agricultural work are more likely to received safe delivery care than those who have been working in the agricultural sector, and results are insignificant. This finding may be due to farmer's familiarity and confidence with traditional birth attendants. If there is one area of maternal services in which rural people tend to be confident about the traditional service option, it is that of delivery. Traditional birth attendants have been delivering children at home for some time now, and people tend to seek modern maternity services only after exhausting the resources and expertise in their communities. It is typically the case among women who are engaged in agriculture and live in rural areas (Addai 2000).

Husband's education is also not a significant predictor. However, husband working in non-agricultural sector enhanced the probability of safe delivery compared to those who

work in the agricultural sector, and results are insignificant. Media exposure positively associated with safe delivery and women having at least one mass media exposure are more likely to received safe delivery than no mass media exposure, and results are significant (Table 4.21).

The utilisation of full ANC is a highly significant predictor and women having full ANC more than two times more likely received safe delivery compared to those who do not receive (Table 4.21).

4.8.3 The Association between Socio-Economic, Demographic and Individual Factors with Postnatal Care

Table 4.22 display the association between women's background characteristics and coverage of postnatal check-up in Jammu and Kashmir. Age of women shows significant result and women belongs to middle and old age group are more likely received postnatal check-up after delivery (Table 4.22).

Age at marriage is a highly significant predictor in the first model and women's having aged at marriage is 19 years, and above are more likely received postnatal check-up compared to 18 years and less. Birth order of respondent is a predictor negatively associated with the postnatal check-up. The odds are showing a decreasing trend second birth order (odd = .776), third birth order (odd = .626) and fourth birth order (odd = .368) and results are highly significant (Table 4.22). Women from urban areas are more than two times more likely received postnatal check-up and results are highly significant.

In the second model, age is an insignificant predictor, and women's belong to very young and old age group are less likely received post-natal check-up. Age at marriage is again a highly significant predictor and women's who had married at the age of 19 years and above are one and half times more likely received a postnatal check-up. Birth order becomes less significant after including socio-economic predictor of a postnatal check-up.However, women of higher birth order are less likely received postnatal check-up compared to first birth order women (Table 4.22).

Table 4. 22: Odds Ratio from Binary Logistic Regression Analysis for Postnatal Check-up

Demographic Factors	%	Model 1	Model 2	Model 3
Age of Respondents				
15-19 *Ref*	77.2			
20-24	76.3	1.127	1.006	1.36
25-29	82.4	1.675*	1.238	1.343
30-34	81.5	1.797*	1.072	1.386
35 and Above	75.9	1.461	0.849	1.03
Age at Marriage				
18 Years and Less *Ref*	69.9			
19 Years and Above	83.1	1.589***	1.418***	1.481
Birth Order				
1 *Ref*	85.1			
2	82.1	.776***	0.893	0.982
3	78	.626***	0.872	0.941
4+	64.6	.368***	.663**	1.153
Residence				
Rural *Ref*	76.7			
Urban	89.3	2.156***	1.748***	1.98
Socio-Economic Factors				
Religion				
Hindu *Ref*	81.1			
Muslim	79.3		0.968	1.307
Other	85.8		1.610*	1.161
Caste/Ethnicity				
ST/SC *Ref*	73.7			
Other	78.6		.849*	0.722
Wealth Index				
Poorest *Ref*	51.7			
Poorer	72.8		1.874***	1.304
Middle	81.6		3.243***	1.532
Richer	85.7		4.135***	2.443*
Richest	90.2		5.230***	2.931*
Individual Factors				
Education of Respondent				
Illiterate *Ref*	69.9			
Primary	81.9			1.326
Secondary	83.8			1.003
Higher	89.9			0.754
Respondent's Occupation				
Agricultural Work *Ref*	79.8			
Non-Agricultural Work	80.3			1.5
Husband Education				
Illiterate *Ref*	70.6			
Primary	76.8			1.705
Secondary and Above	82.2			1.05
Husband Occupation				
Agricultural Work *Ref*	70.8			
Non-Agricultural Work	83			0.936
Mass Media Exposure				
No Exposure *Ref*	63.2			

Any Exposure	83.4			1.488
Utilisation Factors				
Full ANC				
No *Ref*	76.8			
Yes	88.2			1.028
safe delivery				
N0	22.9			
Yes	87.8			21.257***
Constant		**2.189**	**1.047**	**0.064**

Source: Computed From NFHS-4, India, and Jammu and Kashmir 2015-16.
Notes: *, **, ***Significance at p <0.05; p <0.01; p <0.001 levels, respectively.

Muslim women are less likely received postnatal check-up (odds = .968), and results are insignificant. Women belong to other religious identities are more likely to receive postnatal check-up (odds = 1.610), and results are significant. Caste group of women is also found a significant predictor in the second model (Table 4.22).

Household wealth quintile is a highly significant predictor in the analysis. Household wealth quintile and postnatal check-up positively associated. Women belong to the poor, middle, rich and richest household are two three, four and five times more likely received postnatal check-up than those who belong to the poorest household and results are highly significant (Table 4.22).

In the third binary logistic regression model, have comprised some individual and utilisation factors in the already existing factors for the analysis. After including all these factors the age of respondents is not a significant predictor, although women of middle age group are more likely received postnatal check-up compared to very young age group (Table 4.22).

Age at marriage also becomes an insignificant predictor, although women having aged at marriage is 19 years, and above are more likely received postnatal check-up compared to those 18 years and less. Birth order of women also become an insignificant predictor and women of second and third birth order are less likely received postnatal check-up compared to first birth order women and surprisingly, women having four or more birth order are more likely received postnatal check-up than first birth order. The table further explains women in urban areas are two times more likely received postnatal check-up than those living in rural areas, and results are not significant. Women belong to Muslim, and other religious groups are more likely received postnatal check-up and results are insignificant. Caste of women is not a significant predictor in the third model. Household

wealth quintile is a significant predictor, although the level of significantly reduced after enhancing the number of individual factors. A positive association has witnessed between household wealth quintile and postnatal check-up. Women of the rich household are more likely received postnatal check-up compared to poor household and results are significant (Table 4.22).

The third model includes several individual factors in the analysis like education, the occupation of the respondent and their spouse and media exposure. Education of women is positively associated with a postnatal check-up. The odds ratio for respondents having primary level education is (odd = 1.326), Secondary (odd = 1.003) and for higher education is (odd = .754), and results are insignificant (Table 4.15). Women engaged in the non-agricultural sector are one and half times (odds = 1.500) more likely received postnatal check-up than who have been working in the agricultural sector, and results are insignificant. The husband education is also a positively associated predictor and respondent's husband having some education are more likely received postnatal check-up than those who are illiterate, and results are insignificant. Husband occupation has no significant impact on women's seeking postnatal check-up. Exposure to mass media is not a significant predictor in the model, although women having at least one mass media exposure are more likely received postnatal check-up than those who don't have media exposure (Table 4.22).

The utilisation of full ANC and safe delivery care are positively associated with the probability of postnatal check-up. The respondents having full ANC are more likely received postnatal check-up than those who have not, and results are insignificant (Table 4.22). Having safe delivery is the biggest predictor of the postnatal check-up. The respondents having safe delivery are twenty-one times more likely received postnatal check-up than those who have not safe delivery and results are highly significant (Table 4.22). These highly significant and positive results of safe delivery on postnatal check-up are because the women who deliver in the health facility will get a postnatal check-up after delivery.

4.9 Conclusion

The coverage of maternal health care services utilisation in Jammu and Kashmir is better than the national level. Although the state stood at the sixteenth position among the other states and union territories of the country. Low coverage of maternal health care services

recorded in the rural areas of the state. In case of full ANC coverage in the state, just one-fourth of women received full ANC during their last live birth and percentage was higher in the urban area compared to the rural areas. The majority of women in the state had received all the required services during the ANC visits, although the percentage of women who had received advice on the obstetric complications in the state was low. Regional variation showed that just one-fifth of women had received full ANC in Kashmir region, one fourth in Ladakh and one third in Jammu region of the state. In case of home delivery, one-fifth of women delivered their last live baby at home in Jammu region, 9.2 per cent in Ladakh and just 5.2 per cent in the Kashmir region of the state. The percentage of women who received safe delivery was 87.6 per cent in Jammu and Kashmir. The coverage of postnatal check-up in Jammu and Kashmir was lower than safe and institutional delivery, and just 79.1 per cent of women received a postnatal check-up.

The above analysis of the results also revealed that low coverage of maternal health care services recorded among very young and old age women compared to the middle age women. Low utilisation also noted for high birth order women, living in a rural area, no education, and women from a marginal section of the society, working in the agricultural sector, no media exposure and low household economic status compared to their counterpart in Jammu and Kashmir.

District-level analysis showed that very low coverage of maternal health care services was in the districts like Doda, Reasi, Ramban, Rajouri, and Punch were the worst performing in the state. On the other hand, Pulwama, Badgam, Kathua, Jammu and Srinagar recorded a better level of maternal health care services utilisation in Jammu and Kashmir.

To understand the net effect of women socio-cultural, economic and individual factors on their healthcare-seeking behaviour, a binary logistic regression model was computed. The results revealed that age at marriage, birth order, the religion of women, household wealth index, education of the women were significant predictors of full ANC in Jammu and Kashmir. Women who got married after the legal age of marriage for female, first birth order, Hindu religious group, rich household, educated were more likely to receive full ANC compared to their counterpart in Jammu and Kashmir. In case of safe delivery, the significant predictors were the age of women, age at marriage, birth order, residence, religion, household wealth index, media exposure and utilisation of full ANC in the state.

Women of middle and old age group were more likely to receive safe delivery compared to the very young women, and results were significant. Women who got married after the legal age of marriage for female were more likely received safe delivery compared to those who got married before the legal age of marriage. Other significant predictors were women of higher birth order less likely received safe delivery compared to the first birth order women. In the urban area, women received safe delivery three times more likely compared to their counterpart living in rural areas. Women belong to Muslim, and other religious groups more likely received safe delivery than Hindu women in the state. Women from a rich household had media exposure and full ANC utilisation more likely received safer delivery compared to those belongs to poor household who had no media exposure and no full ANC utilisation in Jammu and Kashmir. Age of women, age at marriage, birth order, place of residence, religion, caste, household wealth index, and safe delivery were the significant predictors of postnatal check-up in Jammu and Kashmir.

The prevalence of obstetric morbidity recorded high among the districts where the low level of maternal health care services utilisation, such as Ramban, Rajouri, Kishtwar, Punch and Reasi recorded the high prevalence of obstetric morbidity. On the other hand low prevalence of obstetric morbidity recorded low in the districts like

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Chapter V: Accessibility and Utilisation of Maternal Health Care Services in Tehsil Kathua and Bani: A Micro-Level Analysis

5.1 Introduction

After discussing the availability of primary health care infrastructure and the status of maternal health and healthcare seeking behaviour at the macro level in Jammu and Kashmir. Now, this chapter will deal with a micro-level analysis of the status of maternal health and healthcare-seeking behaviour in rural Jammu and Kashmir. It has been found in the previous chapter four of this study that utilisation of MHC services in rural areas are low compared to the urban areas of the state. Chapter three of this study has discussed the primary health care infrastructure in Jammu and Kashmir and found that there is a huge shortfall in physical infrastructure and human resources at the health centres.

This chapter will particularly discuss the status of maternal health and healthcare seeking behaviour within rural areas of the Jammu and Kashmir. The chapter will provide insight into a micro-level analysis and try to examine the local level factors, which play an important role in determining the healthcare seeking behaviour of women. In most of the previous studies at the national and international level place of residence of women has been discussed as rural and urban. And it is a common phenomenon found that rural women are less likely received MHC services compared to their counterpart who live in urban areas (Godha, et al. 2016). Women living in rural areas are more vulnerable to unusual pregnancy outcomes due to their socio-economic condition along with paucity of adequate, affordable and accessible required medical care during pregnancy, delivery and post-delivery period. In the wake of this problem, the Government of India has come out with its flagship programme NRHM in the year 2005. It has been particularly brought to deal with the issues to make health care accessible and affordable to the vast majority rural population of our country. NRHM is an umbrella programme under which comes many other schemes such as JSY, JSSK, and ASHA community health worker.

The Government has made all these efforts are to enhance the coverage of MHC services and reduced the risk of maternal mortality and morbidity in rural areas and particularly among the marginal section of the society. Community health worker like ASHA under NRHM, who is a link between the community and health care system has made a

significant contribution in this direction after the inception of these schemes (Kumari and Pal 2016).

Despite the significant increase in MHC services utilisation and reduction in maternal mortality and morbidity rural-urban divide has been continuously persisting (Elo 1992), (Mekonnen and Mekonnen 2002), (Tewodros, Mariam and Dibaba 2009).

Within rural areas, women who live in hard to reach areas like mountain are more vulnerable to pregnancy. Although a large number of studies have done on women socio-economic, individual factors, the role of local topography in determining MHC services seeking behaviour is the least researched factors in the literature. In case of physical accessibility distance and time to the health facility and transportation infrastructure are a widely explored factors affecting women healthcare seeking behaviour (Mohammad 2005), (Pacagnella, et al. 2012), (Lalmalsawmzauva and Nayak 2006).

Although, Government of India brings IPHS norms to ensure the minimum standard of health care infrastructure in the rural area. According to IPHS norms, an average rural population should have covered by a health centre is different for plain and mountain areas. Despite these existing norms and availability of health centres in the mountain setting. These health centres are lacking in basic infrastructures like a regular supply of water and electricity, labour room and operation theatre. It has been found in chapter three of this study that a very high percentage of required specialists to the proper functioning of existing health centres are not in the position in Jammu and Kashmir. Apart from this, there is a huge problem of absenteeism of the medical staff at these facilities in the mountain area, particularly (Chin and Dye 2016). These supply-side factors, alongside with poor socio-economic conditions of mountain women, can significantly determine their healthcare seeking behaviour and ultimately leads to a poor maternal health outcome.

Frequently mountain areas are politically marginalised and economically distressed. The governments invest less and less in the development of mountain communities. Remoteness is not the only factor leading to poor access to services, individual behaviour and political priorities over the use of services are also relevant (Audsley, Wallace and Price 2016). Although the delivery of services is difficult in the mountain areas, it is not impossible (Chin and Dye 2016).

Jammu and Kashmir attribute rugged terrain, poor transportation and communication meant that reach to the health facility is often difficult, especially in the rural and mountainous areas of the state. Paucity or absence of road networks caused the transport to be an important barrier to reach a health facility. In some areas of the state travel times have to be measured in hours or even days rather than minutes because of the geography of the state (and in maximum cases, people travel without transportation on foot), these become major deterrents to MHC services utilisation (Baral, et al. 2010).

Therefore, this chapter will try to examine the factors affecting the status of maternal health and healthcare seeking behaviour within rural areas, in geographically two distinct setting tehsil Kathua (Plain area) and Bani (Mountain area).

5.2 Socio-Economic Background Characteristics of Women in Tehsil Kathua and Bani

Bivariate analysis has been carried out to understand the socio-economic background characteristics of the respondents in the study area. Table, 5.1 shows the socio-economic background characteristics of respondent ever-women in the study area who had a live birth one-year preceding primary field survey. If we look at the percentage distribution by the age ofwomen, then it can be noticed that the highest percentage of the total sample has recorded from 25-28 years age group. However, one can observe the difference in the mountain and plain area, in the mountain, women get married at an early age compared to the plain area that is by in tehsil Bani the percentage of women who had last live birth one-year preceding survey decrease with the increasing age group.

On the other hand, in tehsil kathua, the highest percentage is recorded in 25-28 years age group (Table 5.1). More than one-third of respondent women had married before the legal age of marriage for a female in the study area, and it is as high as 45.5 percent in the mountain areas (Table 5.1). More than one-third of respondents replied that their last live birth was the first child in the study area. The highest percentage of total respondents belongs to second birth order in the study area. In the mountain area where women get married earlier bear more children during their reproductive period records a higher percentage of respondents having three or more child.

Table 5. 1: Percentage Distribution of Respondents According to Their Socio-Economic Background Characteristic in the Study Area.

Characteristics	Total (400)		Bani (Mountain) (200)		Kathua (Plain (200)	
Age Group	**(%)**	**(N)**	**(%)**	**(N)**	**(%)**	**(N)**
<24 Years	36.2	145	41.5	83	31	62
25-28	41.2	165	40	80	42.5	85
29 and above	22.5	90	18.5	37	26.5	53
Marriage Age						
18 and Below	34	136	45.5	91	22.5	45
19 and Above	66	264	54.5	109	77.5	155
Birth Order						
1	35.2	141	31	62	39.5	79
2	37.2	149	32	64	42.5	85
3 +	27.5	110	37	74	18	36
Education of Respondent						
Illiterate	27	108	41	82	13	26
Middle	15	60	8.5	17	21.5	43
Secondary	45.2	181	42	84	48.5	97
Higher	12.8	51	8.5	17	17	34
Religion						
Hindu	89.8	359	87.5	175	92	184
Muslim	9.8	39	12.5	25	7	14
Other	0.5	2	0		1	2
Caste/Tribe						
Scheduled Caste	27.8	111	16	32	39.5	79
Scheduled Tribe	25.5	102	45	90	6	12
Other	46.8	187	39	78	54.5	109
BPL Household						
Yes	53.2	213	60	120	46.5	93
No	46.8	187	40	80	53.5	107

Source: Primary Field Survey, 2017.

More than one out of four of the total respondents in the study area said that they are illiterate. In the tehsil Bani (mountain area) more than forty per cent of respondents is illiterate, which is three times higher compared to the tehsil Kathua (plain area) (Table 5.1). The majority of respondents are educated up to the secondary level in the study area.

Around ninety per cent of the total respondents belong to Hindu religious group in the study area. Very few samples belong to other religious groups; for example, 9.8 per cent Muslim and 0.5 per cent Sikh (Table 5.1).

A considerable share of the percentage of total respondents belongs to the marginal sections of the society, e.g. Scheduled Caste 27.8 per cent, and Scheduled Tribe 25.5 per cent (Table 5.1). As usual in tehsil Bani, which is a mountain area very high percentage of respondents, 45 per cent sample respondents belong to Scheduled Tribe community. On the other hand, in tehsil Kathua majority respondents belong to the general population. However, forty per cent of respondents in the plain area belongs to Scheduled Caste group (Table 5.1). Understanding the economic condition of respondents they were asked whether they belong to Above Poverty Line (APL) or Below Poverty Line (BPL) card holder households. More than fifty per cent of the respondents belong to BPL household, and the percentage is higher in the mountain area 60 per cent compared to the plain area 46.5 per cent (Table 5.1).

5.3 Antenatal Care Services Utilization in Tehsil Kathua and Bani

Antenatal care, otherwise called pre-birth care, is the efficient supervision of pregnant ladies to screen the advancement of her foetal development and to guarantee the prosperity of the mother and the baby (GOI 2010). A total antenatal registration gives fundamental consideration to the pregnant woman and aides in recognising pregnancy complications, for example, pre-eclampsia, iron deficiency and hypertension and so on in the mother and deficient/moderate development of the foetus (GOI 2010). Some fundamental parts for quality ANC establish early following and enlistment of pregnancy inside the first trimester, find out four ANC visitsincluding a visit for registration, given two doses of Tetanus (TT) injections and at any rate 100 tablets of iron and folic acid.

Table 4.2examines the percentage of women who had received various ANC components during their last live birth in tehsil Bani and Kathua preceding one year of the primary survey. Almost universal registration of pregnancy has recorded in the study area, i.e. 97.2 per cent (Table 5.2). However, the marginal difference in registration could be noted from the table between tehsil Bani and Kathua.

Moreover, early registration ascertains early entry of women in the health system, and it helps in the detection of any possible obstetric complication. At the time of registration, pregnant women should provide MCP care. Mother and Child Protection card has been developed as a tool for women families to understand, learn and follow practices for achieving good health of pregnant women. MCP helps pregnant women to know about

various types of services which they need to access the health and wellbeing of herself and her children. MCP card is very important to keep a health record of pregnant women and their children. In the current study, most of the respondents have got the MCP card (Table 5.2). The percentage of women received at least one ANC check-up also recorded very high in the study area.

Table 5. 2 Percentage of Various Components of ANC in the Tehsil Kathua and Bani

Antenatal Care Components		Bani (N=200)	Kathua (N=200)	Total (N=400)
Received MCP Card	Frequency	191	196	387
	Percentage	95.5	98	96.8
Received Any ANC Check-up	Frequency	193	198	391
	Percentage	96.5	99	97.8
ANC Received in the First Trimester	Frequency	95	140	235
	Percentage	47.5	70	58.8
Received Three and Above ANC Visit	Frequency	139	194	333
	Percentage	69.5	97	83.4
90+ IFA Tablets	Frequency	51	101	152
	Percentage	25.5	50.5	38
Two or More TT Injection	Frequency	141	175	316
	Percentage	70.5	87.5	79
Full Antenatal Care[1]	Frequency	28	77	105
	Percentage	14	38.5	26.2

Source: Primary field Survey, 2017.

Note:[1]Full ANC includes atleast 3 ANC visit, one TT injection and IFA tablets for more than 90 days.

The first visit at the time of registration of pregnancy for ANC should take place as soon as the pregnancy is suspected. Ideally, the first visit should be within three months of conception. But if women are not able to come within the first trimester of pregnancy and come later, she should be register and proper care and counselling should be provided to her and her family member according to the gestational age. More than forty percent of women did not visit their health provider within the first trimester of their pregnancy in the study area (Table 5.2). The percentage of respondents having ANC visit within the first trimester of pregnancy during their last live birth one-year preceding primary field survey varies from 47.5 per cent and 70 percent in tehsil Bani (mountain) and Kathua (plain) respectively ((Table 5.2).

Next component in the line comes to some ANC visits for pregnant women. According to the WHO norms, pregnant women should have visit health provider every month till the delivery. But practically it is not possible for women in developing countries like India to visit health facility every month. Therefore, the Government of India (GOI) recommend at least four ANC visits, including the first visit of pregnancy registration. In the present study, three ANC visits are considered for analysis, including the first visit in the first trimester of pregnancy for registration. Considering the very low level of maternal health care services utilisation among the mountain women and their busy daily schedule, it is hard to them get ANC visits frequently. Therefore, three ANC visits one each for three trimesters of pregnancy have been considered for analysis. More than eighty per cent of the respondents have received at least three ANC visits during their last live birth in the study area, and it varies according to the geographical setting of women from where she belongs. In mountain area (Bani) more than thirty percent of respondents did not take at least three ANC visits during their last live birth. On the other hand, in the plain area (Kathua) almost universal coverage of at least three ANC visits recorded (Table 5.2).

As part of antenatal care, all women in the reproductive age group should have to consume 100 IFA tablets/syrup. IFA tablets and syrup helps to reduce the incidence of neural tube defects in the foetus. During the fieldsurvey, eligible women were asked about the consumption of IFA tablets/syrup for at least 90 days or three months.

Table 5.2 depicts that only 38.2 per cent of respondents takes IFA tablets for at least three months in the study area. The percentage of respondents consumed IFA tablets/syrup for at least three months during their last live birth one-year preceding field survey is two times higher in tehsil Kathua compared to tehsil Bani, i.e. 50.5 per cent and 25.8 per cent respectively (Table 5.2).

Two tetanus injections for pregnant women are recommended to prevent the expected mothers and their new-born from tetanus. The first injection should be given as soon as possible, preferably at the time of pregnancy registration by ANC provider, the second injection is to be given one month after the first, preferably at least one month before the expected date of delivery (GOI 2010).

Table 5.2 demonstrates that 79 percent of respondents has received two doses of TT injection in the study area. In the mountain region, the coverage is 70 percent,and in the

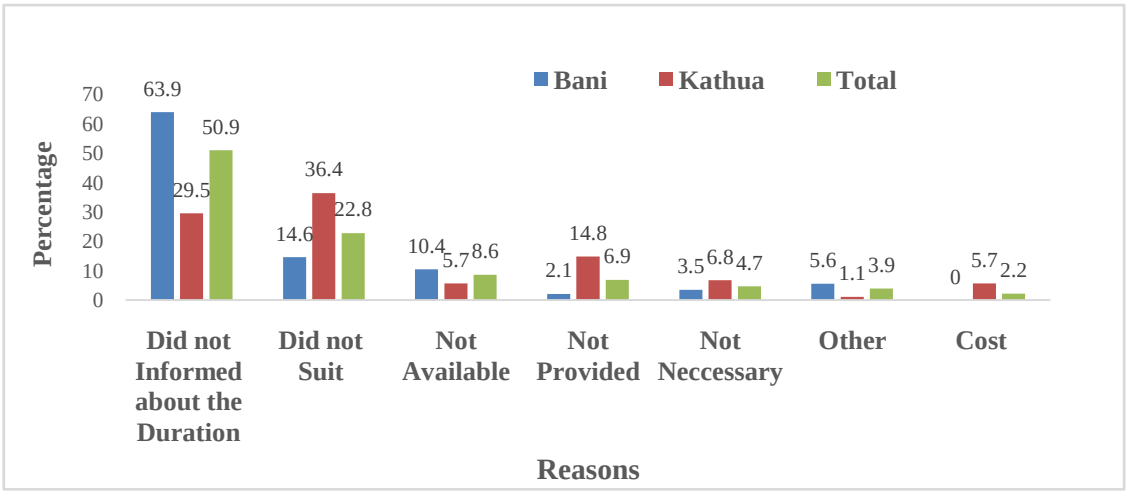
plain, it is 87.2 percent. In most of the cases who did not receive two TT injections have cited second delivery within three years a reason and have received one TT injection (Table 5.2).

For the micro-level analysis, Full ANC comprises at least three ANC visits, one TT injection and consumption of at least 90 IFA tablets/syrup. Few more than one-fourth of the total respondents have received full ANC in the study area (Table 5.2). The coverage of full ANC records almost three times higher in the tehsil Kathua, i.e. 38.5 per cent compared to tehsil Bani, where it is just 14 per cent (Table 5.2).

5.3.1 Reasons for Not Consuming IFA Tablets/Syrup

During the field survey question on the reasons for not consuming the recommended number of IFA tablets/syrup was asked by the researcher. Lack of information about the duration and number of days and tablets required to consume has been cited as the major reason for low consumption of IFA tablets/syrup (Fig. 5.1). One-fifth of respondents said that tablets do not suit them. In the tehsil, Bani, seventy per cent of women said they did not know the duration and number of days IFA tablets/syrup should be consumed (Fig. 5.1).

Figure 5. 1: Reasons for not Consuming Required IFA Tablets/Syrup in Tehsil Kathua and Bani.



Source: Primary Field Survey, 2017.

On the other hand, in the tehsil Kathua, the major reason for not consuming required IFA tablets is not suited to their health (Fig. 5.1).Women gave different sort of reasons for not consuming IFA tablets; for instance, one of the respondents said that:

"My neighbour told me that you do not take IFA tablets; it is not good for your baby. It will cause swelling to baby". Another one I was afraid, I will become fat after consuming IFA tablets." ***(The Respondents from Kathua)***

5.3.2 Antenatal Care Services Provided During ANC Visits

It is recommended to health provider at a health facility that before beginning each ANC check-up, ensure that all the required instruments and equipment are available and in working conditions. These includes "a weighing scale, inch tape, stethoscope, blood pressure apparatus, foetoscope, thermometer, MCP card and register, watch, gloves, 0.5 per cent chlorine solution, syringes and needles, hub cutter, spirit swabs, IFA tablets, TT injections and equipment's for testing haemoglobin and urine (GOI 2010)."

Table 5.3 explains the percentage of women received various ANC services during their visits to the health centre. During the field survey, eligible women were asked whether they had received various services as the measurement of weight and height, blood test, urine test, abdomen checked, breast examined, ultrasound, delivery date, and delivery advice or not. One can observe from the table that the percentage of women who have availed various antenatal services is lower in tehsil Bani compared to the tehsil Kathua (Table 5.3).

Table 5. 3: The Percentage of Women Received Antenatal Care Services During their Antenatal Visit in Tehsil Kathua and Bani.

Component		Bani (N=193)	Kathua (N=198)	Total (N=391)
Weight Measured	Frequency	130	184	314
	Percentage	67.4	92.9	80.3
Blood Test	Frequency	189	196	385
	Percentage	97.9	99	98.5
Height Measured	Frequency	117	177	294
	Percentage	60.6	89.4	75.2
Urine Test	Frequency	188	196	384
	Percentage	97.4	99	98.2
Abdomen Check	Frequency	188	196	384
	Percentage	97.4	99	98.2
Breast Checked	Frequency	187	197	384
	Percentage	96.9	99.5	98.2
Ultrasound	Frequency	186	197	383
	Percentage	96.4	99.5	98
Delivery Date	Frequency	163	193	356
	Percentage	84.5	97.5	91
Delivery Advice	Frequency	136	188	324
	Percentage	70.5	94.9	82.9

Source: Primary Field Survey, 2017.

5.3.3 Counselling of the Respondents by Health Providers

Counselling of pregnant women on various issues at the time of ANC visits play an important role in the wellbeing of mother and her new-born baby. It is recommended to the health provider that he/she have to counsel the pregnant women related to their pregnancy. Unawareness related to various services required for the smooth progression of pregnancy is the major reason for low utilisation of MHC services. During our field visit; it was asked to the respondents whether she was counselled at the time of the ANC visit or not. More than ninety per cent of the respondents said that health provider had counselled them during their last live birth (Table 5.4). The percentage of respondents who got any sort of counselling during their last live birth is ten percentage point high in tehsil Kathua compared to the tehsil Bani (Table 5.4). The percentage of women received information related to TT injections is 84 per cent and 94.5 per cent in tehsil Bani and Kathua, respectively (Table 5.4).

Breastfeeding is one of the most important functionsimmediately after birth; it helps new-born and mother in many ways for their health and wellbeing (GOI 2010). A woman should be encouraged for exclusive breastfeeding for six months. During the fieldsurvey, women were asked whether they were advised for immediate breastfeeding or not. Percentage of women who stated that they had been advised for breastfeeding is 84 in total, and it varies between 72.5 and 95.5 percent in tehsil Bani and Kathua, respectively (Table 5.4).

Table 5. 4: Percentage of Women Received Information during their Last Live Birth in Tehsil Bani and Kathua.

Counselling	Bani (N=200)	Kathua (N=200)	Total (N=400)
Counselling	88.5	98	93.2
TT Injection	84	94.5	89.2
Immediate breastfeeding	72.5	95.5	84
Institutional Delivery	65	95	80
New-born Care	40.5	69	54.8
Immediate baby dry	24	72.5	48.2
Cleanliness	21	72	46.5
Use of CHDK	27.5	60.5	44
Arranging Blood	8	56	32
Danger Sign	20	40.5	30.2
Emergency Transport	10	47	28.5
Financial preparation	6	15.5	10.8
Family Planning	12.5	8.5	10.5

Source: Primary Field Survey, 2017.

It is expected from the health provider that they will encourage every pregnant woman who comes for ANC visits to have institutional delivery. Explain to women the importance of institutional delivery as complications can develop at any time during pregnancy, delivery and postnatal. These complications are not always predictable, and if skilled professionals do not treat them at the institution, they can cost the life of the mother or baby or both.

One-fifth of women stated that they were not encouraged by health provider for institutional delivery and risk of delivery at home (Table 5.4). In the tehsil Kathua, most of the womenhave replied they had counselled for institutional delivery, but in case of Bani, more than one third said they had not encouraged for institutional delivery (Table 5.4).

Around half of the respondents replied they had received counselling on new-born care and immediate baby dry in the study area (Table 5.4). The percentage of respondents who get counselling on these two components are higher in tehsil Kathua compared to the Bani where a very low percentage of women received counselling related to new-born care and immediate baby dry (Table 5.4).

Only one-fifth of women in tehsil Bani received counselling on cleanliness, which is three and half times lesser than the tehsil Kathua, where 72.5 per cent of respondents have got counselling related to cleanliness (Table 5.4). The percentage of women who get counselling on the use of Clean Disposable Delivery Kit (CDDK) is 27.5 per cent and 60.5 per cent in tehsil Bani and Kathua, respectively (Table 5.4).

Although women are entitled to free provision of blood under JSSK, health provider must motivate women and their relatives to donate blood for replacements. Here also one-third of women were counselled by health provider for the arrangement of blood during ANC visits and figure is as low as just 8 per cent for tehsil Bani and 56 per cent in Kathua which is seven times higher than Bani (Table 5.4).

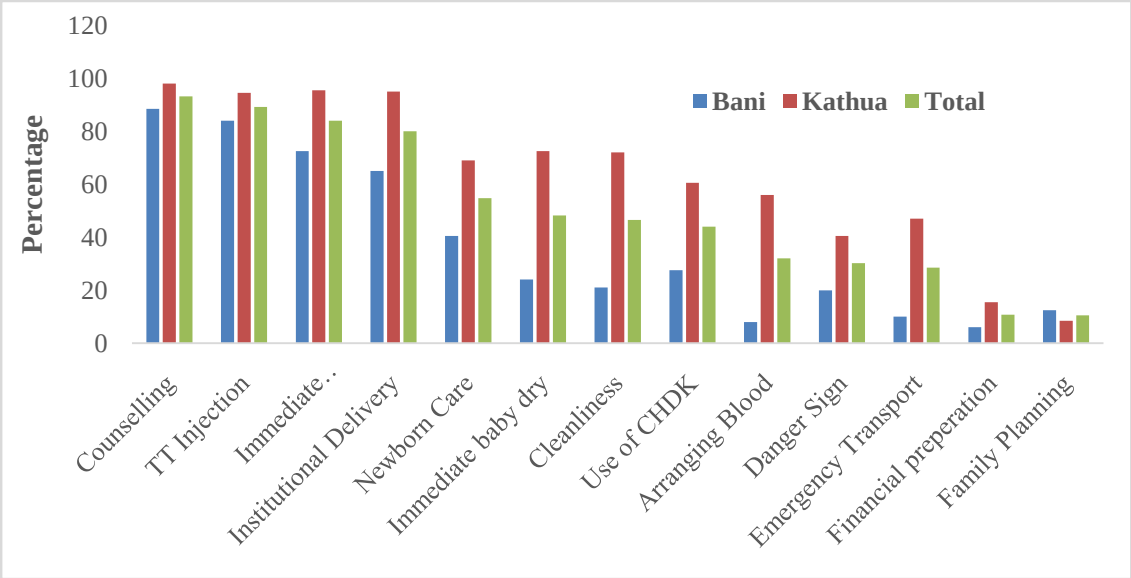
The pregnant woman and her caretakers should be informed about the potential danger signs of childbirth. Very few percentages of women replied they had been counselled about danger signs of pregnancy in the study area, and it is 20 per cent in tehsil Bani and 40.5 per cent in tehsil Kathua (Table 5.4).

Women and her family should be counsel for identifying transportation facility in the emergency case because in rural areas where road connectivity is not up to mark reaching health facility (second delay) is the major cause of maternal deaths. Under JSSK, women are entitled to get a transportation facility at the time of delivery from home to health facility and between health facilities in case of referral. Despite, the Government provisions,and instructions to the health provider less than one-third women have been informed for emergency transportation arrangement in the study area and just ten percent were in case of Bani which is lacking in road infrastructure and geographically hard to reach. On the other hand, in Kathua, 47 per cent of women said they had been informed about the benefits under JSSK and availability of transportation facility (Table 5.4).

Women and her family should be advised to keep an emergency fund or have a source of money for emergency funding in case of emergency. It is expected from the health

provider that he/she will inform pregnant women about various schemes that are available for providing funds for maternal health or assisting with transportation facilities, for instance, JSY and JSSK (GOI 2010). Around ten percent of women said they had been counselled for financial preparation in the study area, and the percentage is higher among women from the plain area than who belongs to the mountain area (Table 5.4).

Figure 5. 2: Counselling of Women during ANC visits in Tehsil Kathua and Bani



Source: Primary Field Survey, 2017.

Very few percentages of women in the study area got a piece of advice on family planning. However, the percentage of women is higher in tehsil Bani who got counselling on family planning compared to the Kathua (Table 5.4).

5.3.4 Information about Signs of Obstetric Complications

Table 5.4 shows the percentage of women who received information about pregnancy complications during their antenatal visits from health providers. It is expected from the health provider that women should be informed about the potential danger signs during pregnancy, delivery and in the post-partum period (GOI 2010). Women must be told that if there is any complication sign, she should immediately visit a nearby health facility without any delay. Only one-fourth of the respondents said that they had been informed about the signs of pregnancy complications during their last live birth in the study area (Table 5.5). The percentage of women received information about signs of pregnancy

complication is 20.5 per cent and 32.5 per cent in the tehsil Bani and Kathua, respectively (Table 5.5).

Table 5. 5: Percentage of Women who Received Information about the Various signs of Pregnancy complications in tehsil Kathua and Bani.

Advice about Sign of Complications		Bani (N=200)	Kathua (N=200)	Total (N=400)
Pregnancy Complication	Frequency	41	65	106
	Percentage	20.5	32.5	26.5
About Bleeding	Frequency	40	64	104
	Percentage	20	32	26
Convulsion	Frequency	39	62	101
	Percentage	19.5	31	25.2
Prolonged Labour	Frequency	40	63	103
	Percentage	20	31.5	25.8
Abdominal Pain	Frequency	39	64	103
	Percentage	19.5	32	25.8
High Blood Pressure	Frequency	40	64	104
	Percentage	20	32	26

Source: Primary Field Survey, 2017.

The table presents similar results for the percentage of women who received information about the different signs of pregnancy complications. The general trend shows that just one-fourth of women in the study area have been informed about the signs of pregnancy complications and the percentage is lower in the tehsil Bani compared to the tehsil Kathua (Table 5.5).

5.3.5 People Who Accompanied Women for ANC Visits

Under NRHM, while keeping in mind to enhance the access and utilisation of MHC services, the Government of India has introduced a new brand of community-based functionaries named ASHA worker. ASHA supposed to be the first port of call for any health-related demands of pregnant women who find it difficult to access health services.

Table 5.6examine, the percentage of women who were accompanied by different people to a health facility for ANC visits during their last live birth preceding one year of primary field survey in tehsil Bani and Kathua. Accompany pregnant women for an antenatal visit to a health facility is one of the major duty of ASHA workers. However, in

the study area, more than two-thirds of women said ASHA did not escort them for an antenatal care visit during their last live birth (Table 5.6).

Table 5. 6: Percentage of Women who were accompanied by Different People to a Health Facility for ANC visits in Rural Jammu and Kashmir

People who accompanied for ANC visits		Bani (N=193)	Kathua (N=198)	Total (N=391)
ASHA	Frequency	22	98	120
	Percentage	11.4	49.5	30.7
Husband	Frequency	121	57	178
	Percentage	62.7	28.8	45.5
other Family Member	Frequency	38	36	74
	Percentage	19.7	18.2	18.9
Went Alone	Frequency	12	7	19
	Percentage	6.2	3.5	4.9

Source: Primary Field Survey, 2017.

One can observe the huge gap of a percentage point between Kathua and Bani, in tehsil Kathua, around fifty percent of women were escorted by the ASHA worker for antenatal care visits. On the other hand, just one-ninth of women in the mountain area was escorted by ASHA worker for antenatal care visits (Table 5.6). The person who generally accompanies women for antenatal care visits in the mountain is the husband of the respondents 62.7 per cent and 28.8 per cent in the plain area (Table 5.6).

5.3.6 Full Antenatal Care Services Utilisation According to Women Background Characteristics in Tehsil Kathua and Bani.

Under this heading, we will discuss the utilisation of full antenatal care services according to background characteristics of women in the tehsil Bani (Mountain) and Kathua (Plain). The background characteristics of respondents undertaken for analysis are the distance and time taken to reach the health facility and motorable road as physical barriers to determine the healthcare seeking behaviour of the respondents, other than these, the type of road also taken for analysis. The association between women socio-cultural, economic and individual characteristics and utilisation of full ANC services in the study area will be discussed in detail (Table 5.7). For analysing utilisation of antenatal care services, a composite variable has been computed comprising of at least three ANC visits, one TT injection and IFA tablets for more at least 90 days and named variable as full ANC.

In rural areas of Jammu and Kashmir availability of health, facilities are not equally distributed. The sparsely populated mountainous areas are hard to reach to health facility influence the health-seeking behaviour of the population, especially pregnant women. Even the distance of a few kilometres in the mountainous area is enough to deter pregnant women from seeking health care. During the field survey, the questions on physical accessibility, for instance, distance and time to reach the health centre and motorable road and type of road were asked to the respondents.

The aggregate percentage of total sample presents that the utilisation of full ANC is higher among the women who are living near to the health facilities and motorable road (Table 5.7). Condition of the road also shows that the percentage of full ANC among respondents who said asphalt road to a health facility is more than double compared to others (Table 5.7).

The utilisation of full ANC recorded higher among women where the distance to the nearest health facility is less than one km, and it significantly decreases with increasing distance. The utilisation of full ANC shows a significant decrease with increasing distance to a health facility in tehsil Bani; on the other hand, in tehsil Kathua distance has no significant influence (Table 5.7). Health facility within the radius of less than 1 km of household recorded 19.4 per cent, and 39.0 per cent coverage of full ANC in tehsil Bani and Kathua respectively (Table 5.7). The coverage of full ANC declines with the increasing distance to 11.3 per cent and 37.0 per cent for the respondents who said distance to the health centre is more than 1 km in tehsil Bani and Kathua respectively (Table 5.7).

Time to reach a health facility is one of the major barriers in seeking healthcare services in any setting. In the table below one can observe that aggregate percentage of women from the household where the time taken to reach health facility is less than half an hour is higher 28.0 per cent in comparison to the household from where more than half an hour taken 12.8 per cent (Table 5.7). In the present study time to reach health facility in tehsil, Bani and Kathua are not showing any influence on utilisation of full antenatal care. There were no single respondents from the tehsil Kathua, which is the plain rural area said that time taken to reach the nearest facility more than half an hour (Table 5.7). It could be due to the better road connectivity in the plain area, and every household has a transport facility at their doorstep.

The aggregate figure shows that respondents having facility of asphalt road to health facility stated better utilisation of full ANC, i.e. 38.7 per cent which is two to three times higher than who stated another type of road in the study area (Table 5.7). Type of road doesn't show any significant impact on utilisation of full antenatal care services in the tehsil Kathua, which is a plain rural area. Although the type of the road in the mountainous area, i.e. tehsil Bani shows, significant impact on the percentage of full ANC utilisation and the fifty per cent of respondents having asphalt road to health facility received full ANC compared to just 13.6 per cent for another type of road (Table 5.7).

Distance to the motorable road is the major issue in a rural area and even more problematic in the hard to reach mountainous areas which hamper access to the health facility in a different way. Percentage of women received full antenatal care decrease with increasing distance to the motorable road. Aggregate percentage shows that one-third of women from households which are within 1 km distance of motorable road received full antenatal care, on the other hand, where distance is more than 1 km the percentage drop to 14.9 percent (Table 5.7). Distance to the motorable road in tehsil Kathua shows that women having less distance to road received full ANC more likely than those living away from the road (Table 5.7). However, utilisation of full ANC in tehsil Bani shows contradictory result and 10.9 per cent of women received full antenatal care from a household which is at the distance of less than 1 km, and the percentage is higher at five points among the household from where the motorable road is more than 1 km (Table 5.7). This contradictory result might be due to the topography of the region because in Bani there are most of the health facilities are not connected to motorable road and women who stay around these facilities might be easily accessed full antenatal care.On the otherhand, the household which has a motorable road near to their house don't have health facility nearby and time taken to reach health facility could be the reason for low utilisation of full antenatal care.

In the rural area, especially in the mountainous one of Jammu and Kashmir road density is very low and after deciding to seek antenatal care time taken to reach motorable road is a big challenge for pregnant women. If we look at the table below, then we will find that the aggregate percentage of women having full antenatal care services utilisation decreased from 29.8 per cent to 16.7 per cent in the area where the time is taken to reach motorable road is more than half an hour (Table 5.7). Within the ruralarea, one can

observe that there is no household sample from Kathua, which take more than half an hour to reach the motorable road. Here also in tehsil Bani women household from where the time taken to reach motorable road shows contradictory result and utilisation of full ANC increase with the time taken to reach the motorable road (Table 5.7).

Next, come the individual characteristics of women and the utilisation of full antenatal care in rural Jammu and Kashmir. The aggregate percentage presents, coverage of full antenatal care is lowest among the youngest age group of women, and it increases with the age of women in the study area (Table 5.7). A similar pattern also appears from the tehsil Bani and Kathua. Low coverage among young women could be the result of various other associated social, cultural and economicfactors because the major proportion of young mothersbelongs to the poor household, less education, early drop out from school, and early marriage makes them socially and economically more deprived and lacking in decision making related to their health-related issues.

Women who married before the legal age of marriage for female (18 years) received low coverage of full antenatal care services, irrespective of their place of residence (Table 5.7). The aggregate figure shows that the percentage of women received full ANC who married ≤18 years of age is 18.4 per cent compared to those who married after 18 years of age, i.e. 30.3 per cent (Table 5.7). Although the utilisation of full ANC among women who married ≤18 years is 35.6 per cent low compared to those, who married later ≥19 years 39.4 per cent in the tehsil Kathua, the gap is narrow (Table 5.7). On the other hand, in the tehsil, Bani the percentage of women whom age at marriage is ≥ 19 years 17.3 per cent is double compared to those age at marriage is ≤18 years, i.e. 9.9 per cent (Table 5.7).

The aggregate percentage of coverage of full antenatal care also varies with birth order of women, and it is showing a decreasing trend with increasing birth order of women (Table 5.7). Highest coverage is among the first birth order women, i.e. 32.6 per cent and lowest among ≥3 birth order, i.e. 19.1 per cent (Table 5.7). Similar trends of full antenatal care services utilisation high among first birth order and lowest among the higher birth order women also appear in tehsil Bani and Kathua (Table 5.7).

Table 5. 7: Percentage of Full Antenatal Care According to Women Background Characteristics in Tehsil Kathua and Bani.

Background Characteristics		Total (N=400)	Bani (N=200)	Kathua (N=200)
Distance to Nearest Health Facility	≤1 km	32.9	19.4	39.0
	>1 km	18.7	11.3	37.0
Time to Nearest Health Facility	≤Half an Hour	28.0	14.0	39.3
	>Half an Hour	12.8	14.0	0.0
Type of road to Health Facility	Asphalt	38.7	50.0	38.6
	Path or Other	14.8	13.6	36.4
Distance to Motorable Road	≤1 km	33.3	10.9	39.8
	>1 km	14.9	15.2	11.1
Time to Motorable Road	≤Half an Hour	29.8	10.9	38.5
	>Half an Hour	16.7	16.7	NA
Age Group	≤24 Years	20.7	10.8	33.9
	25-28 Years	25.5	16.2	34.1
	≥29 Years	36.7	16.2	50.9
Age at Marriage	≤18 Years	18.4	9.9	35.6
	≥19 Years	30.3	17.4	39.4
Birth Order	1	32.6	16.1	45.6
	2	25.5	14.1	34.1
	3 and above	19.1	12.2	33.3
Education of Respondent	Illiterate	11.1	8.5	19.2
	Middle	26.7	11.8	32.6
	Secondary	28.2	14.3	40.2
	Higher	51.0	41.2	55.9
Occupation of Respondent	Agricultural Sector	25.8	12.7	38.2
	Non Agricultural	32.1	26.3	44.4
Religion	Hindu	26.7	12.6	40.2
	Muslim/Other	23.1	24.0	21.4
Ethnicity	Scheduled Caste	23.4	6.2	30.4
	Scheduled Tribe	11.8	11.1	16.7
	Other	35.8	20.5	46.8
Media Exposure	No Exposure	14.8	10.3	31.2
	Any Exposure	33.1	19.3	39.9
BPL Card	No	33.7	21.2	43.0
	Yes	19.7	9.2	33.3
	Total	**26.2**	**14.0**	**38.5**

Source: Primary Field Survey, 2017.

Education is one of the major contributorsto changing the healthcare seeking behaviour of women. Education makes women more knowledgeable about their health-related issues and more aware of obstetric complications and their preventive measures. Reading and writing of the population is the fundamental requirement for the success of any government scheme. One can observe from the table the importance of education that the aggregate percentage of coverage of full ANC is as low as 11.1 per cent among illiterate women, on the other hand, more than fifty per cent of women having higher education received full ANC (Table 5.7).Similar trends are appearing from tehsil Bani and Kathua irrespective of their geographical setting. The percentage of illiterate women having full ANC depicts double in the tehsil Kathua 19.2 per cent which is plain rural area compared to those from the tehsil Bani 8.5 per cent which is mountain area (Table 5.7).

Women working in the agriculture sector received low utilisation of full ANC services compared to those who are engaged in the non-agricultural sector (Table 5.7). The gap between the two categories of the respondents for full ANC utilisation appears larger in the tehsil Bani compare to the Kathua (Table 5.7). The mountain women who engage in the agriculture sector suffer from multiple deprivations and disadvantage compared to those who engaged in the non-agricultural sector, mostly in the service sector.

The aggregate percentage of coverage of full ANC according to women religious affiliation shows that it is 26.7 per cent among Hindu women and slightly higher than who belong to the Muslim religious group, i.e. 23.1 (Table 5.7). However, in tehsil Bani percentage is double among Muslim Women, 24 per cent compared to Hindu women, 12.6 per cent (Table 5.7). In tehsil Kathua percentage of women who received full ANC among Hindu women is higher than Muslim women (Table 5.7). This unlikely result of coverage in geographically two different areas is due to the higher percentage of the tribal population, which belongs to two different religious group. In tehsil, Bani Hindu women show less coverage due to large Gaddi tribal population which belongs to Hindu religious group, and in tehsil, Kathua Gujar tribal women have large proportion in the sample who belongs to Muslim religious group.

The aggregate percentage of utilisation of full ANC according to women caste group shows that the lowest coverage records among ST women in the study area 11.8 per cent, followed by SC group 23.4 per cent and other 35.8 per cent (Table 5.7). The percentage of women belongs to SC group in tehsil Bani received full ANC is just 6.2 per cent and

30.4 per cent in tehsil Kathua (Table 5.7)). In the case of women belonging to the ST group, the percentage of full ANC is 11.1 per cent in the tehsil Bani and 16.7 per cent in Kathua (Table 5.7). Women belong to other than these marginal group reports, 20.5 per cent and 46.8 per cent coverage in tehsil Bani and Kathua, respectively (Table 5.7).

Media exposure of a woman and utilisation of full ANC shows positive association (Table 5.7). Women who have some media exposure received full ANC more likely compared to those who had not. The aggregate percentage shows that the percentage of women who received full ANC is 14.8 per cent for women having no media exposure and 33.1 per cent for having media exposure (Table 5.7) Similar, results for the tehsil Bani (mountainous) and Kathua (Plain) appears from the table 5.7.

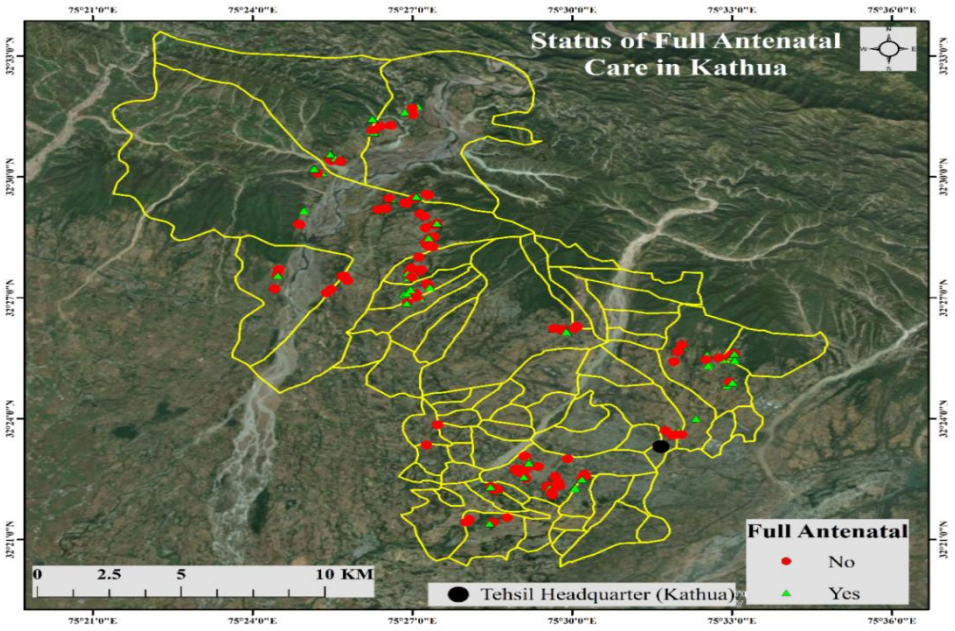
For examining the association between the economic status of women household and full ANC utilisation, women were asked during the field survey whether household possesses Below Poverty Line (BPL) or Above Poverty Line (APL) card. The aggregate percentage for the sample shows that women belong to BPL card household are less likely received full ANC compared to those don't during their last live birth (Table 5.7). A similar pattern appears from the tehsil Bani and Kathua. Less than ten percent of women who belongs to BPL family received full ANC care in the mountains where the cost of seeking health care, including transportation and opportunity cost, is higher compared to the plain area.

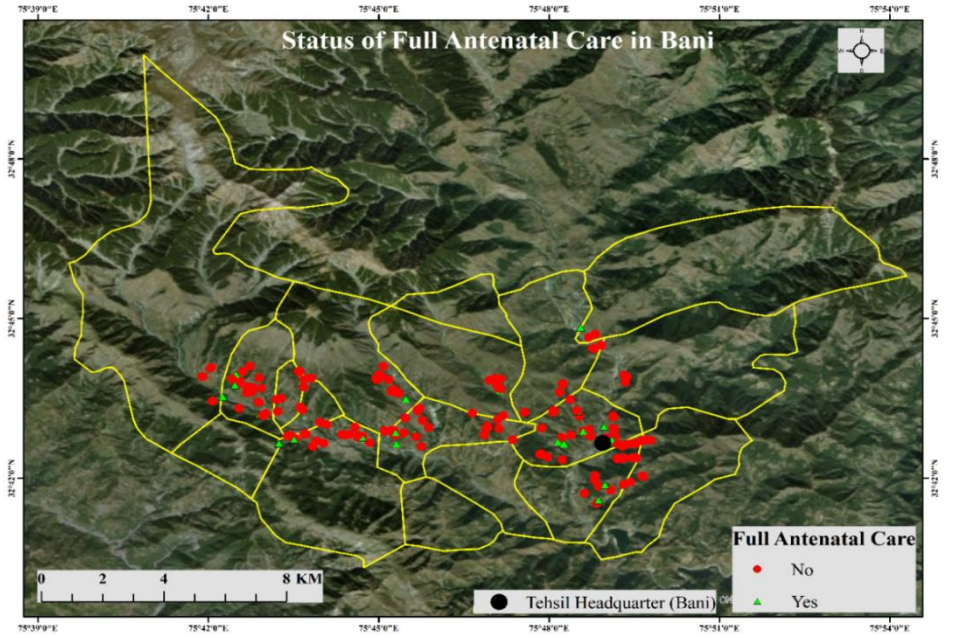
In the concluding lines of this section, it can be said that the coverage of antenatal care services and different essential components in the plain rural area which is tehsil Kathua is better compared to the mountainous region which is tehsil Bani.

5.3.7 Geographical Representation of Full ANC Coverage in Tehsil Kathua and Bani

During the field survey, sampled household coordinates were taken through the Global Positioning System (GPS) device, for understanding the spatial analysis of maternal health care services utilisation in tehsil Bani and Kathua.

Map 5.1 and 5.2





Source: Computed from Primary Field Survey.

Map 5.1 & 5.2 presents the status of full ANC utilisation in Tehsil Kathua and Bani, respectively. Map 5.1 & 5.2 clearly shows the difference between respondents having full ANC and have not full ANC. Although the concentration of red circles appears more due to the very high percentage of respondents, have not received full ANC in both the area. Still, the concentration of the red circles which represents women don't have full ANC appears more in the tehsil Bani compared to the tehsil Kathua.

5.4 Intrapartum Care in Tehsil Kathua and Bani

To reduce the risk of maternal mortality and morbidity the government at the centre and the state level have taken numerous initiative to promote institutional delivery among the masses. The presence of a trained health worker at the time of delivery can prevent unpredictable obstetric complications, which could be fatal to the mother and her child. The task of bringing pregnant women to health facility has been assigned to community health worker ASHA, who is the first point of contact for pregnant women (Roy, et al. 2013). To minimise the financial burden of delivery care government has also introduced schemes like JSY and JSSK.

In our study, it will be attempted to find the role of the topography of the area in determining institutional delivery within a rural area. In hard to reach mountainous states like Jammu and Kashmir supplemented with one of the lowest road density in the country is enough to aggravate already deteriorated the health of women in reaching a health facility.

> ***A respondent from the tehsil Bani****, the month before the delivery date we went to tehsil headquarter near to CHC Bani and had been staying there in the rented room. At the time of delivery, we went to CHC Bani, but doctor refers us to a district hospital, which is more than 100 km away from CHC. They did not provideus with even an ambulance. After arriving DH doctor admitted me for a night and day after that they refer me to SMGS Jammu. After reaching SMGS hospital Jammu, the doctor performed caesarean after 6 hours of delay.*

5.4.1 Place of Delivery in Tehsil Kathua and Bani

Table 5.8 and figure 5.3 below presents the place of delivery in tehsil Kathua and Bani. The aggregate percentage shows that one-third of the respondents delivered their baby at home and two-third at the health facility during their last live birth one-year preceding survey (Table 5.8). A very high percentage of women delivered at home in the tehsil Bani, which is mountain area 59 per cent. On the other hand, in the rural plain area, which is tehsil Kathua records just 9 per cent home delivery (Table 5.8). The meagre percentage of women delivered in the private facility and the percentage is high in the plain area compared to the mountains (Table 5.8). Tehsil Bani characterises with very rugged topography, unequal distribution of health centres, unavailability of the staff at these health centres, high tribal population, low female literacy rate and low economic status of households. On the other hand, in the plain rural area which is tehsil Kathua having better road connectivity to health centres, provisioning of public and private health institutions at the doorstep, better education level among the population might contribute to better coverage of institutional delivery and low home delivery.

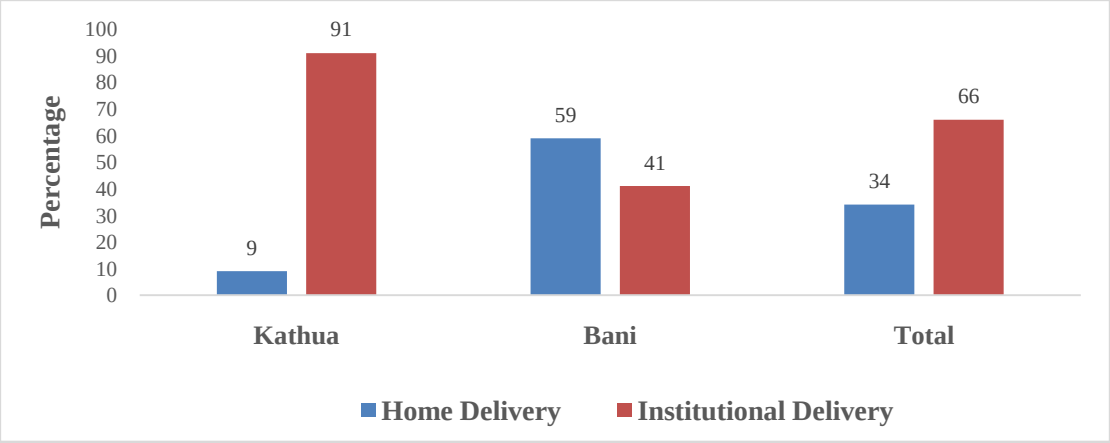
Table 5. 8: The Place of Delivery in Tehsil Kathua and Bani.

Place of Delivery		**Kathua (N=200)**	**Bani (N=200)**	**Total (N=400)**
Home	Frequency	18	118	136
	Percentage	9	59	34
Institutional Delivery	Frequency	182	82	264
	Percentage	91	41	66
Type of Institution				
Public	Frequency	170	81	251
	Percentage	93.4	98.8	95
Private	Frequency	12	1	13
	Percentage	6.6	1.2	5

Source: Primary Field Survey, 2017.

In the mountain area, the respondents said they don't go to the hospital for delivery care or other health-related issues until there is an emergency. Women don't take preventive measures, and they go to the hospital only in case of curative care at the time of emergency.

Figure 5. 3: The Percentage of Home & Institutional Delivery in Tehsil Kathua and Bani.



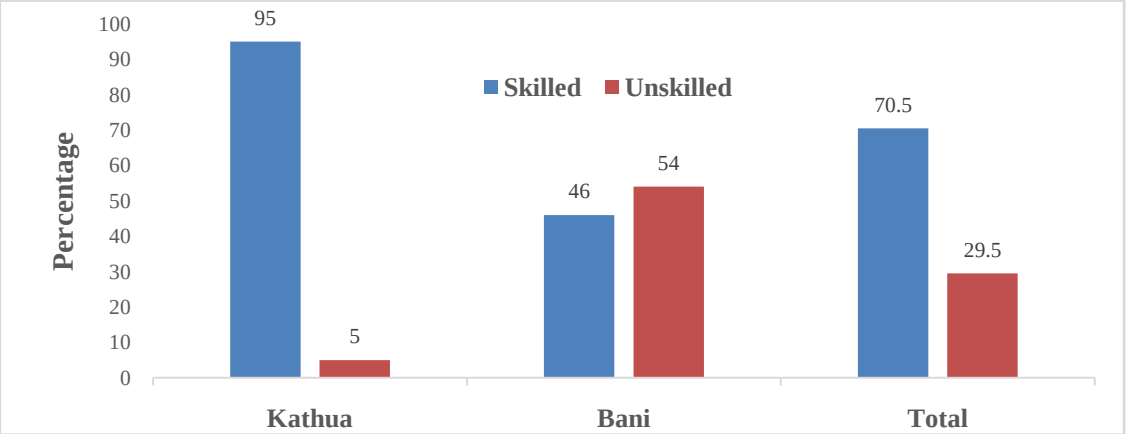
Source: Field Survey, 2017.

"We don't take medicine or go to the hospital until there is an emergency or any health problem. Most of the time, women are busy doing household chores and agriculture in the mountain." ***A respondent from tehsil Bani.***

5.4.2 Assistance during Delivery in Tehsil Kathua and Bani

Figure 5.4 presents the percentage of delivery conducted by skilled (includes Doctor, ANM/Nurse/Midwife, or trained health personnel) and unskilled (includes Dai, friends/relatives, no one etc.) health providers in tehsil Kathua and Bani. The percentage of women assisted by a skilled health provider at the time of delivery in the plain area, which is tehsil Kathua records very high, i.e. 95 per cent (Fig. 5.4). On the other hand, in the mountain area, tehsil Bani the percentage of respondents received assistance from the unskilled provider is higher compared to the skilled provider (Fig. 5.4). The deliveries assisted by unskilled health personnel are considered as unsafe deliveries. Therefore, it appears from figure 5.4 that in the mountain area, unsafe practices of delivery care are very high.

Figure 5. 4: The Percentage of Delivery Conducted by Skilled Provider in Tehsil Kathua and Bani

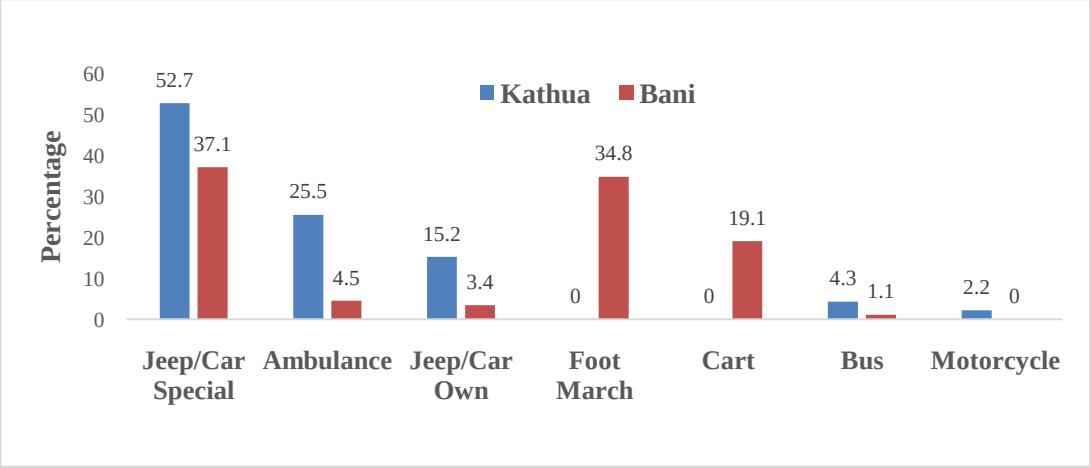


Source: Primary Field Survey, 2017.

5.4.3 Mode of Transportation for Institutional Delivery

Despite the Government provision of transportation mode for pregnant women under the JSSK scheme, the majority of respondents did not use the ambulance for reaching health facility for delivery in the study area (Fig. 5.5). The percentage of women who have gone to institutional delivery by the Government ambulance five times higher in the plain area 25.5 per cent compared to the mountains just 4.5 per cent (Fig. 5.5). More than ninety per cent of the respondents who had delivered in a health facility in the tehsil Bani stated that they went by special car 37.1 per cent, 34.8 per cent by foot march and 19.1 per cent by cart (Fig 5.5).

Figure 5. 5: Mode for Transportation for Institutional Delivery in Tehsil Kathua and Bani



Source: Primary Field Survey, 2017.

5.4.4 Type of Delivery in Tehsil Kathua and Bani

It has found in the secondary data analysis that the large scale of institutional deliveries in Jammu and Kashmir are caesarean section deliveries. More than one-third deliveries in the state conducted through caesarean. According to the most recent NFHS round in case of district Kathua, the percentage of caesarean delivery was 24.1 per cent.Table 5.9 and Figure 5.6 explains the type of delivery, during the field survey, womenwere asked whether their last delivery was normal, caesarean or assisted by the instrument.

The aggregate percentage shows that more than one-fifth of the respondents had caesarean section delivery in the study area (Table 5.9). Two-third stated that they had a normal delivery, and just seven per cent said delivery assisted by an instrument (Table 5.9).

The prevalence of caesarean section delivery in the plain area that is tehsil Kathua surprisingly high and 48 per cent of the respondents had caesarean delivery during their last live birth one-year preceding survey (Table 5.9). On the other hand, in the tehsil, Bani records just 6 per cent of caesarean delivery. It has also found in the previous chapter of this study that the districts having higher institutional delivery also records the high prevalence of caesarean section deliveries. Therefore, it can say that the increasing percentage of institutional deliveries give rise to caesarean section deliveries.

Table 5. 9: Type of Delivery in Tehsil Kathua and Bani.

Type of Delivery		**Kathua (N=200)**	**Bani (N=200)**	**Total (N=400)**
Normal	Frequency	95	179	132
	Percentage	47.5	84.5	66
Caesarean Section	Frequency	96	12	54
	Percentage	48	6	27
Assisted by an Instrument	Frequency	9	19	14
	Percentage	4.5	9.5	7

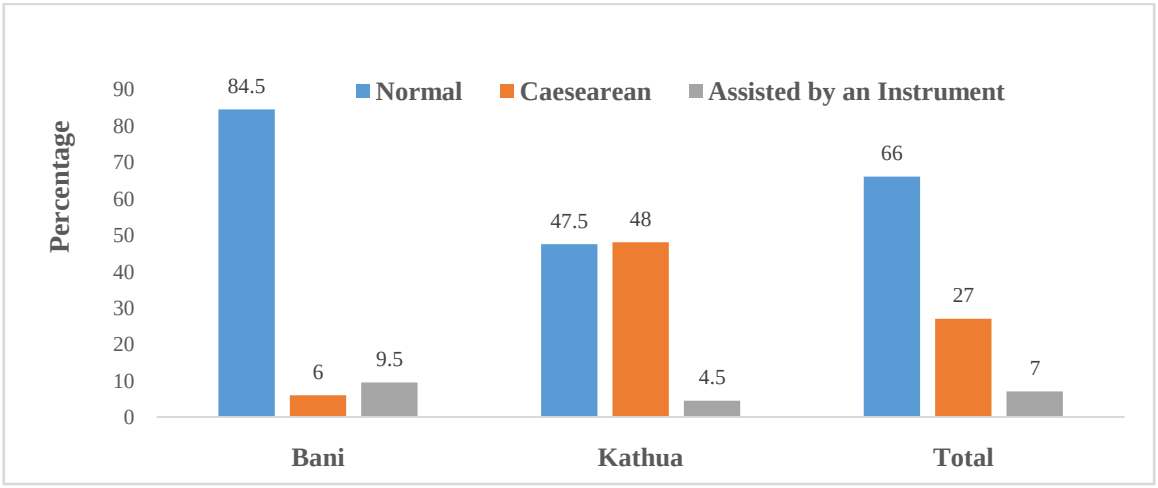
Source: Primary Field Survey, 2017.

Although it is supposed that the caesarean section deliveries prevent maternal mortality and morbidity (Cavallaro, et al. 2013), field experience and observations show a different picture. The majority of the respondents who had gone through caesarean section delivery during their last live birth stated that they have been suffering from a different type of morbidity. Caesarean delivery cost much more than normal delivery and respondents paid a large amount of money to get medicines and frequent visit to the private clinics. During

the field survey, women stated that doctors in the Government hospital prefer caesarean delivery because, after the operation, mothers have to buy more medicines and medical check-ups, which they perform from their private clinics.

> *My operation did not become successful, and we have spent around 30000 rupees after that on medicines and check-ups from private hospitals,* ***a respondent from Kathua.***
>
> *I have gone through operation two-times during the last delivery. We went for delivery to the hospital,and it was caesarean performed by a nurse,not by the doctor. After delivery, we were coming home on the way stitches of operation had opened, and we went again to the hospital to operate. Again there was no doctor nurse operated, and we spent 45 days to recover from illness —* ***a respondent from Kathua.***

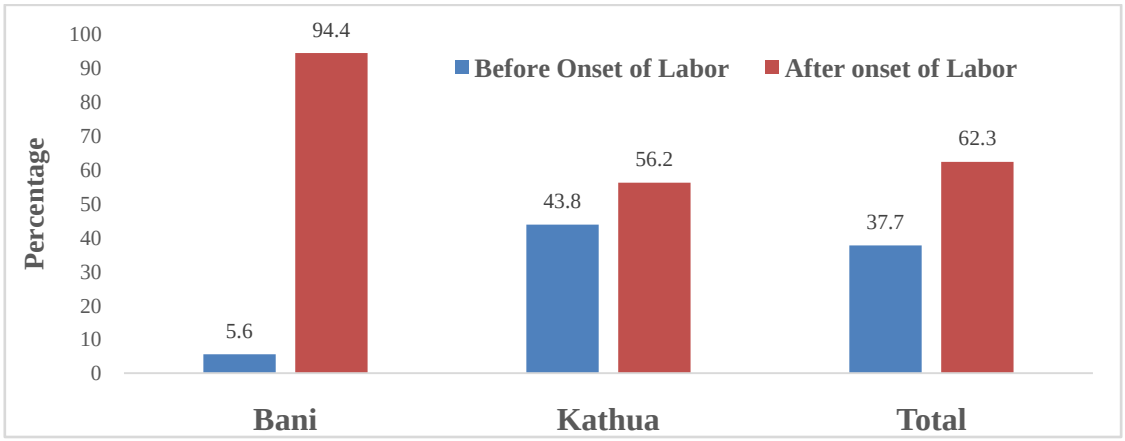
Figure 5. 6: Type of Delivery in Tehsil Kathua and Bani



Source: Primary Field Survey, 2017.

Figure 5.7 presents the percentage of decisions regarding caesarean section delivery. During the field survey, respondents having caesarean delivery were asked about the timing of decision regarding caesarean section. In the plain area which is tehsil, Kathua was very high caesarean rate more than fifty per cent of the respondents said that decision regarding operation had been taken after the onset of labour pain (Fig. 5.7). Very few caesarean cases were found from the mountain areas where the majority of deliveries took place at home. However, more than ninety per cent of women who had caesarean delivery in tehsil Bani stated that decision regarding delivery through operational procedure had taken after the onset of labour pain (Fig. 5.7).

Figure 5. 7: Decision Regarding C-section Delivery



Source: Primary Field Survey, 2017.

5.4.5 Role of Accredited Social Health Activist (ASHA)

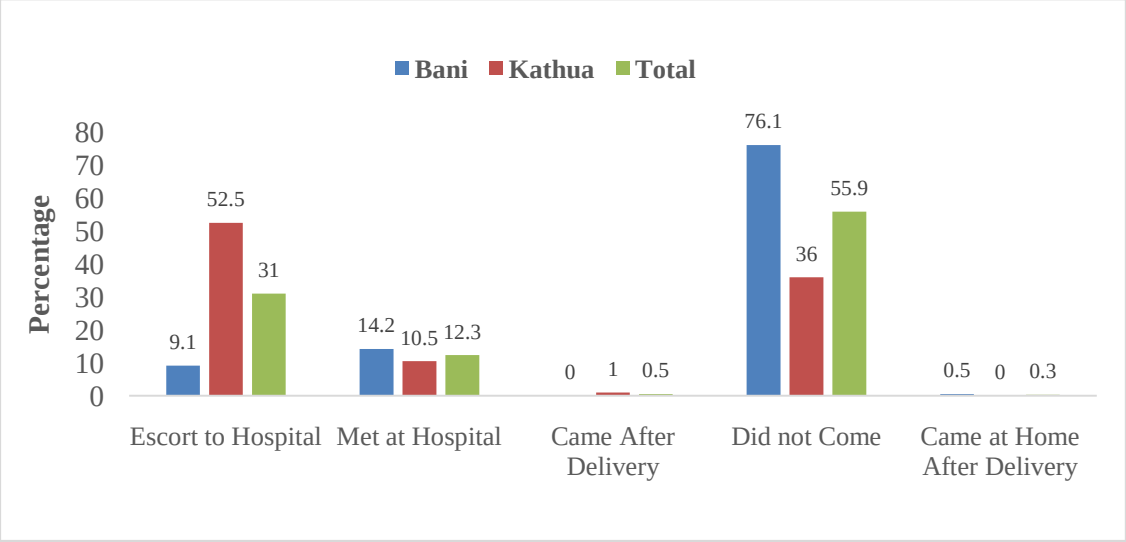
Under the national flagship programme NRHM, the role of ASHA worker is considered as very important to mobilise the community to bring them into the health system. ASHA worker is the first contact of point and a link between the community and health care system. According to the guidelines for ASHA worker counselling on maternal and child, health care issues and bringing them to the health care system is the major objective of ASHA worker.

Figure 5.8explains the presence of community health worker ASHA at the time of delivery. During the field survey, eligible women were asked a question whether ASHA escort them for their last delivery to the hospital or not. Accompanying pregnant women for antenatal, delivery and postnatal care and arranging transport to a health facility at the time of delivery is one of the many tasks which government has assigned to ASHA.

The aggregate percentage shows that more than fifty percent of women who had delivered a baby one-year preceding survey had not met ASHA at any point of delivery (Fig. 5.8). The percentage of respondents escorted by ASHA worker during their last delivery to the hospital is very low in the mountain area which is tehsil Bani just 9.1 per cent compared to the plain area tehsil Kathua 52.5 per cent (Fig 5.8). More than three fourth of the respondents said that ASHA worker did not come at all during their last delivery in the mountain area tehsil Bani (Fig. 5.8). Due to the paucity of road

connectivity in the mountainous area in most of the cases, ASHA met at the hospital to avail the financial benefits under JSY.

Figure 5. 8: The Percentage of Institutional Deliveries Accompanied by ASHA Worker in Tehsil Kathua and Bani



Source: Primary Field Survey, 2017.

5.4.6 Perceptions Regarding ASHA Worker in tehsil Bani

As it has been noticed above that ASHA worker accompanied the meagre percentage of womento the health facility for delivery in the tehsil Bani, which is a mountainous area.

We wanted to go to the hospital for delivery, but it was raining outside. We called ASHA worker, but she did not come, she keeps bad relation with us. We are ignorant people who are not able to understand the intricacies of the government system. ASHA worker had taken money from me when I got the check of 1400 rupees under JSY scheme and had been saying that she had spent money here and there and I have given her 600 rupees. She distributes medicines free for well off people but charge us for medicine. I have received the check of 1400 rupees but still don't get money, whenever I go to the bank for check submission they tell me to come along with ASHA worker. But she is not ready to go with me. I had borrowed money from a neighbour to open an account ***(A Respondent from Tehsil Bani).***

Too many respondents in the mountain areas complained about the ASHA workers that they demand money for services provided by them. For instance, one of the respondents said:

"*ASHA came after delivery at home for taking the card and took 500 money for a reward.*Another one said that "*ASHA worker creates the problem and demanded money for escorting me to the hospital. She demanded 1100, but we gave 500 her****(A Respondent from Bani).***

5.4.7 Safe Delivery According to Women Background Characteristics in Tehsil Kathua and Bani

Safe delivery includes both institutional and home delivery, which was assisted by trained birth attendants. Therefore we will try to understand the coverage of safe delivery across the background characteristics of women in the study area.

Table 5.10 presentthe percentage of women who received safe delivery according to their socio-economic background characteristics in the tehsil Bani and Kathua. Distance and time taken to reach the nearest health centre have been found significant determinants of maternal health care services utilisation in many previous studies. The aggregate percentage for distance to the health centre and having safe delivery shows that women living near to the health centre record better coverage of safe delivery compared to those living away (Table 5.10). Distance to health centre shows similar results in the tehsil Bani and coverage of safe delivery decline with increasing distance to the health centre (Table 5.10).

Although, in tehsil Kathua distance to nearest health centre shows a negative association with the percentage of safe delivery and better coverage recorded among women living away from the health centre compared to those living nearby (Table 5.10). Itmight be due to the better road connectivity to the health centre in the plain rural area, which makes the distance to health centre insignificant for seeking delivery care.

The aggregate percentage for the time taken to reach the health centre and seeking safe delivery shows that 73.4 per cent of respondents received safe delivery who lives within the time of half an hour to the health facility. On the other hand, the percentage of safe delivery is 51.1 per cent for those living more than half an hour away from the health

centre (Table 5.10). Results are not consistent in tehsil Bani coverage of safe delivery is higher among women of the household from where the time taken to reach health facility is more than half an hour (Table 5.10).

Better road connectivity is a significant determinant of seeking safe delivery. The aggregate percentage shows that the percentage of respondents having asphalt road to the health centre is double compared to another category of the road (Table 5.10). Similar results appear from the tehsil Bani and Kathua. Universal coverage of safe delivery recorded among the respondents having asphalt road facility to the nearest health centre in tehsil Bani (Table 5.10).

Distance and time to reach motorable road are one of the major predictors of seeking institutional delivery. In our study area, we found that the utilisation of safe delivery decrease with increasing distance to a motorable road. Time is taken to reach the Motorable road in tehsil Bani shows contradictory results and low coverage of safe delivery recorded among respondents who live near to the Motorable road compared to those living away from the road (Table 5.10). In the mountain area, many health centres are not connected by a Motorable road. Therefore distance to the road does not influence the health care seeking behaviour of women.

It has been found in the literature that the very young and old age women less likely seek maternal health care services compared to the middle age group of women (Birmeta, Dibaba and Woldeyohannes 2013), (Hazarika 2011). However, in our analysis, the aggregate percentage of safe delivery has recorded high among young and old age group of women (Table 5.10). A similar pattern also appears from the tehsil Kathua. However, the percentage of safe delivery decrease with increasing age of women in tehsil Bani (Table 5.10).

Percentage of women having safe delivery for their last live birth preceding one year of the survey was recorded highest among first birth order women in the study area, and it decreases with increasing birth order of women. Universal coverage of safe delivery has recorded among women of first birth order in tehsil Kathua (Table 5.10).The group of women which should be the concern to mobilise more and more for safe delivery by health provider is women of higher birth order in tehsil Bani. Percentage of safe delivery

among three or more birth order women was recorded as low as 28.4 per cent in the mountain area (Table 5.10).

Age at marriage and coverage of safe delivery demonstratesthe difference of twenty percentage point between women who had married before the legal age of 18 years or below 57.4 per cent and 19 years and above group of marriage age of women 77.7 per cent. Coverage of safe delivery was recorded low among women who had married before the legal age of marriage irrespective of their geographical setting of the place of residence. Low coverage of safe delivery has recorded among women who got married until the age of 18 years, compared to those who married later in the study area (Table 5.10). The percentage of respondents who married before at the young age in tehsil Bani records only 40.7 per cent of safe delivery, on the other hand in tehsil Kathua it is 91.1 per cent (Table 5.10). Low age at marriage is also associated with many other socio-economic factors like early drop out of school and women from poor household get married earlier.

Education is one of the major factor influencing healthcare seeking behaviour in any geographical setting. In many previous studies from different part of the world have found that the education level of women enhances their chances of seeking maternal health care service. Table 5.10 illustrates that the percentage of safe delivery increases consistently with the increasing education level of women irrespective of their place of residence. If we look at the aggregate percentage in the table, then we will find there is a huge gap in safe delivery coverage between illiterate and highly educated women (Table 5.10). Percentage of safe delivery among illiterate women is 43.5 percent; on the other hand, women having higher education is 88.2 percent more than double compared to illiterate women (Table 5.10). Less than one-third of illiterate women have reported safe delivery from tehsil Bani is lowest. On the other hand, universal coverage of safe delivery has reported from tehsil Kathua having above middle and higher education (Table 5.10).

Table 5. 10: Percentage of Safe Delivery Care According to Women Background Characteristics in Tehsil Kathua and Bani.

Background Characteristics		Total	Bani	Kathua
Distance to Nearest Health Facility	≤1 km	80.3	50.7	93.8
	>1 km	59.9	44.4	98.1
Time to Nearest Health Facility	≤Half an Hour	73.4	45.9	95.4
	>Half an Hour	51.1	48.8	75.0
Type of road to Health Facility	Asphalt	95.3	100	95.2
	Path or Other	48.3	46	90.9
Dist. to Motrable Road	≤1 km	85.0	49.1	95.3
	>1 km	48.2	44.7	88.9
Time to Motorable Road	≤Half an Hour	78.8	43.5	95.0
	>Half an Hour	49.1	49.1	NA
Age Group	≤24 Years	78.6	65.1	96.8
	25-28 Years	65.5	36.2	92.9
	≥29 Years	67.8	27.0	96.2
Age at Marriage	≤18 Years	57.4	40.7	91.1
	≥19 Years	77.7	51.4	96.1
Birth Order	1	85.1	66.1	100.0
	2	74.5	48.4	94.1
	≥3	47.3	28.4	86.1
Respondent Education	Illiterate	43.5	30.5	84.6
	Middle	76.7	47.1	88.4
	Secondary	80.1	58.3	99.0
	Higher	88.2	64.7	100
Occupation of Respondent	Agricultural Sector	71.5	47	94.8
	Non Agricultural	60.7	42	100
Religion	Hindu	70.5	44.0	95.7
	Muslim/Other	71.8	64.0	85.7
Ethnicity	Scheduled Caste	81.1	53.1	92.4
	Scheduled Tribe	44.1	37.8	91.7
	Other	79.1	53.8	97.2
Media Exposure	No Exposure	48.3	37.6	87.5
	Any Exposure	84.1	59	96.4
Full ANC	Yes	88.6	64.3	97.4
	No	64.4	43.6	93.5
BPL Card	no	77.5	51.2	97.2
	yes	64.8	43.3	92.5

Source: Primary Field Survey, 2017.

The aggregate percentage of safe delivery by the occupation of women illustrate that women working in agriculture sector received safe delivery more likely compared to those who are working in the non-agricultural sector (Table 5.10). The percentage of women received safe delivery working in agricultural sector records higher compared to those working in non-agricultural sector in the tehsil Bani (Table 5.10). Universal

coverage of safe delivery reported from tehsil Kathua among women working in non-agricultural sectors (Table 5.10).

The aggregate Coverage of safe delivery among women belonging to different religious groups expresses that there is slightly high coverage among women who belong to Muslim religious group 71.8 per cent more than women of Hindu religious group 70.5 per cent (Table 5.10). Results are not consistent,andthe percentage is higher amongwomen belongs to Hindu religious group in tehsil Kathua and Muslim in tehsil Bani (Table 5.10). For this contradictory result,the most probable reason should be the proportion of Scheduled Tribes population belongs to the different religious group. In tehsil Bani tribal group Gaddi belongs to Hindu religion constitute a majorportion of the population which can lower down the percentage of safe delivery among Hindu religious group women. On the other hand, in tehsil Kathua coverage is lower among Muslim women may be due to the higher share of the tribal population (Gujjar) belongs to the Muslim religious group.

The aggregate percentage of reporting safe delivery and ethnicity of women display some interesting fact and women who belong to Scheduled Caste group have recorded highest coverage of safe delivery in the study area 81.1 per cent followed by another group 79.1 per cent and Scheduled Tribe 44.1 per cent (Table 5.10). This unusual aggregate high coverage among Scheduled Caste group is due to their majority sample come from tehsil Kathua plain area. More than ninety percent deliveries in tehsil Kathua has been reported safe delivery among all ethnic group (Table 5.10). On the other hand, less than forty percent safe deliveries has reported from tehsil Bani among Scheduled Tribe women. Little more than fifty percent of safe delivery has reported from tehsil Bani among Scheduled Caste and other ethnic groups (Table 5.10).

Media exposure and reporting of safe delivery show positive associations in the study area. Women who have some media exposure are more likely to received safe delivery compared to those who have not any exposure in the study area (Table 5.10). The lowest reporting of safe delivery has recorded among women living in the mountain areas and having no media exposure 37.6 per cent and highest among women having some media exposure from plain area tehsil Kathua 96.4 per cent (Table 5.10).

Improving coverage of ANC care is an effective means for enhancing the coverage of institutional deliveries or delivery assisted by trained health personnel at home (Mishra

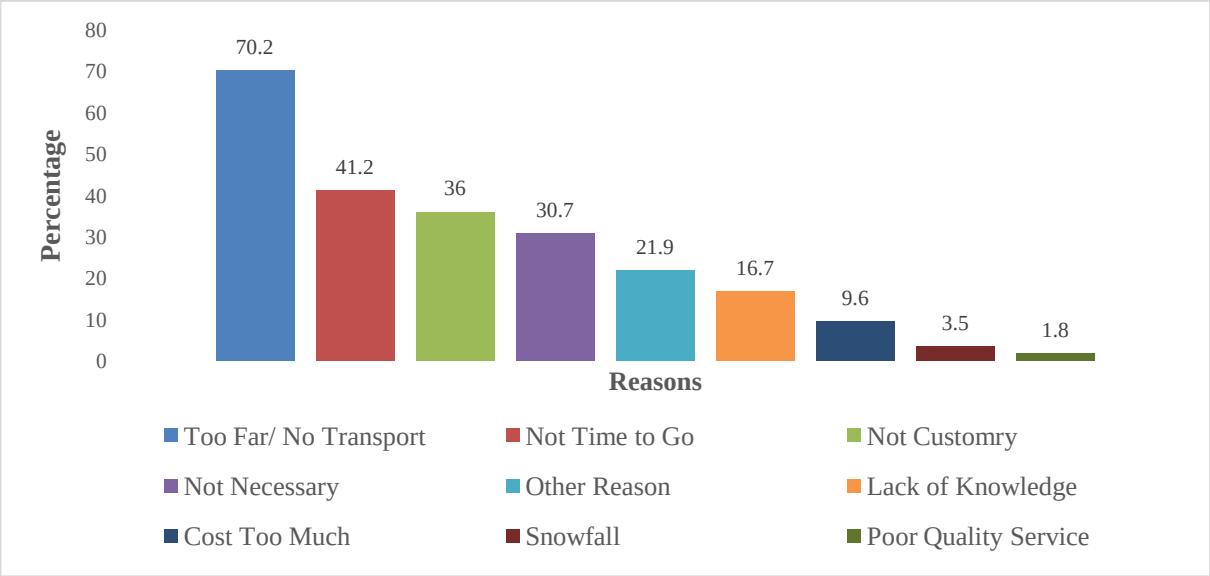
and Retherford 2008). Coverage of safe delivery was recorded higher among women who received full ANC during their last live birth in the study area (Table 5.10).

For capturing a more clear picture of household living standard and utilisation of safe delivery, we were asked women whether a household has BPL card or not. Low coverage of safe delivery was recorded from BPL families in tehsil Bani and Kathua compared to who don't belong to BPL families (Table 5.10).

5.4.8 Reasons for Not Availing Institutional Delivery in Tehsil Kathua and Bani

In the above discussion, it has been found that a very high percentage of women in the mountain area, which is tehsil Bani delivered at home during their last live birth one-year preceding survey. However, in the plain area, which is tehsil, Kathua recorded low percentage of non-institutional deliveries. Figure 5.9 & 5.10 presents the reasons for not availing institutional delivery in tehsil Bani and Kathua, respectively.

Figure 5. 9: Reasons for not Availing Institutional Delivery in Tehsil Bani



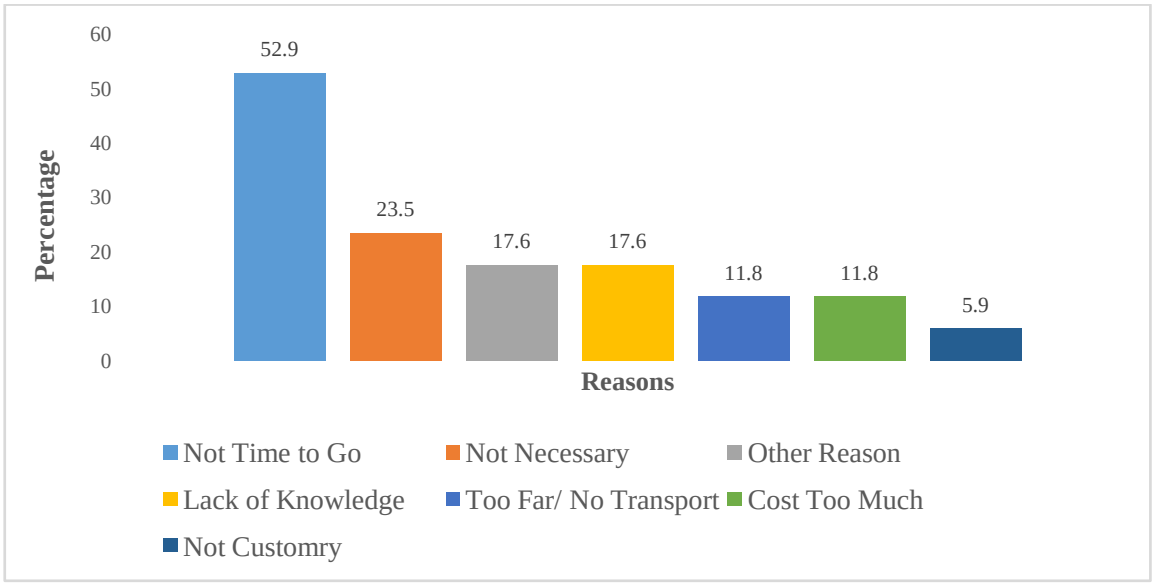
Source: Primary Field Survey, 2017.

During the field survey, women were asked about the reasons for not availing institutional delivery. Too far/no transport is the major reason in the mountain area for not availing institutional delivery, followed by not time to go, not customary, not necessary and other reason in tehsil Bani (Fig. 5.9). Tehsil Bani covered with snow during the winter seasons, and it becomes almost impossible for women to get institutional delivery by travelling for

long distance to reach the health centre. The percentage of women did not avail institutional delivery due to snowfall is 3.5 per cent in tehsil Bani (Fig 5.10).

Figure 5.10 explains the reason for not availing institutional delivery in tehsil Kathua by women during their last live birth one-year preceding survey. Although, few women from tehsil Kathua reported non-institutional delivery. The percentage of respondents stated different reasons for non-institutional delivery are 52.9 per cent said did not time to go, followed by 23.5 per cent said not necessary, and 17.6 per cent said other reason for non-institutional delivery (Fig. 5.10).

Figure 5. 10: Reasons for not Availing Institutional Delivery in Tehsil Kathua



Source: Primary Field Survey, 2017.

5.4.9 Statements of the Respondents for Not Availing Institutional Delivery in Tehsil Bani (Mountain Area):

"There was Snowfall outside, and it was not possible to reach a health facility."

"Ashamed to go tothe hospital for delivery."

"*We went for institutional delivery to CHC Ban, but doctor said that delivery date yet to come and said to go back. But after reaching home from hospital labour pain started and I delivered at home after 10 minutes reaching home*."

"My delivery was conduct by peon after the doctor left the hospital."

"At the time of delivery I was in our summer pasture, and there is no health facility, and I delivered at home."

"Labor pain had started before 8 to 10 days of the mentioned delivery date, and we were not able to go health facility, because of non-availability of road transportation and long-distance to the health facility. We have planned to go tothe health centre for delivery on the delivery date."

"Doctor said, don't come to the hospital for delivery if it will not requirean emergency."

"I went to the hospital for delivery after four days of the delivery date. It didn't happen and came back home and delivered at home."

"In our area, we go for institutional delivery if it is an emergency; otherwise, most of the cases we deliver at home."

"I went to the hospital for delivery when the pain started. But the doctor gave me an injection of a pain killer and said to go back it is not labour pain. After reaching home,the pain started again, and I delivered it at home."

"Doctor said you could deliver at home because your foetus is normal."

"We thought where we would live if it does not happen. Staying is another problem."

"We worship our deity, and they save us from any problem."

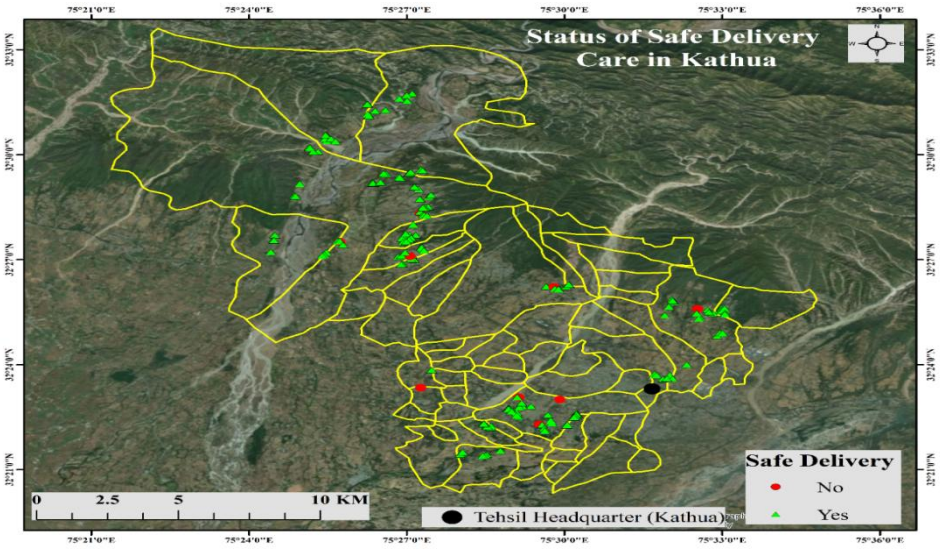
"We did not go to the hospital because we will not get any benefit; it was our fifth child."

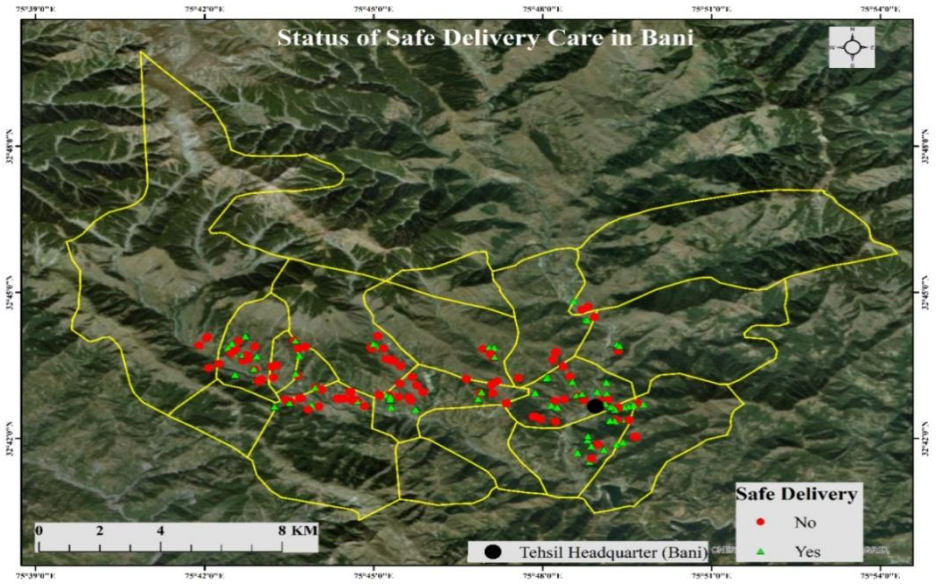
"At the time of delivery, I was alone at home, and labour pain has started. My husband was in Uttar Pradesh (migrated labour), so there is no health facility nearby for delivery."

5.4.10 Geographical Representation of Safe Delivery Coverage in Tehsil Kathua and Bani

Map 5.3 & 5.4 explain the prevalence status of safe delivery in the two geographically distinctive rural regions. In the map, red circles depict that women did not receive safe delivery and green triangle depicts women received safe delivery during their last live birth in the tehsil Kathua (Plain area) and Bani (Mountain area). Maps show the clear difference of coverage of safe delivery in tehsil Kathua and Bani.

Map 5.3 and Map 5.4





Source: Primary Field Survey, 2017.

5.5 Post Natal Care in Tehsil Kathua and Bani

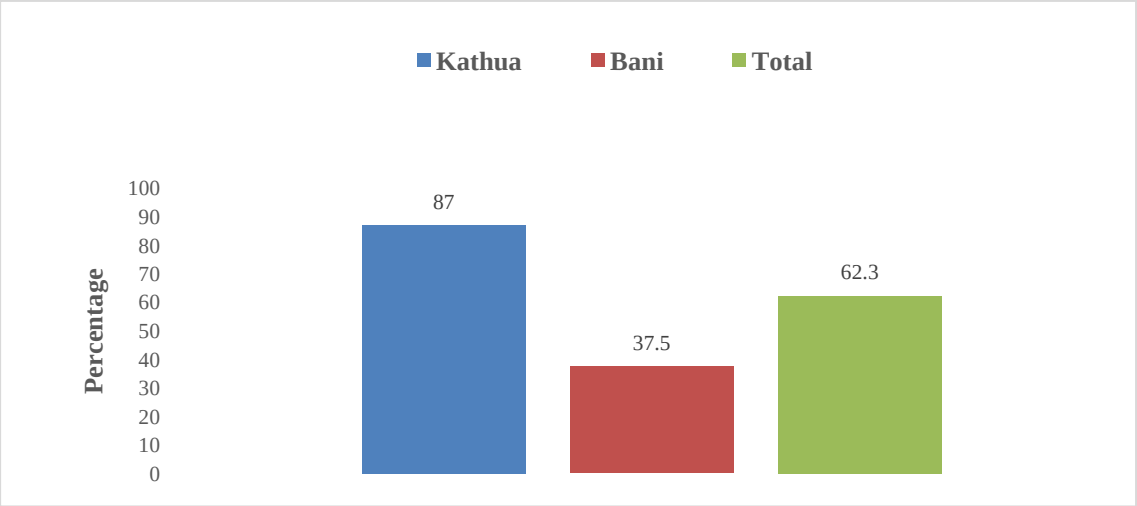
Conventionally, the first six weeks after delivery are considered the post-partum period. The first 48 hours of the post-partum period, followed by the first week, are the most crucial period for the health and survival of the mother and her newborn baby. Most of the fatal and near-fatal maternal complications occur during this time. Evidence has shown that more than sixty percent of maternal deaths take place during this time (GOI 2010).

Table 5. 11: Percentage of Women Received Postnatal Check-up in Tehsil Kathua and Bani.

Name of Tehsil		No	Yes	Total
Bani	Frequency	125	75	200
	Percentage	62.5	37.5	100
Kathua	Frequency	26	174	200
	Percentage	13	87	100
Total	Frequency	151	249	400
	Percentage	37.8	62.3	100

Source: Primary Field Survey, 2017.

Figure 5. 11: The Percentage of Postnatal Check-up in Tehsil Kathua and Bani



Source: Primary Field Survey, 2017.

Table 5.11 and Figure 5.11 presents the percentage of respondents who have received postnatal check-up after delivery in the tehsil Kathua and Bani during their last delivery one-year preceding survey. The aggregate percentage shows that more than sixty per cent of respondents has received a postnatal check-up. The percentage of postnatal check-up after delivery recorded more than two times higher in tehsil Kathua 87 per cent compared to the tehsil Bani 37.5 per cent (Table 5.11 & Fig. 5.11).

5.5.1 Postnatal Check-up According to Women Background Characteristics in Tehsil Kathua and Bani

Post-natal care is one of the neglected areas of maternal health care services utilisation. Distance to the nearest health centre has a significant influence on seeking post-natal care in tehsil Kathua and Bani. In total, more than three fourth of women have received postnatal check-up within two days after delivery where distance less than 1 km to the health facility. On the other hand, less than fifty percent of women have received post-natal check-up within two days after delivery, where the distance to the nearest health facility is more than 1 km. Time is taken to reach the nearest health facility also showing similar result and utilisation of postnatal care was recorded less among women of the household from where the time taken to reach health facility is more than half an hour.

The road to health centre shows significant influence on going to postnatal check-up in total, tehsil Bani and Kathua. The very high percentage of women from the household which are connected to the health facility by asphalt road has recorded in the study area. Distance to motorable road displays some inconsistent result in the study area, therefore in tehsil Bani coverage of postnatal check-up increase with increasing distance to a motorable road. In this mountainous region, most of the health facilities are not connected by a motorable road, so the distance to the motorable road has no significant influence. On the other hand, in tehsil Kathua coverage of postnatal check-up decrease with increasing distance to motorable road, where every household and health facility connected to the motorable road (Table 5.12).

Time is taken to reach Motorable road show significant result and coverage of post-natal check-up was recorded higher in the area near to motorable road within half an hour compared to the area from where the time taken to reach motorable road is more than half an hour. In tehsil, Bani result is not consistent to total figure, and here time taken to the motorable road has no significant influence. In tehsil Kathua no household found from where the time taken to reach motorable road is more than half an hour.

Age of women is not showing any significant pattern in the utilisation of postnatal check-up within two days after delivery. Highest coverage of postnatal care has reported among women of 29 and above years of age group followed by ≤24 year's age group, lowest recorded among 25-28 years of age group. In tehsil Bani highest coverage has been

recorded among the youngest age group; on the other hand, oldest age group women have reported the highest coverage of postnatal care within two days in tehsil Kathua (Table 5.12).

Although birth order of women is a significant factor influencing health-seeking behaviour of women in the study area, the percentage of women had postnatal check-up decrease with increasing birth order. The highest percentage has been recorded among first birth order women 73.8 per cent, followed by second and third plus birth order, i.e. 69.1 per cent and 38.2 per cent respectively (Table 5.12). A similar pattern has observed in mountainous tehsil Bani and plain rural area tehsil Kathua percentage of postnatal check-up decrease with increasing birth order of women. The lowest percentage of the postnatal check-up records among the higher birth order women of the mountain area, which is tehsil Bani (Table 5.12).

Result for age at marriage and utilisation of postnatal check-up shows significant association and women who had married before the legal age of marriage reported less coverage of postnatal check-up within two days. There is a huge gap of coverage between two groups of women had married before and after the legal marriage age, for female, i.e. 44.1 per cent and 71.6 per cent respectively. A similar result appears from tehsil Bani and Kathua. The lowest percentage of postnatal check-up according to women age at marriage records among women who lives in the mountain setting, and it is just 29.7 per cent of women received postnatal check-up during their last live birth one-year preceding survey (Table 5.12).

Education as usual here also one of the major factor influencing utilisation of post-natal check-up. Coverage of postnatal check-up has a positive relationship with the education of women. Little more than one-third illiterate women have received a postnatal check-up, and it increases with the education level of women and recorded highest more than eighty per cent among highly educated women in the study area (Table 5.12). Lowest coverage recorded among illiterate women from tehsil Bani that is little more than one fifth 22.0 per cent, on the other hand, highest coverage was recorded among women having higher education belong to tehsil Kathua, i.e., 91.2 per cent (Table 5.12).

Generally, women working in the non-agricultural sector received maternal health care services better compared to those who work in the agricultural sector. But in tehsil Bani

high percentage of postnatal check-up record among women working in agricultural sectors 38.1 per cent compared to those who are working in the non-agricultural sector, i.e. 31.6 per cent (Table 5.12). However, universal coverage of postnatal check-up has recorded among women working in non-agricultural sector in the plain area of tehsil Kathua (Table 5.12).

If we look at the coverage of postnatal check-up within two days following delivery among women belong to two major religious groups in the study area, then we will find that percentage is little higher among women belongs to Hindu religious group 62.4 per cent compared to who belongs to the Muslim community 59.0 per cent (Table 5.12). A similar pattern of utilisation of post-natal check-up has recorded like full ANC and safe delivery in tehsil Bani and Kathua. Coverage of postnatal check-up among Hindu religious group women has recorded low in tehsil Bani and high in tehsil Kathua compared to a Muslim group. This contradictory results could be the consequence of a large tribal population which belongs to two different religious groups.

If we look at the coverage of postnatal check-up according to women ethnicity, then we will find that the lowest coverage has recorded among Scheduled Tribe women followed by Scheduled Caste and another ethnicity (Table 5.12). A similar pattern appears for tehsil Bani and Kathua separately (Table 5.12).

Media exposure also shows a positive association with the use of postnatal check-up in both the settings, i.e., tehsil Bani (mountain) and tehsil Kathua (plain). The percentage ranged from the lowest among women having no media exposure living in the mountain area 28.2 per cent to the highest 89.3 per cent among women having media exposure and living in the tehsil Kathua plain area (Table 5.12).

Table 5. 12: Percentage of Postnatal Care According to Women Background Characteristics in Tehsil Kathua and Bani.

Background Characteristics		Total	Bani	Kathua
Distance to Nearest Health Facility	≤1 km	76.5	44.8	91.1
	>1 km	46.0	33.8	75.9
Time to Nearest Health Facility	Half an Hour	65.7	38.2	87.8
	>Half an Hour	36.2	34.9	50.0
Type of road to Health Facility	Asphalt	89.0	100.0	88.9
	Path/Other	37.8	36.9	54.5
Dist. to Motor able Road	≤1 km	78.0	40.0	89.0
	>1 km	37.0	36.6	44.4
Time to Motorable Road	≤Half an Hour	70.2	33.7	87.0
	>Half an Hour	40.7	40.7	NA
Age	≤24 Years	64.8	49.4	85.5
	25-28 Years	58.2	28.7	85.9
	≥29 Years	65.6	29.7	90.6
Birth Order	1	73.8	54.8	88.6
	2	69.1	35.9	94.1
	≥3	38.2	24.3	66.7
Age at Marriage	≤18 Year	44.1	29.7	73.3
	≥19 Year	71.6	44.0	91.0
Education	Illiterate	34.3	22.0	73.1
	Middle	68.3	35.3	81.4
	Secondary	71.8	48.8	91.8
	Higher	80.4	58.8	91.2
Occupation of Respondent	Agricultural Sector	62.9	38.1	86.4
	Non-Agricultural Sector	53.6	31.6	100
Religion	Hindu	62.4	36.0	87.5
	Muslim/ Other	59.0	48.0	78.6
Ethnicity	Scheduled Caste	70.3	34.4	84.8
	Scheduled Tribe	35.3	31.1	66.7
	Other	72.2	46.2	90.8
Media Exposure	No Exposure	38.3	28.2	75
	Any Exposure	76.5	50.6	89.3
Full ANC	Yes	80.0	53.6	89.6
	No	55.9	34.9	85.4
Safe Delivery	Yes	85.9	77.4	90.0
	No	5.1	2.8	30.0
BPL Holder	No	70.1	43.8	89.7
	Yes	55.4	33.3	83.9

Source: Primary Field Survey, 2017.

Full ANC and safe delivery are two factors which are positively related to seeking postnatal care within two days. Percentage of women who had received full ANC during last pregnancy received post-natal check-up within 48 hours is 80 per cent compared to who had not received full ANC is 55.9 per cent in the study area (Table 5.12). We can observe similar result from tehsil Bani and Kathua, where also coverage of postnatal check-up is higher among women who had received full ANC compared to those who did

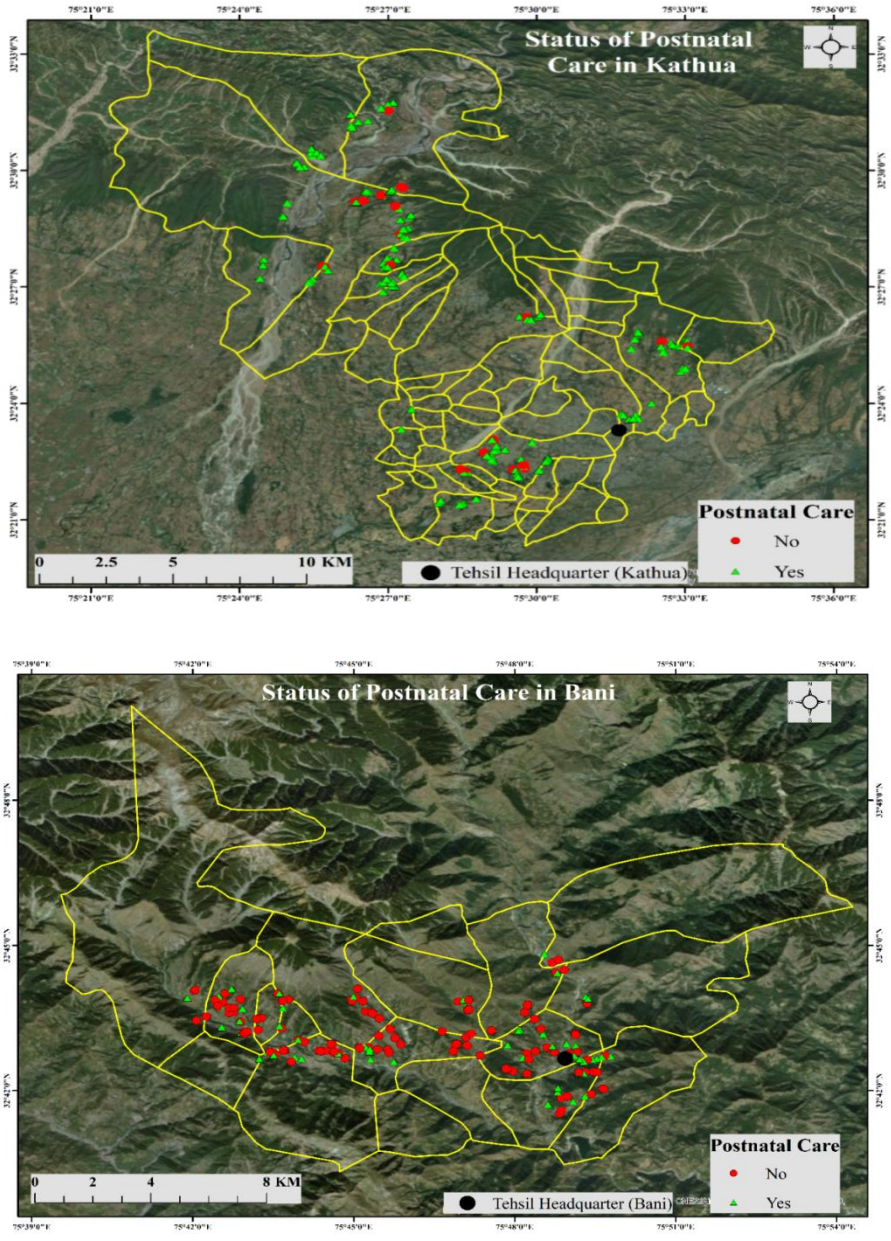
not receive full ANC during their last live birth (Table 5.12). The very low aggregate percentage of postnatal check-up within two days after delivery has recorded among women having not safe delivery in the study area, i.e. 5.1 per cent (Table 5.12). Coverage of postnatal check-up is as low as 2.8 per cent in tehsil Bani who had not received safe delivery during their last live birth one-year preceding survey (Table 5.12).

Low coverage of postnatal check-up within two days has reported among women from BPL family, and it is as low as just 33.3 per cent in tehsil Bani. On the other hand, in tehsil Kathua, the percentage of postnatal check-up among respondents belong to BPL household is 83.9 per cent (Table 5.12).

5.5.2 Geographical Representation of Postnatal Check-up Coverage in Tehsil Kathua and Bani

The maps below depict whether women had received postnatal check-up after delivery in the study areas or not. As we have seen in the case of full antenatal care and safe delivery, the prevalence of postnatal check-up after delivery observed better in the plain rural areas compared to the mountainous rural areas in the study area.

Map 5.5 and Map 5.6



Source: Primary Field Survey, 2017.

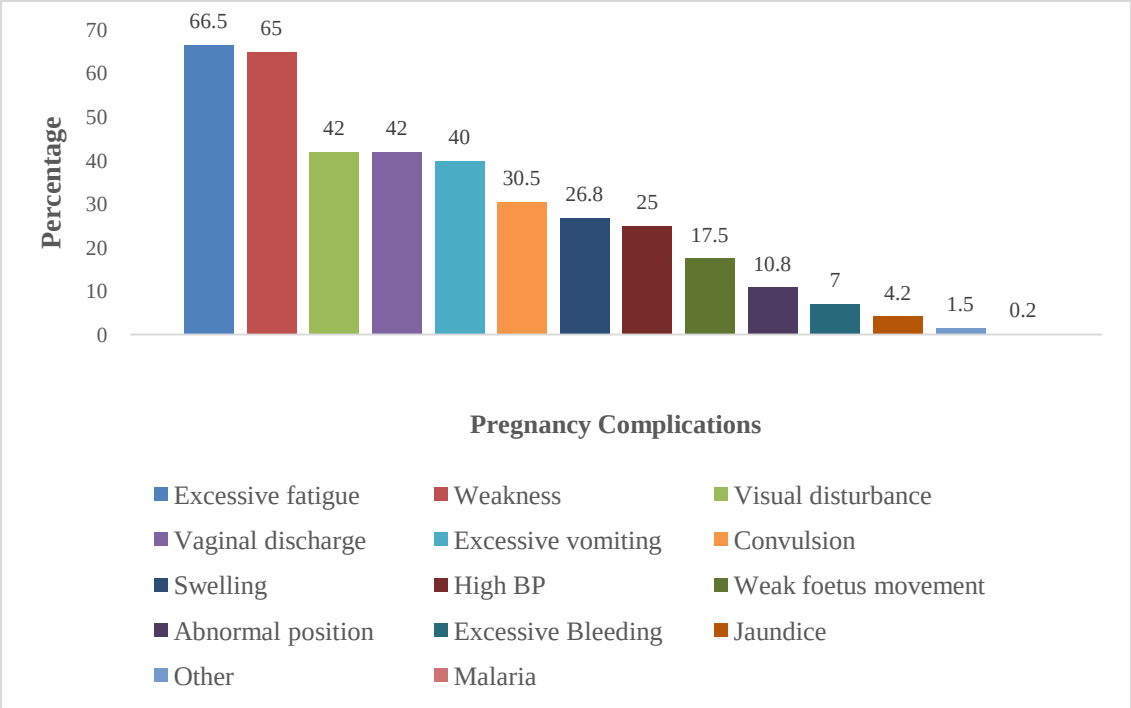
5.6 Prevalence of Obstetric Morbidity in Tehsil Kathua and Bani

A standard definition for maternal morbidity does not exist, nor does the literature report maternal morbidity systematically in a commonly agreed-upon approach (Chou, et al. 2016). In 2011, the World Health Organization (WHO) introduced a common definition and identification criteria for very severe cases of maternal morbidity (maternal near-miss) allowing its routine measurement and monitoring, especially as a tool for assessment of the quality of care women with severe morbidity receive (WHO 2011). Maternal deaths account for only the tip of the iceberg of the overall burden of poor maternal health issues. Maternal morbidity refers to the health complications borne by women during pregnancy, delivery and the postpartum period contribute to this burden although the true extent of maternal morbidity is unknown (Chou, et al. 2016).To understand the status of maternal health in the study area. Women were asked about the prevalence of maternal morbidity during pregnancy, delivery and the postpartum period during their last live birth one-year preceding survey.

5.6.1 Prevalence of Pregnancy Complications in Tehsil Kathua and Bani

Figure 5.12 clarifies the percentage of women suffered from different sort of pregnancy complications in two different sorts of geographical setting in the study area. First, we will see the overall prevalence of pregnancy complications in the study area and then we will try to understand the variation between geographically two distinct study areas. Two third of women have reported they had suffered from excessive fatigue 66.5 and weakness 65.0 in the study area (Fig. 5.12). Visual disturbance during pregnancy has also reported by more than forty percent of women, followed by excessive vomiting 40 per cent, Convulsion 30.5 per cent, swelling of the hand, legs and face more than one fourth (Fig 5.12). Besides, one-fourthof women have reported high blood pressure 25.0 per cent, weak foetus movement 17.5 per cent and abnormal position 10.8 per cent. Percentage of women suffered from excessive bleeding during is 7.0 per cent, and jaundice 4.2 per cent (Fig 1.12).

Figure 5. 12: The Aggregate Percentage of Respondents Experienced Pregnancy Complications in the Study Area



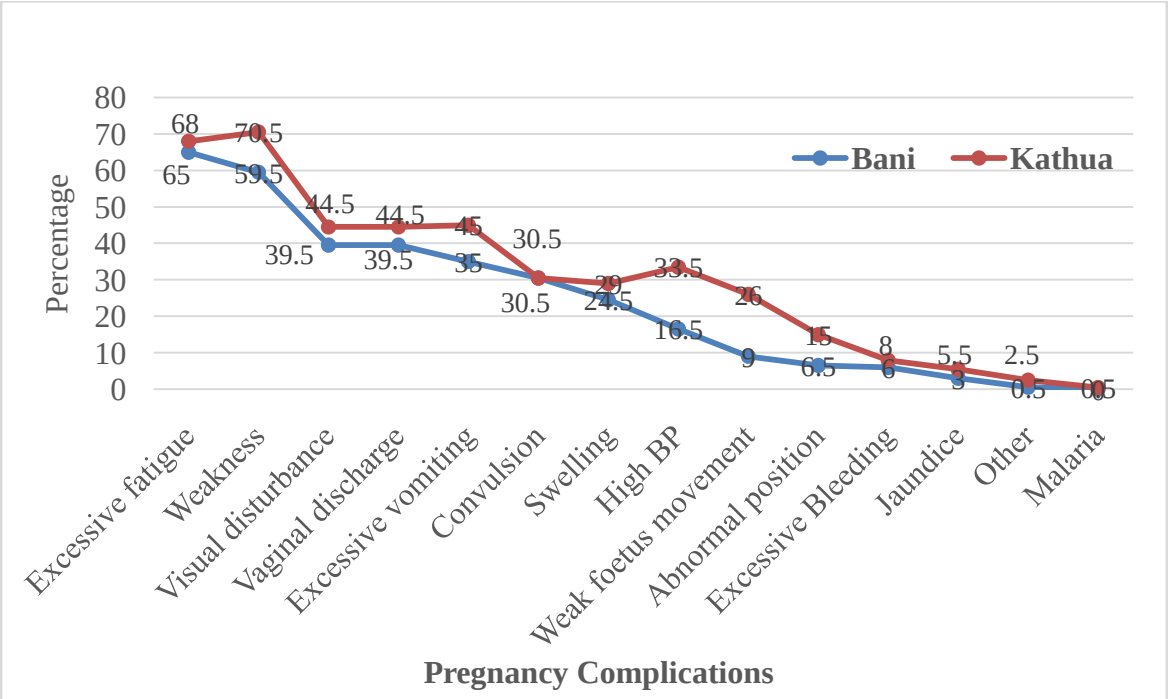
Source: Primary Field Survey, 2017.

Figure 5.13 elucidates, the prevalence of pregnancy complication during their last live birth one-yearpreceding survey, in tehsil Bani (mountainous) and Kathua (plain). The figure confirms the prevalence of pregnancy complications have recorded more in plain tehsil Kathua compared to the mountain tehsil Bani. More than two-thirds of women have suffered from weakness of 70.5 per cent and excessive fatigue 68 per cent in tehsil Kathua (Fig 5.13). Other major pregnancy complications which women have reported are visual disturbance 44.5 per cent, vaginal discharge 44.5 per cent, excessive vomiting 45 per cent and high blood pressure 33.5 per cent (Fig. 5.13). Besides this women suffer from Conclusion 30.5 per cent, swelling of the hand, feet and face 29 per cent, weak foetus movement 15 per cent, abnormal position 15 per cent, excessive bleeding 8 per cent, jaundice 5.5 per cent, and other 0.5 per cent (Fig. 5.13).

On the other hand, in tehsil Bani status of maternal health appears better. Percentage of women who experienced pregnancy complications during their last live birth have recorded low. However, a similar pattern of the percentage appears, and excessive fatigue has experienced by 65 per cent of respondents, weakness 59.5 per cent, visual disturbance 39.5 per cent, vaginal discharge 39.5 per cent and excessive vomiting 35 per cent

recorded the major complications during pregnancy (Fig. 5.13). Percentage of women suffer from high blood pressure in tehsil bani is 16.5 per cent (Fig. 5.13).

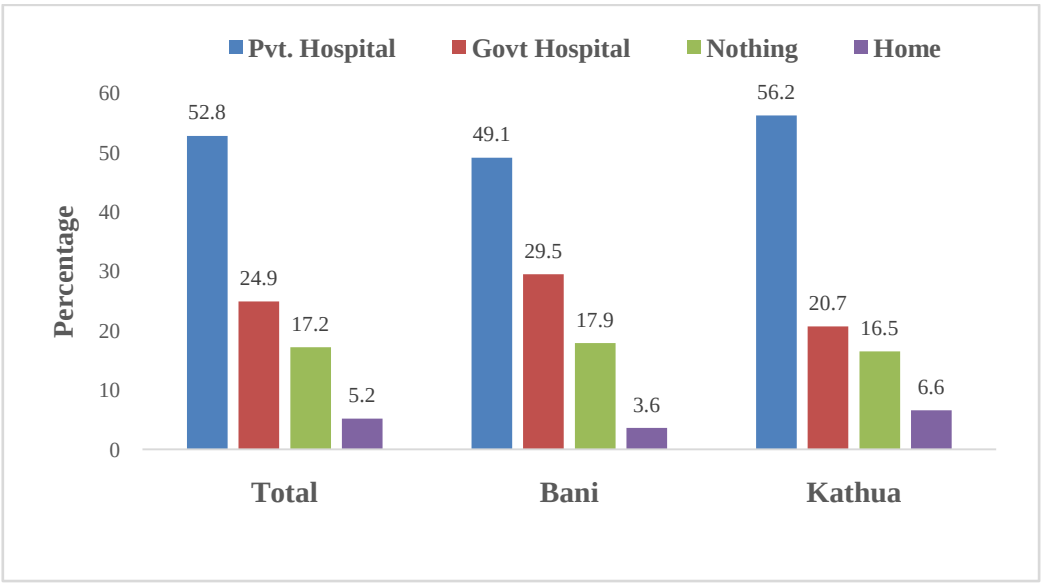
Figure 5. 13: Prevalence of Pregnancy Complications in Tehsil Kathua and Bani



Source: Primary Field Survey, 2017.

Figure 5.14 gives details the percentage of women treatment sought for pregnancy complications from a private hospital, public hospital, from nowhere and at home. More than fifty percent of women who have suffered from pregnancy complications in the study area had sought treatment from a private health facility.

Figure 5. 14: Place of Treatment for Pregnancy Complications in Tehsil Kathua and Bani



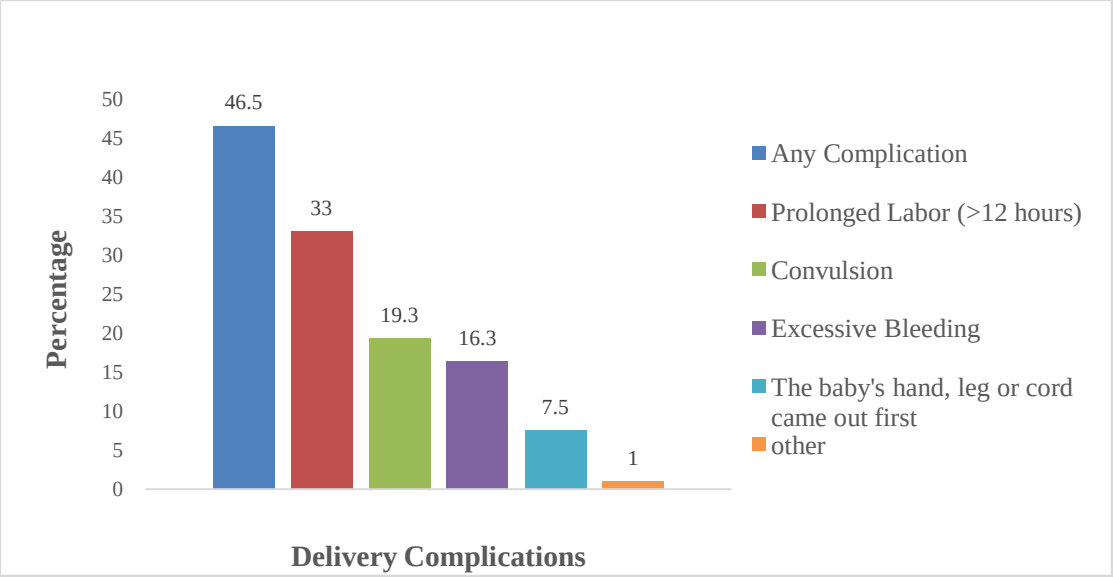
Source: Primary Field Survey, 2017.

One fourth sought from a government hospital, one-sixth did nothing, and 5.2 per cent have sought treatment at home. The percentage of women who seek treatment from the private hospital for pregnancy complications in Bani is 49.1 per cent, followed by the government hospital 29.5 per cent, did nothing 17.9 per cent and received at home 3.6 per cent (Fig. 5.14). The percentage of women go to the private hospital for treatment increase in Kathua to 56.2 per cent and lower down to 20.7 per cent to the government hospital, 16.5 per cent did nothing, and 6.6 per cent have sought treatment at home (Fig. 5.14).

5.6.2 Prevalence of Delivery Complications in Tehsil Kathua and Bani

Complications at the time of delivery could be lethal for mother and her new-born. During the fieldsurvey, women were asked about whether they had suffered from any complications at the time of delivery or not. Figure 5.15explains the percentage of women suffered from delivery complications during their last live birth in the study area. A very high percentage of women have suffered from delivery complications of 46.5 per cent. One-third of women in the study area have suffered from prolonged labour (> 12 hours), one fifth with convulsion, one-sixth with excessive bleeding, 7.5 per cent with breech presentation (the baby's hand, leg or cord came out first) and one percent from other delivery complications (Fig. 5.15).

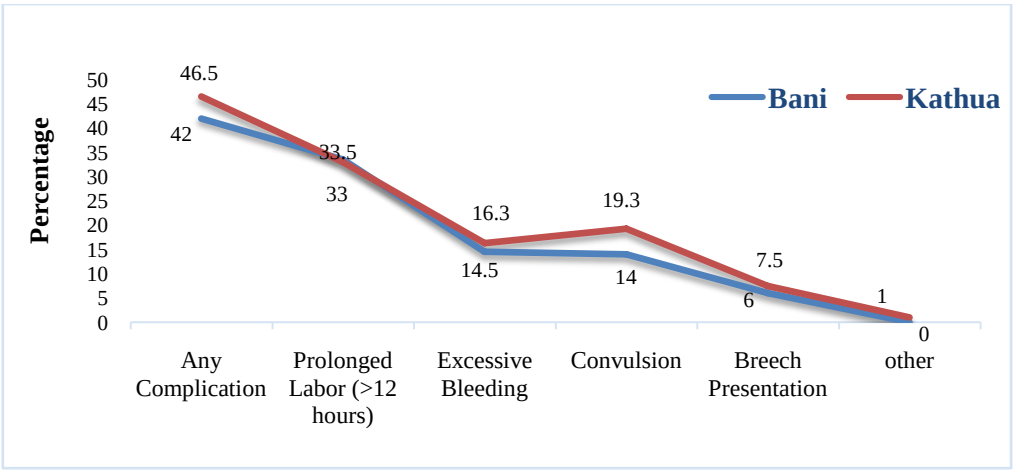
Figure 5. 15: Aggregate Percentage of Delivery Complications in the Study Area



Source: Primary Field Survey, 2017.

Percentage of women suffering from delivery complication is recorded little more in tehsil Kathua compared to tehsil Bani (Fig. 5.16). In both, the areas prolonged delivery is reported the major delivery complication by women. Excessive bleeding 14.5 is the second major problem in Bani (mountainous), followed by convulsion 14 per cent, and Breech Presentation 6 per cent (Table 5.16). On the other hand, in Kathua convulsion 19.3 per cent is recorded as the second major delivery complication followed by excessive bleeding 16.3 per cent, and breech presentation 7.5 per cent and another one per cent (Fig. 5.16).

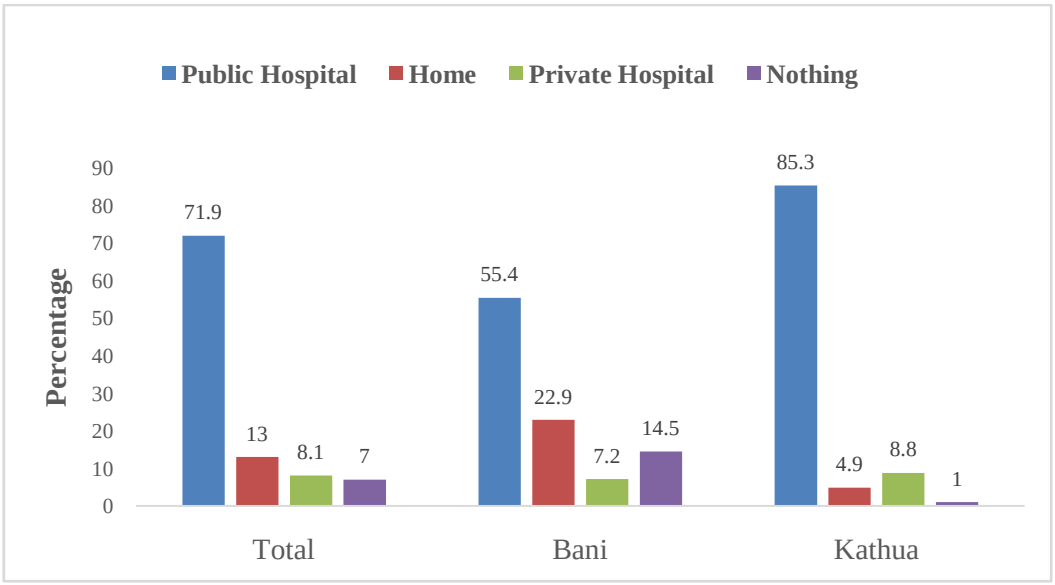
Figure 5. 16: Prevalence of Delivery Complications in Tehsil Kathua and Bani



Source: Primary Field Survey, 2017.

Figure 5.17 elucidates, the place of treatment sought for delivery complications. Government health facility is the major source for seeking treatment for delivery complication in the study area. More than seventy percent of women have sought treatment from a public health facility, followed by at home 13 per cent, a private health facility 8.1 per cent and 7 per cent of women did not seek any treatment for delivery complications (Fig 5.17). The figure further explains, place of treatment for delivery complications in tehsil Bani and Kathua. Public health sector facility is the major source of treatment in both areas. However, the percentage of women who have sought treatment from the government hospital is thirty percentage point higher in tehsil Kathua 85.3 per cent compared to tehsil Bani 55.4 per cent (Fig. 5.17).

Figure 5. 17: Place of Treatment for Delivery Complications in Tehsil Kathua and Bani



Source: Primary Field Survey, 2017.

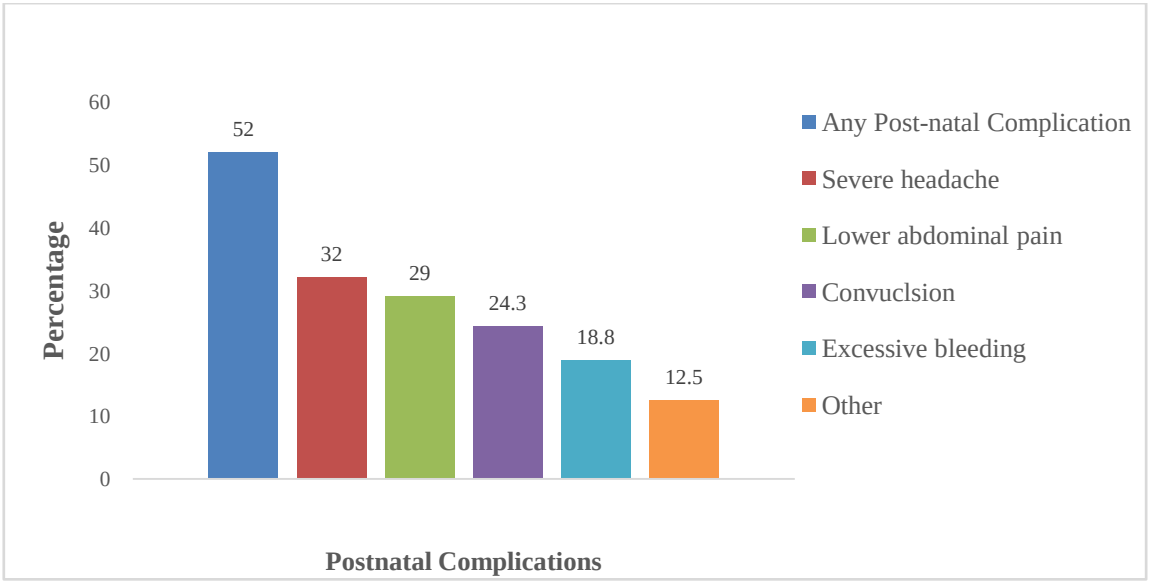
More than one-fifth of women in Bani have sought treatment for delivery complications at home 22.9 per cent, whereas it is 4.9 per cent in tehsil Kathua. The percentage of women who have sought treatment from the private hospital is 7.2 per cent in Bani and 8.8 per cent in Kathua (Fig. 5.17). A Large number 14.5 per cent of women in mountain setting (Bani) have not received treatment for their complications during their last live birth (Fig. 5.17). On the other hand, in Kathua, the percentage of women who did not receive any treatment for the delivery complications is negligible, i.e. 1 per cent (Fig. 5.17).

5.6.3 Prevalence of Postpartum Complications in the Tehsil Kathua and Bani

An individual's decision to use a particular source of maternal health care services is assumed to be partially determined by the person's understanding of the source of disease. In rural areas where the influence of culture on decision making is expected to be high, individuals may seek professional care only after exhausting their folk remedies and family resources. Also, a potential user of maternal health care services may lean towards on particular health service delivery mode, depending on previous evidence regarding the efficacy of the alternatives available (Addai 2000).

During the field survey, eligible women were asked whether they had suffered from any postpartum complications or not during their last live birth one-year preceding survey. The aggregate percentage for postpartum complications explain in figure 5.18. More than fifty per cent of total respondents stated that they had suffered postpartum complications during their last live birth (Fig. 5.18). One-third of women have suffered from severe headache, 29 per cent lower abdominal pain, 24.3 per cent from convulsion, 18.8 per cent from excessive bleeding and 12.5 per cent from other complications (Table 5.18).

Figure 5. 18: Aggregate Percentage of Postpartum Complications in the Study Area

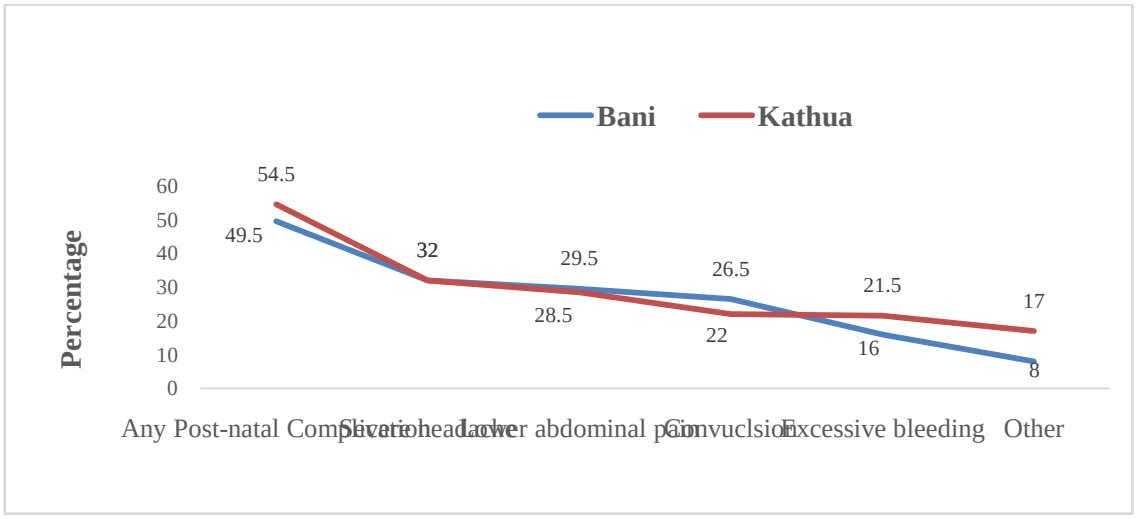


Source: Primary Field Survey, 2017.

Figure 5.19 explains the percentage of women who have suffered from postpartum complications in tehsil Kathua and Bani. Around fifty per cent of the respondents from both the area said they had experienced a postpartum complication during their last live

birth (Fig. 5.19). There is no much difference between the tehsil Bani and Kathua appear from the figure for the prevalence of postpartum complications, and the percentage is more or less similar (Table 5.19).

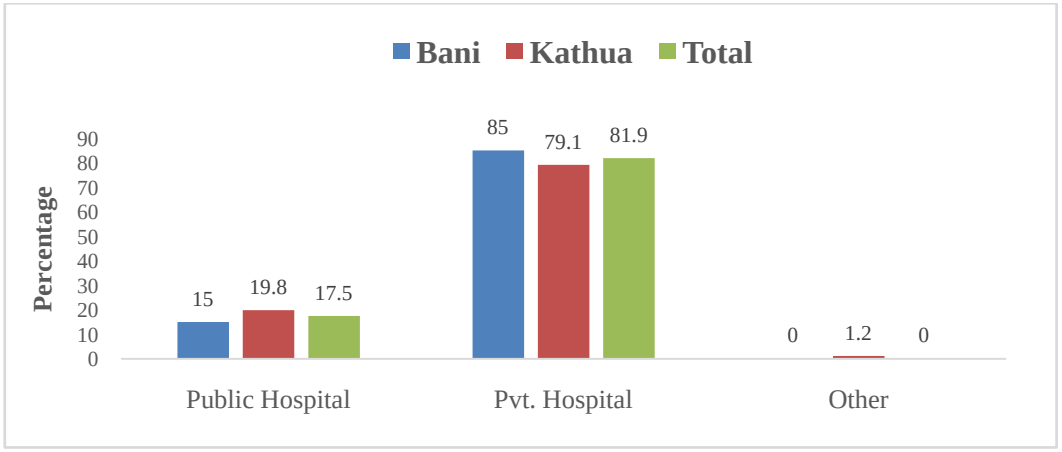
Figure 5. 19: Prevalence of Postpartum Complications in Tehsil Kathua and Bani



Source: Primary Field Survey, 2017.

Type of health facility for seeking treatment for postpartum complications displays some different picture compared to the treatment sought for pregnancy and delivery complications in both the tehsil Kathua and Bani.

Figure 5. 20: Place of Treatment for Postpartum Complications in the Tehsil Kathua and Bani



Source: Primary Field Survey, 2017.

The percentage of women go to a private health facility for seeking treatment for postpartum complications is surprisingly high in both areas (Fig. 5.20). This reverse trend between public health facility for pregnancy and delivery complications and private health facility for postpartum complications might be due to the importance of timing and treatment requirement for different complications. Most of the services provided at the time of pregnancy and delivery are through public sector hospital and women suffering from any complications at this time get treatment from the same facility. Community health worker also encourages antenatal and delivery care for public sectors hospital for their financial incentive. But in the case of postpartum care, women have already gone through childbirth, and they feel comfortable with the private hospital for any further medical needs.

5.7 Determinants of Maternal Health Care Services Utilization in the Study Area

Unequal access and utilisation of maternal healthcare services is determined by the several, socio-cultural, economic, individual and physical accessibility factors. To understand, the association between the accessibility and utilisation of maternal healthcare services in the study area. The binary logistics regression analysis has been carried out. Due to the few sample size, the aggregate analysis of samples from both the study area, i.e. tehsil Bani and Kathua has done. The analysis has been done through two separate models, for the first model-independent variables which explain physical accessibility, i.e. distance and time taken to reach health centres and Motorable road, and type of road to health facility has been undertaken. The second model includes women socio-cultural and economic characteristics as independent variables and their association with women, healthcare seeking behaviour. The dependent variables are in dichotomous, i.e. whether the respondents had taken particular service during their last live birth one-year preceding survey or not (0 = No, 1 = Yes).

5.7.1 Determinants of Full Antenatal Care Services Utilisation in the Study Area

Table 5.13 presents the results of binary logistic regression through the odds ratio for full antenatal care. The binary logistic regression results show that distance and time taken to reach health centres are insignificant factors in the study area, although women living away from the health centres are less likely received full antenatal care compared to those who live near to the health centre (Table 5.13). Type of road to the health centre is a significant predictor of full antenatal care services utilisation in the study area and women

having not asphalt road connectivity between home and health centres are less likely received full antenatal care compared to those who have asphalt road connectivity in the study area (Table 5.13).

Table 5.13 further explain the results of binary logistic regression for women socio-cultural and economic factors in the study area through the second model. The model shows that the age of mothers, place of residence, and education of women and ethnicity of women are the significant determinants of full antenatal care services utilisation in the study area. The age of respondents show a positive association with seeking full antenatal care and older women are more likely received full antenatal care compared to their younger counterpart and results are significant for women of ≥ 29 years of age in the study area (Table 5.13). Age at marriage and birth order of women have not a significant factor for seeking antenatal care in the study area.

Another highly significant factor in seeking full antenatal care is the place of residence. Women from tehsil Kathua (plain rural area) are 2. 829 times more likely received full antenatal care compared to their counterpart who lives in the tehsil Bani (rural mountain area), and the results are highly significant (Table 5.13). The tehsil Kathua is a plain rural area characterised with better health infrastructure, road connectivity, the high literacy rate among the respondents, and better household economic status enhance the access to maternal health care services utilisation. On the other hand, tehsil Bani is a mountainous rural area having a paucity of healthcare infrastructure accompanied by the huge shortfall of human resources at the available health centres. Very low road connectivity many of the health centres are not connected by the all-weather Motorable road, the high proportion of population belongs to the marginal section of the society, poverty, illiteracy along with several other unfavourable factors which influence the health care seeking behaviour of the mountain women.

Education of women has been found a significant predictor of women health care seeking behaviour in several previous studies. Educated women are more likely to receive maternal health care services compared to their counterpart, illiterate women. The present analysis shows that the education of women and utilisation of full ANC are positively associated. Women having higher education are four times more likely received full ANC compared to illiterate, and the results are highly significant (Table 5.13). Women belong

to other than SC/ST group more likely received full ANC in the study area, and the results are statistically significant (Table 5.13).

Table 5. 13: Odds Ratio from Binary Logistic Regression Analysis Predicting Likelihood of Full Antenatal Care Utilisation in the Study Area.

Covariates	Frequency	Model I	Model II
Distance to Health Centre			
≤1Km *Ref.*	213		
> 1 Km	187	0.827	
Time to Health Centre			
≤ 30 Minute *Ref.*	353		
>30 Minute	47	0.781	
Distance to Motorable Road			
≤1 Km *Ref.*	246		
>1 Km	154	0.659	
Time Taken to Motorable Road			
≤ 30 Minute *Ref.*	292		
> 30 Minute	108	1.801	
Type of Road			
Asphalt *Ref.*	191		
Other	209	.307**	
Age of Respondent			
≤ 24 Years *Ref.*	145		
25-28 Years	165		1.248
≥ 29	90		2.058*
Age at Marriage			
≤ 18 Years *Ref.*	136		
≥ 19 Years	264		0.784
Birth Order			
1 *Ref.*	141		
2	149		0.608
≥ 3	110		0.77
Place of Residence			
Bani *Ref.*	200		
Kathua	200		2.829***
Education of Respondent			
Illiterate Ref.	108		
Middle	60		1.761
Secondary	181		2.039*
Higher	51		4.122***
Religion			
Hindu *Ref.*	359		
Muslim/Other	41		0.759
Ethnicity			
ST/SC *Ref.*	213		
Other	187		1.766**
Exposure to Mass Media			
No Exposure *Ref.*	149		
Any Exposure	251		1.009
Household Economic Status			
APL *Ref.*	187		
BPL	213		0.801
Constant		0.664	0.1

Source: Computed from Primary Field Survey.
Dependent Variable = Full Antenatal Care, where '0' – No and '1'- Yes.
Significant level: *** -1%, **-5%, and *-10%.

Women belong to higher birth order, Muslim religious group, no media exposure and BPL household are less likely received full ANC compared to those who belong to low birth order, Hindu religious group, any media exposure and APL household in the study area, and results are insignificant (Table 5.13).

5.7.2 Determinants of Safe Delivery in the Study Area

Table 5.14 explains the likelihood of seeking safe delivery by odds ratio in the study area. In the first model, the only type of road is a significant predictor of safe delivery in the study area. Women who don't have asphalt road connectivity to the nearest health facility 50 per cent less likely receive safe delivery compared to those who have asphalt road connectivity in the study area, and results are highly significant (Table 5.14). Distance and time to reach the nearest health centre and Motorable road are not significant determinants of seeking safe delivery in the study area.

The second model of binary logistics regression analysis displays the relationship between women socio-economic factors and the likelihood of seeking safe delivery in the study area. Age of women is a significant predictor of seeking safe delivery. Women of middle age group (25-28 years) and old age group (≥29 years) less likely received safe delivery during their last live birth one-year preceding survey and results are significant (Table 5.15). The low likelihood of seeking safe delivery among older women might be due to their experience of several deliveries, and they feel comfortable in-home delivery or without any assistance of trained health personnel.

Birth order of women also displays a negative association with seeking safe delivery care in the study area. Women of ≥3 birth order less likely received safe delivery compared to the first birth order women and results are statistically significant (Table 5.14). Generally, women having several children belong to the poor section of the society, no education, the early marriage, which leads to more pregnancy and suffer from multiple vulnerabilities hinder their chances of seeking safe delivery.

Place of residence is a highly significant predictor of seeking safe delivery and women living in the tehsil Kathua (plain rural area) twenty times more likely receive safe delivery care compared to those living in the tehsil Bani (rural mountain area), and results are highly significant (Table 5.14). Place of residence was not a significant predictor of full ANC in this study, but in case of safe delivery, it is highly significant. It might be due to

the barriers faced by the mountain women at the time of delivery to go to the health facility of seeking assistance from trained health personnel. In the plain rural area of tehsil Kathua, every household has a motorable road at their doorstep, better availability of health care, better awareness about delivery care and complications which enhance their probability of seeking safe delivery. Education of women is also a significant determinant of seeking safe delivery care in the study area. Women having secondary level education two times more likely to receive safe delivery compared to illiterate women and results are significant (Table 5.14). Women who had received full antenatal care two times more likely to receive safe delivery compared to those who did not receive full antenatal care and the results are significant (Table 5.14). Women who have gone through the full antenatal care process are more aware of the delivery complications and the importance of institutional delivery compared to those who did not receive full antenatal care.

Table 5. 14: Odds Ratio from Binary Logistic Regression Analysis Predicting Likelihood of Safe Delivery in the Study Area.

Independent Variables	Frequency	Model I	Model II
Distance to Health Centre			
≤1Km *Ref.*	213		
> 1 Km	187	0.992	
Time to Health Centre			
≤ 30 Minute *Ref.*	353		
>30 Minute	47	1.137	
Distance to Motorable Road			
≤1 Km *Ref.*	246		
>1 Km	154	0.753	
Time Taken to Motorable Road			
≤ 30 Minute *Ref.*	292		
> 30 Minute	108	1.213	
Type of Road			
Asphalt *Ref.*	191		
Other	209	.050***	
Age of Respondent			
≤ 24 Years *Ref.*	145		
25-28 Years	165		.390***
≥ 29	90		.414*
Age at Marriage			
≤ 18 Years *Ref.*	136		
≥ 19 Years	264		0.916
Birth Order			
1 *Ref.*	141		
2	149		0.541
≥ 3	110		0.364**
Place of Residence			
Bani *Ref.*	200		
Kathua	200		20.310***
Education of Respondent			
Illiterate *Ref.*	108		
Middle	60		0.829
Secondary	181		2.131**
Higher	51		2.101
Religion			
Hindu *Ref.*	359		
Muslim/Other	41		0.928
Ethnicity			
ST/SC *Ref.*	213		
Other	187		1.262
Exposure to Mass Media			
No Exposure *Ref.*	149		
Any Exposure	251		1.737
Full ANC			
No *Ref.*	295		
Yes	105		2.111*
Household Economic Status			
APL Ref.	187		
BPL	213		1.005
Constant		20.330***	1.227

Source: Computed from Primary Field Survey.
Dependent Variable = Safe Delivery, where '0' – No and '1'- Yes.
Significant level: *** -1%, **-5%, and *-10%.

5.7.3 Determinants of Postnatal Check-up in the Study Area

Table 5.15 presents the result of binary logistic regression through the odds ratio for a postnatal check-up by women after delivery one-year preceding survey in the study area. Distance to the health centre is a significant predictor for seeking postnatal check-up and women's living away from the health centre are less likely receive postnatal check-up compared to those who are living within one kilometre of distance (Table 5.15). Type of road also shows significant results for a postnatal check-up. Women household having not an asphalt road connectivity to the nearest health facility are less likely to receive postnatal check-up compared to those who had, and results are highly significant (Table 5.15).

The second model in the analysis shows the socio-economic determinants of postnatal check-up in the study area. The only significant determinants of the postnatal check-up in the second model are the place of residence and safe delivery. Women from tehsil Kathua are two times more likely receive postnatal check-up compared to those from tehsil Bani and results are significant (Table 5.15)

The probability of seeking postnatal check-up among women's who had safe delivery during their last live birth is very high, and they seek postnatal check-up 63 times more likely compared to those who did not receive safe delivery and results are highly significant (Table 5.15).

Age of women, age at marriage, birth order, education, religion, caste, media exposure, full ANC and household economic status don't show any significant association with seeking postnatal check-up care in the study area (Table 5.15).

Table 5. 15: Odds Ratio from Binary Logistic Regression Analysis Predicting Likelihood of Postnatal Check-up in The Study Area.

Independent Variables	Frequency	Model I	Model II
Distance to Health Centre			
≤1Km *Ref.*	213		
> 1 Km	187	.597*	
Time to Health Centre			
≤ 30 Minute *Ref.*	353		
>30 Minute	47	1.061	
Distance to Motorable Road			
≤1 Km *Ref.*	246		
>1 Km	154	0.548	
Time Taken to Motorable Road			
≤ 30 Minute *Ref.*	292		
> 30 Minute	108	1.747	
Type of Road			
Asphalt *Ref.*	191		
Other	209	.103***	
Age of Respondent			
≤ 24 Years *Ref.*	145		
25-28 Years	165		1.083
≥ 29	90		2.302
Age at Marriage			
≤ 18 Years *Ref.*	136		
≥ 19 Years	264		1.916
Birth Order			
1 *Ref.*	141		
2	149		1.334
≥ 3	110		0.57
Tehsil			
Bani *Ref.*	200		
Kathua	200		2.334**
Education of Respondent			
Illiterate *Ref.*	108		
Middle	60		1.215
Secondary	181		1.126
Higher	51		0.892
Religion			
Hindu *Ref.*	359		
Muslim/Other	41		0.875
Ethnicity			
ST/SC *Ref.*	213		
Other	187		1.366
Exposure to Mass Media			
No Exposure *Ref.*	149		
Any Exposure	251		1.236
Full ANC			
No Ref.	295		
Yes	105		0.978
Safe Delivery			
No *Ref.*	117		
Yes	283		68.736***
Household Economic Status			
APL *Ref.*	187		
BPL	213		0.92
Constant		9.445	.024***

Source: Computed from Primary Field Survey.
Dependent Variable = Postnatal Check-up, where '0' – No and '1'- Yes.
Significant level: *** -1%, **-5%, and *-10%.

5.8 Conclusion

In the concluding lines of this chapter, it can be said that within rural areas of the country, there is a huge gap in coverage of maternal health care services between mountain and plain areas. There are several comparative studies on the rural-urban divide in accessibility and utilisation of maternal health care services have been done nationally and globally. But the comparative study based on the geography of a particular area is the least researched area, particularly within the rural area. Therefore it has been tried to explore the least researched comparative study of women's healthcare seeking behaviour based on the terrain in which they live.

In the previous chapter of this study, it has been found that the coverage of maternal health care services was low in the rural area of Jammu and Kashmir comparison to their counterpart urban areas. Therefore, this chapter has dealt with the utilisation of maternal health care services and prevalence of obstetric morbidity in the geographically two distinct settings, i.e. tehsil Kathua, which is plain area and tehsil Bani which is mountain area.

The coverage of essential components of antenatal care services was recorded very low in the tehsil Bani; for instance, only 14 per cent of the total respondents had received full antenatal care during their last live birth. On the other hand, in tehsil Kathua, 38.5 per cent of respondents said they received full antenatal care during their last live birth. It shows that within rural areas, there is a huge divide in the mountain and plain areas for seeking maternal health care services utilisation.

Despite, the Governments several programmes and schemes to enhance the coverage of institutional delivery challenge remain in mountain areas. Therefore, sixty per cent of women reported home delivery in the mountain areas for their last live birth during one year preceding survey. On the other hand, in the plain rural area, it was just nine per cent of home deliveries. Although, the Government of India, has come with interventions like JYS, JSSK and ASHA worker to enhance institutional delivery. Very few percentages of respondents from the mountain area benefitted from these interventions. For example, three-fourths of the respondents said that the ASHA worker did not come at all during their last delivery.

The results found that the two-third of total respondents had experienced excessive fatigue and weakness during their last live birth. Around forty per cent of the respondents had experienced visual disturbance, vaginal discharge and excessive vomiting. The prevalence of pregnancy related complications was reported high in tehsil Kathua compared to Bani. Surprisingly, the percentage of women consulted for pregnancy complications to the private health provider was high in tehsil Bani compared to Kathua. It showed that the availability of public sector health facilities in the mountain area is not adequately distributed or functioning. Therefore, a high percentage of women consulted private health providers.

One-third of the total respondents reported prolonged delivery during their last live birth one-year preceding field survey. One fifth had experienced a convulsion and 16.3 per cent excessive bleeding among the total respondents. Results found that there was no considerable variation between the tehsil Kathua and Bani for the prevalence of delivery complications.. In the study area, 18.8 per cent of the respondent experienced excessive bleeding after birth, and it was higher in the tehsil Kathua compared to the Bani.

It was found that topography of place of residence of women was a highly significant determinant of maternal healthcare-seeking behaviour. Women living in the rural plain area were three times more likely received full ANC compared to those living in the mountain areas, and results were highly significant. In case of safe delivery or institutional delivery, it was twenty times more likely in the rural plain area compared to the mountain region tehsil Bani. It shows that while controlling other factors, place of residence is a highly significant determinant of maternal health care seeking behaviour in the study area. Similar results found for postnatal check-up and women in the plain area more likely received PNC care than mountain area. Education of women was also found to be a significant predictor of full ANC and safe delivery in the study area. A significant factor found was the caste of women for full ANC. Women belong to other than SC/ST caste group more likely received full ANC compared to the other caste group. Women who had received full ANC were more likely received safe delivery and those who went for safe delivery sixty-eight times more likely received postnatal check-up compared to those who did not go for safe delivery in the study area and results were highly significant.

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Chapter VI: Conclusion and Policy Recommendations

"Whose faces are behind the numbers? What were their stories? What were their dreams? They left behind children and families. They also left behind clues as to why their lives ended so early (Arora 2005)."

6.1 Conclusions

Maternal mortality is not only the death of women, but it is a huge cost on society as a whole and in particular. Death of a mother is a great loss to society, and it also enhances the probability of neonatal mortality and morbidity. The research has shown that the children whose mothers die are three to ten times more likely to be at greater risk of death than those who live with their mothers. Therefore, enhancing the coverage of maternal health care services and prevent maternal mortality and morbidity should be the priority of the Government of the country, policymakers, health experts and medical professionals.

The recently last year 2018, the global community has completed forty years of Alma-Ata declaration of primary health care, and India is also a signatory to this declaration. Addressing the existing gross inequality in the health status of the population between the developed and developing countries was a major objective of the declaration. Subsequently, in the year 1987, the safe motherhood campaign was started to address the challenge of large scale maternal mortality, especially in the developing countries of the world. In the year 2000, the international community came up with the new intervention, Millennium Development Goals (SDGs). Reducing maternal mortality by three fourth from the year 1990 to 2015 was one of the major goals of MDGs. The latest development in this direction is that the international community has adopted the Sustainable Development Goals (SDGs) for the post-2015 to the year 2030 period, and India is also a signatory to these commitments.

As a signatory to Alma-Ata declaration, the Government of India brought the National Health Policy(NHP) 1982, first time after more than three decades since independence. Under NHP 1982 a large number of health centres such as sub-centres, primary healthcare centres and community health centres(SCs, PHCs, and CHCs respectively) were opened

in the rural areas of the country to fulfil the medical needs of the rural masses. The following seventh five-year plan year (1985-90), immediately after NHP 1982, recorded unprecedented growth in the number of health centres at the national level and in Jammu and Kashmir. The number of Sub-centres increases by 54 per cent, PHC's 105 per cent, and CHC's 151 per cent during the seventh five-year (1985-90) plan compared to the sixth five-year plan (1981-85) in the country. On the other hand, a similar pattern appears in Jammu and Kashmir, the number of SC's increased by 140 per cent, CHCs by 116 per cent and CHC's by 74 per cent during the same period. At present, the total number of health centres that are functioning in the rural areas of Jammu and Kashmir are 2265 SC's, 637 PHC's and 84 CHC's. The second phase of unprecedented growth of health centres in Jammu and Kashmir recorded during the last decade after the inauguration of National Rural Health Mission (NRHM), in the year 2005. The year 2000 marked the international commitments under the Millennium Development Goals (MDGs), and one of the major goals of this intervention was to reduce maternal mortality by three-fourths from 1990 to 2015. Being a signatory to MDGs the Government of India soon after brought the National Health Policy 2002, and subsequently, NRHM was introduced. These interventions had been brought to realise the international commitments and at the same time to provide accessible, affordable and quality universal health care services to the vast rural population of the country. One of the major objective under NRHM is to enhance the coverage of maternal health care services through several interventions, such as Janani Suraksha Yojana (JSY), Janani Shishu Suraksha Yojana (JSSK) and Accredited Social Health Activist (ASHA) worker.

Despite the unprecedented growth in the number of health centres at the national level, according to the recent estimates number of health centres required as per the IPHS norms for rural populations were not in a position in the country. Additionally, there is a shortfall in human resources, especially in the number of required specialists at the Community Health Centres recorded at the national level. Eighty per cent of posts of the total required specialists for the functioning of existing CHCs were not in a position in the year 2015, which was seventy per cent during the year 2005. More than three-fourths of the required obstetricians and Gynaecologists for available CHCs were also not in the position in the country and shortfall has enhanced since the year 2005 then it was 63.1 per cent.

There was no shortfall with respect to the nurses/midwife at PHCs and CHCs recorded during the year 2015, although earlier it was 38 per cent in the country. Shortfall enhanced in the year 2015 and has persisted since the year of inauguration of NRHM. A very high percentage of the shortfall was recorded for other health personnel, for instance, male and female health assistant at PHCs, a male health worker at the SCs at the national level.

Jammu and Kashmir is one of the eighteen high focussed states in the country. There was no shortfall in the health centres in the state, and more health centres were available than required in the state during the year 2005 and 2015. However, the number of health centres had increased substantially over the last decade after the inception of NRHM in the state.

But mere availability of health centres is not enough to make the health services accessible, and affordable. The required number of human resources for the proper functioning of health centres is a precondition for an efficient and accountable health care system. There are several health centres in the rural areas which were functioning without the required minimum number of workforce in Jammu and Kashmir.

According to the Indian Public Health Standards (IPHS) guidelines, the Sub-Centre should have a female health worker/ ANM and a male health worker. There was no shortfall of required ANM at SCs and PHCs recorded in Jammu and Kashmir as per the latest estimates, although it was more than one fourth earlier during the year 2005. There was a huge shortfall in the required number of male health workers at the SC's, and more than three fourth of the required male health workers posts were not in a position, and it had been persisting since before the inauguration of NRHM.

There was no shortage of required doctors at the PHCs observed in Jammu and Kashmir. Even the number of doctors in position in the state was surplus to the required numbers as per the IPHS guidelines. However, more than eighty per cent of the required male and female health assistants were not in the position, and the shortfall had been persisting since the pre NRHM period in Jammu and Kashmir.

Community Health Centres provide specialised services to the rural population. According to the IPHS norms, the CHCs should have at least four specialists, i.e. Surgeon, Obstetrician and Gynaecologist, Physician and Paediatrician. In Jammu and Kashmir, fifty per cent of the total required specialists for the existing CHCs were not in the position, and the shortfall had been persisting for the last decade.

It was found that forty per cent of the required Obstetricians and Gynaecologists for the existing health centres who deal particularly with pregnancy, intrapartum and postpartum services and the reproductive system of the women were not in the position in Jammu and Kashmir. However, the shortfall had declined since the year 2005, more than twenty percentage point from more than sixty per cent to forty per cent in the year 2015.

Another staff which deals especially with pregnant mothers at the time of delivery is Nurse/Midwife at PHCs and CHCs. There was a huge shortfall in the required number of Nurse/Midwife for the existing health centres before the inauguration of NRHM, i.e. 91.7 per cent in the year 2005. Although it was addressed appropriately after the commencement of NRHM and in the latest estimate, it was just 3.3 per cent shortfall in the required number of Nurse/Midwife in Jammu and Kashmir.

Apart from the requirement of human resources, health centres require sufficient physical infrastructure to address the challenges of providing health services to the rural population. Weak physical infrastructure at the health centres and non-availability of essential facilities, for example, drugs, equipment and residential quarters for staff are the major determinants of seeking health care services and absentee of staff in rural areas.

Results had found that in Jammu and Kashmir just 40.8 per cent and 76.3 per cent of the existing SCs and PHCs were functioning in the Government building respectively. The percentage was lower than the average at the national level, i.e. 67.4 per cent and 82.9 per cent for SCs and PHCs respectively. However, all the existing CHCs were functioning in the Government building in the state.

The average number of villages, rural area and radial distance covered by health centres were higher in Jammu and Kashmir compared to the national level, which affects the physical accessibility to the health centres. In Jammu and Kashmir, the distribution of

health centres was not equal, and a very high percentage of villages recorded distance to most widely distributed health centre like Sub Centre more than ten kilometres from villages in the districts like Kishtwar, Doda, Reasi, Punch, Kargil and Leh. Apart from this, many health centres were not even connected by the motorable road, which should have been a matter of major concern for the government.

These health centres are facing challenges of required physical infrastructure and human resources. For instance, only 56 per cent of available CHCs had recommended thirty beds, 52.4 per cent had residential quarters for specialists, and 34.5 per cent of CHCs had all the four specialists required at the Community Health Centre. Lastly, there was no health centre, whether it was Sub Centre, Primary Health Centre or Community Health Centre in Jammu and Kashmir which fulfilled the criteria of Indian Public Health Standards Guidelines.Although an average rural population covered by health centres, i.e. Sub Centres, Primary Health Centres and Community Health Centres in Jammu and Kashmir was better than recommended by the IPHS guidelines.

Till now, the result findings for the provisioning of health care infrastructure in rural Jammu and Kashmir have been explained in detail. But mere availability of health centres does not determine the health care seeking behaviour of women. Therefore, the utilisation of maternal health care services in the state had been studied to understand the status of maternal health and healthcare-seeking behaviour. Seeking maternal health care services by expected mothers depends upon several socio-cultural and economic background characteristics of women. Hence it has been tried to examine the coverage of maternal health care services in Jammu and Kashmir by using NFHS 4, 2015-16 dataset.

Jammu and Kashmir is one of the high focussed states under NRHM in the country. It had found that the utilisation level of maternal health care services in Jammu and Kashmir is better than the national level. Although, the state lags behind many states and union territories of the country and it ranked at the sixteenth position among other states and union territories of the union.

Antenatal care services during pregnancy are an essential component of maternal health care services. Therefore, it should take place as soon as the pregnancy is suspected, and every woman should be encouraged to visit the health provider if she thinks she is

pregnant. It helps the mothers to detect any possible complications during pregnancy, delivery and after delivery. The percentage of women who had received different components of ANC services utilisation in Jammu and Kashmir was higher than the national level. Although just 26.8 per cent of women had received full ANC in the state and the percentage was higher in the urban area,29.4 per cent, than rural areas, 26.0 per cent. Other components of ANC care also recorded lower in the rural area of the state compared to the urban women, for instance, only 30.2 per cent of the women had consumed IFA tablets for at least 100 days, 76.8 per cent for ANC visit in the first trimester of the pregnancy.

It is expected from the health providers that they must provide certain services to the women while their ANC visits, for instance, measurement of weight, blood pressure, blood sample, urine sample and abdomen examined. Although most of the women had received these services during their ANC visits in the state, the percentage is lower in the rural area compared to the urban areas of the state. Very few women had received advice on obstetric complications in the state, for example, vaginal bleeding, convulsions, prolonged labour, severe abdominal pain, high blood pressure and where to go in case of such complication in Jammu and Kashmir. Women living in rural area were even more unaware of the obstetric complications.

Inter-regional variation of full ANC coverage presented that just one-fifth of women had received full ANC in the Kashmir valley, one fifth in Ladakh and one third in Jammu region of the state. Very low coverage of full ANC in the Kashmir region might be due to the very low coverage of IFA tablets for at least 100 days, which is one of the components of full ANC.

Results presented that 85.7 per cent of women during their last live birth in Jammu and Kashmir had delivered in the health facility. Virtually there was universal coverage of institutional delivery reported from the urban area of the state which was 97.2 per cent, and on the other hand, in the rural area; it was 82 per cent. The percentage of deliveries which was assisted by trained health personnel in Jammu and Kashmir was 87.6 per cent, and there was a 13 percentage point gap between rural-urban percentages. Despite the provision of transport facility under Janani Suraksha Karyakaram (JSSK), just 13.1 per

cent of women had used the Government ambulance to reach health facility during their last live birth for delivery in Jammu and Kashmir.

According to WHO ten to fifteen per cent of caesarean section deliveries are acceptable in any setting. Although, there is no clear cut consensus on the percentage of caesarean section deliveries among the experts and policymakers globally. One-third of women in the state had delivered their last baby through caesarean section, and the percentage was two times higher in the urban area, i.e. 55.6 per cent compared to the rural area 28.9 per cent. District level variation presented that a very high percentage of caesarean section deliveries reported from the districts like three fourth in Srinagar, followed by Pulwama, Badgam and Ganderbal.

Check- immediately up after the delivery is an important intervention to prevent maternal deaths and maternal complications. Research has found that sixty per cent of maternal deaths occur during the delivery and within the first week after delivery globally. In Jammu and Kashmir, more than three fourth of women had received a postnatal check-up, which was nine percentage points higher than the national level. Around thirteen percentage point difference between rural-urban percentages was observed and it was 76.7 per cent and 89.3 per cent respectively. The quality of care depends upon the provider of services. In several cases, women received care from the unskilled health providers, which could be lethal to their wellbeing. In Jammu and Kashmir, one-third of women had received postnatal check-up from unskilled and two-third from skilled health personnel.

There was a large variation in maternal health care services coverage across the districts in the state. Based on the composite index, it was found that the top five districts include Pulwama, Badgam Kathua, Jammu and Srinagar. These districts are characterised with the relatively plain area, high urban population, high literacy rate, the low proportion of the tribal population compared to the other districts. Districts Jammu and Srinagar are the winter and summer capital districts of the state.

On the other hand bottom, five districts include Doda worst-performing followed by Reasi, Ramban, Rajouri and Kishtwar. All these districts fall in the high priority districts of the state except district Reasi. All the low performing districts belong to Jammu region

of the state. These districts are characterised with rugged and mountainous topography accompanied by high tribal population, low literacy rate, inadequate health care infrastructure and high rural population. Two districts of Ladakh region include Leh ranked seven and Kargil at the thirteenth position among the twenty-two districts of the state.

The association between women's background characteristics and utilisation of maternal health care services displayed significant results. Women of very young and old age group received low coverage compared to the middle age women in Jammu and Kashmir. Birth order of women had shown a negative association with women's health care seeking behaviour and women's having low birth order received more coverage compared to the higher birth order women in the state. Women of high birth order having more experience of previous pregnancies that makes them comfortable. Research has found that place of residence plays an important role in health care seeking behaviour of women. Similar results found in the present study and lower coverage of maternal health care services were recorded among rural women when compared to the urban areas in Jammu and Kashmir. The education of women and their healthcare-seeking behaviour was positively associated with each other, and the coverage of maternal health care services enhanced with the better education level of women in Jammu and Kashmir. The low coverage of maternal health care services recorded among women belong to the marginal sections of the society, engaged in the agricultural sector, no media exposure and women from poorer household compared to their counterparts in Jammu and Kashmir.

To understand the net effect of women socio-cultural, economic and individual factors on their healthcare-seeking behaviour,a binary logistic regression model was computed. The results revealed that age at marriage, birth order, the religion of women, household wealth index, education of the women were significant predictors of full ANC in Jammu and Kashmir. Women who got married after the legal age of marriage for female, first birth order, Hindu religious group, rich household, educated were more likely to receive full ANC compared to their counterpart in Jammu and Kashmir. In case of safe delivery, the significant predictors were the age of women, age at marriage, birth order, residence, religion, household wealth index, media exposure and utilisation of full ANC in the state. Women of middle and old age group were more likely to receive safe delivery compared

to the very young women, and results were significant. Women who got married after the legal age of marriage for female were more likely received safe delivery compared to those who got married before the legal age of marriage. Other significant predictors were women of higher birth order less likely received safe delivery compared to the first birth order women. In the urban area, women received safe delivery three times more likely compared to their counterpart living in rural areas. Women belong to Muslim, and other religious groups more likely received safe delivery than Hindu women in the state. Women from a rich household had media exposure and full ANC utilisation more likely received safer delivery compared to those belongs to poor household who had no media exposure and no full ANC utilisation in Jammu and Kashmir. Age of women, age at marriage, birth order, place of residence, religion, caste, household wealth index, and safe delivery were the significant predictors of postnatal check-up in Jammu and Kashmir.

The prevalence of obstetric morbidity in Jammu and Kashmir presented that the percentage of women who had experienced pregnancy complications such as daylight vision, convulsion and swelling reported higher in Jammu and Kashmir compared to the national level. The morbidity at the time of delivery and within a few days after delivery is the more serious one. The percentage of women who had experienced delivery complications in Jammu and Kashmir is breech presentation 15.6 per cent, prolonged labour 30.8 per cent, and excessive bleeding 25.8 per cent in Jammu and Kashmir. The percentage of women who experienced massive vaginal bleeding in the first two months after delivery was 18.1 per cent in Jammu and Kashmir. Regional level variation in the status of maternal health showed that the percentage of women who had suffered from the obstetric complications recorded high in the Jammu region followed by Kashmir and Ladakh region of the state.

Obstetric morbidity index was computed to comprehend the district-level prevalence of obstetric morbidity in Jammu and Kashmir. It has been found in the above discussion that low coverage of maternal healthcare services utilisation recorded among the high priority districts of the state. The districts having low coverage of MHC recorded the high prevalence of obstetric morbidity in Jammu and Kashmir such as district Ramban topped the list of obstetric morbidity index followed by Rajouri, Kishtwar, Punch, Reasi and Jammu. Low obstetric morbidity prevailed in the districts like Shupiyan, Leh, Kulgam, Kargil and Pulwama.

The previous discussion on the utilisation of maternal health care services presented finding from the secondary dataset NFHS 4, 2015-16 for Jammu and Kashmir. It was found in the secondary data analysis that rural women less likely received maternal health care services utilisation as compared to those who live in the urban area in Jammu and Kashmir and the results were consistent with several previous studies. It was also found that the level of primary health care infrastructure in the hilly and tribal districts of the state was weak and insufficient. Therefore, it had been tried to understand the role of topography on women's health care seeking behaviour within the rural area of Jammu and Kashmir. The primary field survey was conducted, and the women who had delivered the preceding one-year survey had interviewed in the tehsil Bani (Mountain area) and Kathua (Plain area). It can be said that within rural areas of the country, there is a huge gap in coverage of maternal health care services between mountain and plain areas. Several comparative studies on the rural-urban divide in accessibility and utilisation of maternal health care services have done nationally and globally. But the comparative study based on the geography of a particular region is the least researched area, particularly within the rural areas. Therefore this study has explored the least researched comparative study of women healthcare-seeking behaviour based on the terrain in which they live.

Results from the micro-level study found that in tehsil Bani, coverage of different maternal health care services was very poor. Very few percentages of women got full ANC during their last live birth one-year preceding field survey in the tehsil Bani, for instance, just 14 per cent of women received full ANC. On the other hand, in tehsil Kathua the percentage was around three times higher than Bani, and it was 38.5 per cent. Just fifty per cent of the respondents in tehsil Kathua had consumed IFA tablets for at least ninety days, and the percentage in tehsil Bani was just one fourth. The majority of respondents said that they were not informed about the duration and the number of tablets that have to be consumed during pregnancy in the tehsil Bani.

On the other hand, the majority of respondents from the tehsil Kathua who did not take IFA tablets for at least ninety days replied it did not suit them. Lack of awareness among the respondents from the tehsil Bani was the major cause of low utilisation of ANC services. The percentage of women who had received information regarding several essential components, for instance, TT injections, immediate breastfeeding, institutional

delivery and new-born care etc., recorded low in the tehsil Bani compared to the tehsil Kathua. Women did not counsel about the complication signs during the pregnancy, delivery and postpartum period in the study area. The Government of India has introduced the ASHA worker for the mobilisation of pregnant ladies to health centres regarding ANC visits. However, in the tehsil, only 11.4 per cent of the respondents said the ASHA worker accompanied them for ANC visits.

On the other hand, in the rural plain area of tehsil Kathua, fifty per cent of women had been accompanied by the ASHA worker for ANC visits during their last delivery.

Despite the Governments several initiatives to enhance the institutional delivery and safe delivery, it is a major concern among the mountain women to get institutional delivery and assistance at the time of delivery. An unexpectedly high percentage of surveyed women in the mountain area, which is tehsil Bani, reported home deliveries (includes all non-institutional deliveries), i.e. 59 per cent and it was just 9 per cent in the tehsil Kathua. The majority of institutional deliveries in the study area were in a public health facility. The major reasons told by the respondents for home deliveries in the tehsil Bani was too far/no transport: 70.2 per cent, followed by not time to go: 41.2 per cent, not customary: 30.7 per cent, and not necessary: 21.9 per cent. Other than these reasons respondents said they were ashamed to go to the hospital, there was snowfall outside, and I was in our summer pasture there was no health facility. During the field survey, it was observed that in the mountain area due to the long-distance and no road transport facility to get institutional deliveries, women prefer to deliver at home. Several of them said that they don't believe in the preventive care and they go to the hospital in case of emergency only. Many respondents replied that they went to the hospital for delivery after the onset of complications started and delivered their baby on the way to the hospital. Many others said they don't go to the hospital for the delivery because of their belief in local deities and other superstitions. So first they worship their deity and believe in them strongly. On the other hand, few home deliveries happened in the plain rural area of tehsil Kathua. The major reason for home deliveries in the plain area respondents said that she did not have time to reach the health facility, so they delivered at home.

Due to the lack of road infrastructure and timely availability of mode of transportation women in the mountain area confront with physical barriers to reach health facility at the

time of delivery. Therefore the majority of respondents in the tehsil Bani said that they had hired a car for reaching the health centre for institutional delivery. Results also found that one-third of the respondents in the tehsil Bani went for institutional delivery on feet, and one fifth had used the cart for reaching a health facility. However, there is a provision of providing ambulance or any other transport facility to women to reach a health facility for institutional delivery under the scheme JSSK.

In the plain area of tehsil Kathua, high institutional deliveries also showed a high percentage of caesarean section deliveries, and 48 per cent of the respondents from the plain area reported delivery through the operation. On the other hand, it was just six per cent in the mountain area.

The financial cost of the caesarean delivery is huge, and women reported complications after delivery subsequently in the tehsil Kathua, for example, one of the respondents said that my last delivery was caesarean; we went for delivery to the hospital, and it was caesarean performed by a nurse, not by the doctor. After delivery, we were coming home on the way stitches of operation got opened, and we went again to the hospital to operate. Again there was no doctor nurse operated, and we spent 45 days to recover from illness — a respondent from Kathua. Another one said that my operation did not become successful, and we spent around rupees 30000 after that on medicines and check-ups from the private hospital- a respondent from Kathua. There were different perspectives of women and health providers observed during the field survey on caesarean section delivery. Women blamed doctors and said that doctors get profit through performing caesarean section delivery. As after the caesarean delivery, same doctors provide medical services from their clinics outside the hospital and ask to come for repeated check-ups and medicines for the required recovery. On the other hand, doctors, perspective on caesarean section delivery was that they could not take the risk for any mishappening during delivery because we are responsible for the life of women. Another reason observed from the doctor side was that they don’t have time to wait for the natural progression of delivery due to the overburden due to the workload in government hospitals.

It has been mentioned in the third chapter of the present study that fifty per cent of posts of the required specialists for the existing Community Health Centres level facility in

Jammu and Kashmir were vacant. Therefore the reason stated by the health providers of overburden hospital might be possible.

The third component of maternal health care services included in the analysis was postnatal check-up after delivery in the rural area of tehsil Kathua and Bani. The results found that the coverage of postnatal check-up in the rural plain area of tehsil Kathua was more than two times higher than the rural mountain areas of tehsil Bani, i.e. 87 per cent and 37.5 per cent respectively.

The further micro-level analysis included the utilisation of maternal health care services by women's background characteristics (Physical accessibility, socio-cultural and economic factors) in the tehsil Kathua and Bani. There is a lack of secondary dataset which captures the physical barriers to access the maternal health care services in India. Therefore, during the field survey, along with other socio-cultural background characteristics of women. Questions were asked about the distance and time taken to reach the health facility and motorable road, and type of road to health centre etc.

Results found that women living near to the health centres, within one-kilometre of distance from the nearest health centre, and time to reach health centre is less than half an hour recorded better maternal health care services utilisation irrespective of their place of residence, i.e. tehsil Bani and Kathua. Just one in ten respondents of young age, who married before 18 years of age, no education, SC/ST caste group, no media exposure and belong to BPL household received full antenatal care in the tehsil Bani. Low coverage of full antenatal care among the women with similar background characteristics recorded from the tehsil Kathua, although better than the tehsil Bani. In case of the coverage of safe delivery just less than thirty per cent of women from old age group, higher birth order and the illiterate group received safe delivery in the tehsil Bani. Although old age women have more chances to arise complications at the time of delivery they still don't go to the hospital for delivery, it might be due to their experiences of the previous deliveries, alongsidelow education and poverty could be the other possible reasons. Low coverage of institutional delivery also recorded among the women who married at a young age, Scheduled Tribe women, belonging to Below Poverty Line (BPL) household, have no media exposure, did not receive full antenatal care in the tehsil Bani.

On the other hand, in the tehsil, Kathua low variation of coverage of safe delivery was recorded according to women's socio-cultural and economic background characteristics. It demonstrates that geographical setting in which women lives have a significant influence on their healthcare-seeking behaviour. In the mountain area, even those women who belong to the richest household, highly educated and have all sort of ANC care, and media exposure still face barriers to seeking institutional delivery. On the other hand in the rural plain area where better access to the health centres due to better road infrastructure and quality health care even the women belonging to the poorest household, illiterate, with no media exposure, or belong to SC/ST communities have much better access to safe delivery and other maternal health care services.

The binary logistic regression analysis showed that type of road to the health centre is a significant determinant of healthcare-seeking behaviour of women and odds were low for the women where asphalt road connectivity to the health centre was not available. Age of women is a significant predictor for ANC and delivery care and found that old age women are more likely to go for antenatal care, and results were significant. It may be due to the young women who just started bearing pregnancy were not comfortable to disclose their privacy or hesitate to go for ANC care, financial dependence on their spouse or the family which leads them to no use of ANC care. On the other hand, old age women have some experience of previous pregnancies and familiarity with the timing and number of visits and consumption of IFA tablets required helps them to seek antenatal care.

However, concerning the safe delivery, women belonging to middle and old age group less likely received safe delivery compared to their counterpart young women. It might be due to the inexperience of childbirth among the young women leads them to seek institutional delivery and experience of previous deliveries make older women comfortable with home delivery. Birth order of women was also a significant predictor of safe delivery and women's having higher birth order less likely received safe delivery compared to the low birth order women in the study area.

It has been found in several studies that women in a rural area less likely received maternal health care services compared to their counterpart who live in the urban area. But there was no study has been found which explored the influence of topography within

the rural area on the healthcare-seeking behaviour of women. In the contemporary study, it was found that topography of place of residence of women was a highly significant determinant of maternal healthcare-seeking behaviour. Women living in the rural plain area were three times more likely received full ANC compared to those living in the mountain areas, and results were highly significant. In case of safe delivery or institutional delivery, it was twenty times more likely in the rural plain area compared to the mountain area tehsil Bani. It shows that while controlling other factors, place of residence is a highly significant determinant of maternal health care seeking behaviour in the study area. Similar results found for postnatal check-up and women in the plain area more likely received PNC care than mountain area. Education of women was also found to be a significant predictor of full ANC and safe delivery in the study area. A significant factor found was the caste of women for full ANC. Women belong to other than SC/ST caste group more likely received full ANC compared to the other caste group. Women who had received full ANC were more likely received safe delivery and those who went for safe delivery sixty-eight times more likely received postnatal check-up compared to those who did not go for safe delivery in the study area and results were highly significant.

In the final section of micro-level analysis included the prevalence of obstetric morbidity, for instance, complications experienced during pregnancy, delivery and postpartum period by the women in tehsil Kathua and Bani. The results found that the two-third of total respondents had experienced excessive fatigue and weakness during their last live birth. Around forty per cent of the respondents had experienced visual disturbance, vaginal discharge and excessive vomiting. The prevalence of pregnancy related complications was reported high in tehsil Kathua compared to Bani. Surprisingly, the percentage of women consulted for pregnancy complications to the private health provider was high in tehsil Bani compared to Kathua. It showed that the availability of public sector health facilities in the mountain area is not adequately distributed or functioning. Therefore, a high percentage of women consulted private health providers.

One-third of the total respondents reported prolonged delivery during their last live birth one-year preceding field survey. One fifth had experienced a convulsion and 16.3 per cent excessive bleeding among the total respondents. Results found that there was no considerable variation between the tehsil Kathua and Bani for the prevalence of delivery

complications. Treatment sought for delivery complications showed that more women went to the private health provider in the tehsil Bani compared to the Kathua. Postpartum haemorrhage is one of the major cause of maternal death. In the study area, 18.8 per cent of the respondent experienced excessive bleeding after birth, and it was higher in the tehsil Kathua compared to the Bani. More than eighty per cent of women who had experienced postpartum complication sought treatment from the private health provider, and it was higher in the tehsil Bani 85 per cent and Kathua 79.1 per cent.

6.2 Policy Suggestions

Preventing deaths of women due to pregnancy-related causes is a Global concern and India as the largest contributor to absolute maternal deaths has a greater responsibility towards the safe motherhood initiatives proposed during the year 1987 in Nairobi, Kenya. Since independence, India has adopted several programmes and schemes to ensure the quality of primary health care to the vast rural population and to enhance the coverage of maternal health care services. Immediately after the Alma Ata declaration, India proposed National Health Policy 1982 and a huge number of health centres opened in the rural areas during the mid-eighties to provide accessible and affordable primary health care to the rural population. Moreover, India has signed several international commitments, for instance, Millennium Development Goals (MDGs) and the most recent Sustainable development Goals (SDGs) under which reducing maternal deaths and enhancing coverage of maternal health care services have been remaining the priority for the global communities. The recent development towards reducing maternal mortality in India has come through numerous interventions under NRHM.

Therefore, I would like to suggest some policy recommendations based on my research findingsand field experiences. Currently, there are three major schemes under NRHM to enhance the coverage of maternal health care services and safe and institutional delivery, particularly in the rural area.

The government should reconsider its uniform maternal health care schemes approach towards rural areas. As it has been suggested in the literature that the maternal death is the consequences of three delays in seeking preventive and emergency maternity care (Gabrysch & Cambell, 2009) and (Thaddeus & Maine, 1994). Because in the mountain

areas severity of three delays in seeking preventive and emergency care is greater compared to the plain rural areas. The current schemes to address the issues of accessibility and utilisation of maternal health care services do not produce much desired results in the mountain regions. On the other hand, in the rural plain region recorded much better penetration and success of existing programs and schemes.Therefore, I would like to suggest some points that should be considered by the policymakers, especially for the mountain settings, are:

- Firstly, the financial assistance provided under the Janani Suraksha Yojana (JSY) to enhance the safe and institutional delivery is meagre rupees 1400 for the beneficiaries and rupees 600 in high focussed districts and 350 in other districts for ASHA worker to accompany women for institutional delivery. It is uniform for all rural areas all over the country. It will be suggested that this amount should be enhanced and separate provisionsshould be made for mountain and plain regions within the rural area under JSY because the mountain women confront more hardships physically and financially to avail the intuitional delivery.

- Second, major intervention to enhance institutional delivery is Janani Shishu Suraksha Karayakaram (JSSK). Under this scheme, the women can avail intuitional delivery, caesarean delivery, drugs and consumables, diagnostics, provision of blood, transport between home to the health centre, between health centres in case of referrals and drop back to home and all sort of user fees without any financial charges. Despite these provisions, most of the respondents who delivered in the health facility have been using private or own mode of transportation for institutional delivery in rural areas. Due to the shortage of drugs and medicines and dysfunctioning of the equipment's most of the respondents sought tests and medicines from private medical shops and did ultrasound from private hospitals. Therefore it will be suggested that the government should have to enhance the road infrastructure, particularly in the mountain region and maintain the proper supply and maintenance of equipment and medicines at the hospital.

- The Government of India has brought the approach of community health worker through ASHA worker under NRHM. As per the current criteria for ASHA

worker, there is only one ASHA worker per one thousand rural population and to provide counselling to the pregnant women and accompany them for an antenatal check-up and at the time of delivery is the major task of ASHA worker, and they get the incentive for this work. First of all, the criteria of the population of every thousand per ASHA worker should be different for the rural plains and mountainous regions. Because in the mountain area due to the low population density, no road infrastructure, and high average distance covered by the ASHA worker discourage them. Either the incentive provided to the ASHA worker should be enhanced in the mountain area, or the population norms for mountain area should be changed.

- There should be sub-district level delimitation of high and low priority areas to address the problem at a more grassroots level because, within districts, there is a huge variation in the state. For instance, in the current study, the district Kathua ranked third among 22 districts in maternal health care services utilisation. But within district Kathua two sub-districts tehsil Kathua plain region and Bani mountainous region record the huge difference in coverage of antenatal, delivery and postnatal care.

Apart from the above recommendations, I would like to suggest that the government must take action on some other fronts. The government should immediately address the shortfall issues of the specialists at the health centres, especially the gynaecologist and paediatricians in Jammu and Kashmir. There was no health centre have been functioning according to the IPHS norms in the state.

The government should revisit its health care delivery system for the mountain communities within rural areas. Within rural area hard to reach areas like a mountain should be treated differently to health policies.

There is no lack of policy documents on the provisioning of maternal health care services, but the proper implementation of all these programmes and schemes will be a challenge for the government, especially in the mountainous regions. In the mountain area low literacy especially among the women, young age at marriage, the high proportion of marginal section of the society, poverty, and numerous factors play an important role in

determining to seek maternal health care behaviour. These factors should keep in mind while making policies.

The government should address the problem of high corrupt practices in the health centres which exploit the ignorance of rural women who do not know much about the intricacies of the benefits they get through the schemes. Due to the lack of awareness and right of mothers and new-born women were easily exploited by the health professionals from the peon to doctor. Health professional and their practices should be supervised.

Very high prevalence of caesarean section deliveries enhances the prevalence of maternal morbidity, and it costs emotionally and financially to the family of women. The government should check the high caesarean deliveries in the public sector hospitals, which compromises the health of women. Although it is necessary to conduct caesarean delivery in some cases, saving the mother's life cannot be used as an excuse for the high prevalence of caesarean deliveries.

Although the Government launched NRHM to provide free of cost maternal health care services women in the mountain area especially spend more to deliver in the hospital and opportunity cost is also high in the mountain because women have to travel with someone for long-distance they also pay for transportation and staying at the health facility.

Within rural areas of the state, mountain women are at the greater risk of maternal deaths and morbidity. Beside all these suggestions for the existing programme and schemes, the government should enhance road connectivity and physical infrastructure, for instance, residential quarters for the staff so that they can serve in the mountain area appropriately.

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Appendix

Questionnaire No: _____

Questionnaire

On

Maternal Health Care in Jammu and Kashmir

Household Identification

1. Name of the Tehsil:_____
2. Name of the village: _____
3. Name of the Respondent: _____
4. Name of the child_____
5. Total Members in the Household: _M_____F_____
6. Type of the family:_Joint_____Nuclear_____
7. Household coordinate: _____

8	How Old are you?	Age in completed years
9	How old is your husband?	Age in completed years
		Do not know……98
10	How old were you when you got married?	Respondent
		Husband
11	What is your current marital status?	Currently Married……..1
		Married, Gauna not performed….2
		Widowed……..3
		Divorced……..4
		Seperated……..5
		Deserted……..6
		Never Married……..7
12	Have/had your husband ever attended school	Yes……..1
		No……....0
		Do not know……...……8
13	What is/was the highest standard he completed	Standard……
		Do not know……..98
14	Have you ever attended school?	Yes……1
		No……..0
15	What is the highest standard you have attended?	Standard……
16	What is your religion?	Hindu……..1
		Muslim……2
		Sikh……3
		Christian……..4

		Buddhist……..5		
		Jain……6		
		Others……..7		
17	Do you belong to a scheduled caste, a scheduled tribe or none of these?	SC……1		
		ST…….2		
		No caste/tribe……3		
		don't know……...4		
For Wealth Index				
18	Type of house	Pucca…… 1		
		Semi-Pucca……. 2		
		Kachcha……. 3		
19	Agriculture Land Owned	Yes…… 1		
		No…….0		
20	Access to a toilet facility	Flush toilet……..1		
		Shared flush toilet…….2		
		Shared/pit toilet…….3		
		No facility…….4		
21	Source of lighting	Electricity……1		
		Kerosene……2		
		Gas……3		
		Biogas……4		
		Other source of lighting…5		
22	Fuel for cooking	Electricity……..1		
		LPG……..2		
		Biogas……3		
		Coal……4		
		Charcoal……5		
		Kerosene……6		
		Wood……7		
		Crop-residue……..8		
		Dung-Cakes……9		
		Other fuel……10		
23	Source of drinking water	Own Piped Water……1		
		Hand Pump……2		
		Well…....3		
		Public Piped Water……..4		
		Other water sources……0		
24	Owner of house	Yes……..1		
		No……..0		
25	Owner of different durable goods		Yes	No
		Car	1	0

		Tractor	1	0
		Motor cycle	1	0
		Scooter	1	0
		Land line Telephone	1	0
		Mobile	1	0
		Refrigerator	1	0
		Color television	1	0
		Computer	1	0
		Laptop	1	0
		Bicycle	1	0
		Electric fan	1	0
		Radio	1	0
		Transistor	1	0
		Sewing machine	1	0
		B/W TV	1	0
		Water Pump	1	0
		Animal Drawn cart/Thresher	1	0
		Watch/Clock	1	0
26	Does this household possess a BPL card/Job card/Aadhar card?	Yes…… 1		
		No……..0		
27	Do you read a Newspaper or Magazine almost every day, at least once a week, less than once a week or not at all?	Almost every day……1		
		at least once a week……..2		
		less than once a week……3		
		Not at all……4		
28	Do you listen Radio almost every day, at least once a week, less than once a week or not at all?	Almost every day……1		
		at least once a week……..2		
		less than once a week……3		
		Not at all……4		
29	Do you watch Television almost every day, at least once a week, less than once a week or not at all?	Almost every day……1		
		at least once a week……..2		
		less than once a week……3		
		Not at all……4		
30	Do you go to the Movie hall almost every day, at least once a week, less than once a week or not at all?	Almost every day……1		
		at least once a week……..2		
		less than once a week……3		
		Not at all……4		
31	How old at the time when your first child was born?	Age in completed years……		
32	How many sons or daughters you have?	Number of children ……..		
33	Have you ever given birth to boy or a girl	Yes……1		

	who was born alive but later died?	No……2
34	What is/was your occupation i.e. what kind of work you mainly do?	Government service.....1
		Private service.....2
		Business 3
		Agriculture 4
		Household activities……..5
		Unemployed 6
		Others 7
35	What is/was your husband's occupation?	Government service.....1
		Private service.....2
		Business 3
		Agriculture 4
		Household activities……..5
		Unemployed 6
		Others 7
36	How long you have to work (working hour)/day?	1. Less than eight hours …..1
		2. Eight hours …….2
		3. More than eight hours ……3
		4. No of Days……
37	As you are a working woman, did you experience any problem during your pregnancy due to your job?	Yes……1
		No……0
38	Did you get maternity leave during your last pregnancy? (Applicable to working women)	Yes……1
		No……0
39	Did you get other maternity benefits?	Yes……1
		No……0
40	Who decides about the health care issues in family, especially regarding your health?	1. Father-in-law 1
		2. Mother-in-law 2
		3. Respondent itself 3
		4. Husband……..4
		5. Jointly 5
		6. Relatives 6
		7. Others ……7
Physical accessibility		
41	What is the distance to the tehsil headquarter (in km)?	distance……..km
42	How much time does it takes to reach the tehsil headquarter?	time……
43	Is there any health institution available near your residence?	Yes……1
		No……0
44	Which is the nearest health institution available?	A. Sub Center……1
		B. Primary health center……..2
		C. Community health centre……..3

		D. Any other (specify)…….4		
45	How do you go to the nearest health institution?	A. On foot……..1		
		B. By bicycle 2		
		C. By public transport……..3		
		D. Own vehicle…….4		
		E. Any other mode……5		
46	Whether village is connected to health facility by all-weather road?	Facility	Yes	No
		sub centre	1	0
		Primary health centre	1	0
		community health centre	1	0
		district hopital	1	0
		any other	1	0
47	What is the distance to motorable road?	a. less than 1 km……..1		
		b. between 1 to 5 km…….2		
		c. between 6 to 10 km…….3		
		d. more than 10 km		
48	How much time does it takes to reach the motorable road?	1.Less than half an hour ……1		
		2.Almost an hour ……..2		
		3.More than an hour …….3		
49	Condition of road to nearest health facility?	a. Asphalt…….1		
		b. unpaved good condition…….2		
		c. unpaved bad condition…….3		
		d. path or other…….4		
50	What is the distance to nearest health facility?	a. less than 1 km……..1		
		b. between 1 to 5 km…….2		
		c. between 6 to 10 km…….3		
		d. more than 10 km……4		
51	How much time does it takes to reach the health institution?	1.Less than half an hour ……1		
		2.Almost an hour ……..2		
		3.More than an hour …….3		
52	Do you have to wait after reaching the health institutions?	Yes……1		
		No…….0		
53	What is the average waiting time?	* Waiting time in minutes……		
Antenatal care, Delivery Care and Postnatal Care				
54	When you got pregnant, did you want to get pregnant at that time?	Yes……..1		
		No…….0		
55	During which month did you come to know about last pregnancy?	Within three months into pregnancy……. 1		
		After three months into pregnancy……..2		
56	Did you register your last pregnancy?	Yes……..1		
		No……0		
57	Pregnancy was registered with whom?	Govt. Doctor……. 1		
		Private doctor……2		
		ANM…….3		

		Anganwadi worker…… 4		
		ASHA……5		
		OTHERS……..6		
58	Did you receive a mother and child protection card after registration?	Yes……..1		
		No…….0		
59	When you were pregnant, did you receive ante-natal care?	Yes……..1		
		No……0		
60	How many months pregnant were you when you first received antenatal care for this pregnancy?	Months……..		
		Don't know..... 98		
61	How many times you received antenatal check during last pregnancy?	A. ONCE…….1		
		B. TWICE…….2		
		C. THRICE OR MORE…….3		
		D. Don't know……98		
62	Who are the people who accompanied you at least one time to your antenatal care?	Husband……..……..…….1		
		Mother-in-law . . . ……...…....2		
		Father-in-law……...…..3		
		Mother……...….....……4		
		Other family member……..... 5		
		Friend / Neighbor ……..…...6		
		Other (specify)_____7		
		Nobody (went alone) ……..…97		
		Don't know.....98		
63	Where did you receive antenatal care for pregnancy?	GOVERNMENT	Yes	No
		a. HOSPITAL	1	0
		b. DISPENSARY	1	0
		c. UHC/UHP/UFWC	1	0
		d. CHC/RUR.HOSPT.	1	0
		e. PHC	1	0
		f. SUBCENTRE	1	0
		g. ANGANAWADI/ICDS CENTRE	1	0
		h. AYUSH HOSPITAL/CLINIC	1	0
		i. OTHER	1	0
		PRIVATE		
		j. HOSP./MATERNITY HOMECLINIC	1	0
		k. AYUSH HOSPT/CLINIC	1	0
		l. OTHERS PVT. SECT HEALTH	1	0
		m. NGO/TRUST HOSP./CLINIC	1	0
		HOME		
		n. HOME	1	0
		o. PARENT'S HOME	1	0
		p. OTHRS HOME	1	0
		q. OTHES_____	1	0

64	As part of your antenatal care during last pregnancy, were any of the following done at least once?		Yes	No
		A. WEIGHT	1	0
		B. HEIGHT	1	0
		C. BLOOD	1	0
		D. URINE	1	0
		E. ABDOMEN	1	0
		F. BREAST EXAMINED	1	0
		G. SONOGRAM OR ULTRASOUND	1	0
		H. DELIVERY DATE	1	0
		I. DELIVERY ADVICE	1	0
		J. NUTRITION	1	0
65	During your antenatal care visit did anyone tell you about the following signs of pregnancy complication?		Yes	No
		a. Bleeding	1	0
		b. Convulsion	1	0
		c. Prolonged Labour	1	0
		d. Abdominal pain	1	0
		e. High blood pressure	1	0
66	Were you told where to go if you had any pregnancy complications?	Yes……..1		
		No……..0		
67	Please tell me where you should go for health services if you have danger signs While you are pregnant?	Hospital 1		
		PHC..... 2		
		Health post..... 3		
		Sub-health post 4		
		PHC/OR clinic..... 5		
		Pvt. Hospital/Clinic/N. Home 6		
		Other (specify)_____ 7		
		Don't know …….. 98		
68	What are the symptoms during pregnancy indicating the need to seek immediate care?	Vaginal bleeding (any amount)..... 1		
		Severe lower abdominal pain..... 2		
		Severe headache..... 3		
		Convulsion..... 4		
		Blurred vision and swelling of hands and face…….5		
		Other (specify) _____ 6		
		Don't know..... 98		
69	When you were pregnant, did you experience any of the following problems at any time? (Above mentioned, if yes, mention code)	Code……		
70	What did you do or whom did you consult for the problems that you stated above?	Traditional treatment at home……. 1		
		Given medicine at home ……. 2		

		Hospital ……..…. 3
		PHCC /HP/ SHP ……..….. 4
		Pvt. Hospital/Clinic/N. Home……. 5
		Bought medicine from pharmacy……..6
		Consulted ASHA ……..... 7
		Consulted a TBA …… 8
		Consulted other HW …….. 9
		Consulted Ojha …….. 10
		Consulted relative/neighbor/friend ….11
		Other (specify)_____ 12
		Nothing ……... 97

71	During any of your antenatal care visits with health workers during your pregnancy prior to your most recent delivery, were you counseled on: (READ ALL RESPONSES)			
		Yes	No	Don't know
	1. Financial preparation for your delivery?	1	0	8
	2. Identifying emergency transport options?	1	0	8
	3. Arranging for blood in case of emergency?	1	0	8
	4. Tetanus toxoid vaccination?	1	0	8
	5. Danger signs during pregnancy?	1	0	8
	6. Delivery in a suitable health facility?	1	0	8
	7. Use of CHDK (clean home delivery kit)?	1	0	8
	8. All who touch the newborn need to wash hands with soap and water first?	1	0	8
	9. Immediate drying and wrapping of the newborn?	1	0	8
	10. Breastfeeding immediately after birth?	1	0	8
	11. Care of the newborn, particularly cleanliness, avoiding chilling, and immediate breastfeeding?	1	0	8
	12. Family planning?	1	0	8

72	Did you discuss planning for your delivery with your husband while you were pregnant?	Yes ……1
		No……0
73	Were you given or did you buy any iron/folic acid tablets when you were pregnant prior to your most recent delivery?	Yes ……1
		No……0
		DK……8
74	During the last pregnancy, for how many days and how much did you take the iron folic acid (IFA) tablets/syrup bottles?	a) Iron folic acid <u>Tablets</u>
		No of days……..
		No of tablets…….. DON'T KNOW….. 9
		b) IRON FOLIC ACID <u>SYRUP</u>
		No of days……..
		No of syrup bottles…….. DON'T KNOW….. 9
75	Where did you obtain the iron/folic acid tablets?	Hospital 1
		PHCC..... 2
		Health post..... 3
		Sub-health post 4

		PHC/OR clinic..... 5		
		Pvt. Hospital/Clinic/N. Home 6		
		Pharmacy 7		
		ASHA 8		
		Other (specify) _____ _____9		
76	If the number of tablets or amount of syrup is not taken in sufficient amount, what was the reason behind it?		Yes	No
		1. IFA tablets/ syrup was not available in the health institutions	1	0
		2. It didn't suit the women	1	0
		3. Was not informed about the duration of IFA tablets/strup to be cosumed	1	0
		4. Cost too much	1	0
		5. Other.....	1	0
77	During last pregnancy, how many times did you get a tetanus injection?	No of times…….		
		Don't know……9		
		Did not receive…….		
78	If the number of TT injection taken is less than two, what was the reason?	1. TT injection was not available in the health institutions……..1		
		2. Was not informed about the number of injections should have been taken …..2		
		3. Other _____ specify		
79	Do you think seeking antenatal care is important during pregnancy	Yes……..1		
		No……2		
80	How much you have spent during antenatal care?	MONEY IN RUPEES……..		
		DON'T KNOW……		
81	Why did you not go for antenatal check-up?		Yes	No
		a. NOT NECESSARY	1	0
		b. NOT CUSTOMRY	1	0
		c. COST TOO MUCH	1	0
		d. TOO FAR/NO TRANSPORT	1	0
		e. POOR QUALITY SERVICE	1	0
		f. FAMILY DID NOT ALLOW	1	0
		g. LACK OF KNOWLEDGE	1	0
		h. NOT TIME OF GO	1	0
		i. OTHERS	1	0
82	Who facilitated or motivated you to avail antenatal care?		Yes	No
		a. DOCTOR	1	0
		b. ANM	1	0

		c. HEALTH WORKER	1	0
		d. ANGANWADI WORKER	1	0
		e. ASHA	1	0
		f. NGO/CBO	1	0
		g. HUSBAND	1	0
		h. MOTHER IN LAW	1	0
		i. MOTHER	1	0
		j. RELATIVES	1	0
		k. SELF	1	0
		l. OTHRES	1	0
83	During your last pregnancy did you suffer from any of the following health problems?		Yes	No
		a. swelling of hands, feet and face	1	0
		b. paleness/weakness/giddiness	1	0
		c. visual distrubances	1	0
		d. excessive fatigue	1	0
		e. convulsion not from fever	1	0
		f. weak or no movement of foetus	1	0
		g. abnormal position of foetus	1	0
		h. malaria	1	0
		i.excessive vomiting	1	0
		j. hypertension/ high BP	1	0
		k. jaundice	1	0
		l. excessive bleeding	1	0
		m. vaginal discharge	1	0
		n. other …….specify	1	0
84	Was the delivery normal or caesarean or assisted?	a. NORMAL……..…1		
		b. CAESAREAN…….…2		
		c. BY INSTRUMENT OR ASSITED……..3		
85	When was the decision made for you to have a C-Section?	a. Before onset of labour……1		
		b. Afteronset of labour……2		
		c. Don't know……..98		
86	When you were in labor were you given an intravenous drip?	Yes……..……..….1		
		No……..……..0		
		Don't know…….…..8		
87	If yes, was there any medication put into the drip?	Yes……..……..….1		
		No……..……..0		
		Don't know…….…..8		
88	Where did your last delivery take place?	GOVERNMENT		
		DISPENSARY……1		
		PHC……..2		
		SUB CENTRE……3		
		AYUSH HOSPITAL/CLINIC…….4		
		CHC/RURAL HOSPITAL……..5		

		NGO/TRUSTHOSPITAL/CLINIC…….6		
		OTHER GOVT. FACILITY (SPECIFY)…….7		
		PRIVATE		
		HOSPITAL/CLINIC…….8		
		AYUSH HOSPITAL/CLINIC……..9		
		ON THE WAY TO HOSPITAL……..10		
		AT HOME…….11		
		AT PARENTS HOME…….12		
		WORK PLACE……..13		
		OTHERS……96		
89	Who conducted last delivery?	HEALTH PERSONNEL		
		DOCTOR……..1		
		ANM/NURSE/MIDWIFE……2		
		OTHER HEALTH PERSONNEL……..3		
		OTHER PERSON		
		DAI……..4		
		REALTIVES…….5		
		OTHERS……6 (SPECIFY)		
		NO ONE……..7		
90	Had you planned during your pregnancy to deliver in a health facility or did you start to deliver at home and then decide to go the health facility because of some problem occurring during your labor or delivery?	Planned to go during pregnancy ……. 1		
		Started to deliver at home ……..… 2		
		Other (specify) _____ 3		
91	What are the signs/symptoms during labor indicating the need to seek immediate care?	Labor longer than 8 hours.....1		
		Appearance of baby's hand first 2		
		Appearance of baby's leg first.....3		
		Appearance of umbilical cord first.....4		
		Excessive bleeding before or after delivery.....5		
		Convulsion.....6		
		Other (specify).....7		
		Don't know.....8		
92	During your delivery, did you experience any of the following problems at anytime?		Yes	No
		A. So much bleeding that it wet your clothes and you feared it was life threatening?	1	0
		B. Convulsions?	1	0
		C. Prolonged labor (>12 hours)?	1	0
		D. The baby's hand, leg or cord came out first?	1	0
		E. None of the above	1	0
93	What did you do or whom did you consult for the problems that you stated above?	GOVERNMENT……..1		
		DISPENSARY……2		
		PHC……..4		

		SUB CENTRE……5		
		AYUSH HOSPITAL/CLINIC…….6		
		CHC/RURAL HOSPITAL……..7		
		NGO/TRUSTHOSPITAL/CLINIC…….8		
		PRIVATE		
		HOSPITAL/CLINIC…….9		
		AYUSH HOSPITAL/CLINIC……..10		
		ON THE WAY TO HOSPITAL……..11		
		AT HOME…….12		
		AT PARENTS HOME…….13		
		WORK PLACE……..14		
		OTHERS……96		
94	Was any special kit used during your delivery?	Yes……..1		
		No……0		
95	What are the customs you followed during pregnancy	1. No special diet		
		2. Hot & cold items		
		3. Non-vegetarian diet		
		4. Others_____		
96	What is the reason for going to Pvt. Instt. Instead of Govt. Instt?		Yes	No
		1. Lack of qualified doctors/ nurses	1	0
		2. Irregular Doctors/ Nurses/ ANM/ other health professionals	1	0
		3. Lack of medicines	1	0
		4. Lack of laboratory test	1	0
		5. Rude behavior of health professionals	1	0
		6. Too far/ no transport	1	0
		7. Other.....	1	0
97	What are the reasons for not going to the health facility for delivery?		Yes	No
		A. NOT NECESSARY	1	0
		B. NOT CUSTOMRY	1	0
		C. COST TOO MUCH	1	0
		D. TOO FAR/NO TRANSPORT	1	0
		E. POOR QUALITY SERVICE	1	0
		F. FAMILY DID NOT ALLOW	1	0
		G. LACK OF KNOWLEDGE	1	0
		H. NOT TIME OF GO	1	0
		I. OTHERS	1	0
98	How much cost you incurred for delivery?	Delivery cost (in rupee).....		
		a. Doctor fee		
		b. Medicine cost		

		c. Transport fee
		d. Any special food arrangement
		No cost paid……
		Don't know…….
99	What was the main mode of transportation used by you to reach the health facility for delivery?	AMBULANCE……1
		JEEP/CAR……2
		MOTORCYCLE…….3
		BUS……4
		TEMO/AUTO/TRACTOR……..5
		CART……..6
		FOOT MARCH……7
		OTHERS……..8
100	Did you receive any financial assistance during your last delivery?	Yes……..1
		No……0
101	From where did you get assistance?	a. Janani suraksha yojana……..1
		b. other government scheme…….2
102	How many days after delivery did you get the financial assistance under JSY?	Days…….
		Don't know…….98
103	What was the total amount that you received?	Rs.
		Don't know…….98
104	When you were pregnant, did you receive deworming tablets?	Yes ……1
		No……...2
		DK……8
105	Did you have any check-up within 48 hours after delivery?	Yes……..1
		No……..0
106	how many days after delivery did the first check-up take place?	a. Days……..
		b. No check-up done at all…….00
		C. Don't know……98
107	Who checked on your health?	Health Personnel
		a. Doctor……1
		b. ANM/Nurse/midwife/LHV……2
		c. other health personnel……3
		d. ASHA…….4
		e. Dai (TBA)…….5
		F. other……..specify….6
108	Where did the first check-up take place?	GOVERNMENT……..1
		DISPENSARY……2
		PHC……..3
		SUB CENTRE……4
		AYUSH HOSPITAL/CLINIC…….5
		CHC/RURAL HOSPITAL……..6
		NGO/TRUSTHOSPITAL/CLINIC…….7
		PRIVATE

		HOSPITAL/CLINIC…….8		
		AYUSH HOSPITAL/CLINIC……..9		
		ON THE WAY TO HOSPITAL……..10		
		AT HOME…….11		
		AT PARENTS HOME…….12		
		WORK PLACE……..13		
		OTHERS……96		
109	Did any of the following happen when you had the check-up?		Yes	No
		a. Abdomen examined…….	1	0
		b. Advice on breastfeeding……..	1	0
		c. Advice on baby care……..	1	0
		d. Advice on family planning…….	1	0
		e. Any other…….specify	1	0
110	During the first six weeks after delivery did you experience any of the following health problems?		Yes	No
		a. Advice on baby care……..	1	0
		b. lower abdominal pain……	1	0
		c. excessive bleeding…….	1	0
		d. convulsions……..	1	0
		e. severe headache……..	1	0
		f.other…….specify	1	0
111	Did you consult anyone or seek treatment for these health problems?	Yes……..…….1		
		No……..……..0		
112	Where did you go for above mentioned problems?	Government	Yes	No
		A. hospital	1	0
		b. Dispensary	1	0
		c. CHC/ Rural hospital	1	0
		d. PHC	1	0
		e. sub center	1	0
		f. AYUSH hospital/clinic	1	0
		g. NGO/trust hospital/clinic	1	0
		private	1	0
		h. hospital/clinic	1	0
		i. AYSUH hospital/clinic	1	0
		j. other……specify	1	0

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