Utilization of Maternal Health Care Services in Himachal Pradesh: An Empirical Analysis

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Abstract: - More than 500,000 maternal deaths during pregnancy, childbirth, or within a few weeks of delivery occur as a result of poor maternal health delivery in developing countries. Along with many other socioeconomic determinants, the persistent lack of accessibility and underuse of antenatal and other healthcare services continues to be a significant contributor to the high rates of maternal death. The main objective of the present study is to examine the utilization of maternal healthcare services, such as antenatal care (ANC), intranatal care (INC), and postnatal care (PNC), in Himachal Pradesh and what are the determinants which influence the utilization of maternal health care services. The cross-sectional design and multistage stratified random sample used in the study covered three administrative zones within Himachal Pradesh. 576 respondents participated in the study sample, and data were gathered using structured questionnaire. The result of the study showed that majority of the respondents had utilized at least one of the maternal healthcare services. A generous percentage of respondents chose public hospitals for ANC, with Mandi having the most significant consumption of ANC services. Normal delivery was predominant and most of the deliveries took place in public hospitals. The rate of PNC service utilization was relatively low. It was concluded from the study that the importance of education and income in improving maternal healthcare outcomes requires focused interventions to raise PNC service utilization.

Keywords: Antenatal Care (ANC), Delivery, Intranatal Care (INC), Maternal Health, Postnatal Care (PNC), Utilization.

1. Introduction

A proper utilization of antenatal and postnatal care services is important in order to reduce maternal and infant mortality rates. The persistent lack of accessibility and underutilization of antenatal and other healthcare services remains a significant contributing factor to the elevated rates of maternal death, alongside many socioeconomic determinants. Improving the utilization of maternal healthcare services is a global challenge for the health system in low- and middle-income countries. Poor maternal health delivery in developing countries results in more than half a million maternal deaths during pregnancy, childbirth or within a few weeks of delivery. The majority of maternal deaths occur during labor, delivery and immediate postpartum period. Utilization of maternal health care is determined by various factors such as literacy level, low economic status, religion, age, social status, occupation of household, region of living and cost of maternal healthcare services (Bloom et al., 2001; Chhabra et al., 2011; Kulkarni & Durge, 2013; Sanneving et al., 2013; Singh et al., 2014; Haddad et al., 2016; Shahabuddin et al., 2017). The main factor influencing

institutional delivery is the number of ANC visits and cost of services. It was observed that more the number of ANC visits, more the women likely to utilize institutional delivery (Kulkarni & Durge, 2013; Acharya et al., 2016; Shahabuddin et al., 2017; John et al., 2018). The cost of maternal healthcare utilization increases with an increase in complications during pregnancy or delivery (Kes et al., 2015; Govil et al., 2016). Direct and hidden costs are the main barriers to institutional delivery for women from remote regions (Acharya et al., 2016). Poor Indian households spend a higher percentage of their household income to seek care, which is almost twice that of households with high income, leading to out-of-pocket expenditure to meet the cost of maternal healthcare services (Bidgoli et al., 2015).

Maternal health is a social phenomenon and a medical event where utilization of maternal health care services is influenced by many factors but education, social status of the household and the economic condition of the household is found to be highly significant (Chakrabarti & Chaudhury, 2007; Chhabra et al., 2011; Kulkarni & Durge, 2013; Sanneving et al., 2013; Saxena et al., 2013; Nigatu et al., 2014; Adhikari, 2016; Haddad et al., 2016; Aregbeshola & Khan, 2018; Deepak et al., 2018). Education plays a vital role in the utilization of maternal health care services. Many studies have found that the higher a woman is educated, the more likely she is to utilize maternal healthcare services (Letamo & Rakgoasi, 2003; Chhabra et al., 2011; Adhikari, 2016; Shahabuddin et al., 2017; Haider et al., 2017). Other factors like location of residence, *viz. urban or rural*, monthly household income, and the main occupation of the household also influence the utilization of maternal health care positively (Bloom et al., 2001; Letamo & Rakgoasi, 2003; Chhabra et al., 2011; Nigatu et al., 2014; Singh et al., 2014; Adhikari, 2016; Shahabuddin et al., 2017; Haider et al., 2017; Aregbeshola & Khan, 2018). Besides all these factors, demographic factors like age, caste, and religion; availability of labour rooms, number of ANC visits and amplification of public health infrastructure also influence the utilization of MHC services (Chhabra et al., 2011; Sanneving et al., 2013; Singh et al., 2014; Adhikari, 2016; Deepak et al., 2018) One more factor, i.e. women autonomy also plays a major role in the direct relation with the utilization pattern of maternal health care services. Women having high autonomy are more likely to use antenatal care services (Bloom et al., 2001; Adhikari, 2016; Haider et al., 2017). Factors like poverty inversely influence the utilization of maternal health services (Bloom et al., 2001; Letamo & Rakgoasi, 2003; Saxena et al., 2013). A study from Aurangabad showed that most women went to private hospitals than government hospitals, and very few delivered at home. Women had three or more three antenatal visits, less than half of the respondents had their 1st ANC visit in the first trimester, and around 5 per cent had never taken an ANC visit. Similarly, studies from Lucknow and Ahmadabad have shown that women preferred government hospitals to private hospitals, and women generally took 2-3 ANC visits. Around 50 per cent of the respondents took their 1st ANC visit in 2nd trimester. A study from Northwest Ethiopia showed 3-4 ANC visits, mostly in the second trimester followed by the third trimester.

2. Objectives

The main objective of the present study is to examine the utilization of maternal healthcare services, such as antenatal care (ANC), intranatal care (INC), and postnatal care (PNC), in Himachal Pradesh and what are the determinants which influence the utilization of maternal health care services.

3. Methods

a. Sample design

A cross-sectional study was carried out in Himachal Pradesh which consists of 12 districts and has a total population of 68,64,602 (Census, 2011).

b. Sample size and sampling technique

Multistage stratified random sampling was used to select participants. Himachal Pradesh is separated into three administrative zones, Kangra, Mandi, and Shimla, and each zone was chosen. Further, two districts were selected from each of the three divisions based on literacy rate, that is, those with the highest and lowest literacy rates, and two tehsils were selected from each district based on literacy rate, that is, those with the highest and lowest literacy rates (as shown in Figure 1 and 2). Considering the total population of the six districts, the sample size recommended by Krejcie and Morgan (1970) for

this study was 385. However, by introducing the design effect, 576 legitimate respondents were surveyed (Kansra and Oberoi, 2023).

c. *Instrument for data collection*

The instrument used in collecting data was a structured questionnaire utilization regarding different aspects of maternal health care i.e., antenatal care (ANC), Intranatal care/ delivery (INC) and postnatal care (PNC).

d. *Statistical analysis*

The data was analysed using SPSS version 22. Descriptive statistics like percentage were used for the demographic profile of the respondents. Furthermore, binary logistic regression model was used to know the socio-economic determinants of mothers for the utilization of maternal health care services in Himachal Pradesh.

4. Results

4.1.1 Demographic Profile of Respondents

Table 4.1.1 illustrates the descriptive statistics demographic profile of the respondents from all three regions of Himachal Pradesh. As a result, out of 576 respondents in Himachal Pradesh, majority of the respondents belonged to the age group of 25- 30 years (35.9), followed by 20-25, 30-35, up to 20 (5.2 percent) and 35-40 (3.8 percent). It was witnessed that the proportion of general caste respondents was 49.8 percent in Kangra, 5.9 percent in Mandi, and 52.3 percent in Shimla. Furthermore, it was found that general caste respondents were 51 percent overall in Himachal Pradesh as compared to OBC (24.3 percent), SC (20.7 percent) and ST (4 percent), respectively. The proportion of respondents completed higher secondary education is around 30 percent, followed by graduation, secondary, primary, post-graduation, and no formal education. The majority of respondents have monthly household income up to ₹15,000, followed by ₹15,000-₹30,000, ₹30,000-₹45,000, ₹45,000-₹60,000, and more than ₹60,000. Around 52 percent of respondents live in joint families, while 48 percent live in nuclear families. The birth status revealed that mothers of two children were highest in all zones followed by one child.

Table 4.1.2 Demographic Profile of Respondents

Socio-Demographic Variables	Kangra	Mandi	Shimla	Total
	N (%)	N (%)	N (%)	N (%)
Age (in Years)				
Up to 20	11 (4.8)	08 (7.5)	11 (4.5)	30 (5.2)
20-25	80 (35.2)	40 (37.7)	74 (30.5)	194 (33.7)
25-30	86 (37.9)	35 (37.7)	86 (35.4)	207 (35.9)
30-35	41 (18.1)	21 (19.8)	60 (24.7)	122 (21.2)
35-40	08 (3.5)	02 (1.9)	12 (4.9)	22 (3.8)
40 & above	01 (0.4)	-	-	01 (0.2)
Caste				
General	113 (49.8)	54 (50.9)	127 (52.3)	294 (51.0)
OBC	47 (20.7)	32 (30.2)	61 (25.1)	140 (24.3)
SC	54 (23.8)	16 (15.1)	49 (20.2)	119 (20.7)
ST	13 (5.7)	04 (3.8)	06 (2.5)	23 (4.0)
Literacy level of respondent				
No formal education	06 (2.6)	-	06 (2.5)	12 (2.1)
Primary	40 (17.6)	16 (15.1)	33 (13.6)	89 (15.5)
Secondary	39 (17.2)	23 (21.7)	40 (16.5)	102 (17.7)
Higher Secondary	80 (35.2)	31 (29.2)	72 (29.6)	183 (31.8)

Graduation	49 (21.6)	34 (32.1)	62 (25.5)	145 (25.2)
Post- Graduation	13 (5.7)	02 (1.9)	30 (12.3)	45 (7.8)
Monthly income of household				
Upto ₹15,000	95 (41.9)	39 (36.8)	93 (38.3)	227 (39.4)
₹15,000-₹30,000	74 (32.6)	35 (33.0)	76 (31.3)	185 (32.1)
₹30,000-₹45,000	39 (17.2)	17 (16.0)	33 (13.6)	89 (15.5)
₹45,000-₹60,000	05 (2.2)	02 (1.9)	10 (4.1)	17 (3.0)
More than ₹60,000	14 (6.2)	13 (12.3)	31 (12.7)	60 (10)
Type of Family				
Nuclear	102 (44.9)	39 (36.8)	135 (55.6)	276 (47.9)
Joint	125 (55.1)	67 (63.2)	108 (44.4)	300 (52.1)
Birth Order				
1st	88 (38.8)	38 (35.8)	106 (43.6)	232 (40.3)
2nd	122 (53.7)	67 (63.2)	118 (48.6)	307 (53.3)
3rd	11 (4.8)	01 (0.9)	16 (6.6)	28 (4.9)
4th	04 (1.8)	-	02 (0.8)	06 (1.0)
5th	02 (0.9)	-	-	02 (0.3)
6th	-	-	01 (0.4)	01 (0.2)

Source: Author's calculation based on primary data

4.1.2 Utilization of Antenatal Care (ANC) Services

Table 4.1.2 shows that all women utilized maternal healthcare services which means all women have utilized either ANC, INC or PNC services. Table 4.1.2 depicted that out of 576 respondents, all women from Kangra, Mandi and Shimla utilized maternal healthcare services. Furthermore, it was found that 94.1 per cent of respondents utilized ANC services. It exhibits that in Mandi all of the respondents utilized the ANC properly whereas in Shimla (97 per cent) and Kangra (87.2 percent) utilized ANC services. It was found that 11.9 percent of respondents in Kangra have not used ANC services because they think that it's not necessary. Most respondents took 5-6 visits, followed by 3-4 visits, 1-2 visits and 7-8 visits for ANC. It was outlined from the data, out of 576 respondents, a large proportion of respondents utilized ANC (69.6 percent) from public hospital.

However, it was revealed that a large proportion of respondents took 2 doses of TT injection followed by 1 dose and 3 doses. The results show that out of 576 respondents, a small proportion faced complications before and during delivery. The results exhibit that majority of mothers gave and preferred normal delivery, it was found from the analysis 64.2 percent of respondents preferred normal delivery and most of the deliveries happened in public hospitals. Furthermore, the analysis revealed that a large proportion of 63.7 per cent from Himachal Pradesh did not utilize PNC services. It was observed that 97.9 percent of respondents gave birth to healthy babies whereas 1.7 percent of respondents delivered low birth weight babies. However, it was observed that most of the women get discharged after 3 days from the hospital after the delivery. It was found that 34.1 percent of respondents were discharged after three days followed by 29.2 percent of respondents who were discharged after 24 hours of delivery and 22.4 percent after 48 hours. Lastly, it was found that a large proportion of the respondents in Shimla (72.8 percent) consumed IFA tablets after delivery for 42 days followed by 56.2 percent in Kangra and 50 percent in Mandi.

Table 4.1.2 Utilization of Antenatal Care (ANC) Services

Variables	Kangra	Mandi	Shimla	Overall
	N (%)	N (%)	N (%)	N (%)
Have you utilized maternal health care services?				
Yes	214 (94.2)	106 (100.0)	241 (99.2)	561 (97.4)

No	13 (5.8)	00 (00)	02 (0.8)	15 (2.6)
Who made decisions related to your utilization of maternal health care services?				
Myself	02 (0.9)	01 (0.9)	-	3 (0.5)
Both me and my husband	84 (37.2)	61 (57.5)	96 (39.5)	242 (42.0)
Only Husband	14 (6.2)	06 (5.7)	09 (3.7)	29 (5.0)
Mother-in-law	00 (00)	01 (0.9)	-	01 (0.2)
Whole family	114 (50.0)	37 (34.9)	136 (56.0)	286 (49.7)
Have you utilized ANC services?				
Yes	198 (87.2)	106 (100.0)	238 (97.9)	542 (94.1)
No	29 (12.8)	00 (00)	05 (2.1)	34 (5.9)
If no, what were the reasons?				
Not necessary	28 (11.9)	00 (00)	04 (1.6)	31 (5.4)
Lack of knowledge	01 (0.4)	00 (00)	01 (0.4)	02 (0.3)
If yes, how many times you took ANC visit?				
1-2 visits	61 (26.5)	24 (22.6)	92 (37.9)	176 (30.6)
3-4 visits	40 (17.7)	22 (20.8)	45 (18.5)	107 (18.6)
5-6 visits	92 (40.7)	60 (56.6)	89 (36.6)	242 (42.0)
7-8 visits	05 (2.2)	00 (00)	12 (4.9)	17 (3.0)
If yes, from where you utilized antenatal care (ANC) services?				
Public Hospital	142 (62.4)	78 (73.6)	181 (74.5)	401 (69.6)
Private Hospital	56 (24.8)	28 (26.4)	57 (23.5)	141 (24.5)
How many times have you been vaccinated by Injection Tetanus Toxoid (TT)?				
1 time	79 (34.5)	51 (48.1)	92 (37.9)	221 (38.4)
2 times	109 (48.2)	48 (45.3)	128 (52.7)	286 (49.7)
3 times	10 (4.4)	07 (6.6)	18 (7.4)	35 (6.1)
How many Iron Folic Acid tablets (IFA) have you consumed?				
Less than 50 tablets	17 (7.1)	12 (11.3)	12 (4.9)	40 (6.9)
At least 100 tablets	137 (60.6)	71 (67.0)	198 (81.5)	406 (70.5)
At least 180 tablets	44 (19.5)	23 (21.7)	28 (11.5)	96 (16.7)

Source: Author's calculation based on primary data

4.1.3 Utilization of Intranatal Care (INC) Services

Table 4.1.3 provides information regarding the geographical distribution of childbirth among women and the key factors contributing to the decision not to deliver at a healthcare facility. The data is categorized into three regions, namely Kangra, Mandi and Shimla, with an accompanying summary encompassing the entire dataset. The data is shown with the number of women and the proportion they represent in the overall population of each respective region. In the Kangra region, a considerable proportion of women, precisely 81.4 percent, choose to give birth to their infants in public healthcare facilities. A lesser proportion of individuals, namely 8 percent, chose private hospitals, while the remaining 10.6 percent delivered their baby home. Among individuals who did not give birth at healthcare facilities, the top factors contributing to this decision were inadequate road communication (4 percent) and limited access to transportation (0.4 percent). A negligible proportion of respondents identified distance as a significant hindrance (0.4 percent).

Within the cohort of individuals who did not avail themselves of health services at institutions in Shimla, a notable proportion of 7.5 percent identified "insufficient time" as the critical factor influencing their decision, while a smaller fraction of 0.3 percent attributed their choice to unspecified reasons categorized as "Others." The data reveals that 84 percent of women opted for public hospitals as their delivery setting, 7.6 percent chose private hospitals and 8.3 percent preferred home births across all three areas. Among those who did not give birth in health institutions, the primary factors contributing to this decision were "insufficient time" (6.1 percent) and other considerations. Although "lack of transportation" and "distance" were also cited, they had a minor impact.

The study offers significant insights into women's preferences about the place of childbirth, as well as the obstacles they encounter in these regions. These findings give crucial information for healthcare strategizing and enhancing the availability of health services. The predominant preference for childbirth is public hospitals, with the rationales for not selecting healthcare facilities differing, encompassing logistical difficulties and temporal limitations.

Table 4.1.3 Utilization of Intranatal Care (INC) Services

Variables	Kangra N (percent)	Mandi N (percent)	Shimla N (percent)	Overall N (percent)
Where did you deliver your baby?				
Public Hospital	183 (81.4)	96 (90.6)	203 (83.5)	484 (84.0)
Private Hospital	18 (8.0)	02 (1.9)	24 (9.9)	44 (7.6)
Home	24 (10.6)	08 (7.5)	16 (6.6)	48 (8.3)
If you did not deliver your baby at any health institution, what is the main reason behind it?				
Distance	01 (0.4)	00 (00)	00 (00)	01 (0.2)
No proper communication of roads	09 (4.0)	00 (00)	00 (00)	09 (1.6)
Lack of transportation	01 (0.4)	00 (00)	00 (00)	01 (0.2)
No time	11 (4.9)	08 (7.5)	16 (6.6)	35 (6.1)
Others	02 (0.9)	00 (00)	00 (00)	02 (0.3)

Source: Author's calculation based on primary data

4.1.4 Type of Delivery and Complications during Delivery

Table 4.1.4 shows reveals findings regarding the type of delivery, the involvement of healthcare professionals and the prevalence of delivery complications, classified by zones, namely Kangra, Mandi and Shimla. It was observed that 61.1 percent of the participants in Kangra, 59.4 percent in Mandi and 69.1 percent in Shimla reported normal deliveries, resulting in an aggregate proportion of 64.2 percent. In contrast, prevalence of cesarean section (C-section) deliveries in Kangra, Mandi and Shimla were recorded at 38.9 percent, 40.6 percent and 30.9 percent, respectively, collectively constituting 35.8 percent of the overall deliveries. The percentage of deliveries performed by doctors in Kangra, Mandi, Shimla were 60.6 percent, 65.1 percent, 57.6 percent, respectively, however, overall, it was 60.2 percent. The study revealed that 'Dai' played a role in 11.5 percent of deliveries in the Kangra region, 8.5 percent in Mandi and 6.6 percent in Shimla, resulting in an aggregate contribution of 8.9 percent across the studied areas. However, in Kangra, nurses were involved in 27.9 percent of deliveries, while in Mandi, their participation accounted for 26.4 percent. In Shimla, nurses were present in 35.8 percent of deliveries. Among three regions, overall percentage of deliveries conducted by nurses were 30.9 percent.

Regarding complications encountered during childbirth, survey participants indicated that proportions of respondents who reported confronting complications were 37.2 percent in Kangra, 15.1 percent in Mandi and 6.2 percent in Shimla, collectively constituting an overall proportion of 11.6 percent. The percentage of individuals who did not encounter any issues was 62.8 percent in Kangra, 84.9 percent in Mandi and 93.8 percent in Shimla, collectively accounting for 88.3 percent of the population.

Table 4.1.4 Type of Delivery and Complications during Delivery

Variables	Kangra N (%)	Mandi N (%)	Shimla N (%)	Overall N (%)
What type of delivery did you have?				
Normal delivery	137 (61.1)	63 (59.4)	168 (69.1)	370 (64.2)
C-Section delivery	88 (38.9)	43 (40.6)	75 (30.9)	206 (35.8)
Who conducted your delivery?				

Doctor	137 (60.6)	69 (65.1)	140 (57.6)	347 (60.2)
Dai	26 (11.5)	09 (8.5)	16 (6.6)	51 (8.9)
Nurse	64 (27.9)	28 (26.4)	87 (35.8)	178 (30.9)
Did you face any complication(s) during delivery?				
Yes	84 (37.2)	16 (15.1)	19 (6.2)	67 (11.6)
No	142 (62.8)	90 (84.9)	228 (93.8)	509 (88.3)

Source: Author's calculation based on primary data

4.1.5 Utilization of Postnatal Care (PNC) Services

Table 4.1.5 presents a comprehensive analysis of the coverage of postnatal care variables associated with maternal health throughout the three zones, Kangra, Mandi and Shimla. The utilization rate of Postnatal Care (PNC) services has achieved a record high of 36.3 percent across all geographical zones. The findings of the zone-wise study indicated that Shimla exhibits the highest utilization rate (35.8 percent), followed by Mandi (34.9 percent) and Kangra (34.5 percent). In each geographical region, participants who availed themselves of PNC services preferred receiving healthcare in a public hospital. Mandi exhibits the highest utilization rate of PNC services from public hospitals, with a percentage of 40.6 percent. Following closely behind is Shimla, with a utilization rate of 35.4 percent and Kangra, with a utilization rate of 32.5 percent. The utilization rates of PNC services offered by private hospitals are consistently low with percentages ranging from 0.4 percent to 1.7 percent across various geographic zones. It was observed that a significant proportion of infants had favourable health conditions across various temporal and geographical contexts. The proportions of neonates exhibiting favourable health conditions were remarkably consistent across different regions, with Kangra reporting 97.8 percent, Mandi reporting 99.1 percent and Shimla reporting 97.5 percent. In Kangra and Mandi, premature births were virtually absent, whereas in Shimla, such deliveries constituted 0.8 percent of the total number of births.

A significant proportion of infants had favourable health conditions across different temporal and geographical contexts. Premature births were virtually absent in Kangra and Mandi, while in Shimla, they constituted 0.8 percent of the total number of births. Babies with low birth weight were observed in all zones, with Kangra having the highest number (2.2 percent). Different timings of hospital discharges following childbirth exist, with Mandi having the highest prevalence of discharges after 24 hours (30.2 percent). There are discrepancies in the utilization of iron and folic acid (IFA) supplements following childbirth, spanning 42 days in different geographical regions. Mandi had the highest consumption rate in Himachal Pradesh (50 percent), followed by Kangra (56.2 percent) and Shimla (72.8 percent). However, there was a notable disparity in the proportion of individuals who did not consume IFA tablets throughout the regions.

Table 4.1.5 Utilization of Postnatal Care (PNC) Services

Variables	**Kangra**	**Mandi**	**Shimla**	**Overall**
	N (percent)	**N (percent)**	**N (percent)**	**N (percent)**
Did you utilize PNC services?				
Yes	78 (34.5)	37 (34.9)	87 (35.8)	209 (36.3)
No	148 (65.5)	69 (65.1)	156 (64.2)	367 (63.7)
If yes, from where did you utilize PNC services?				
Public Hospital	74 (32.5)	43 (40.6)	86 (35.4)	203 (35.24)
Private Hospital	04 (1.7)	01 (1.0)	01 (0.4)	06 (1.0)
Your baby at the time of birth was				
Healthy	222 (97.8)	105 (99.1)	237 (97.5)	564 (97.9)
Premature	00 (00)	00 (00)	02 (0.8)	02 (0.3)
Low Birth Weight	05 (2.2)	01 (0.9)	04 (1.6)	10 (1.7)
After delivery, when were you discharged from hospital?				

Immediately after delivery	05 (2.2)	00 (00)	07 (2.9)	12 (2.1)
After 24 hours of delivery	61 (27.0)	32 (30.2)	75 (30.9)	168 (29.2)
After 48 hours of delivery	55 (24.3)	21 (19.8)	53 (21.8)	129 (22.4)
After 3 days	77 (33.6)	41 (38.7)	79 (32.5)	197 (34.1)
Did you consume IFA tablets after delivery for 42 days?				
Yes	128 (56.2)	53 (50.0)	177 (72.8)	358 (62.2)
No	99 (43.8)	53 (50.0)	66 (27.2)	218 (37.8)

Source: Author's calculation based on primary data

4.1.6 Socio-Economic Profile of the Mothers in Himachal Pradesh

The key socio-economic determinants of mothers in Himachal Pradesh were identified by using the binary logistic regression model as shown in table 4.1.6. Based on the "Omnibus Test of Model" the value of 0.000 exhibits the model to be significant. The results revealed that age was not a significant determinant ($p = 0.867$ and 0.843). The analysis exhibits in education secondary, higher secondary and graduation above were a significant determinant highlighting a lower probability in ANC, INC and PNC ($p = 0.25, 0.031$ and 0.0991). Secondary level, higher secondary and graduation level of education is a significant determinant in ANC and INC but an insignificant in PNC. Further, results of the study revealed that with increase in the level of education, probability of incidence of maternal health reduces significantly among educated respondents as compared to illiterates. The analysis exhibits that joint family ($p = 0.002$) was a significant socio-economic determinant with ANC compared to PNC and INC. Moreover, income group ₹ 30,000 and above were four times more likely to experience a higher incidence of ANC, PNC and INC as compared to low-income group respondents (₹15000 to ₹30,000) with ($p=0.052$) in overall Himachal Pradesh. Similarly, birth order was not a significant determinant in ANC and PNC but the results revealed that the odds of incidence of INC rises in birth order respondents.

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Table 4.1.6 Socio-Economic Profile of the mothers in Himachal Pradesh

Variable	ANC			INC			PNC			Aggregate		
	Odd Ratio	Std. Err.	P-value	Odd Ratio	Std. Err.	P-value	Odd Ratio	Std. Err.	P-value	Odd Ratio	Std. Err.	P-value
Education level (Not formal education)												
Up to primary	4.424	4.490	0.143	1.926	1.505	0.401	3.032	2.504	0.601	4.443	5.209	0.203
Secondary	13.721	15.430	0.020**	4.330	3.473	0.068***	2.460	2.028	0.489	30.958	47.271	0.025**
Higher Secondary	8.684	8.921	0.035**	14.590	12.241	0.001*	2.440	1.987	0.494	13.778	16.716	0.031**
Graduation and above	26.154	32.222	0.008**	66.073	71.303	0.000*	3.828	3.153	0.762	38.112	59.323	0.019**
Age of women (Up to 25 year)												
25-30 years	0.464	0.264	0.178	0.764	0.325	0.527	1.166	0.264	0.748	0.887	0.635	0.867
Above 30 years	1.196	0.863	0.804	1.018	0.605	0.976	0.977	0.268	0.571	1.204	1.129	0.843
Caste (Unreserved)												
Reserved	1.258	0.628	0.646	1.062	0.392	0.871	1.711	0.327	1.175	1.835	1.213	0.358
Type of family (Nuclear)												
Joint	6.970	3.712	0.000*	0.783	0.294	0.514	0.959	0.183	0.660	3.073	2.012	0.086***
Order of birth (1st child)												
More than two children	2.239	1.184	0.127	3.755	1.474	0.001*	0.866	0.166	0.594	1.245	0.849	0.748
Monthly Household Income (Up to Rs. 15000)												
₹15000 to 30000	8.962	5.957	0.001	3.648	1.454	0.001*	1.131	0.243	0.568	9.521	10.092	0.033**
More than ₹ 30000	6.645	4.460	0.005**	14.419	10.698	0.000*	1.978	0.432	0.002**	7.936	8.450	0.052**
Model Summary												
No. of Observations= 576												
Prob > chi2	0.000			0.000			0.062			0.000		
Pseudo-R2	0.367			0.179			0.029			0.245		

Source: Author Calculation based on primary data.

Note: * Significant at 1 percent

    ** Significant at 5 percent

   *** Significant at 10 percent

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5. Discussion

The study offered insightful information about how maternal healthcare services were used in Himachal Pradesh, revealing several socioeconomic factors and regional variances in healthcare use. Examining the usage of maternal healthcare services, such as antenatal care (ANC), intranatal care (INC), and postnatal care (PNC), was the main goal of the study carried out in Himachal Pradesh. According to the respondents' demographic profile, most were in the 25–30 age range and belonged to the general caste. A substantial portion of those with varying levels of education completed their studies at the upper secondary level. Different income levels shared household income, and the majority of respondents lived in joint households. The vast majority of mothers also had two kids. About all of the respondents had utilized at least one of the maternal healthcare services. A sizable percentage of respondents chose public hospitals for ANC, with Mandi having the most significant consumption of ANC services. Most births were through normal delivery, and most took place in public hospitals. The rate of PNC service utilization was, however, relatively low. Medical personnel, such as doctors and nurses, played a significant role during deliveries. Public hospitals were chosen by most of the respondents. Women stated reasons like 'poor road communication' and 'limited vehicle access' for not utilizing maternal health care services. PNC services were underutilized in Himachal. Most newborns were healthy, although a tiny proportion had low birth weight. Hospital discharge period was varied by region, with most women being released after three days. According to the binary logistic regression model, education, family structure (joint family), and higher income were significant socioeconomic variables determining the use of maternal healthcare services. The use of ANC and INC was significantly influenced by education, with greater education levels linked to a lower likelihood of maternal health problems. It stressed the need for targeted initiatives to increase PNC service utilization and the significance of education and income in enhancing maternal healthcare outcomes.

Refrences

[1] Acharya, J., Kaehler, N., Marahatta, S.B., Mishra, S.R., Subedi, S., & Adhikari, B. (2016). Hidden costs of hospital based delivery from two tertiary hospitals in western Nepal. _Plos One_, _11_(6), 1-11.

[2] Adhikari, R. (2016). Effect of women's autonomy on maternal health service utilization in Nepal: A cross sectional study. _BMC Women's Health_, _16_(1), 26-33.

[3] Aregbeshola, B.S., & Khan, S.M. (2018). Factors associated with non-utilization of maternal and child health services in Nigeria: Results from the 2013 Nigeria demographic and health survey. _Journal of Public Health, 27_(3), 1-9.

[4] Bidgoli, H., Pulkki Brannstrom, A.M., Lafort, Y., Beksinska, M., Rambally, L., Roy, A., & Worrall, J. (2015). Inequity in costs of seeking sexual and reproductive health services in India and Kenya. _International Journal for Equity in Health_, _14_(1), 84-92.

[5] Bloom, S.S., Wypij, D., & Gupta, M.D. (2001). Dimensions of women's autonomy and the influence on maternal health care utilization in a north Indian city. _Demography_, _38_(1), 67-78.

[6] Chhabra, P., Sharma, G., & Kannan, A.T. (2011). Pattern of maternal health care among working women in Delhi. _Indian Journal of Maternal and Child Health_, _13_(4), 1-9.

[7] Deepak, C., Jauhari, N., & Dhungana, H. (2018). A study on utilization of maternal health services and factors influencing the utilization in urban slums of Lucknow. _International Journal of Medicine and Public Health_, _8_(2), 77-81.

[8] Government of India (2011). Himachal Pradesh Population Census 2011. Retrieved from https://www.censusindia.co.in/states/himachal-pradesh [18 June, 2023].

[9] Govil, D., Purohit, N., Gupta, S.D., & Mohanty, S.K. (2016). Out-of-pocket expenditure on prenatal and natal care post Janani Suraksha Yojana: A case from Rajasthan, India. _Journal of Health, Population and Nutrition_, _35_(1), 15-26.

[10] Haddad, G., Jong, J., Terreri, N., Mendez, M.C., Perin, J., Vaz, L., & Bryce, J. (2016). Patterns and determinants of antenatal care utilization: Analysis of national survey data in seven countdown countries. _Journal of Global Health_, _6_(1), 1-20.

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[11] Haider, M.R., Qureshi, Z.P., & Khan, M.M. (2017). Effects of women's autonomy on maternal healthcare utilization in Bangladesh: Evidence from a national survey. *Sexual & Reproductive Healthcare, 14*(1), 40–47.

[12] John, T.W., Mkoka, D.A., Frumence, G., & Goicolea, I. (2018). An account for barriers and strategies in fulfilling women's right to quality maternal health care: A qualitative study from rural Tanzania. *BMC Pregnancy and Childbirth*, *18*(1), 352-362.

[13] Kansra, P., & Oberoi, S. (2023). Cost of diabetes and its complications: results from a STEPS survey in Punjab, India. *Global Health Research and Policy*, *8*(1), 1-11.

[14] Kes, A., Ogwang, S., Pande, R.P., Douglas, Z., Karuga, R., Odhiambo, F.O., & Schaffer, K. (2015). The economic burden of maternal mortality on households: Evidence from three sub-counties in rural western Kenya. *Reproductive Health*, *12*(1), 1-10.

[15] Kulkarni, M.V., & Durge, P.M. (2013). Utilisation of maternal health care services in an urban slum In Nagpur. *Indian Journal of Maternal and Child Health*, *15*(2), 1-7.

[16] Letamo, G., & Rakgoasi, S.D. (2003). Factors associated with non- use of maternal health services in Botswana. *Journal Health of Population and Nutrition*, *21*(1), 40-47.

[17] Nigatu, D., Gebremariam, A., Abera, M., Setegn, T., & Deribe, K. (2014). Factors associated with women's autonomy regarding maternal and child health care utilization in Bale zone a community based cross-sectional study. *BMC Women's Health*, *14*(1), 1-9.

[18] Sanneving, L., Trygg, N., Saxena, D., Mavalankar, D., & Thomsen, S. (2013). Inequity in India: The case of maternal and reproductive health. *Global Health Action, 6*(1), 145-176.

[19] Saxena, D., Vangani, R., Mavalankar, D., & Thomsen, S. (2013). Inequity in maternal health care service utilization in Gujarat: Analyses of district-level health survey data. *Global Health Action, 6*(1), 652-661.

[20] Shahabuddin, A.S., Brouwere, D.V., Adhikari, R., Delamou, A., Bardaj, A., & Delvaux, T. (2017). Determinants of institutional delivery among young married women in Nepal: Evidence from the Nepal Demographic and Health Survey, 2011. *British Medical Journal*, *7*(4), 1-9.

[21] Shrivastava, R., Singhal, M., Gupta, M., & Joshi, A. (2023). Development of an Artificial Intelligence–Guided Citizen-Centric Predictive Model for the Uptake of Maternal Health Services Among Pregnant Women Living in Urban Slum Settings in India: Protocol for a Cross-sectional Study With a Mixed Methods Design. *JMIR Research Protocols*, *12*(1), e35452.

[22] Singh, P.K., Kumar, C., Rai R.K., & Singh, L. (2014). Factors associated with maternal healthcare services utilization in 9 high focus states in India: A multilevel analysis based on 14385 communities in 292 districts. *Health Policy and Planning*, *29*(5), 542-559.