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Utilization of Maternal Health Care Services among Rural Mothers in Punjab, Pakistan: An Assessment

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ABSTRACT

Increased utilization of maternal healthcare services is linked to lower maternal and child mortality rates and improved reproductive health for women. Thus, examining factors affecting maternal care service provision in rural Punjab, Pakistan remains crucial. In this study, Rawalpindi, Dera Ghazi Khan, and Nankana Sahib districts were chosen via simple random sampling, with 414 respondents (mothers aged 15-49 with a last child under two years) participating as study respondents. Data were collected through structured interviews and analyzed with SPSS. Findings showed that 99.8% of mothers sought postnatal exams, and 96.9% received immunizations. Additionally, 79.7% took iron, folic acid, and calcium supplements, 63.3% received nutrition counselling, and 43.2% sought physiotherapy advice. Over half (53.4%) completed antenatal care (ANC), though non-cooperative staff, perceived lack of needs (61.5%), and cost were barriers to full ANC access. Public and private hospitals were primary delivery locations (37.7% and 29.2%, respectively), with 72.5% having natural deliveries. Dietary shifts during pregnancy included increased milk and fruit consumption. Postpartum, 79.7% experienced no complications, though a small percentage faced issues like excessive bleeding (6.0%) and hypertension (5.3%). This study stresses the need to address ANC barriers and improve healthcare services to enhance maternal and neonatal health outcomes.

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INTRODUCTION

Improved maternal and child health status globally requires sound maternal health care services. Among the most significant for LMICs are antenatal, delivery, and postnatal care, with the potential to improve quality and accessibility and further contribute to their maternal and neonatal mortality rates. ANC is critical in monitoring the health conditions of both the mother and the fetus and in the recognition and identification of complications and related interventions. Many researchers have found that health outcomes improve when ANC visits increase. One specific example is the maternal and child health handbooks in which a 19% increase in attending at least six ANC visits and using skilled birth attendants during delivery has shown to increase by 13% (Nishimura et al., 2023). Similar outcomes are achieved for conditional cash transfer programs concerning increasing ANC visits and skilled birth attendance among the poorest population, which will improve maternal and neonatal health outcomes (Glassman et al., 2013).

Delivery care, particularly by skilled birth attendants and a facility, forms the crux in the minimization of maternal and neonatal mortality. The ability of a health system to significantly reduce maternal and neonatal deaths can be ensured when it is well-developed and delivers quality delivery care. For example, improving the quality of care in 81 LMICs could contribute to a reduction of 28% in maternal and neonatal deaths and of 22% in stillbirths (Chou et al., 2019). Public health programs have been shown in countries such as India to be associated with positive impacts on the uptake of maternal health services. Still, overall effectiveness varies due to differences in implementation and population coverage. Post-natal care is just as vital in achieving maternal and neonatal health and well-being. Proper post-natal care prevents complications and helps with early breastfeeding practices for the development of children. The Global Network Maternal Newborn Health Registry focuses on appropriately reporting and monitoring maternal and neonatal outcomes in formulating strategies for improving post-natal care in resource-poor settings (McClure et al., 2020).

The global importance of mother care services is in lessening health inequalities, notably among the most vulnerable and disadvantaged groups. Health care provider quality and accessibility are boosted by national government policies or international cooperation; therefore, it contributes to health goals among nations (Taylor & Nies, 2013; Ramadan et al., 2023; Ansu-Mensah et al., 2020). Surveillance in a rural district was enhanced, and

found the maternal mortality rate to be 247 per 100,000 live births. This is much higher than what had been estimated earlier for Pakistan (Anwar et al., 2018).

Improvement in the healthcare infrastructure and addressing the social determinants would be significant steps toward healthy outcomes for all women and children, as Rosário et al. (2019) suggested. The maternal mortality rate of the country is alarmingly high, especially in its rural areas. Nationally, the maternal mortality ratio remains a major concern and is much higher in rural areas due to lesser access to quality health care (Hanif et al., 2021). In Punjab, the largest province by population, coverage and quality are grossly compromised. Coverage of antenatal care reaches only 55.9% of expected pregnancies and 32.9% drop out at subsequent visits. The quality of services is also poor, due to distant locations of facilities, lack of resources, and unavailability of staff (Majrooh et al., 2014). The EmOC services in Punjab were found to be very deplorable. A recent study reported that no district of Punjab had even the minimum UN norms for EmOC services, while only 4.7% of complicated women were admitted to hospitals in Punjab. The rate of delivery by cesarean was only 0.4 percent. There is an extreme need to upgrade such existing facilities and the skills, as well as record keeping, of staff (Ali et al., 2005).

Some promise in improving maternal and neonatal health indicators has been shown with community-based interventions. Education of women and their husbands on safe motherhood and training of traditional birth attendants with emergency transportation systems have resulted in increased prenatal care and reduced perinatal mortality in the rural Baluchistan district. Socio-cultural factors have been a major contribution to delays in seeking maternal care in South Punjab. Poor socio-economic status, inadequate awareness of maternal health, lack of finances, and patriarchal system add up to problems which do not allow the women to get such essential medical services. Early marriage combined with no family planning elevates the crisis (Omer et al., 2021). Region-wise discrimination is also observed to exist mainly concerning Pakistan's reproductive health care facility provision. High-high clusters of better access are available in North-east Punjab while low-low clusters indicating poor access are common in North Baluchistan and other Punjab and Khyber Pakhtunkhwa (Sarwar, 2021). Maternal health care service in Pakistan, more particularly in rural areas, are condemned with problems. Challenges like higher maternal mortality rates, poorly covered antenatal care, inadequate emergency obstetric care, and socio-cultural barriers have to be addressed.

Improving health facilities, enhancing community-based interventions, and addressing socio-cultural barriers have become imperative steps toward a decrease in maternal mortality and improving the maternal health outcome in Pakistan. For the present study, an attempt was made to explore the level of utilization of Maternal Health Care Services among Rural Mothers in Punjab, Pakistan.

RESEARCH METHODOLOGY

Punjab covers 205,344 Km^2 and is Pakistan's most densely populated area (536 people per square kilometre), with 110 million people living in metropolitan areas andthe remaining 70 million in rural areas. Punjab is land of five rivers and has the best artificial irrigation system in the world. Along with agricultural and industrial richness, it is also rich in cultural heritage, and it is historically rooted back to 1500 BC in the remains of the Indus Valley Civilization. The common language is Punjabi.Punjab is divided into three administrative regions: North Punjab, Central Punjab, and South Punjab. Each region is further divided into districts, tehsils, and union councils. Therefore, one district from each region was chosen as a study area. District Rawalpindi, Nankana Sahib, and Dera Ghazi Khan were selected from north, central, and south Punjab.

Study Population and Sample Size

The study population was all the reproductive-aged women who gave birth 2 years beforethe survey date. The population was identified based on the following inclusion criteria;

- All women of reproductive age (15-49) years residents of Punjab province for not less than 2 years before the start of the study and biological mothers to living children aged 1 to 24 months.
- The women and the healthcare workers who consented to the study.

A sample size of 414 respondents was determined using the table Yamane (1967) given for sample size determinations. At 95% confidence interval and 5% precision level, Yamane suggests a sample size of 400 for a population over 100,000 is sufficient.

In this study, three districts were selected randomly. One Tehsil was selected from each selected district. Three union councils wereselected from each selected Tehsil, and then two villages were selected randomly from each union council. Through purposive sampling technique, 23 respondents were selected from each selected village to make an overall sample of 414. The detail of the sampling procedure is given in Table 1.

Table 1: Sampling layout of the study

	Central Punjab	South Punjab	North Punjab	Total
Districts	1	1	1	3
Tehsils	1	1	1	3
Villages	6	6	6	18
Women	138	138	138	414

Source: Author's calculations

Data collection and data analysis

A well-structured questionnaire was used to collect the quantitative data. The questionnaire was administered using a face-to-face interview technique. Before the final data collection, the questionnaire was pre-tested on 10% of the total sample size. The reliability of the questionnaire was confirmed using Cronbach alpha technique. The value of alpha was recorded at 0.784, which endorsed that the questionnaire was reliable enough to proceed with data collection. Collected data were analyzed using statistical Package for Social Sciences (SPSS). Descriptive statistics such as frequency, percentage, mean and standard deviation were calculated.

RESULTS AND DISCUSSION

Table 2 shows that 70.8% of respondents were aged between 25-34 years, followed by 15.7% between 15-24 years. Moreover, 13.5% of respondents were more than 35 years of age. In the context of age at marriage, half of respondents (50.5%) married at 20- 24 years old, followed by 42.5% who were married at 14-19 years old. Close to one-fourth (23.2%) of respondents were illiterate and had no formal education. More than half (55.6%) of respondents had school-level education, and 21.3% had college-level education. Of the total Respondents, 83.6% were housewives. Regarding ANC service, 99.8% of respondents reported it was available.

Table 2: Demographic profile of the study participants

Demographics	***f***	**%**
Age groups (in years)		
15-24	65	15.7
25-34	293	70.8
35+	56	13.5
Age at marriage (in years)		
14-19	176	42.5
20-24	209	50.5
25+	29	7.0
Educational level		
Illiterate	96	23.2
School-level	230	55.6
College and above	88	21.3
Occupation		
Housewife	346	83.6
Govt. Job	18	4.3
Private job	4	1.0
Farmer	6	1.4
Labourer	14	3.4
Own small business	9	2.2
Any other	17	4.1
Received ANC service		
Yes	413	99.8
No	1	0.2
Total	414	100.0

Table 2 reveals that a massive proportion (99.8%) of the participants received ANC services during their last pregnancy. However, only one respondent never received ANC services. The results are more or less similar to those of Noh et al. (2019), as they reported that most women (83%) had received one or more ANC.

Figure 1 shows that a massive percentage (99.8%) of the participants visited a doctor afterpregnancy for physical examination (blood test, sugar, hepatitis, haemoglobin, Ultrasound, weight, height), and 96.9% visited health clinics for immunization. However, 79.7% of the participants were taking Iron and folic acid tablets, and calcium tablets after pregnancy, 63.3% visited the doctor for counselling on nutrition, and 43.2% visited the doctor for Physiotherapy/exercise counseling after pregnancy. Similar variables were observed by Srivastava *et al.* (2014) who found that only 16.3% of pregnant women had at least three ANC visits. A health worker only came to their homes for ANC checks for less than a quarter of them (23.6%). The majority of theresponders (83.7%) received two doses of tetanus toxoid, and almost a third (33.3%) took at least 100 iron and folic acid tablets. 50.4% of the women had their babies in a hospital, while 32.5% had their babies at home with a qualified birth attendant. A health worker did a postpartum visit for 15.% of the respondents.

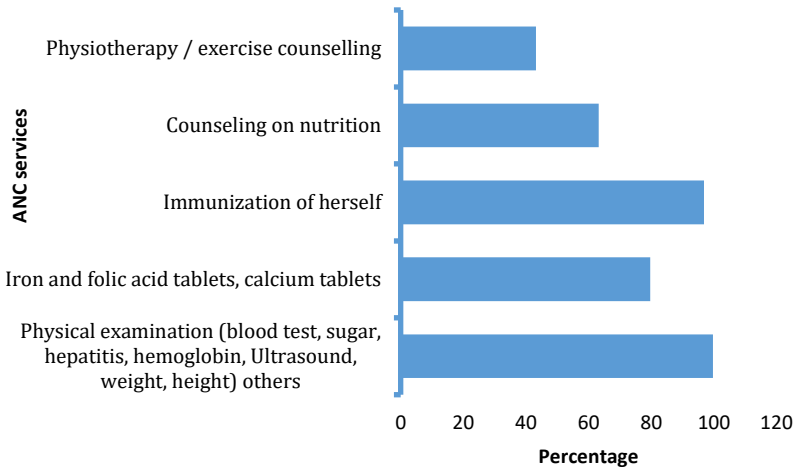

Figure 1: Distribution of respondents concerning ANC services they received.

Figure 2 shows that more than half of the respondents (53.4%) received complete ANC services, 37.4% received partial ANC services, and the remaining .2% did not receive antenatal care services. Patel *et al.* (2016) observed that 69.3% of the participants followed full ANC practices, slightly more than the findings.

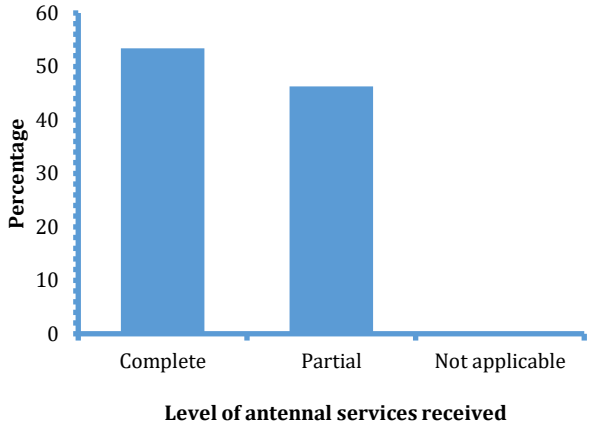

Figure 2: Distribution of respondents regarding level to receive antennal services

Figure 3 represents the respondents' reasons for not using complete ANC services. Majority of the respondents (78.2%) never visited health clinics due to non-cooperative staff at health clinics. Respondents perceived it is not necessary (61.5%), it is expensive (60.9%), and the beliefs on traditional birth attended (51.9%). However, participants never used fully ANC servicesbecause their family did not allow them (37.8%), no money for transport and long-distance(35.9%), health workers provided services at home (35.3%), they had no one to live the children with, attending the family matters (32.7%), waiting time is too long (30.8%), health personal not available at health facility (26.9%), cultural believes not supposed to get out from home (25.6%), visit the clinic is fear full (25.0%) and others (2.6%). The non-use of complete ANC care services was observed for similar reasons as in our study (Afaya *et al.,* 2020). They discovered that a considerable distance to the health facility (31.1%) and their partners' perceptions of the importance of ANC affected the women's appropriate use of ANC services. In addition, around 27.6% claimed they couldn't afford to attend antenatal care, and 7.9% said cultural beliefs were a barrier. The overwhelming of the participants (38.2%) claimed they had to wait long periods inhealth facilities where they evaluated services, followed by 28% who were scolded by staff and 24.5% who had inconvenient service hours.

Figure 3: Perceived for not using full ANC care (n = 193)

Note: If a woman gets 3 ANC visits, at least 1 to 90 iron-folic supplements, and two tetanusinjections, then considered adequate or complete use; otherwise, inadequate or partial useof ANC services

Figure 4 shows that 38.6% of respondents received ANC from Govt. Hospital (THQ, DHQ) (38.6%) and 30.7% from Private Hospitals. However, almost 17% of mothers received ANC from BHU, 9.7% from RHC. It was found that the remaining respondents received ANC from LHV/Midwife (3.2%) and TBA/ LHW (1.0%). According to Sharma *et al.* (2020), the majority of mothers (53.16%) got their ANCvisits at government-run facilities (Government hospital, Anganwadi Centre or Urban Health Centre). However, nearly half of the mothers (47%) had sought ANC in private hospitals. It demonstrates mothers' mistrust of the government's ability to provide high-quality services.

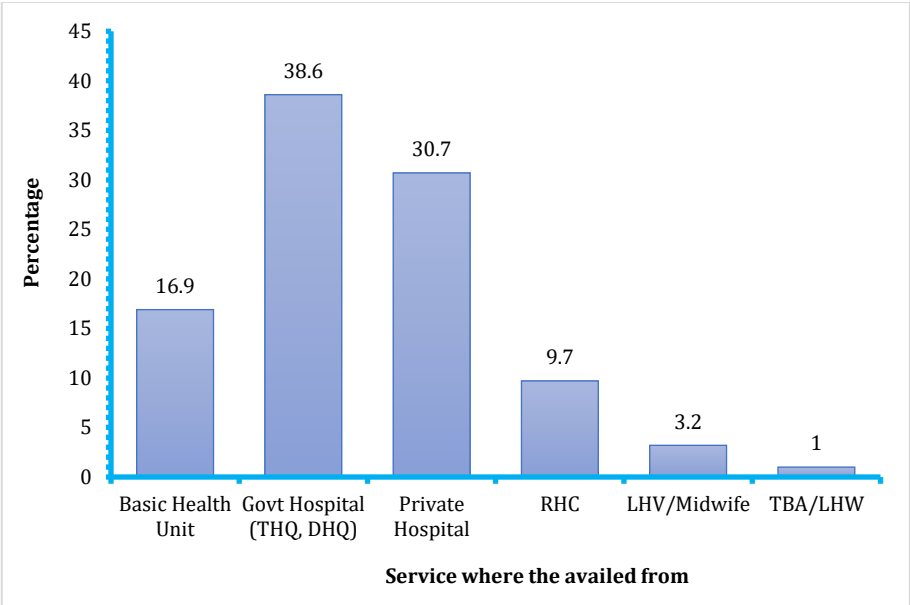

Figure 4: Sources where the services were availed from

Table 3 shows that milk intake (2.13±.69) was the most increased diet during pregnancy in the study area. However, intake of fruits (1.99±.73) and meat (1.71±.66) were ranked 2nd to 3rd, respectively. At the same time, Intake of green leafy vegetables (1.60±.68) was ranked as the lowest based on the diet during pregnancy. It is synthesized that intake of milk and fruits was a significant diet increase during pregnancy. Similar factors to our study were observed by Eren et al. (2015), who pointed out that the most increasing food groups consumed during pregnancy were fruits (51%) and vegetables (40.8%); the most decreased food groups consumed were tea (26.1%) and red meat (2.1%). (21 percent). White meat and fish consumption fell by 20.1% and 27.7%, respectively. Bread (85.3%), oil (66.2%), cheese (67.5%), and milk yoghurt (67.5%) were the most commonly consumed foods when food consumption was assessed (57.9 percent). 38.5% of the ladies said they ate eggs every day. Molasses (41.4%), butter (41.1%), meat products

like salami-pepperoni (40.8), fish (20.4%), red meat (13.1%), and white meat (20.4%) were all foods that were never consumed during pregnancy (12.4%).

Table 3: Variation in diet as perceived by the respondents during pregnancy

Diet	Not at all		Increased to some extent		Increased to a great extent		Mean ± SD	Rank
	f	%	f	%	f	%		
Intake of milk	76	18.4	209	50.5	129	31.2	2.13± 0.69	1
Intake of fruits	115	27.8	189	45.7	110	26.6	1.99± 0.73	2
Intake of meat	167	40.3	197	47.6	50	12.1	1.71±0.66	3
Intake of green leafy vegetables	213	51.4	155	37.4	46	11.1	1.60±0.68	4

Scale: 1 = Not at all, 2 = Increased to some extent, 3 = Increased to great extent

Figure 5 depicts that 37.7 % of sampled mothers delivered their last baby at Govt. hospital(DHQ/THQ). However, 29.2% of them delivered their previous baby at private hospitals.The remaining participants delivered that last baby at BHU (14.5%), CMW/LHV house(3.6%), at home (8.9%), RHU (4.8%), LHW/others (1.2%). These findings varied to Akhtar (2014). She found that a substantial proportion (48.3%) of mothers delivered their baby athome, and 45.0% delivered at hospitals. The present study's findings also varied to Dhakal *et al. (*2007), which found that over half of the mothers (58.1%) had babies in a hospital. The majority of the women had given birth vaginally (88.2%).

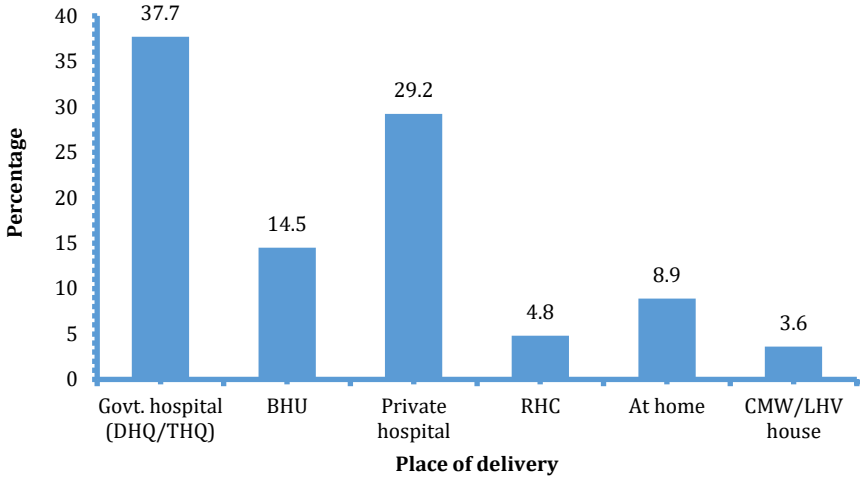

Figure 5: Place of delivery as reported by study participants

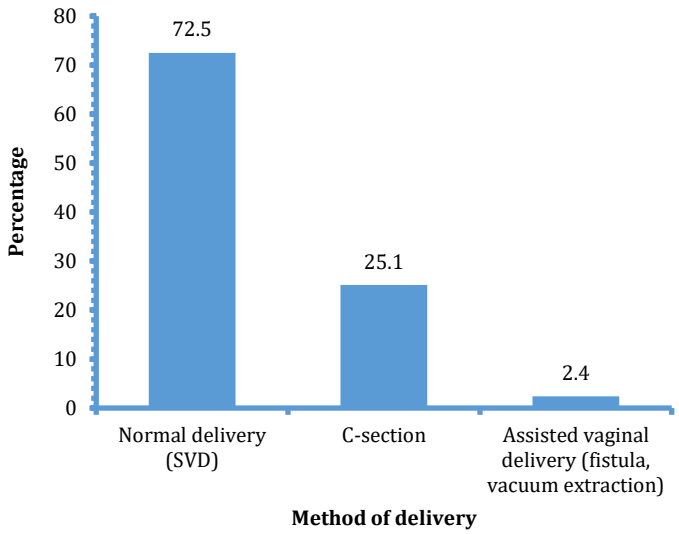

Figure 6: Method of delivery as reported by the respondents

Figure 6 shows that a majority (72.5%) of the respondents reported that they hadnormal last delivery (SVD). However, 25.1 percent of the participants delivered their last baby through C-section and 2.4% assisted vaginal delivery (fistula, vacuum extraction). Our findings contradicted those of Wudineh et al. (2018), who found that most respondents (77.28%) gave birth naturally.

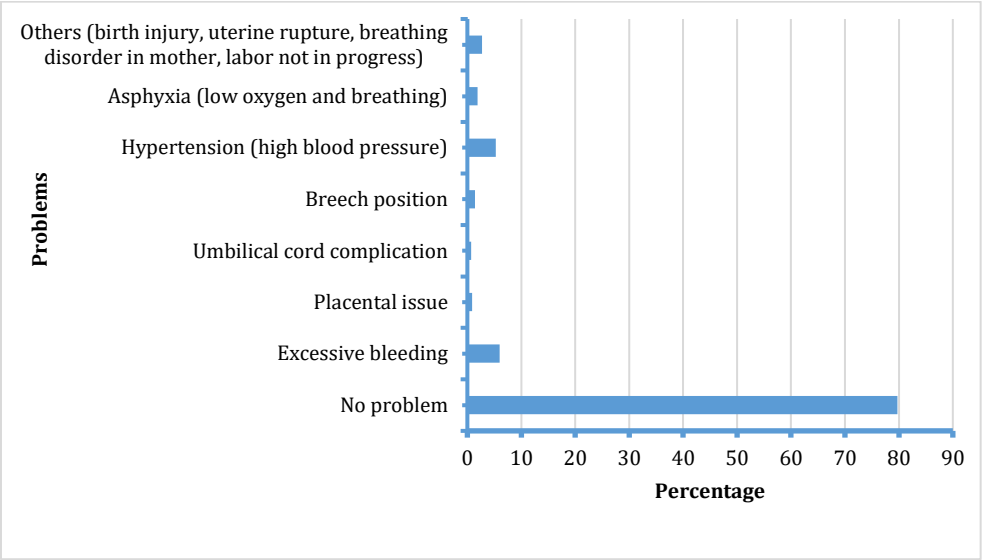

Figure 7: Problems faced by respondents during delivery.

Figure 7 represents respondents' problems just after (during) delivery. A large proportion (79.7%) of the participants faced no problem during delivery. However, the remaining respondents faced multiple problems such as Excessive bleeding (6.0%), Placental issues (0.9%), Umbilical cord complication (0.7%), Breech position (1.4%), Hypertension (high blood pressure) (5.3%), Asphyxia (low oxygenand breathing) (1.9%) and Others (birth injury, uterine rupture, breathing disorder in mother, labour not in progress) (2.7%). Girmaye *et al.* (2021) reported that in terms of pregnancy history and intrapartum abnormalities, (57.5%) had experienced complications in their previous pregnancies, and (34.1%) of women had experienced at least one complication during delivery, of which (50.2%) had excessive vaginal bleeding.

CONCLUSIONS

This study explored maternal healthcare utilization patterns, outcomes, and challenges among rural mothers in Punjab, Pakistan. Most participants received postpartum physical examinations and immunization care, underscoring high engagement with some aspects of maternal healthcare. However, more significant services, such as physiotherapy/exercise counselling and nutritional guidance, were utilized less frequently. ANC service utilization was deficient, with one-third of mothers only partially engaging, and barriers such as non-cooperative staff, traditional beliefs, and financial limitations significantly impact accessibility. The dietary intake during pregnancy emphasized milk and fruit consumption, though vegetables were under-consumed, suggesting an area for nutritional improvement. Delivery patterns revealed a preference for institutional settings over home births, reflecting a shift towards more formalized healthcare services; however, complications were still noted, particularly among mothers who did not fully utilize ANC. This study highlighted the need to address barriers to completing ANC service use and improve healthcare delivery to optimize maternal and neonatal outcomes in this population.

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