

DOI: <https://doi.org/10.34069/AI/2022.54.06.12>

How to Cite:

Akhtar, S., Ahmed, Z., Sreekantan Nair, K., Mughal, Y.H., & Mehmood, A. (2022). Out-of-Pocket Expenditure on Delivery Care in Public and Private Health Sectors – A Study in a Rural District of Pakistan. *Amazonia Investiga*, 11(54), 121-136. <https://doi.org/10.34069/AI/2022.54.06.12>

Out-of-Pocket Expenditure on Delivery Care in Public and Private Health Sectors – A Study in a Rural District of Pakistan

Perbelanjaan Luar Poket untuk Penjagaan Penghantaran di Sektor Kesihatan Awam dan Swasta – Kajian di Daerah Luar Bandar Pakistan

Received: June 7, 2022

Accepted: July 12, 2022

Written by:

Sohail Akhtar⁵¹<https://orcid.org/0000-0002-3882-3200>**Zafar Ahmed**⁵²<https://orcid.org/0000-0002-6609-7314>**Kesavan Sreekantan Nair**⁵³<https://orcid.org/0000-0002-2664-2621>**Yasir Hayat Mughal**⁵⁴<https://orcid.org/0000-0001-8862-4608>**Asim Mehmood**⁵⁵<https://orcid.org/0000-0003-2343-7283>

Abstract

Pakistan witnessed a significant improvement in maternal health outcomes during the past two decades. However, persistent urban-rural and socio-economic inequalities exist in access to maternal healthcare services across the country. The objective of this study was to estimate out-of-pocket expenditure (OOPE) on delivery care by women in the public and private health sectors in RajanPur district. This was a cross-sectional study conducted, among 368 randomly selected mothers who had childbirths from 1st October to 31st December 2020. The study applied multi-stage random sampling technique to select the study participants. The results showed that about two-thirds of mothers preferred public hospitals for most recent delivery. The percentage of cesarean deliveries conducted in private hospitals (43.8%) was 4.7 times higher than in public hospitals (9.3%). About 99% of mothers incurred OOPE during delivery care, and the mean OOPE incurred during delivery care was PKR 2840 (US\$ 17.75) in public hospitals and PKR 25596 (US\$159.9) in private hospitals. OOPE on cesarean delivery in private hospitals (PKR 39654.7, US\$247.8) was 2.5 times higher than the public hospitals (PKR16111.9, US\$100.69), whereas OOPE incurred on normal delivery care in private hospitals (PKR14339, US\$89.62) was 9.5 times higher than OOPE in public hospitals (PKR 1501.4, US\$9.38). To conclude, the findings and recommendations drawn from the research would provide some insights to health policymakers and planners in developing an integrated and viable maternal healthcare program in Pakistan.

Keywords: Delivery care, out-of-pocket expenditure, public health sector, private health sector, Pakistan.

Abstrak

Pakistan menyaksikan peningkatan ketara dalam hasil kesihatan ibu sepanjang dua dekad yang lalu. Walau bagaimanapun, ketidaksamaan bandar-luar bandar dan sosio-ekonomi yang berterusan wujud dalam akses kepada perkhidmatan penjagaan kesihatan ibu di seluruh negara. Objektif kajian ini adalah untuk menganggarkan perbelanjaan out-of-pocket (OOPE) untuk penjagaan bersalin oleh wanita dalam sektor

⁵¹ Faculty of Medicine and Health Sciences UNIMAS, Universiti Malaysia Sarawak, Malaysia. Department of Health Informatics, College of Public Health and Health Informatics, Qassim University, Saudi Arabia.

⁵² Faculty of Medicine and Health Sciences UNIMAS, Universiti Malaysia Sarawak, Malaysia.

⁵³ Department of Health Administration, College of Public Health and Health Informatics, Qassim University, Saudi Arabia.

⁵⁴ Department of Health Administration, College of Public Health and Health Informatics, Qassim University, Saudi Arabia.

⁵⁵ Department of Health Informatics, Faculty of Public Health and Tropical Medicine, Jazan University, Saudi Arabia.

kesihatan awam dan swasta di daerah Rajan Pur. Ini adalah kajian keratan rentas yang dijalankan, antara 368 ibu yang dipilih secara rawak yang bersalin dari 1 Oktober hingga 31 Disember 2020. Kajian ini menggunakan teknik persampelan rawak berbilang peringkat untuk memilih peserta kajian. Keputusan menunjukkan bahawa kira-kira dua pertiga daripada ibu memilih hospital awam untuk bersalin terbaharu. Peratusan bersalin secara cesarean yang dijalankan di hospital swasta (43.8%) adalah 4.7 kali lebih tinggi daripada di hospital awam (9.3%). Kira-kira 99% ibu mengalami OOPE semasa penjagaan bersalin, dan purata OOPE yang ditanggung semasa penjagaan bersalin ialah PKR 2840 (US\$ 17.75) di hospital awam dan PKR 25596 (US\$159.9) di hospital swasta. OOPE untuk bersalin secara caesar di hospital swasta (PKR 39654.7, AS\$247.8) adalah 2.5 kali lebih tinggi daripada hospital awam (PKR16111.9, AS\$100.69), manakala OOPE ditanggung untuk penjagaan bersalin biasa di hospital swasta (PKR14339, AS\$89.62 kali) lebih tinggi daripada OOPE di hospital awam (PKR 1501.4, AS\$9.38). Sebagai kesimpulan, penemuan dan cadangan yang diperoleh daripada penyelidikan itu akan memberikan beberapa pandangan kepada penggubal dasar kesihatan dan perancang dalam membangunkan program penjagaan kesihatan ibu yang bersepadu dan berdaya maju di Pakistan.

Kata kunci: Penjagaan penghantaran, perbelanjaan di luar poket, sektor kesihatan awam, sektor kesihatan swasta, Pakistan

Introduction

Maternal health is considered a significant public health challenge in most developing countries (WHO, 2015). About 295 000 women in the world died owing to reasons associated with pregnancies and delivery in 2017 (WHO, 2017). There is a lack of adequate healthcare services for millions of women in developing countries, which results in poor overall health in women (WHO, UNICEF, 2013). Besides, there are many barriers, including physical distance, out-of-pocket expenditures (OOPEs), and familial influences. (Riaz et al., 2015). Whereas poor functionality of health centers in rural areas is another significant barrier.

Pakistan has a population of 200 million in 2017, with 61% living in rural areas (PBS, 2018). Health indicators for Pakistan are by no means satisfactory. The country has an under-five mortality rate of 74.9 per 1000 live births against the global average of 39 (WHO, 2019). The MMR of 178 per 100,000 live births is the highest among the neighboring countries. (WHO, 2019). According to the World Bank, 29.5 % population lives below the poverty line (World Bank, 2019). It is estimated that 80% of the poor population in Pakistan lives in rural areas. (Mansuri et al., 2018). The poor, particularly in rural areas with lower incomes, poor sanitary living conditions, and low access to public healthcare, are likely to have high morbidity and mortality rates but tend to have lower utilization of healthcare services than those who are better off (WHO, 2021). They also spend higher proportions of their incomes on healthcare that they access (WHO & World Bank, 2019). Uncertainty related to health and the catastrophic nature of health expenditures often renders even

non-poor households into cycles of poverty (WHO, 2018; WHO & World Bank, 2019).

In rural areas of Pakistan, there is limited availability of healthcare facilities. So achieving equity in health is one of the significant goals to improve the poor's well-being and survival in rural areas. However, achieving equity is far from reality, particularly with rapid privatization that has taken healthcare beyond the reach of the poor. Even though these services were fraught with issues in terms of access and quality, the poor could still find it difficult to access health care services, including maternal and postnatal services. Due to reasons like lack of access and distance to government health facilities followed by an inadequate supply of medicines and diagnostic facilities in public healthcare facilities, especially in rural areas, people seek treatment in the private sector, which is the dominant source of care, including maternal and child health services (Pomeroy, Koblinsky & Alva, 2014). The existing studies and reports in different districts in Pakistan have revealed that the private sector provides about 80% of all outpatient contacts (PBS, 2018; Rehman et al., 2017). Even sudden and catastrophic expenditures can push families below the poverty line (ADB, 2012; WHO & World Bank, 2019). Expenditure on drugs accounted for a substantial percentage of household expenditure in general and health care expenditure in particular.

The past decade witnessed a significant improvement in maternal health outcomes in Pakistan. Although all provinces in Pakistan have made progress in improving the maternal mortality rate (MMR), infant mortality rate (IMR), and under-five mortality rate (U5MR),

the progress in Punjab province is slow. The Government of Punjab has taken several initiatives to improve the maternal and child health indicators, including integration of Lady Health Workers (LHWs), Maternal, Newborn and Child Health (MNCH) program, nutrition program, and strengthening emergency obstetric services. Still, the available reports reveal low utilization of maternal health services in rural areas (Riaz et al., 2015; Rehman et al., 2017). Low utilization of maternal health services could be due to a lack of availability accessibility of appropriate maternal health services at affordable costs. Also, in the case of maternal health services, socio-economic factors play a paramount role (Pomeroy, Koblinsky & Alva, 2014; Riaz, et al., 2015). Moreover, the unavailability of lady doctors in rural areas has been a big hurdle in availing maternal and postnatal services. Thus, maternal health care utilization is primarily influenced by accessibility, availability, and affordability factors. Therefore, it is important to understand the utilization pattern of maternal care services and OOPEs incurred by the rural community while seeking these services from public and private healthcare facilities.

There appears to be limited information on OOPEs associated with the utilization of delivery care in Pakistan. To the best of the researcher's knowledge, and based on an extensive literature review, a detailed study has not been conducted to understand the OOPE on delivery care among rural women in Punjab province. Against this background, the present research has focused on estimating OOPE on the utilization of delivery services in a rural district of the province. Thus, the present research was undertaken in RajanPur, predominantly a rural district, and has recorded the province's lowest maternal and child health indicators (MICS, 2017-2018).

Review of Literature

The concept of OOPE has been defined by researchers and institutions in different contexts. In the health sector, the World Bank defines OOPE as "any direct outlay by households, including gratuities and in-kind payments to health practitioners and suppliers of pharmaceuticals, therapeutic appliances, and other goods and services whose primary intent is to contribute to the restoration or enhancement of the health status of individuals or population groups. It is a part of the private health expenditure" (World Bank, 2014). Despite policies by developing countries to provide free access to maternity care, it seems that households

often have to pay out of pocket, whether formally or informally (Berer, 2012). Particularly in maternal healthcare, it is even more significant (Srivastava et al., 2009). Many studies in India (Goli et al., 2018; Tellis et al., 2018; Mohanty & Srivastava, 2013; Govil et al., 2016; Issac et al., 2016) showed that OOPE of women availing maternal health care from the public sector has increased over a period of time. Mirabedini et al. (2017), through their systematic review in Iran, showed the predominance of OOPE and informal payments in the health system. Bangladesh Patient Exit Survey (National Institute of Population Research and Training, 2013) revealed that almost 75% of outpatients, and more than 90% of inpatients associated with maternal and child health care, reported spending a major share of OOPE on travel costs to the facility. In Pakistan, a study in Sindh province by Ansari et al. (2015) showed that 82% of women who utilized maternal health care in public health facilities and 96% who used the private facilities incurred OOPE. The study found that almost 55% of users of public facilities and 71% of private health facilities could not afford this expenditure.

Many studies have shown that indirect expenditures of hospital-based delivery care are much higher than direct costs. Evidence shows that even in many countries where maternal health services are free to women, indirect costs such as transportation become an important factor influencing the utilization of these services. (Kyei-Nimakoh, et al., 2017). The major constraints are related to poorly located health facilities and an inadequate number of facilities delivering maternal health care. As a result, the women in rural areas have to incur huge indirect costs, including transport expenses. A study in Nepal (Acharya et al., 2016) showed that indirect costs are seven times (\$268) higher than that of the hospital costs (\$38). In this study, indirect expenditure of delivery services included expenses on transportation, food, communication, laundry services, and fuel. It also includes expenditure incurred on childcare, clothes/women, and accessories like a thermos flask, buckets, mug, soap, mat, toothpaste, oil, and toilet papers. This also includes loss of wages during the hospital stay (Acharya et al., 2016). A study in Ethiopia revealed the median direct medical cost of institutional delivery was \$ 10.80, while the direct nonmedical cost was \$10.31. From the direct medical costs, the median cost of a drug during institutional delivery was \$10.94. The study also revealed that the median loss of wages was about \$39.82, while the median loss of wages for caregivers

except husband was around \$2007.29 during the institutional deliveries in Ethiopia. (Merga et al., 2019).

Sharma et al. (2018), in a study of OOPE on maternal care in urban slums of India, used both direct and indirect expenditures. Direct expenditure comprised of expenditures incurred on registration, medicines, consumables, hospital bed, laboratory investigations, anesthesia and surgery if any, food, gifts to attendants, drugs, and supplies, and transportation; whereas indirect expenditure included the cost of the mother and caretakers in terms of loss of daily wages. However, a study based on the Bangladesh Demographic and Health Survey 2014 did not demarcate the direct and indirect expenditures separately (Sarkar et al., 2018). The study included, along with all expenditures incurred in the hospital as direct medical cost, also included expenditures on travel, food, lodging, hiring of an "aya," and even tip - giving were all major components of child delivery costs. An earlier study on OOPE in Bangladesh (Rahman et al., 2013) also did not differentiate between direct and indirect expenditures. The study included charges incurred on registration, doctor's consultation, medicines, diagnostic tests, transportation, and other associated costs. Another study on OOPE on delivery care in Bangladesh by Noreen (2017) demarcated direct and indirect expenditures. In this study, direct expenditure consists of travel costs, consultation fees, hospitalization charges, and purchases of drugs and supplies, whereas indirect costs included the opportunity costs of time lost due to caesarean section delivery, which accounted for a substantial proportion of total caesarean section delivery costs.

A study based on the national family health survey 2015-16 of India did not provide the details of items included in direct and indirect expenditures (Krishnamoorthy et al., 2020). In a study in Myanmar, Myint et al. (2018) included expenses on all related healthcare services received during delivery care, namely hospital costs, investigation fees, drugs, consultation fees, food, living, transportation, and other related costs in estimating OOPE, but no differentiation of direct and indirect expenditures was provided. Malik and Syed (2012) in Pakistan, using national survey data, did not make any demarcation between direct and indirect OOPE. The authors included expenditures on medicines, equipment supplies, fees paid to doctors, traditional healers, etc. Hospitalization including doctors' fees, laboratory tests, X-ray charges, etc. Dental/optical care and all other expenses on

healthcare not classified elsewhere were also included. Another study in Pakistan by Khan and Zaman (2010) estimated OOPE on delivery care in tertiary hospitals, included both direct and indirect expenditure components together. The components of OOPE included expenditure incurred on food, transport, drugs, tests, blood transfusion, informal caregiver's time cost, hospital charges, and informal payments like tips and bribes.

A study by Tellis et al. (2018) in India collected both direct and indirect expenditures. Direct expenditure included expenses incurred on registration, consultation, bed charges, investigations, medication, and blood transfusion, whereas indirect expenditure includes food, transport, and wage loss faced by the respondents. However, expenditures incurred on companions in terms of food, transport, accommodation, and wage loss were calculated separately. Few studies conducted in India showed that informal payments for getting delivery care services consisting of gifts and tips for services to form a major share of indirect expenditures. (Issac et al., 2016; Gopalan and Durairaj, 2012; Mohanty & Srivastava, 2013). One such study shows that tips for getting services, which 86% of women had to incur, included tips to avail government ambulance and bribes either in cash or kind (distributing sweets) to facility staff for their services (Issac et al. 2016).

Material and Methods

This was a cross-sectional study conducted in Rajanpur district in Pakistan, which is predominantly a rural district in the province of Punjab. and the research applied descriptive and analytical techniques. All mothers who had childbirth in healthcare facilities (public and private) in the district from 1st October to 31st December 2020 were the population of the study. The sample size for the study was calculated using the formula: $n = z^2pq / d^2$; where $z = 1.96$ at 95% confidence interval, $p = 0.59$ (this is the proportion of institutional delivery in rural areas as per Pakistan Demographic and Health Survey 2017-2018), $q = (1-p) = 0.41$, $d =$ acceptable error $5\% = 0.05$. The sample size thus calculated was 368 (approximately).

A multi-stage random sampling technique was followed to select the participants in the study. As a first step, a total number of 3 BHUs were selected from each of the six Rural Health Centres (RHCs) for this study. Secondly, the number of mothers who had institutional

deliveries in each of the selected BHU areas during three months, i.e., 1st October – 31st December 2020, was collected from the Chief Executive Officer (Health), RajanPur. As per the list, there were 2362 institutional deliveries reported during this period in all the 18 BHUs selected for the study. BHU- wise list of mothers with their names and addresses were collected with the assistance of the LHWs in the concerned BHUs. It was decided to select 25 mothers randomly from the list received from each BHU, making a total number of 450 mothers from 18 BHUs. This was done keeping in view the non-availability of household members or incomplete responses. Interviews were conducted with the selected participants with the assistance of LHWs who were in charge of the selected village areas. Although efforts were made to contact 450 mothers, however, due to the non-availability of male members in the family and non-cooperation or non-response from the participants; only 408 mothers from were contacted and interviewed. After scrutiny of all data collected through the interview schedules, it was found that 368 interview schedules were fully completed in all respects, and they were used in the analysis yielding a response rate of 82%.

Participants of the study included the women residents of the selected BHU area, aged 15-49 years, who had delivered within three months, i.e. 1st October – 31st December 2020 in a healthcare facility in the district and were willing to participate in the study. They should be present at the study area during data collection. Primary data for the study was collected using a locally translated structured interview schedule, which was initially developed in English. The interview schedule was prepared based on the validated study instruments used by earlier studies on maternal healthcare utilization in Pakistan (Noreen, 2017) and similar studies in other countries (Chhetri et al., 2020; Issac et al., 2016; Rahman et al., 2013).

Initial section of the interview schedule contained different questions related to various socioeconomic characteristics of mothers,

second section dealt with details of delivery care such as mode of delivery, outcome of delivery, place of delivery, distance to the healthcare facility, reasons for seeking care from the private healthcare facilities and perception about public healthcare facilities. The third section contained details of OOPE incurred on delivery care by the mothers under direct medical expenditure and non-medical expenditure, respectively. Disaggregated information on each category of expenditure was included in this section. Direct medical expenditure included details of costs incurred on diagnostic procedures, cost on medicines and supplies, cost incurred on surgery, hospital charges and other costs such as blood transfusions. Direct non-medical expenditure included cost on referral transport, food expenditure for mother and accompanying person and accommodation of accompanying person.

Primary data collected through the interview schedule was entered into SPSS software version-25 and was analyzed using qualitative and quantitative techniques. The ethical clearance for this study was obtained from the Medical Ethics Committee, Faculty of Medicine and Health Sciences, UNIMAS.

Results

Socio-economic characteristics

The mean age of mothers in the study was approximately 28.3 years, with more than 60% of them between 20 to 30 years' age group. Of them, 59.5% did not have any schooling, 16% had primary schooling, 16.57% had secondary level schooling, and 7.88% had higher secondary and above qualification. A majority of mothers (85.6%) were housewives, 7.8% of them were working in the government or private sector, 3.8% were contract wage earners and 2.7% were self-employed. The household income of the respondents revealed that almost 54% of them had lower than 10000 PKR. Only a negligible number of households (3 nos.) was covered by any health insurance scheme.

Table 1.
Socio-economic and demographic characteristics of mothers.

Variables	Number (n=368)	Percentage
Age group of women		
Below 25 years	141	38.31
26 – 35 years	174	47.28
36 years and above	53	14.40
Education of Women		
No formal education	219	59.51
Primary level	59	16.03
Secondary level	61	16.57
Higher secondary and above	29	7.88
Occupation of women		
Housewife	315	85.60
Working (government and private)	29	7.88
Daily wage earners	14	3.80
Self employed	10	2.72
Monthly Household Income		
Below 10000 PKR	200	54.34
Between 100001- 30000 PKR	119	32.34
Between 300001-60000 PKR	49	13.32

Source: SPSS Data Analysis Files by author

Utilization of Delivery Care

Table 2 presents the description on utilization of delivery care by mothers included in the study. The data shows that normal deliveries constituted 79.3%, while deliveries done through caesarian

section constituted 20.7% of deliveries. While most (99.5%) of mothers delivered a single baby, less than 1% had twins. While 67% of mothers preferred the public healthcare facilities for most recent delivery, 33% preferred private healthcare facilities.

Table 2.
Delivery profile of mothers included in the study.

Delivery details	Responses	Numbers	%
Mode of the recent delivery	1-Normal	292	79.3
	2-Caesarean	76	20.7
The outcome of recent delivery? (In terms of number of children)	1-Single	366	99.5
	2-Twins	2	0.5
The outcome of recent delivery? (in terms of alive or dead)	1-Live birth (currently alive)	360	97.8
	2-Stillbirth	8	2.2
Place of most recent delivery?	1-Public health facilities	247	67.0
	2-Private health facilities	121	33.0

Source: spss data analysis files by author.

Table 3 presents the details of normal and caesarean deliveries conducted in both public and private health care institutions. Cross tabulation results show that out of 247 deliveries

conducted at the public healthcare facilities, 224 deliveries (90.68%) were normal and 23 deliveries (9.32%) were conducted through caesarean procedures. However, out of 121

deliveries conducted at private healthcare facilities, only 68 deliveries (56.2%) were

performed normally and 53 deliveries (43.80%) were conducted through caesarean procedures.

Table 3.
Normal and caesarean deliveries in public and private hospitals.

Place of Delivery		Normal	Caesarean	Total
Public Sector	No.	224	23	247
	%	90.68%	9.32%	(100%)
Private Sector	No	68	53	121
	%	56.20%	43.80%	(100%)
Total	No	292	76	368
	%	100%	100%	(100%)

Thus, the percentage of cesarean deliveries conducted in the private healthcare facilities is almost 4.7 times higher than the percentage of cesarean deliveries conducted in public healthcare facilities. Of the 76 caesarean deliveries reported in the study, 53 (69.7%) were conducted in the private hospitals and out of 292 normal deliveries reported in the study, 224 (76.7%) were performed in public hospitals.

Direct Medical Expenditures on Delivery Care

Public Healthcare Facilities

In the study, 247 (67.12%) out of 368 mothers availed delivery care from the public healthcare facilities. Table 4 gives a detailed break-up of direct medical expenditures incurred by mothers who had childbirths in public healthcare facilities. Expenditure incurred in public healthcare facilities broadly includes costs incurred on diagnostic tests, drugs & supplies and surgery charges.

Table 4.
Direct medical expenditures on delivery care in the public healthcare facilities (in PKR)

Expenditure Head	N (211)	2000 & below	2001-4000	4001-6000	6001-8000	8001-10000	Above 10000	Mean
Diagnostic tests	86 (100%)	81 (94.2%)	4 (4.6%)	1 (1.2%)	0	0	0	394.0
Drugs & other supplies	201 (100%)	169 (84.0%)	11 (5.5%)	7 (3.5%)	1 (0.5%)	8 (3.9%)	5 (2.5%)	1269.6
Surgery	08 (100%)	0	0	0	1 (12.5%)	3 (37.5%)	4 (50%)	10777.8
Total OOPE	211 (100%)	176 (83.4%)	11 (5.2%)	6 (2.8%)	3 (1.4%)	1 (0.5%)	14 (6.6%)	2043.09

Source: SPSS Data Analysis Files by author

The analysis revealed that 211 (85.42%) mothers out of 247 who had deliveries at public healthcare facilities incurred some amount as OOPE. Out of these 211 mothers who had incurred OOPE, 86 (40.8%) of them paid for diagnostic tests, 201 (95.2%) incurred expenditure on purchase of drugs and other supplies from private pharmacies, and 8 of them (3.8%) had incurred charges on surgery performed in the hospitals. A majority of mothers (94.2%) incurred OOPE below PKR 2000 for diagnostic tests (94.2%) and drugs/supplies (84%).

On an average, mothers incurred PKR 394 on diagnostic tests, PKR 1269.6 on purchase of drugs

and supplies and PKR 10777.8 as surgery charges. Thus, the study showed that mothers had incurred PKR 2043.09 as direct medical expenditures while availing delivery care from the public healthcare facilities.

Private Healthcare Facilities

In the study, 121(32.9%) out of 368 mothers availed delivery care from private healthcare facilities. Table 5 provides a detailed break-up of direct medical expenditures incurred by the mothers who had availed delivery care in private healthcare facilities.

Table 5.*Direct medical expenditures on delivery care in private healthcare facilities (in PKR)*

Expenditure Head	N = 121	< 2000	2001-4000	4001-6000	6001-8000	8001-10000	>10001	Mean
Diagnostic charges	121	111 (91.7%)	3 (2.5%)	7 (5.8%)	0	0	0	1707.4
Drugs & other supplies	121	32 (26.4%)	43 (35.5%)	26 (21.5%)	3 (2.5%)	13 (10.7%)	4 (3.3%)	4450.4
Surgery	53	0	0	1 (1.8%)	0	2 (3.50)	50 (87.7%)	18596.5
Hospital charges	121	1 (0.8%)	6 (5.0%)	36 (29.8%)	23 (19.0%)	24 (19.8%)	31 (25.6%)	9227.3
Total OOPE	121	0	2 (1.7%)	1 (0.8%)	12 (9.9%)	15 (12.4%)	91 (75.2%)	23471.9

Source: SPSS Data Analysis Files by author

The study showed that all mothers who had delivered at the private healthcare facilities (N=121) incurred OOPE on diagnostic tests, drugs & supplies, and hospital charges. However, 53 (43.8%) mothers incurred surgery charges. A majority of mothers (91.7%) who availed delivery care in private healthcare facilities incurred PKR 2000 or below for diagnostic procedures. Further analysis revealed that on an average, mothers incurred PKR 1707.4 on diagnostic tests, PKR 4450.4 on purchase of drugs and supplies, PKR 18596.5 on surgery related expenditure, PKR 9227.3 as hospital charges. Thus, the study revealed that families of mothers who had their child birth at private

healthcare facilities incurred a mean direct OOPE of PKR 23471.9.

Direct Non- Medical Expenditure on Delivery Care

PublicHealthcare Facilities

Table 6 gives a detailed break-up of direct non-medical expenditures incurred by the families on delivery care in public healthcare facilities. The categories of non-medical expenditures include transport costs from home to hospitals, back to home from the hospitals, and expenditures incurred on food for mothers and accompanied persons during the stay in hospital.

Table 6.*Non- medical expenditure on delivery care in public healthcare facilities (in PKR)*

Expenditure Head	N = 211	< 2000	2001-4000	>4001	Mean ±SD
Transport costs from home to hospital (pregnant woman for delivery)	90	90 (100%)	0	0	197.10
Transport costs from hospital to home (mother and neonate after delivery)	211	210 (99.6%)	1 (0.4%)	0	470.1
Referral transport cost	03	2(66.7)	0	1 (33.3)	3000.0
Transport costs of accompanying persons	06	0	5 (83.3%)	1 (16.6%)	866.7

Food expenditure for mothers	192	183 (95.3%)	8 (4.7%)		737.0
Food expenditure for accompanying persons	57	52 (91.2%)	5 (8.8%)	0	593.7
Total OOPE (Mean)	211	202 (95.7%)	7 (3.3%)	2 (0.9)	821.4

Source: SPSS Data Analysis Files by author

The results revealed that 211 mothers (85.4%) who sought delivery care in public healthcare facilities reported that they incurred direct non-medical expenditure in the form of costs on transport from home to hospitals, from hospital to home, and purchase of food items for mothers and accompanying persons. Of the 211 mothers who reported of incurring OOPE on non-medical expenditure, 90 (42.6%) mothers incurred expenditure on arranging transport from home to hospital and they incurred OOPE up to 2000 PKR. This means a majority of mothers had availed ambulance services provided by health department in the district, although a few of them travelled by other means of transportation. Whereas, most of the mothers i.e., 210 mothers (99.5%) have reported that their family had to arrange transport facilities to go back home and, in the process, they incurred a significant amount. Only 3 mothers have reported of incurring additional costs of transport owing to referral of the case to higher facility. Expenditure on food is another component of direct non-medical expenditure as 192 mothers (91%) who had their child birth at public health facilities incurred costs on food purchased for mothers, and another 57 mothers (27%) reported of

incurring additional costs of food purchased for bystanders in the hospital.

Further analysis revealed that on an average, mothers had incurred PKR197.10 as cost of transport from home to hospital, PKR 470 as cost of transport from hospital to home, PKR 3000 for arranging referral transport, PKR 866.7 as transport costs of accompanying persons in the hospital, PKR 737 and PKR 593.7 as cost of food for mother and accompanied persons respectively. Thus, the study revealed that mothers who had delivered at public healthcare facilities have incurred a mean OOPE of 821.4 PKR.

Private Healthcare Facilities

Table 7 gives a detailed break-up of direct non-medical expenditures incurred by the mothers on delivery care in the private sector health facilities. The categories of non-medical expenditures include transport costs from home to hospitals, cost of transport from the hospitals to home, food expenditures on mothers and accompanied persons in the hospital.

Table 7.

Non- medical expenditures on delivery care in private healthcare facilities (in PKR)

Expenditure Head	N = 121	1-2000	2001-4000	>4001	Mean
Transport costs from home to hospital (pregnant woman for delivery)	120	116 (96.6)	4 (3.3)	0	981.8
Transport costs from hospital to home (mother and neonate after delivery)	121	117 (96.7)	4 (3.3)	0	1024.0
Referral transport costs	02	1(50%)	1(50%)	0	2650.0

Transport costs of accompanying persons	15	15 (100.0)	0	0	866.7
Food expenditure for mothers	120	97 (80.8%)	23 19.2%)	0	1504.5
Food expenditure for accompanied	90	66 (73.3%)	24 (26.6%)	0	1211.9
Total OOPE (Mean)	121	86(71.1)	28(23.1)	7(5.8)	2124.4

Source: SPSS Data Analysis Files by author

Results reveal that all mothers (N=121) who sought delivery care in private healthcare facilities reported of incurring direct non-medical expenditures in the form of costs on transport from home to hospitals, from hospital to home, and purchase of food items for mothers and accompanying persons. Out of 121 mothers who reported of incurring OOPE on non-medical expenditure, 120 (99.2%) mothers incurred below PKR 2000 as cost of transport to reach hospital. Whereas, all mothers incurred costs on arranging transport facilities to go back home. Only 2 mothers incurred additional costs for transport due to emergency referral to higher facility. While 120 respondents (99.2%) reported that they incurred expenditure on purchase of food items for mothers, and 90 mothers (74.4%) reported of incurring additional costs for purchasing food for accompanying persons in the hospital. The study revealed that on an average

mother incurred PKR 981.8 as cost of transport from home to hospital, PKR 1024 as cost of transport from hospital to home, PKR 2650 for arranging referral transport, PKR 866.7 as cost of transport for accompanying persons, PKR 1504.5 and PKR 1211.9 as cost of food items for mother and accompanying persons respectively. Overall, the study revealed that mothers who had delivered at private healthcare facilities have incurred a mean OOPE of PKR 2124.4 as direct non-medical expenditure, which is quite higher compared to the non-medical OOPE of mothers (PKR.821.4) who had delivered at public healthcare facilities.

Mean OOPE on Delivery Care

A comparison of average OOPE incurred by the mothers who had delivered in public and private hospitals are presented in table 8.

Table 8.

Mean OOPE on delivery care in public and private healthcare facilities (average in PKR)

Expenditure Head	Public Sector	Private Sector
Direct Medical Expenditures		
Diagnostic charges	394.0	1707.4
Drugs & other supplies	1269.6	4450.4
Surgery	10777.8	18596.5
Hospital charges	0	9227.3
Total (Mean)	2013.09 (71.02%)	23471.9 (91.70%)
Direct Non-Medical Expenditures		
Home-Hospital	197.10	981.80
Hospital-Home	470.10	1024.0
Referral	3000.0	2650.0
Transport for accompanying persons	866.7	866.7
Food items for mothers	737.0	1504.5
Food items for accompanied	593.7	1211.9
Total (Mean)	821.4 (28.97%)	2124.4 (8.29%)
Grand Total	2834.50	25596.3
Home-Hospital	197.10	981.80

Source: SPSS Data Analysis Files by author

Mean direct medical expenses incurred by mothers who delivered in public healthcare facilities (which includes diagnostic tests, drugs, and surgery charges) was PKR 2013.09, and mothers who delivered at private healthcare facilities (which includes diagnostic tests, drugs, surgery and other hospital charges) was PKR 23471.9. Mean direct non-medical expenses incurred by the mothers who delivered at public healthcare facilities (which includes transport expenses to the hospital and back home, expenses on food items purchased for mothers

and bystanders) was PKR 821.4, whereas mean direct non-medical expenses for mothers who delivered at private healthcare facilities was PKR 2124.1. The study reveal that mean average OOPE for mothers who availed delivery care from the public healthcare facilities was PKR 2834.50, whereas OOPE incurred by mothers who sought delivery care in the private healthcare facilities was PKR 25596.3. Thus, the study shows that OOPE on delivery care at private hospitals is almost 9 times higher compared to public hospitals.

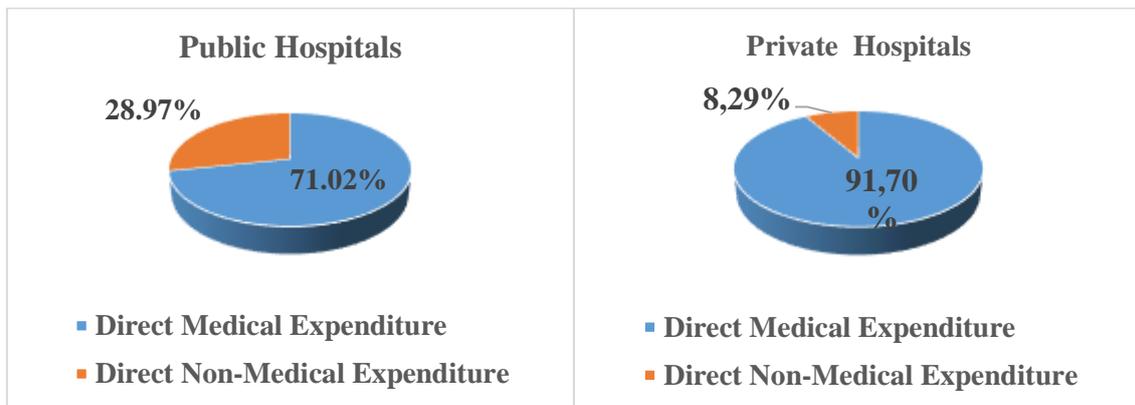


Figure 1. Proportion of Mean Direct Medical Expenditure Vs. Non-medical Expenditure on Delivery Care
Source: SPSS Data Analysis Files & Excel file by author

Fig 1 shows that mean direct medical expenditure for delivery care in the public healthcare facilities comprises 71.02% of total OOPE; whereas this component constitutes 91.70% of total OOPE on delivery care in the private healthcare facilities. While direct non-medical expenditure comprises 28.97% of delivery care in the public healthcare facilities, this component forms only 8.29% of delivery care in the private healthcare facilities.

Mean OOPE on Normal and Caesarean Deliveries

Average (Mean) OOPE on normal and caesarean deliveries in public and private sector hospitals are presented in table 9. Mean direct medical expenditure on delivery care included mean expenses incurred on diagnostics, drugs& supplies, surgery and hospital charges. Mean direct non-medical expenditure includes travel expense from home to hospital and back to home, transportation charges for mothers, accompanying persons including referrals. It also includes costs of food items purchased for mothers and accompanying persons. It is evident from the results in table-9 that average direct medical expense on diagnostic tests conducted in public sector hospitals for normal delivery is PKR. 242.1 while in private sector it is PKR

1508.8, which is almost 6 times higher than that of public sector hospitals. However, much difference is not observed in average diagnostic charge for mothers who had cesarean deliveries in public healthcare facilities (PKR 1957.9), and private health facilities (PKR 1962.3).Average expenditure incurred on drugs and other supplies for normal deliveries in public hospitals is PKR 700 while in private healthcare facilities it is PKR 3139.7, which is almost 4.5 times higher than public hospitals. However, mean expense for cesarean deliveries in public hospital of PKR 7228.6 is higher than mean expense for cesarean deliveries in private hospitals (PKR 6132.1).

Surgery charges constitutes a major share of OOPE for cesarean deliveries, especially in the private hospitals. While only a small fraction of mothers who had cesarean deliveries at public hospitals incurred surgery charges, all mothers who delivered at private hospitals had incurred surgery charges. Mean charges incurred for surgery during cesarean deliveries are PKR10777.8 in public hospitals and PKR 18882.4 in private hospitals. While there were no hospital charges in public healthcare facilities, mothers who had delivered in private hospitals incurred a mean hospital charge of PKR 7845.6 for normal deliveries and PKR 11000.0 for

cesarean deliveries. The analysis also showed that mean direct medical expenditure for normal delivery in private hospitals (PKR 12825.0) is about 14 times higher than mean direct medical expenditure for normal delivery in public hospitals (PKR 922). However, mean direct

medical expenditure for cesarean deliveries in private hospital (PKR 37132.1) is only about 2.6 times higher than mean direct medical expenditure for cesarean deliveries in public hospital (PKR 14047.6).

Table 9.

Average OOPE on normal and caesarean deliveries in public and private sector hospitals (in PKR)

Expenditure Head	Public Sector		Private Sector	
	Normal	Caesarean	Normal	Caesarean
Direct Medical Expenditures				
Diagnostic charges	242.1	1957.9	1508.8	1962.3
Drugs & other supplies	700.0	7228.6	3139.7	6132.1
Surgery	0	10777.8	16166.7	18882.4
Hospital charges	0	0	7845.6	11000.0
Total OOPE (Mean)	922.0	14047.6	12825.0	37132.1
Direct Non-Medical Expenditures				
Transport cost from home to hospital	166.7	459.5	843.4	1159.4
Transport cost to home	402.9	1095.2	904.4	1178.3
Referral transport cost	1500.0	7000.0	300.0	5000.0
Transport cost of accompanying persons	750.0	925.0	600.0	1100.0
Cost of food for mothers	280.6	1280.4	824.8	2260.4
Cost of food for accompanying persons	340.2	623.5	637.6	1816.7
Total OOPE (Mean)	579.4	2064.3	1814.0	2522.6
Grand Total (Mean)	1501.4	16111.9	14339.0	39654.7

Source: SPSS Data Analysis Files by author

With regard to direct non-medical expenses, mean expenditure for travelling from home to hospital for normal delivery is PKR166.7 in public hospitals and PKR 843.4 in private hospital; mothers who reported cesarean section in public hospitals incurred an average expense on travelling PKR 459.5 and PKR 1159.4 in private hospitals respectively. Mean transport charges incurred by families while going back to home from hospitals were higher for both normal and caesarean deliveries in both public and private sectors. For normal deliveries, mean expense incurred by families for going back home is PKR 402.9 in public hospital and PKR 904.4 in private hospital; and for caesarean deliveries mean averages are PKR 1095.2 and PKR 1178.3 in public and private sector hospitals respectively. Mean expense on arranging referral transport from public hospital is higher than that of private hospital for both normal and caesarean

deliveries. On an average, an amount of PKR 1500 and PKR 7000 were incurred on referral transport by mothers who had normal and cesarean deliveries respectively in public hospitals. However, mean expenses on referral transport in private hospitals are PKR 300.0 for normal delivery and PKR 5000 for cesarean deliveries, both are lower compared to public hospitals. Transportation of accompanying persons in public sector is PKR 750, while in private hospitals it is PKR 600; and for caesarean deliveries mean amount of PKR 925 and PKR 1100 were incurred in public and private hospitals respectively.

A considerable amount was also incurred on purchase of food for both mothers and accompanying persons in hospitals. Expenditure on food increases with increase in number of days of hospital admission and families had to

spent a higher amount in the event of cesarean deliveries. Food expenditure for mothers and bystanders were higher in private hospitals probably due to more number of stays compared to public hospitals. The analysis showed that mean direct non-medical expenditure for normal delivery in private hospital (PKR 1814) is almost 3 times higher than mean direct non-medical expenditure for normal delivery in public hospital (PKR 579.4). However, mean direct non-medical expenditure for cesarean delivery in private hospital (PKR 2522.6) is only PKR 500 higher than direct non-medical expenditure for cesarean delivery in public hospital (PKR 2064.3). The overall analysis in table 9 shows that OOPE incurred on normal delivery care in private hospitals is almost 9.5 times higher than OOPE incurred on normal delivery care in public hospitals; whereas OOPE incurred on cesarean delivery care in private hospitals is almost 2.5 times higher than OOPE incurred on cesarean delivery care in public hospitals.

Discussion

Although many studies attempted to estimate OOPE on maternal healthcare utilization using both primary and secondary data at the international level, such studies are lacking in the context of Pakistan. One of the objectives of the present study was to estimate the OOPE (direct medical and non-medical costs) on delivery care by mothers in public and private hospitals in the RajanPur district. The study showed that 90.2% of mothers had incurred direct medical expenses for delivery care in public or private facilities. This finding is consistent with an earlier study in three districts of Sindh province, which showed that 82% and 96% of the women who utilized public or private health facilities for delivery care incurred OOPE (Ansari et al., 2015). It also showed a vast difference in OOPE incurred by mothers on delivery care in public vs. private healthcare facilities. The mean OOPE incurred for delivery in a public hospital is PKR 2834 compared to PKR 25596 in private hospitals. The present study's findings are consistent with earlier studies in Pakistan.

Rehman et al., (2017) in a rural district of Pakistan showed that women incurred on an average PKR 4000 for delivery care in the public hospital and PKR 16000 in the private hospital. Sughra et al. (2018) in the Punjab district of Pakistan showed that the mean OOPE on delivery care was PKR 7531 and for the lowest wealth quintile between PKR 7351 -855. While the vast difference in OOPE was due to higher hospital charges, medicine, and surgery fees in

private healthcare facilities, the cost of transportation contributed to the increased share of OOPE in public healthcare facilities. More than two-thirds of women incurred charges on medicine, cotton pads, syringes, and saline in public hospitals, which they bought from private pharmacies. Even countries with universal availability of maternal health services also incur huge OOPE, including informal payments (Sidney et al., 2016). Prinja et al. (2015), in a study in India, found that OOPE for delivery in the private sector is about 16 times higher than that of the public health sector. This is due to the government's universal availability of free delivery care facilities through public health facilities.

Overall, OOPE is higher for the mothers who have childbirth in private health care facilities and delivered through cesarean section. These women incurred high OOPE due to additional charges on medicine and supplies, diagnostic services, and blood transfusion in the private hospitals. Mohanty et al. (2018) showed that cesarean deliveries in the private sector are almost US\$ 296 higher than normal deliveries. In Nepal, cesarean delivery is almost 7.5 times higher than normal deliveries in the private sector. In Bangladesh, a cesarean section in the private sector is 3.2 times higher than normal deliveries (Sarkar et al., 2018). In this study, tips for getting services in public healthcare facilities were negligible, although earlier studies have reported informal payments made by mothers during delivery care utilization in public hospitals. For instance, Issac et al. (2016) in India showed that 86% of the woman had incurred tips (median value of US\$5.25) to avail government ambulance and bribes in cash or kind to facility staff for their services such as obtaining a bed in the postnatal ward. A study by Khan and Zaman (2010) in a tertiary level public hospital in Islamabad, Pakistan, estimated that the average cost to mothers for normal delivery was PKR7528 and that cesarean delivery was PKR 13678.

The study showed that costs incurred on transportation account for a significant share of direct non-medical expenditure. Despite the availability of a public ambulance scheme in the district, this was not the vehicle of choice for many women due to long waiting times, poor road connectivity, and easy availability of other modes of transportation within the neighborhood. However, a majority of the woman used ambulance facilities for returning home. A similar study in Pakistan by Ansari et al. (2015) reported that more than 55% of users in

the public sector and 71% of private health sector users could not afford travel costs, and travel costs were higher among women who had to travel more than 5 km distance (Razumowsky, 2022). Qureshi et al (2016) found that poor transportation and financial problem are significant barriers to seeking maternal health services in Pakistan. The government of Pakistan focused on maternal and child health and created multiple policies to improve the availability of maternal and neonatal care services and address financial barriers related to their utilization. However, the target of universal health coverage for delivery care in Pakistan is not yet achieved. Similar findings have also been highlighted in a few studies discussing the high OOPE for institutional deliveries in Pakistan.

Conclusion

The study showed that households incurred a high OOPE on delivery care in public and private hospitals. A significant difference in OOPE was observed between public versus private hospitals; and normal versus caesarian deliveries, which demonstrates that health care is expensive in the private sector. The percentage of cesarean deliveries conducted in private health sector was 4.7 times higher than cesarean deliveries performed in public healthcare facilities. The prevalence of cesarean deliveries in the private health sector was almost three times the WHO recommended norms. OOPE on cesarean delivery in private hospitals is almost 2.5 times higher than the public hospitals, whereas OOPE incurred on normal delivery care in private hospitals is almost 9.5 times higher than OOPE in public hospitals. The study also found that costs incurred on transportation account for a significant share of direct non-medical expenditure. Despite the availability of a public ambulance scheme in the district, this was not the vehicle of choice for many women. Thus, findings of this study make some significant contributions to understanding OOPEs in utilizing delivery care by women in a rural district of Pakistan. These findings have policy implications on the need to implement an effective regulatory mechanism to control the costs of care delivered by both public and private healthcare facilities. There is also a need to monitor and supervise maternal healthcare services delivered by the public and private sectors.

Bibliographic references

- Acharya, J., Kaehler, N., Marahatta, S. B., Mishra, S. R., Subedi, S., & Adhikari, B. (2016). Hidden Costs of hospitalbased delivery from two tertiary hospitals in western Nepal. *Plos One*, 11(6), e0157746. <https://doi.org/10.1371/journal.pone.0157746>
- Ansari, M. S., Manzoor, R., Siddiqui, N., & Ahmed, A. M. (2015). Access to comprehensive emergency obstetric and newborn care facilities in three rural districts of Sindh province, Pakistan. *Health Research Policy and Systems*, 13(1), <https://doi.org/10.1186/s12961-015-0042-7>
- ADB (2012). Asian Development Bank. Available at <https://www.adb.org/sites/default/files/publication/29704/ado2012.pdf>
- Berer, M. (2012). Maternal mortality or women's health: time for action. *Reproductive Health Matters*, 20(39), 5-10. [https://doi.org/10.1016/s0968-8080\(12\)39632-8](https://doi.org/10.1016/s0968-8080(12)39632-8)
- Chhetri, S., Shah, R., & Rajbanshi, L. (2020). Factors associated with utilization of complete postnatal care service in Baglung Municipality, Nepal. *Int J Reprod Med*, 2892751. <https://doi.org/10.1155/2020/2892751>
- Goli, S., Rammohan, A., & Moradhvaj. (2018). Out-of-pocket expenditure on maternity care for hospital births in Uttar Pradesh, India. *Health Economics Review*, 8(5), <https://doi.org/10.1186/s13561-018-0189-3>
- Gopalan, S. S., & Durairaj, V. (2012). Addressing maternal healthcare through demand side financial incentives: Experience of Janani Suraksha Yojana program in India. *BMC Health Services Research*, 12, 319.
- 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), [doi: https://doi.org/10.1186/s41043-016-0051-3](https://doi.org/10.1186/s41043-016-0051-3)
- Issac, A., Chatterjee, S., & Srivastava, A., & Bhattacharyya, S. (2016). Out of pocket expenditure to deliver at public health facilities in India: a cross sectional analysis. *Reproductive Health*, 13(99). <https://doi.org/10.1186/s12978-016-0221-1>
- Khan, A., & Zaman, S. (2010). Costs of vaginal delivery and caesarean section at a tertiary level public hospital in Islamabad, Pakistan. *BMC Pregnancy Childbirth*, 10(2), <https://doi.org/10.1186/1471-2393-10-2>



- Krishnamoorthy, Y., Ganesh, K., Sakthivel, M., & Priyan, S. (2020). Costs incurred and determinants of out-of-pocket payments for child delivery care in India: Evidence from a nationally representative household survey. *Int J Health Plann Manage*, 35(1), e167-e177. doi: <https://doi.org/10.1002/hpm.2953>.
- Kyei-Nimakoh, M., Carolan-Olah, M. & McCann, T.V. (2017). Access barriers to obstetric care at health facilities in sub-Saharan Africa—a systematic review. *Syst Rev* 6, 110. <https://doi.org/10.1186/s13643-017-0503-x>
- Malik, A. M., & Syed, S. M. (2012). Socio-economic determinants of household out-of-pocket payments on healthcare in Pakistan. *Int J Equity Health*, 4(11), 51. <https://doi.org/10.1186/1475-9276-11-51>
- Mansuri, G., Sami, M.F., Ali, M., Doan, H.T.T., Javed, B., & Pandey, P. (2018). When water becomes a hazard: A diagnostic report on the state of water supply, sanitation and poverty in Pakistan and its impact on child stunting (English). WASH Poverty Diagnostic Series. Washington, D.C.: World Bank Group.
- Merga, M., Debelo, T. F., & Alaro, T. (2019). Hidden costs of hospital-based delivery among women using public hospitals in bale zone, Southeast Ethiopia. *Journal of Primary Care & Community Health*, 10, <https://doi.org/10.1177/2150132719896447>
- MICS (2017-2018), Punjab Survey findings report, Multiple Indicator Cluster survey. available on <https://www.unicef.org/pakistan/media/3121/file/Multiple%20Indicator%20Cluster%20Survey%202017-18%20-%20Punjab.pdf>
- Mirabedini, S. A., Fazl, E., Hashemi, S. M., Asiabar, S., Rezapour, A., Azami-Aghdash, S., & Amnab, H. (2017). Out-of-pocket and informal payments in Iran's health care system: A systematic review and meta-analysis. *Medical Journal of the Islamic Republic of Iran*, 31(1), 401-409. <https://doi.org/10.14196/mjiri.31.70>
- Mohanty, S. K., & Srivastava, A. (2013). Out-of-pocket expenditure on institutional delivery in India. *Health Policy and Planning*, 28(3), 247–262. <https://doi.org/10.1093/heapol/czs057>
- Mohanty, S. K., Kim, R., Khan, P. K., & Subramanian, S. V. (2018). Geographic variation in household and catastrophic health spending in India: Assessing the relative importance of villages, districts, and states. *Milbank Q.*, 96(1), 167–206.
- Myint, A. N. M., Liabsuetrakul, T., Htay, T., & Wai, M.M, Sundby, J., & Bjertness, E. (2018). Impoverishment and catastrophic expenditures due to out-of-pocket payments for antenatal and delivery care in Yangon Region, Myanmar: a cross-sectional study. *BMJ Open*, 8(11),
- National Institute of Population Research and Training (2013) Bangladesh Demographic & Health survey 2011. Dhaka, Bangladesh and Calverton, Maryland, USA: NIPORT, Mitra and Associates, and ICF International. Retrieved from: <https://dhsprogram.com/pubs/pdf/fr265/fr265.pdf>
- Noreen, S. (2017) Determinants of Demand for Maternal Health Care Services: A Survey Study of Bahawalpur District. (Doctoral thesis) The Islamia University of Bahawalpur.
- Pakistan Bureau of Statistics PBS Government of Paksitan (2018). 7th population and Housing census 2022. Retrived from <https://www.pbs.gov.pk/>
- Pomeroy, A., Koblinsky, M. M., & Alva, S. (2014). Who gives birth in private facilities in Asia? A Look at Six Countries. *Health Policy and Planning*, 29, 38-47.
- Prinja, S., Bahuguna, P., Gupta, R., Sharma, A., Rana, S. K., & Kumar, R. (2015). Coverage and financial risk protection for institutional delivery: How universal is provision of maternal health care in India? *Plos One*, 10(9), e0137315. <https://doi.org/10.1371/journal.pone.0137315>
- Qureshi, R.N., Sheikh, S., Khowaja, A.R., Hoodbhoy, Z., Zaidi, S., Sawchuck, D., Vidler, M., Bhutta, Z.A., & Dadeslzen, P. (2016) Health care seeking behaviours in pregnancy in rural Sindh, Pakistan: a qualitative study. *Reproductive Health*, 13(1), 34.
- Rahman, M.M., Gilmour, S., Saito, E., Sultana, P., & Shibuya, K. (2013). Health-related financial catastrophe, inequality and chronic illness in Bangladesh. *PLoS One*, 8(2), e56873. <https://doi.org/10.1371/journal.pone.0056873>
- Rehman, A., Adnan, M., Mahmood, H., Hassan, M., & Humayun, A. (2017). Maternal health care expenditure among women in rural areas of Pakistan. *Annals of King Edward Medical University*, 23(2). doi: <https://doi.org/10.21649/akemu.v23i2.1587>
- Riaz, A., Zaidi, S., & Khowaja, A. R. (2015). Perceived barriers to utilizing maternal and neonatal health services in contracted-out versus government-managed health facilities in the rural districts of Pakistan. *International*

- Journal of Health Policy and Management, 4(5), 279-284. doi: <https://doi.org/10.15171/ijhpm.2015.50>
- Razumowsky, A. I. (2022). Distance education: A ruin of health. *Amazonia Investiga*, 11(50), 290-298. <https://doi.org/10.34069/AI/2022.50.02.27>
- Sarkar, A. R., Sultana, M., Ali, N., & Akram, R. (2018). Cost comparison and determinants of out-of-pocket payments on child delivery care in Bangladesh. *International Journal of Health Planning and Management*, 33(9693), <https://doi.org/10.1002/hpm.2615>
- Sharma, S., Verma, P. B., Viramgami, A. P., Vala, M.C., & Lodhiya, K. K. (2018). Analysis of out-of-pocket expenditure in utilization of maternity care services in urban slums of Rajkot City, Gujarat. *Indian J Community Med*, 43, 215-9
- Sidney, K., Salazar, M., Marrone, G., Diwan, V., DeCosta, A., & Lindholm, L. (2016) Out-of-pocket expenditures for childbirth in the context of the Janani Suraksha Yojana (JSY) cash transfer program to promote facility births: who pays and how much? *Studies from Madhya Pradesh, India. Int J Equity Health* 15, 71. <https://doi.org/10.1186/s12939-016-0362-4>
- Sughra, M., Fatima, F., Marrium, M., & Abbas, K. (2018). Maternal health expenditures and health seeking behavior among lowest wealth quintile of the rural population in an under developed district of the Punjab, Pakistan. *Int J Reprod Contracept Obstet Gynecol*, 7, 2579-82.
- Srivastava, N. M., Awasthi, S., & Agarwal, G.G. (2009). Care-seeking behavior and out-of-pocket expenditure for sick new-borns among urban poor in Lucknow, Northern India: A prospective follow-up study. *BMC Health Serv Res*, 61, 9.
- Tellis, S. B., Rent, P. D., & Dmello, M. K. (2018). Utilization of antenatal care and out of pocket expenditure on delivery care in Dakshina Kannada. *Int J Community Med Public Health*, 5(8), 3553-3558
- World Bank (2014). World Bank Data. Available from: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906522-data-updates-and-errata>
- WHO (2015) WHO statement on caesarean section rates: Department of Reproductive Health and Research World Health Organization: https://apps.who.int/iris/bitstream/handle/10665/161442/WHO_RHR_15.02_eng.pdf
- WHO (2018) World Health Statistics: World Health Organization. Geneva. <https://apps.who.int/iris/rest/bitstreams/1137482/retrieve>
- WHO, UNICEF (2013) Trends in maternal Mortality: 1990 to 2013. Estimates by WHO, UNICEF, UNFPA, The World Bank. Geneva: <https://apps.who.int/iris/handle/10665/112697>
- WHO (2019) World Health Statistics -2019: World Health Organization, Geneva <https://www.who.int/data/gho/data/themes/theme-details/GHO/world-health-statistics>
- World Bank (2019). Pakistan overview: Available from <https://www.worldbank.org/en/country/pakistan/overview>
- WHO (2021) Maternal deaths decline slowly with vast inequalities worldwide (updated 2021). <https://www.who.int/news/item/19-09-2019-maternal-deaths-decline-slowly-with-vast-inequalities-worldwide>
- WHO & World Bank (2019). Global Monitoring Report on Financial Protection in Health. International Bank for Reconstruction and Development. <https://www.who.int/publications/i/item/9789240003958>
- WHO (2017) World Health Organization. Maternal Health. retrieved from https://www.who.int/health-topics/maternal-health#tab=tab_1?