



Out of pocket expenditure on maternal and child health care services among rural households in Dedaye

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Executive summary

Myanmar's health care services are largely financed by out of pocket payment (80%) at the point of care [1]. High out of pocket expenditures make the population difficult to access the health care services including antenatal care, care for child birth, post-natal care, neonatal care and child health care [2]. Previous qualitative studies done in some townships of Ayeyarwaddy Region have found that financial barrier to access health care was still existing even after implementation of MNCH program and introducing user fees exemption mechanisms [3]. A few studies have evaluated the out-of-pocket expenditure on health care after applying user fee exemption mechanism, all of them, however, were hospital based studies conducted at the tertiary hospitals. There is no information about household spending on maternal and child health care in rural area. This study was conducted with the aim of assessing the out of pocket expenditures of household on maternal and child health care services in rural areas and describing the extent to which the MNCH program defrayed the out of pocket expenditures for the beneficiaries.

It was a cross sectional study conducted in rural areas of Dedaye Township, Ayeyarwaddy Region in December 2015. Face-to-face interview using a structured questionnaire was carried out with 331 mothers who have children age one year or below at the time of data collection. We collected out of pocket expenditure on maternal and child health care incurred by the households of 331 mothers. Maternal and child health care in our study was defined as antenatal care, natal care, postnatal care, care for pregnancy related health problems for their last delivery and health care for the last child who were one year and below. Therefore the data in our study included out of pocket expenditure incurred by the respondents' households during 2014 and 2015. In analysis, the households were disaggregated into five quintiles based on their annual expenditure per capita.

Among the mothers involved in our study, 231 (73.8%) received antenatal care for at least four times, 225 (68%) delivered their last child with skilled birth attendants and 232 (74.1%) received postnatal care with skilled health personals. Majority of the children 271 (83.9%) received childhood immunization for at least the first dose, BCG. Our study also analyzed the disparity among the study population on utilization of MNCH care. Among 68 children who had been having health problems during their neonatal period, 45 (66.2%) sought health care from skilled health personals. Out of 139 children who had illnesses after their neonatal period, 99 (71.2%) received health care from skilled health providers.

There was a discrepancy in utilization of maternal care services among the community. Lowest utilization of antenatal care, skilled birth attendants and post natal care were found among the households in the lowest expenditure quintile. On the contrary, utilization of maternal care services was high among the high expenditure quintiles. As regards utilization of health services for children, health problems among children were highest in the lowest quintile but the use of health care from skilled providers was lowest in this population.

Apart from two households, almost all the households involved in this study have expensed out of pocket payments for MNCH care during the period of last child delivery. On average, the respondents of our study spent 6% of their total household expenditure only for MNCH care. Expenditure for maternal care was almost five times for that of child care. Institutional delivery was the most costly health care to be received by the study population and consumed about 8% of total

household expenditure. On average, the households had to expense 86,416 kyats to 228,255 kyats for delivery at government hospital and 176,340 kyats to 335,063 kyats for the delivery at private hospital. The institutional delivery cost approximately seven times than home delivery. In terms of health care expenditure for the children, hospitalization was the most expensive health care for the households in this study and average cost for hospitalization was 120,900 kyats. Similar findings were also indicated in various international studies from many low and middle income countries [8,10,12,11,13] . The direct medical cost (cost incurred for medicines, investigations, fees to health care providers) was highest for most of the health services and this is consistent with the findings from a number of international studies [8].

We found out that out of pocket expenditure for maternal and child health care caused financial catastrophe in 18.1% of households if the cutoff point is set at 30% and 9.4% of households if the cutoff point is at 40% of non food expenditures of the households. A literature review on the impact of maternal and child health care on household expenditure also revealed that, in many low income countries, household spending on maternal and child health care can even impoverish households and represent catastrophic levels of spending [8].

Six townships in Ayeyarwaddy Region, including Dedaye, have been benefited from maternal and child health emergency referral program since 2010. On average the emergency referral support reduced the out of pocket payment by 6% of total household expenditure and 13% of non food expenditure on MNCH care among the beneficiaries. The households were reimbursed the expenses for medicines, investigations, travel and meal for both patient and an attendant. The reduction in out of pocket payment due to emergency referral support was most prominent in second lowest quintile while the reduction was quite similar in other quintiles. Although share of MNCH care expenditure out of household expenditure was high in the lowest quintile, households from this quintile did not get much benefit from emergency referral support. It is likely that the selection criteria of the organizations to provide emergency referral support would pay less attention on the wealth status of the households or there would be a gap in identifying the poor households.

To our knowledge, there is very little or no study assessing out of pocket expenditure on MNCH care services among rural households in Myanmar. This study highlighted that MNCH care alone can cause households to be in financial catastrophe. Current initiatives on financial protection are not sufficient enough to protect households from financial catastrophe. There was a discrepancy in both utilization and household expenditure on MNCH care across the expenditure quintile. Financial burden was high among households where the women had undergone institutional delivery.

Recommendations

(a) Recommendation for policy makers

- As out of pocket expenditures on maternal and child health care alone can cause financial catastrophe among the households, MNCH care should be considered as a priority area in establishing financial protection mechanisms
- Financial burden of institutional delivery on the households should be taken into account while strengthening institutional delivery

(b) Recommendation for implementers of emergency referral support

- To consider poorest households' constraints in meeting eligible criteria while providing emergency referral support

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1 Introduction

Myanmar's health care services are largely financed by out of pocket payment (80%) at the point of care [1]. High out of pocket expenditures make the population difficult to access the health care services including antenatal care, care for child birth, post-natal care, neonatal care and child health care [2]. The costs incurred at the point of referral are also a barrier to accessing emergency care which include are grouped into the following categories, for ease; meals (including caretaker), treatment and drugs, laboratory and investigations and finally administration fees [2]. Providing financial support for patients needing to access emergency care is essential in particular for the most vulnerable members of a community and communities that are defined as hard to reach. In order to increase health care utilization and reduce the financial burden of the poor, user fee exemption mechanism was applied in almost all of the governmental health facilities in Myanmar nearly two years ago.

In addition, MNCH program aiming to improve maternal and child healthcare through the strengthening of the township health system was implemented in six townships in Ayeyarwaddy Regions since 2011. The program works on both supply and demand side interventions supporting – management and administration, planning and coordination, supervision and monitoring, training HRH – technical , training HRH – other, training VHW, training VHC , , referrals, outreach sessions, essential medicine and medical supplies, activities at community level, health facility investment and operational research.

Previous qualitative studies done in some townships of Ayeyarwaddy Region have found that financial barrier to access health care was still exiting even after implementation of MNCH program and introducing user fees exemption mechanisms [3]. A few studies have evaluated the out-of-pocket expenditure on health care after applying user fee exemption mechanism, all of them, however, were hospital based studies conducted at the tertiary hospitals. There is no information about household spending on maternal and child health care in rural area.

This study was conducted with the aim of assessing the out of pocket expenditures of household on maternal and child health care services in rural areas and describing the extent to which the MNCH program defrayed the out of pocket expenditures for the beneficiaries.

2 Objectives

- To find out the utilization of maternal and child health care services among households of rural Dedaye
- To find out the out of pocket expenditure for maternal and child health care services among households of rural Dedaye

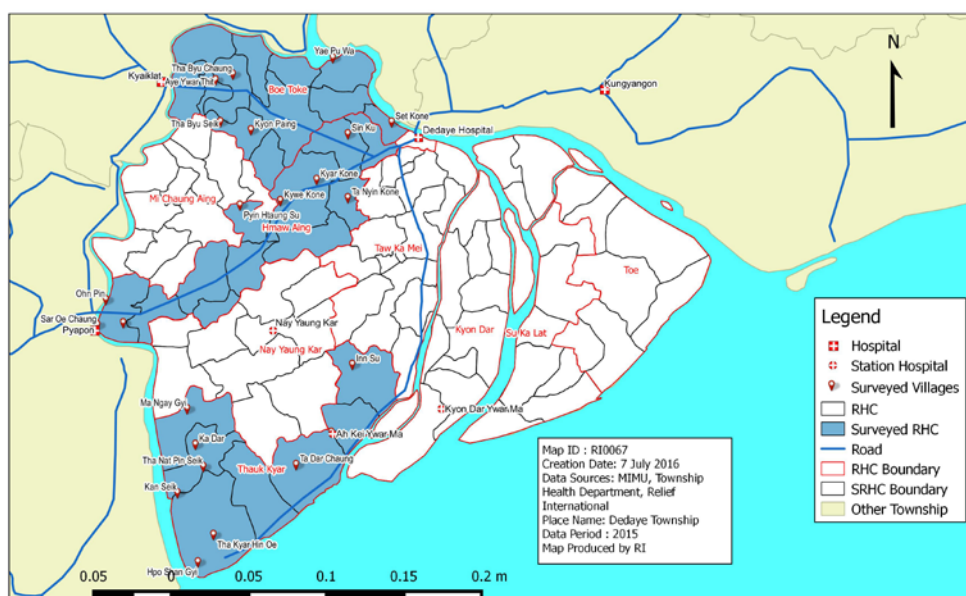
3 Methodology

3.1 Study design and setting

This was a cross sectional descriptive study conducted in the rural area of Dedaye Township during December 2015. Dedaye Township is a unit of Ayeyarwaddy/ Delta Region and township encompasses 401.714 square miles which surrounds the Township of Kun Chan Kone, KyeikLat and Pyapon. The city and township have a combined population of about 207,535 people. The male-female ratio is 1.0336. The total numbers of under one children are 2899, under five children are 14909 and pregnant women are 3176 out of total population. Regarding the health facilities in Dedaye Township, there are 1 Township Hospital (50) bedded, 3 Station Hospital (16) bedded which are the name of Nay YaungKar, Akei and Kyone Dar, 1 MCH which is located in Dedaye Downtown area, 9 Rural Health Centers including ThaukKyar, Boe Toke and Hmaw Aing which were studied in survey, 47 Sub-RHCs, 1 Leprosy Team, 1 VBDC team and 1 TB control team respectively.

The study was carried out in three RHC catchment areas of Dedaye Township, namely, Thauk Kya, Boe Toke and Hmaw Eing. In term of distance, the comparison between the whole coverage area under RHC and nearest Stations or Township Health Facilities are **1 hour** duration from ThaukKyar area to Akei Station Hospital by boat, **1 hour** duration from Boe Toke area to Dedaye Township Hospital by Boat and **30 minutes** duration from HmawAing area to Dedaye Township Hospital by car respectively. Although time taken to reach nearest health facilities is not too long, all water routes way (boat trip) must wait water level in dry season.

Map (1) Map of Dedaye Township



3.2 Sampling and sample size

A multi-stage sampling method was used to select the sample. Firstly, three RHC catchment areas were selected randomly. Then villages from each selected RHCs were identified based on the number of mothers who have children aged one year or less. Data on the number of mothers was

obtained from routine programme report of Relief International. All mothers who have children aged one year or less were interviewed from 24 villages. A total of 331 mothers involved in this study.

3.3 Data collection

A structured interview was prepared for the data collection and pre-tested in a village before the final survey. Data was collected on utilization of antenatal, delivery, post-natal care services and neonatal and child health care services and cost incurred for these services.

The direct and indirect cost incurred by the households during utilization of above services was termed as out of pocket expenditure. The out of pocket expenditure included expenditure for medicines, investigations, informal fees for the health care providers, transportation and food.

3.4 Data analysis

Descriptive statistics (mean and percent distribution) was carried out to understand the differentials in out of pocket expenditure for utilization of maternal and child health services.

3.5 Ethical consideration

Ethics approval: Ethical approval for this study was obtained from Institutional Ethical Review Committee, Department of Medical Research.

Confidentiality: All the participants was explained thoroughly about the purpose of the study and informed consent was obtained prior to the interview. Privacy of their responses was maintained. In order to ensure confidentiality, code numbers were assigned on the questionnaire instead of the participants' name. Only investigators had access the data.

4 Findings

Three hundred and thirty one mothers of children aged 12 months or less involved in this study. One hundred and fifty nine (48%) were from Hmaw Aing, 108, 32.6% were from Thauk Kyar and 64, 19.3% were from Boe Toke RHC catchment areas.

4.1 Background information of mothers and children

Background characteristics of mothers and children were shown in Table (1). Mean age of the mothers is 29 ± 6.4 years with a range of 17 to 45 years. Mean age of the children was 6 ± 3.6 months. The median annual household income was 1,200,000 kyats (inter-quartile range 800,000-1,800,000 kyats) and the mean was 1,494,921 kyats. The average household size was five.

Table 1 Socio-demographic characteristics of mothers and children involved in the study (n=331)

| Variable | Number | Percentage |
|--------------------------|--------|------------|
| Education of mothers | | |
| Illiterate | 15 | 4.5 |
| Read/write | 86 | 26 |
| Primary school | 158 | 47.7 |
| Middle school | 46 | 13.9 |
| High school | 9 | 2.7 |
| Graduate | 17 | 5.1 |
| Occupation of mothers | | |
| Dependent | 187 | 56.5 |
| Farm works | 24 | 6.3 |
| Fishery | 10 | 3 |
| Selling | 8 | 2.4 |
| Odd jobs | 102 | 30.8 |
| Annual family income | | |
| 60,000-800,000 | 88 | 27 |
| >800,000-1,200,000 | 84 | 25 |
| >1,200,000-1,800,000 | 86 | 26 |
| >1,800,000-15,000,000 | 73 | 22 |
| Number of family members | | |
| 2 to 5 members | 228 | 68.9 |
| 6 to 12 members | 103 | 31.1 |
| Gender of children | | |
| Male | 167 | 50.5 |
| Female | 164 | 49.5 |

Table (2) indicates the summary of household expenditure of the study population. Household expenditure per capita per year is based on consumption and expenditure of food and nonfood items, either in-kind or in-cash, applying standard reference periods. Almost two thirds, 63%, of the total household expenditure is spent on food consumption and only a small portion, 37%, is spent on non-food component which comprises of expenses on health, education and other welfares of the households.

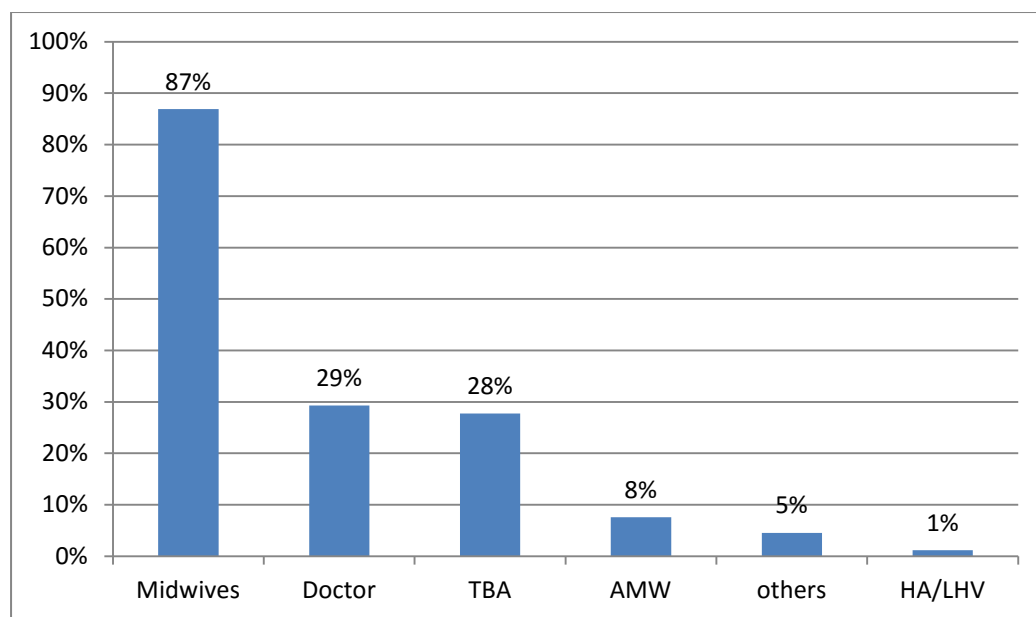
Table 2 Household expenditure per capita per year (in kyats) and expenditure shares (%)

| Items | Kyats and percent |
|--|-------------------|
| Food expenditure (Kyat) | 304,044 |
| Share of food expenditure out of total expenditure (%) | 63 |
| Non-food expenditure (Kyat) | 179,084 |
| Share of non-food expenditure out of total expenditure (%) | 37 |
| Average total household expenditure per capita(Kyat) | 483,128 |

4.2 Antenatal services utilization and out of pocket expenditure on antenatal care

4.2.1 Antenatal services utilization

Almost all mothers (313, 94.6%) reported that they sought antenatal care from skilled health personals during their last pregnancy and (231, 73.8%) received antenatal care at least for four times. Proportion of mothers seeking antenatal care from various health providers was shown in the figure (1).



Multiple responses

Figure 1 Proportion of mothers having antenatal with various health providers (n=328)

Figure (2) presents proportion of mothers receiving antenatal from various health facilities.

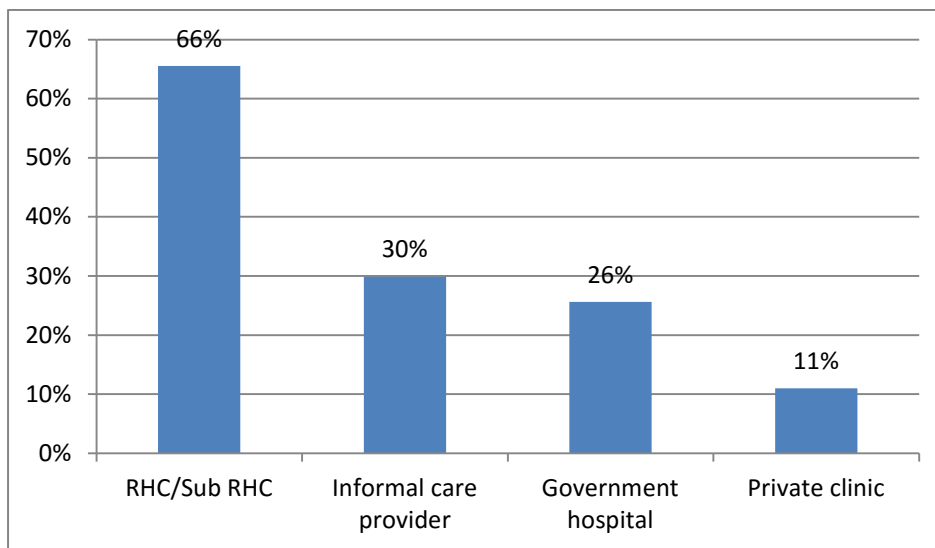
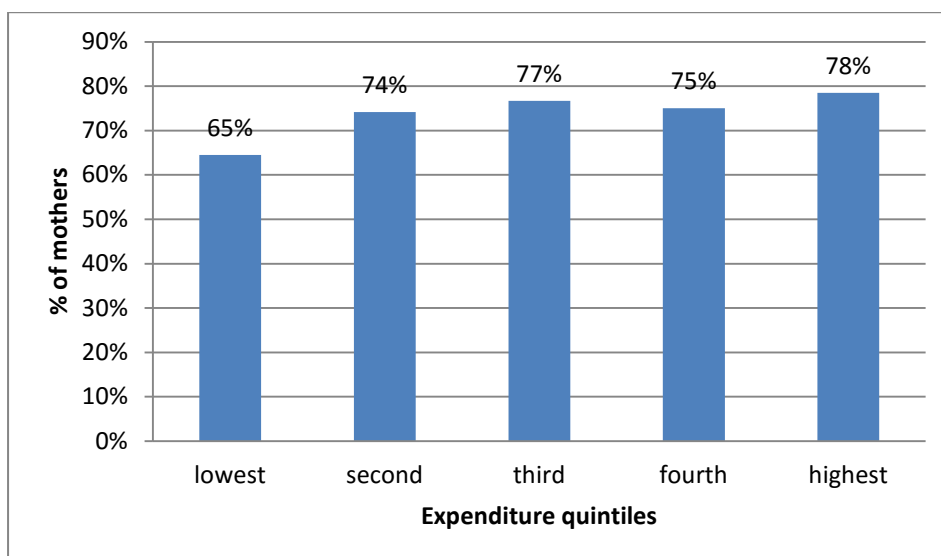


Figure 2 Proportion of mothers receiving antenatal care from various facilities (n=328)

The mothers received antenatal care at RHC, sub RHC, government hospital, public clinics and they also sought care from informal care providers such as traditional birth attendances, traditional healers and quarks.

Figure (3) indicates the proportion of the mothers who received antenatal care with skilled health personals for at least four times during their last pregnancy by expenditure quintiles. It was found that the antenatal care utilization was lowest in lowest expenditure quintile.



p value=0.43, n=313

Figure 3 Proportion of mothers receiving antenatal care for at least four times with skilled health care providers across the expenditure quintiles

4.2.2 Out of pocket expenditure on antenatal care services

The out of pocket expenditure (OOP) of getting antenatal care at various health facilities is shown in table (3). The OOP on antenatal services included costs incurred for registration, if any, transportation, medicines, investigations such as urine and blood tests and ultrasonography, formal or informal fees for the health care providers and meal costs for antenatal visits. Whereas, medicines, investigations such as urine and blood tests and ultrasonography, fees to the health care providers were categorized as direct medical costs and expenses for registration, transportation and meal went under the category of direct non-medical cost.

Table 3 The out of pocket expenditure of getting antenatal care among mothers from Dedaye rural areas at various health facilities

| Health facilities | Mean costs in kyats (per visit) | | |
|---------------------|---------------------------------|--------------------|------------|
| | Direct medical | Direct non medical | Total cost |
| Government hospital | 2,862 | 3,179 | 6,041 |
| RHC/ sub RHC | 362 | 421 | 783 |
| Private facilities | 6,119 | 5,932 | 12,051 |
| Informal providers | 275 | 276 | 551 |

Table (4) presents the OOP on antenatal care among mothers from three RHC catchment areas.

Table 4 Out of pocket expenditure on getting antenatal care among mothers from three different RHC catchment areas

| Health facilities | Mean costs in kyats (per visit) | | |
|---------------------|---------------------------------|--------------------|------------|
| | Direct medical | Direct non medical | Total cost |
| Government hospital | | | |
| Thauk Kya | 3,429 | 3,567 | 6,996 |
| Boe Toke | 2,146 | 2,560 | 4,705 |
| Hmaw Aing | 2,716 | 3,132 | 5,848 |
| RHC/ sub RHC | | | |
| Thauk Kya | 534 | 229 | 764 |
| Boe Toke | 505 | 372 | 877 |
| Hmaw Aing | 232 | 542 | 774 |
| Private clinics | | | |
| Thauk Kya | 8,031 | 10,670 | 18,701 |
| Boe Toke | 2,750 | 5,417 | 8,167 |
| Hmaw Aing | 5,846 | 2,492 | 8,338 |
| Informal providers | | | |
| Thauk Kya | 795 | 132 | 927 |
| Boe Toke | 111 | 206 | 317 |
| Hmaw Aing | 145 | 480 | 625 |

4.2.3 Health problems and OOP to treat health problems among mothers during antenatal period

4.2.3.1 Common health problems and health care seeking

Figure (4) shows the common health problems suffered from the mothers involved in this study during their antenatal period of last pregnancy. Nearly half of the mothers (150, 45%) did not have

any illness during their antenatal period. Minor illnesses such as fever, sneezing or coughing were the commonest health problems among the mothers.

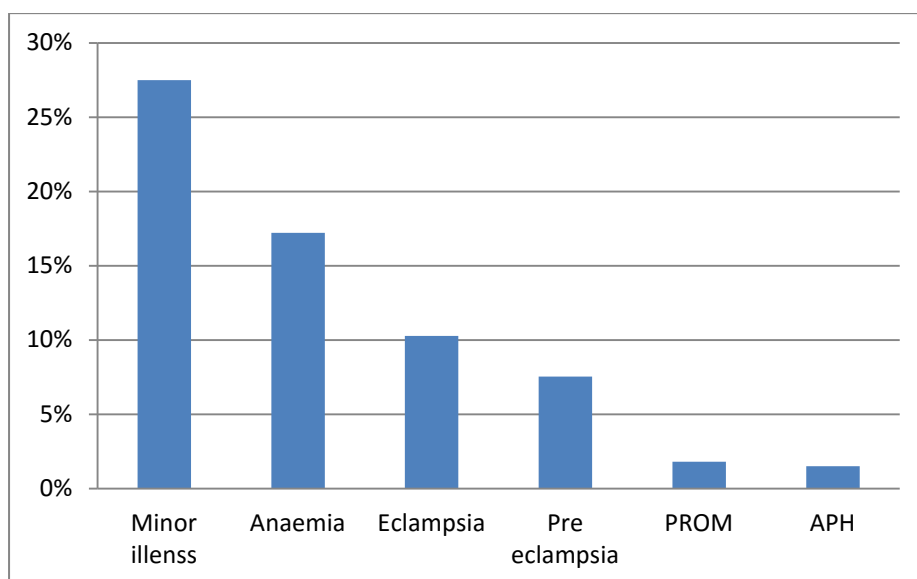


Figure 4 Common health problems of mothers during their antenatal period of last pregnancy

4.2.3.2 OOP on OPD care of health problems during antenatal period

Table (5) mentions the OOP per out-patient visit due to various illnesses during antenatal period. There were only a few cases suffered from ante partum hemorrhage and premature rupture of membrane, it was difficult to interpret the health care cost per visit at each health facility.

Table 5 Out of pocket expenditure per out-patient visit due to various illnesses among mothers during antenatal period

| Illness and type of facility | No. of mothers | Mean cost in kyats (per visit) | | |
|------------------------------|----------------|--------------------------------|--------------------|--------|
| | | Direct medical | Direct non medical | Total |
| Eclampsia | | | | |
| Gov. hospital | 11 | 17,613 | 1,879 | 19,492 |
| RHC/sub RHC | 12 | 1,583 | 250 | 1,833 |
| Private facility | 8 | 6,500 | 4,750 | 11,250 |
| Anaemia | | | | |
| Gov. hospital | 7 | 3,414 | 2,857 | 6,271 |
| RHC/sub RHC | 25 | 1,772 | 760 | 2,403 |
| Private facility | 14 | 7,056 | 2,440 | 9,496 |
| APH | | | | |
| Gov. hospital | 1 | 6,000 | 2,000 | 8,000 |
| RHC/sub RHC | 1 | 750 | 2,250 | 3,000 |
| Private facility | 1 | 0 | 300 | 300 |
| PROM | | | | |
| Gov. hospital | 1 | 0 | 4,000 | 4,000 |
| RHC/sub RHC | 4 | 1,500 | 375 | 1,875 |
| Private facility | 0 | NR | NR | NR |

| Illness and type of facility | No. of mothers | Mean cost in kyats (per visit) | | |
|------------------------------|----------------|--------------------------------|--------------------|--------|
| | | Direct medical | Direct non medical | Total |
| Pre eclampsia | | | | |
| Gov. hospital | 26 | 13,389 | 4,225 | 17,614 |
| RHC/sub RHC | 13 | 545 | 720 | 1,264 |
| Private facility | 5 | 7,500 | 6,000 | 13,500 |
| Minor illnesses | | | | |
| Gov. hospital | 0 | NR | NR | NR |
| RHC/sub RHC | 30 | 2,287 | 1,055 | 3,343 |
| Private facility | 29 | 6,953 | 6,611 | 13,564 |

4.2.3.3 OOP for hospitalization due to health problems during antenatal period

Nine mothers (5%) were admitted to government hospital during their antenatal period due to illnesses such as pre-eclampsia, eclampsia, anaemia and ante-partum hemorrhage (APH). The total cost per visit of hospitalization ranged from 3,333 kyats to 151,667 kyats (mean= 62,444 kyats). The direct medical costs including costs for medicines, investigations and consultation fees were 0 to 116,667 kyats (mean= 29,092 kyats). The direct non medical costs, comprised of fees for transportation, meal costs for the patient, informal payments to health staff, incurred from 3,333 kyats to 69,000 kyats (mean= 33,351 kyats).

4.3 OOP on delivery care

4.3.1 Birth attendant, place of birth and means of transportation

Most of the mothers were delivered their last child with doctors (144, 43.5%), midwives (80, 24.2%) and traditional birth attendants (80, 24.2%) (Figure-5).

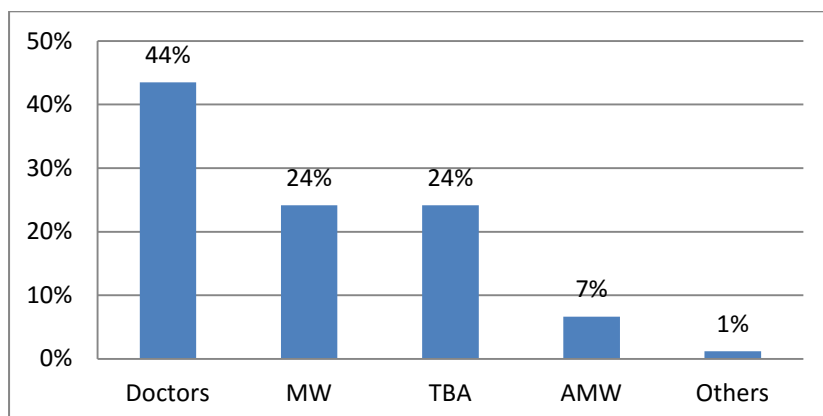


Figure 5 Proportion of mothers delivered their last child with various types of birth attendants (n=331)

The common places of delivery were home (182, 55%) and government hospital (132, 39.9%). A few (13, 3.9%) delivered at the private hospital, (5, 1.5%) delivered at RHC or sub RHC and four mothers (1.2%) gave birth on the way to health facilities. The means of transport from their home to health facilities for delivery is shown in figure (6).

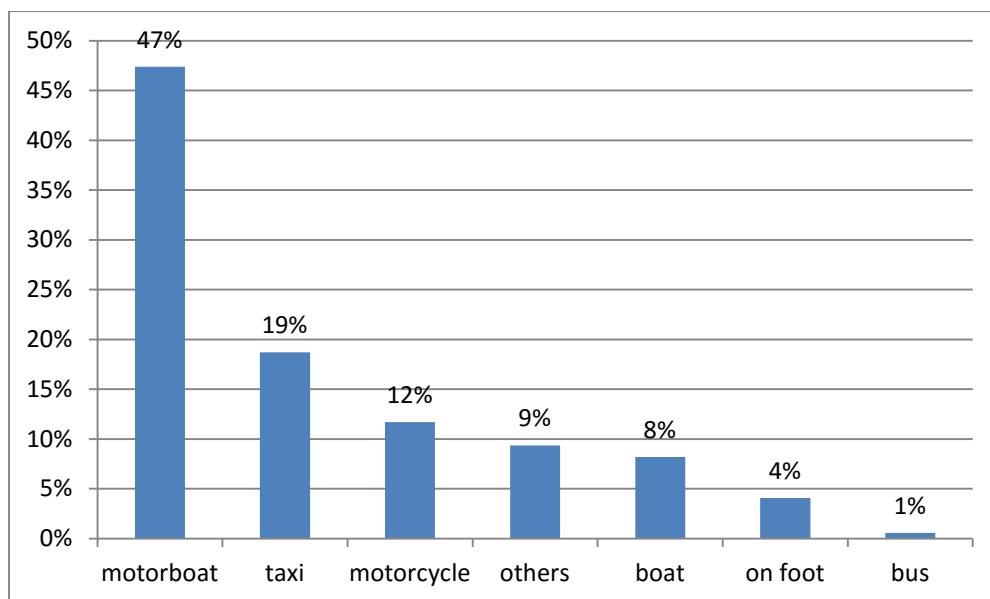
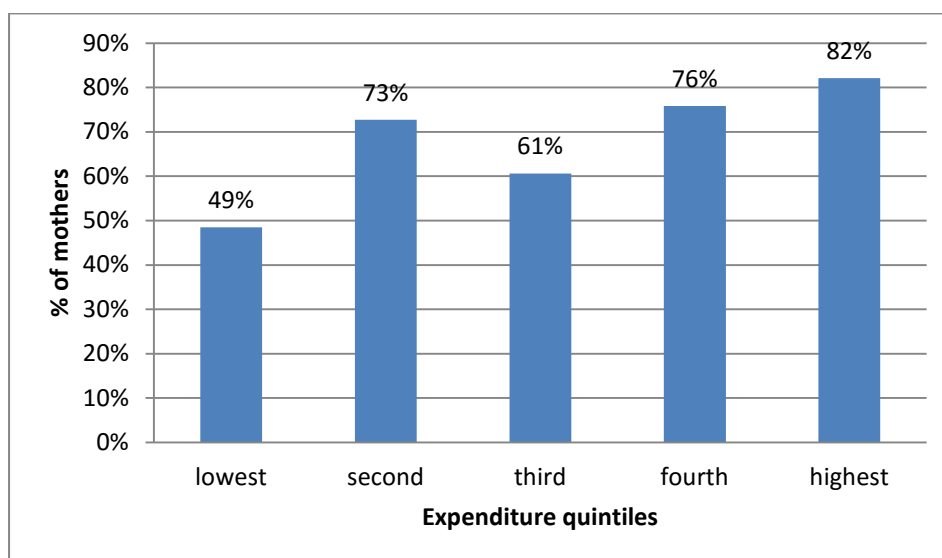


Figure 6 Means of transport to health facilities for delivery (n=331)

Figure (7) indicates the proportion of the mothers who delivered with skilled birth attendants for their last child delivery among different expenditure quintiles. The proportion of skilled delivery in the richest quintile, 82%, was nearly double than that of the poorest quintile, 49%. In addition, the institutional delivery of the richest quintile was twice as much as that of the poorest quintile (58% and 33%, $p=0.02$).



$P < 0.001$, $n=225$

Figure 7 Proportion of skilled delivery by expenditure quintiles

4.3.2 OOP on home delivery and delivery at RHC/sub RHC

The fees for birth attendants for home delivery are shown in table (6). The transportation charges to bring the birth attendants to their home incurred by the household ranged from 500 kyats to 20,000 kyats (mean=3,325 kyats). There was only one mother delivered her last child by Lady Health Visitor

(LHV) and the fee for birth attendants was 30,000. There were five mothers delivered their last child at RHC or sub RHC with midwives and the fees for health care providers ranged from 10,000 kyats to 20,000 kyats.

Table 6 Fees for birth attendants for home delivery

| Type of birth attendants | Mean fees in kyat | Range |
|---------------------------------|--------------------------|--------------|
| Midwife | 20,473 | 0-50,000 |
| Auxiliary Midwife | 15,682 | 0-25000 |
| Traditional Birth Attendant | 12,750 | 5,000-25,000 |

4.3.3 OOP on hospital delivery

Table (7) presents the out of pocket expenditures incurred by the households for hospital delivery among mothers in the selected villages of Dedaye Township. Ninety one percent of hospital deliveries were taken place at government hospital and only 9% at private hospital.

Table 7 Out of pocket expenditure for hospital delivery among mothers in Dedaye Township

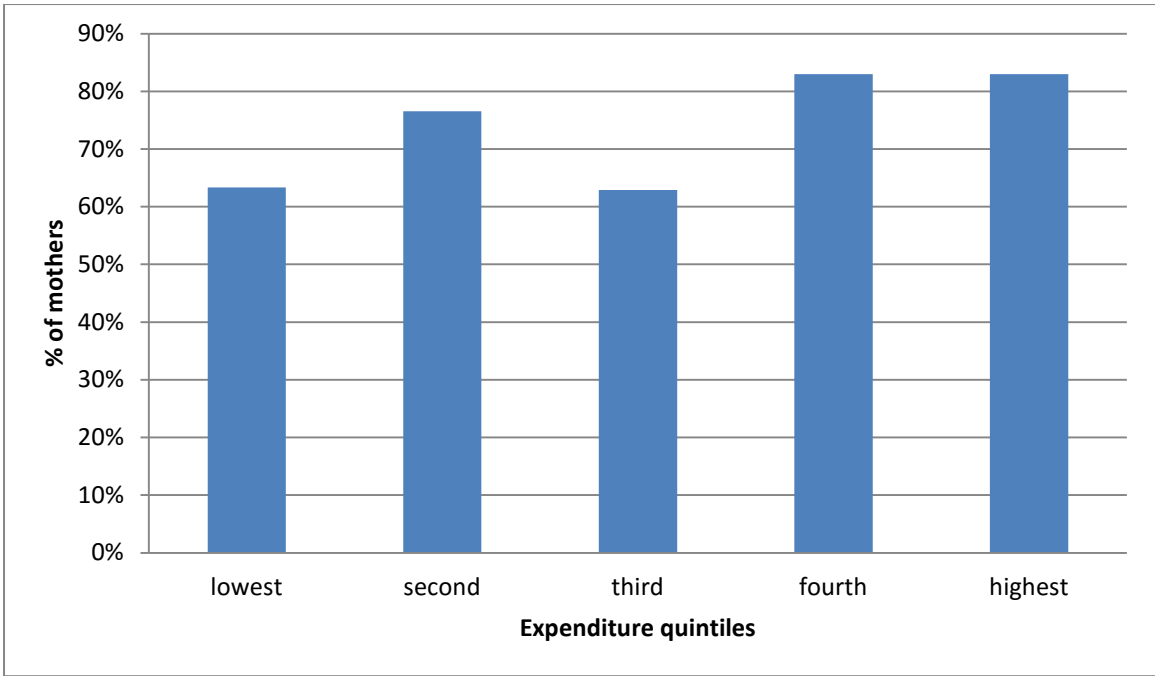
| Facility and type of delivery | Mean OOP in kyats | | | | | |
|-------------------------------|-------------------|-----------|--------|------------------|--------------------------------------|---------|
| | Direct medical | Transport | Meal | Informal payment | Travel and meal costs for attendants | Total |
| Gov hospital | | | | | | |
| Normal (n=58) | 43,429* | 12,728 | 16,042 | 20,457 | 28,603 | 121,259 |
| LSCS (n=67) | 93,225* | 15,897 | 33,924 | 31,022 | 54,187 | 228,255 |
| Assisted (n=6) | 30,167* | 12,500 | 10,000 | 18,666 | 15,083 | 86,416 |
| Private hospital | | | | | | |
| Normal (n=5) | 117,100** | 15,600 | 9,000 | 8,000 | 26,640 | 176,340 |
| LSCS (n=8) | 217,750** | 19,188 | 14,375 | 5,000 | 78,750 | 335,063 |

* Direct medical cost incurred at government hospital included drug costs and costs for investigations

** Direct medical cost incurred at private hospital included drug costs, cost for investigations and fees for health care providers

4.4 Postnatal care utilization and OOP on postnatal care

Out of 331 mothers, 232 (74.1%) had accessed postnatal care from skilled health providers. Access to skilled health personal for to obtain postnatal care among mothers from different expenditure quintiles groups were shown in figure (8). Similar to antenatal care and natal care, there was a disparity among the women in accessing skilled health providers for postnatal care.



P=0.008, n=232

Figure 8 Access to skilled health care providers for postnatal care among mothers from different expenditure quintiles

4.4.1 Health problems and OOP to treat health problems among mothers during postnatal period

Majority of the mothers (246, 74%) reported that they had no illnesses during their postnatal period of last child delivery. The common health problems of mothers during postnatal period were shown in figure (9).

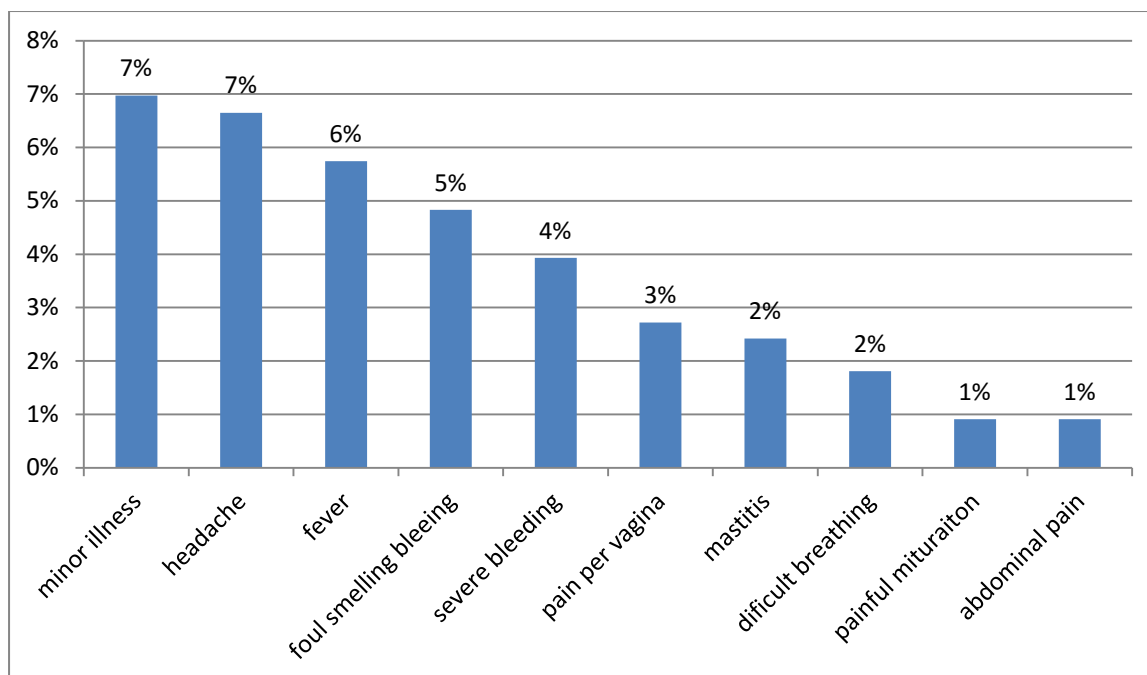


Figure 9 Common health problems among mothers during their postnatal period

4.4.1.1 OOP on OPD care for health problems among mothers during postnatal period

Table (8) presents OOP for OPD care of health problems among mothers during postnatal period.

Table 8 OOP for OPD care of health problems among mothers during postnatal period.

| type of facility | No. of mothers | Mean expenditure in kyats | | |
|--------------------|----------------|---------------------------|--------------------|-------|
| | | Direct medical | Direct non medical | Total |
| Gov. hospital | 10 | 6,167 | 3,190 | 9,578 |
| RHC/sub RHC | 21 | 2,476 | 532 | 3,008 |
| Private facility | 7 | 6143 | 2071 | 8214 |
| Informal providers | 22 | 6679 | 114 | 6793 |

4.4.1.2 OOP on hospitalization for health problems among mothers during postnatal period

Only six mothers had been admitted to hospital during postnatal period. The total cost per visit was 3,500 kyats to 500,000 kyats (mean= 11,3972 kyats and median=38,667 kyats). The direct medical costs were 3,500 to 374,250 kyats (mean= 72,791 kyats and median= 12,000 kyats). The direct non medical costs, comprised of fees for transportation, meal costs for the patient, informal payments to health staff, incurred from 0 kyat to 18,333 kyats (mean= 10,866 kyats and median= 13,000 kyats).

4.4.2 Health problems and OOP to treat health problems among children

4.4.2.1 Common health problems among children

Out of 331 children, 263 (79.5%) did not have any illnesses during their neonatal period and 192 (58%) had no health problems after neonatal period. Figure (10) and (11) shows the common health problems among children during and after their neonatal period. Among 68 children who had been having health problems during their neonatal period, (45, 66.2%) sought health care from skilled health personals. Similarly, out of 139 children who had illnesses after their neonatal period, 99 (71.2%) children received health care from skilled health providers.

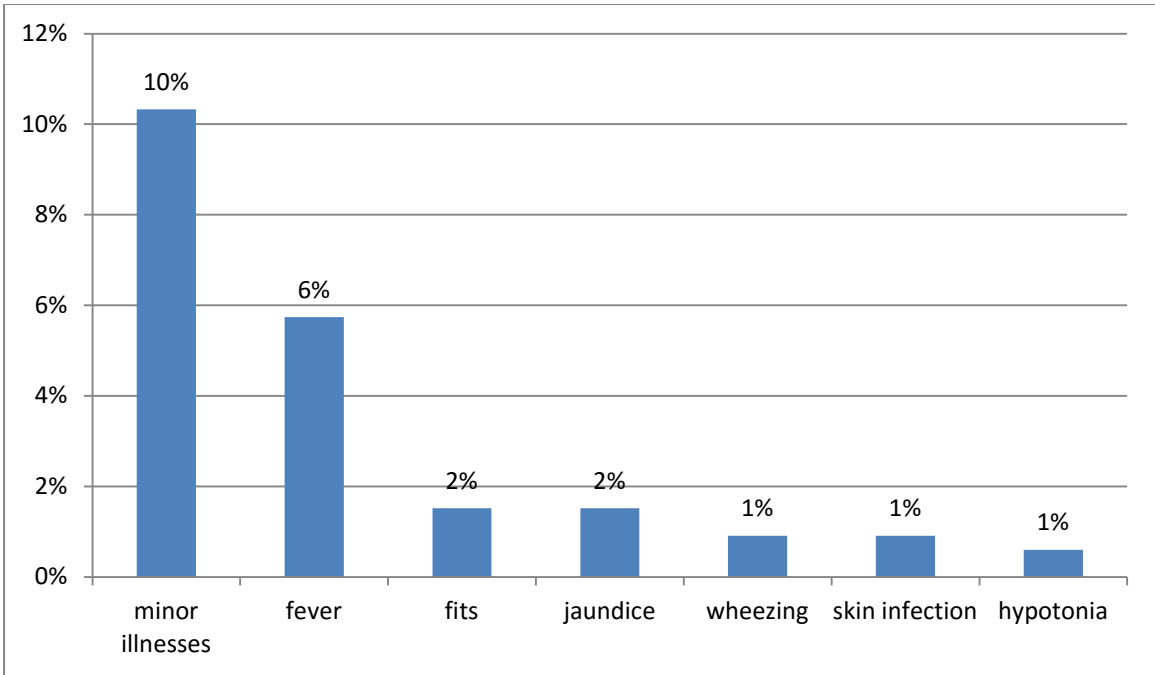


Figure 10 Common illnesses of children during their neonatal period

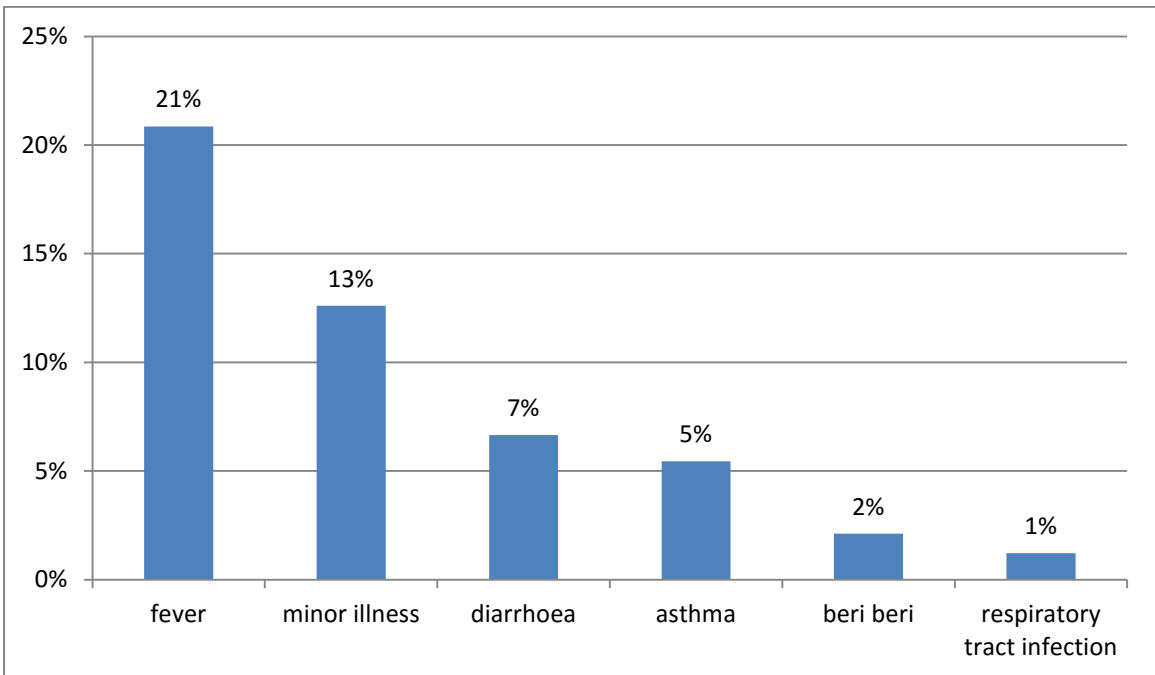


Figure 11 Common illnesses of children after their neonatal period

Figure (12) and (13) shows the number of children having some kind of illnesses and access to skilled health providers for the illnesses by expenditure quintiles.

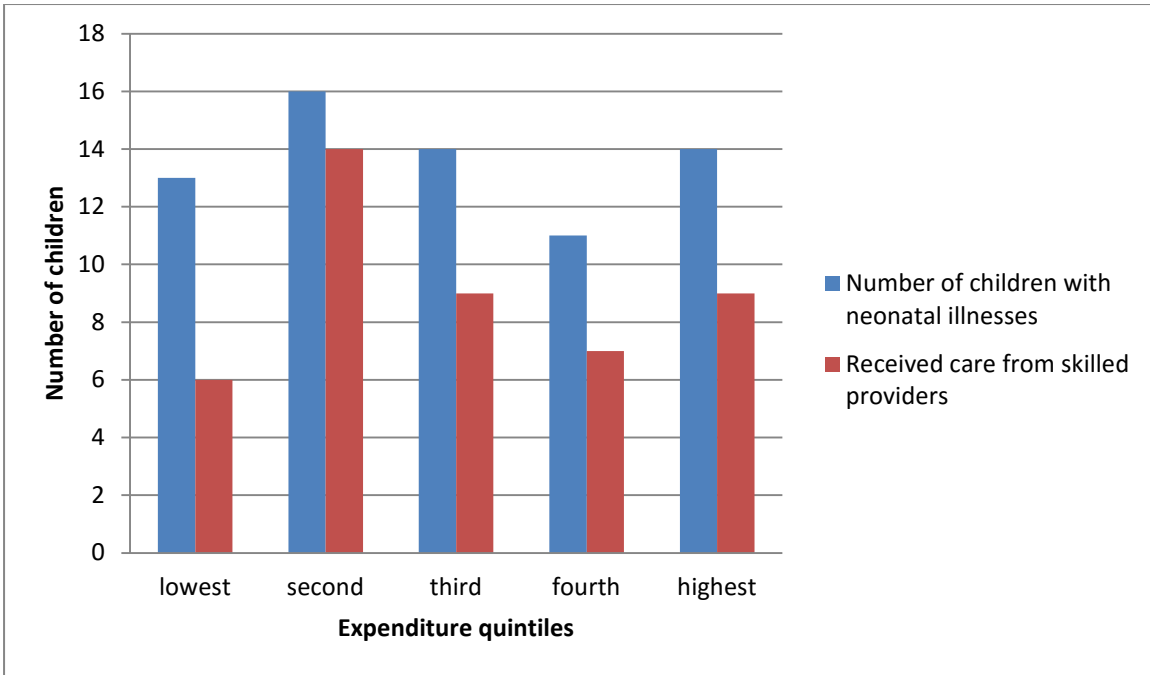


Figure 12 Access to skilled health providers for neonatal illnesses by expenditure quintiles

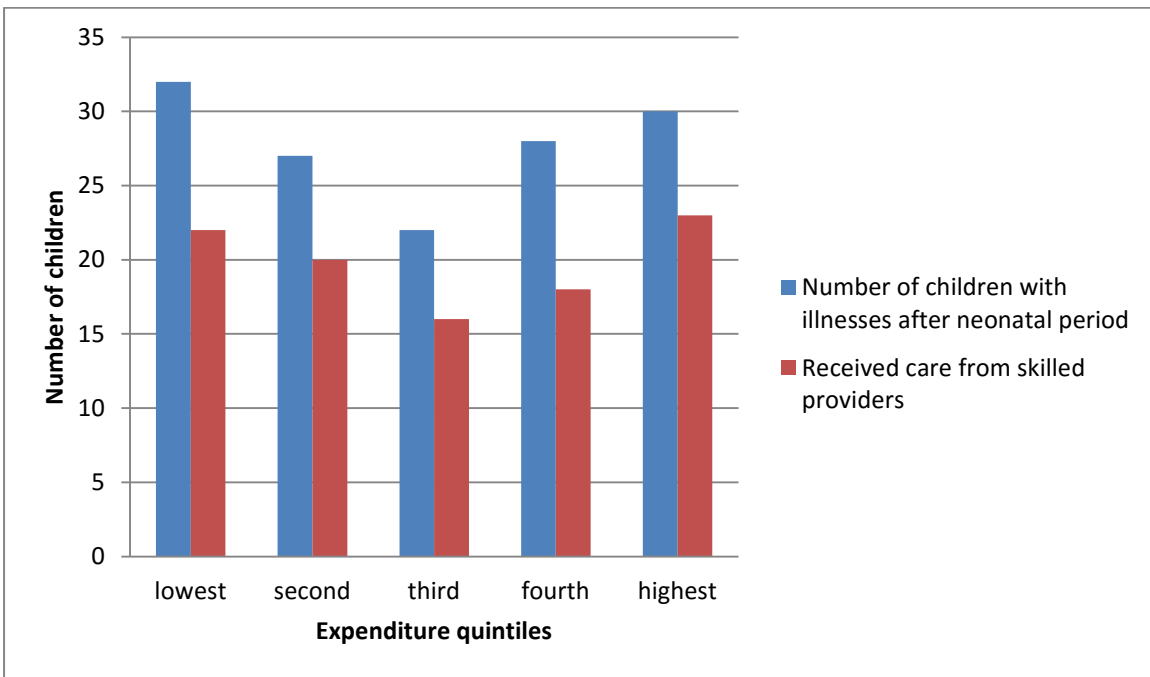


Figure 13 Access to skilled health providers for childhood illnesses by expenditure quintiles

4.4.2.2 OOP on OPD care for health problems among children

Table (9) presents OOP for OPD care of health problems among children.

Table 9 OOP on OPD care for health problems among children

| type of facility | No. of children | Mean expenditure in kyats | | |
|--------------------|-----------------|---------------------------|--------------------|--------|
| | | Direct medical | Direct non medical | Total |
| Gov. hospital | 24 | 19,580 | 13,029 | 30,835 |
| RHC/sub RHC | 40 | 1,349 | 458 | 1,688 |
| Private facility | 56 | 6,735 | 4,549 | 11,283 |
| Informal providers | 37 | 3,632 | 1,622 | 5,298 |

4.4.2.3 OOP on hospitalization for health problems among children

Nineteen (5.8%) and 13 (3.9%) of children were admitted to hospital during and after their neonatal period respectively. Table (10) shows the OOP on hospitalization for health problems among children.

Table 10 Out of pocket expenditure on hospitalization for health problems among children

| Type of cost | Mean cost per visit in kyats |
|-------------------------------------|------------------------------|
| Transportation | 16,700 |
| Direct medical | 75,543 |
| Meal cost for patient | 5,700 |
| Informal payment | 3,825 |
| Travel and meal cost for attendants | 18,500 |
| Total costs | 120,900 |

4.5 OOP on immunization and birth registration for children

Apart from eight children who were aged less than one month, 271, 83.9% received childhood immunization for at least one time. There was no OOP for childhood immunization among our study population. However, 138 (41.7%) of mothers reported that they had spent fees for birth registration of their last child. The mean fee for birth registration was 553 kyats with the range 500 kyats to 5,000 kyats.

4.6 Financial support for emergency referral

4.6.1 Process of Emergency Referral Supporting in Dedaye Township

In Dedaye Township, **Relief International**, using the 3MDG Fund standardized Emergency referral guidelines, has been providing support such as transportation cost, meal/food cost, medical and investigation costs to emergency obstetric case, emergency child case and other emergency cases. For the transportation cost support, it covers actual cost for the patient and the one care taker from the home to the health facility and back. For tertiary referral support, RI only support one way transportation cost from township or station hospital to tertiary hospital. For the meal/food cost support, it is based on the number of days of hospitalization of the patients and one care taker which will be verified through the date of admission and discharge certificate/document. The standard meal cost is 3000 MMK/day/person for 10 days, if the case is over 10 days, it has to be approved by TMO. For under 6 months emergency child case, only care taker has to be supported.

For the drug/treatment and investigation costs, it covers actual overall medical cost including drug cost, treatment cost including surgical procedure and laboratory/radiological investigation cost. Through the emergency referral procedure, BHS or VHW or VHC need to identify and recommend as emergency case in referral form during emergency referral but in self-emergency notification of patient or family members or relatives case, no need to takes referral form). Besides, residential recommendation of village leaders is needed in emergency referral. And admission discharge book with completion of admission from hospital is needed at the time of emergency referral support. As for township level referral support, the referral sites are identified as Dedaye township hospital, Station hospital such as Akal and Nay Young Kar hospitals. Besides, RI has been supporting tertiary level emergency referral if the patient is referred to Yangon General hospital and Pyapon District hospital.

Households in Dedaye also received financial support from **Pact Myanmar**. Pact Myanmar established the Beneficiary Welfare Program (BWP) with the aim of providing a safety net for Pact Global Microfinance (PGMF) clients in case of death, childbirth and natural disaster-all external shocks that can greatly hamper the socio-economic development of people in PGMF’s target market. Both clients and PGMF make regular contributions into the Beneficiary Welfare Fund (BWF), which is used to make both cash payouts to clients as well as loan write off, depending on the circumstances.

Participation is mandatory for all PGMF clients. Eligibility is limited to PGMF clients with at least one active savings account and with a loan account active within 6 months of any actionable occurrence. This means up to 6 months dormant clients are eligible.

For the case of delivery which happens at home or at RHC, the client is provided 30,000 kyats. If the delivery happens at the hospital, the client receives 50,000 kyats. The lowest level of hospital defined is a station hospital or private hospital with, at the least, in/outpatient facilities and a surgical theater.RHC with labor rooms do not count as hospitals. If the client has to undergo caesarian section, she will receive 100,000 kyats.

The mothers from Dedaye are also benefit from village health committee (VHC) if they encounter emergency referral. The amount of support depends on the type of referral and health center such as Sub RHC, RHC, station hospitals and township hospital. Most of the VHC have been supporting between at least 5000 MMK and mostly 30000 MMK.

Among 331 households, 106 (32%) reported that they had received financial support for the treatment of illnesses during pregnancy, delivery or treatment of illnesses among children. The proportion of cases receiving financial support was shown in table (11).

Table 11 Proportion of cases received financial support for maternal and child health care during one year period

| Type of cases | No (%) | Mean financial support in kyats |
|--|-----------|---------------------------------|
| Emergency referral during pregnancy | 2 (1.9) | 50,000 |
| Home delivery | 22 (20.8) | 27,955 |
| Hospital delivery | 73 (68.9) | 73,445 |
| Emergency referral for child | 6 (5.7) | 75,000 |
| Emergency referral for both mother and child | 3 (2.8) | 93,333 |

Table (12) presents the sources and amount of financial support given to some households in Dedaye Township during one year period.

Table 12 Sources and amount of financial support received by mothers for the delivery

| Sources of financial support | households no (%) | Min | Max | Mean | % of OOP |
|------------------------------|-------------------|--------|---------|--------|----------|
| Relief international | 71 (21) | 14,000 | 150,000 | 71,592 | 40 |
| Relatives | 4 (1) | 3,500 | 200,000 | 19,500 | 9.6 |
| Village health committee | 3 (1) | 5,000 | 5,000 | 5,000 | 8.3 |
| Pact Myanmar | 30 (9) | 30,000 | 100,000 | 48,333 | 111* |

*The amount of financial support received by twelve mothers exceeded their expenditure on MNCH care.

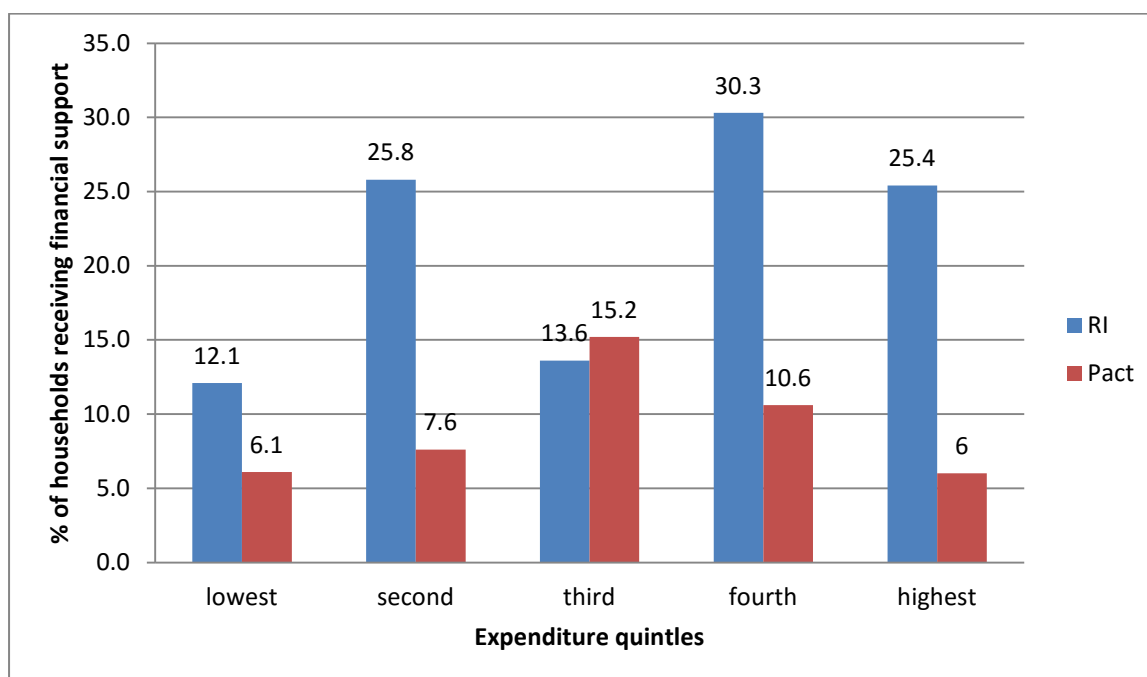


Figure 14 Proportion of households received financial support by expenditure quintiles

Figure (14) indicates that the differences in the proportion of households which received financial support from the two organizations mainly provide financial supports, Relief International and Pact Myanmar.

4.7 Household expenditure and OOP on maternal and child health care

The household health expenditure due to maternal and child health care in this section refers to all expenditure incurred to antenatal care, pregnancy related health problems, natal care, postnatal care for both mother and child and health problems of the last child within one year period. The respondents were asked to recall all maternal and child health related cost for the last child delivery, summed up and health expenditure per household per year is estimated.

The average household expenditure due to maternal and child health care per year is Kyat 131,758 (mean) and 75,000 (median). A discrepancy between mean and median reflects that there was some disparity among the community. The disparity among the community was mainly found in Thauk Kya and Hmaw Aing areas. Share of maternal and child health care expenditures out of total

household expenditures was 6.2% (mean) and 3.4% (median). Maternal and child health care expenditure of the richest quintile, Kyat 200,413, was nearly three times more than that of the poorest quintile, Kyat 72,898.

Table 13 Household health expenditure due to maternal and child health care per year (in Kyat) and proportion of health expenditure (%) out of total household expenditure

| | | Mean | | Median | |
|----------------------|-----------|-------------|-----|-------------|-----|
| | | household | % | Household | % |
| | | health | | health | |
| | | expenditure | | expenditure | |
| RHC | Thauk Kya | 103,298 | 5.1 | 51,000 | 2.8 |
| | Boe Toke | 167,169 | 7.5 | 125,200 | 5.4 |
| | Hmaw Aing | 136,837 | 6.5 | 80,000 | 3.6 |
| Expenditure quintile | Lowest | 72,898 | 6 | 36,750 | 2.9 |
| | Second | 84,470 | 5 | 65,500 | 3.7 |
| | Middle | 125,834 | 6.2 | 61,250 | 2.9 |
| | Fourth | 174,136 | 7.8 | 101,000 | 5.3 |
| | Highest | 200,413 | 6.2 | 150,000 | 4 |

The proportion of maternal and child health care expenditure out of non-food expenditure was 16.7% (mean) and 10.9% (median). Although there was some difference in household health expenditure per year between the lowest and the highest expenditure quintile, as much as 3 times, the gap was not so substantial from the perspective of share of health expenditure out of nonfood expenditure.

The households spent 0 to 81% of their non food expenditure on maternal and child health care within one year period of last child delivery. On average, the households expended 17% (CI-16% to 19%) of their non food expenditure on maternal and child health care. Figure (15) indicates that households from all expenditure quintiles spent similar level of share of health expenditure out of nonfood expenditure. This highlights the burden of health expenditure imposed on the poorest households and lack of progressivity of share health expenditure across different population groups.

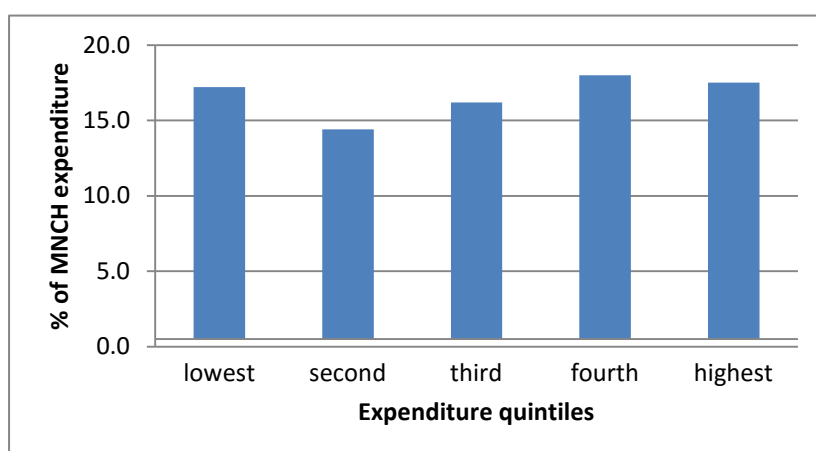


Figure 15 Share of household maternal and child health care from non food expenditure expenditures by expenditure quintiles (%)

Household health expenditure becomes catastrophic health expenditure in case the share of health expenditure out of nonfood expenditure exceeds 30% or 40%. The table (14) indicates that 18.1% of households from the study had experienced catastrophic health expenditure for the year 2015 due to maternal and child health care if the cutoff point is set at 30%. The figure becomes 9.4% if the cut off is at 40%. Catastrophic expenditure found in (3, 2%) of among households where women delivered their last child at home and (28, 18.7%) of households with institutional delivery ($p < 0.0001$).

Table 14 Proportion of households with catastrophic health expenditure

| Proportion of health expenditure out of nonfood expenditure | No. of HHs | Percent | Cumulative Percent |
|---|------------|---------|--------------------|
| below 10% | 157 | 47.4 | 47.4 |
| 11-20% | 67 | 20.2 | 67.7 |
| 21-30% | 47 | 14.2 | 81.9 |
| 31-40% | 29 | 8.8 | 90.6 |
| 41-50% | 13 | 3.9 | 94.6 |
| 51-60% | 12 | 3.6 | 98.2 |
| 61-70% | 4 | 1.2 | 99.4 |
| 71-80% | 1 | 0.3 | 99.7 |
| 81-90% | 1 | 0.3 | 100 |
| Total | 331 | | |

However, the financial support provided to some of the households helped to reduce household health expenditure as well as the proportion of households facing catastrophic health expenditure due to maternal and child health care. The proportion of households which faced catastrophic expenditure declined from 18.1% to 13.3% if the cutoff point is set at 30% and from 9.4% to 5.7% if the cut off is at 40%.

Figure (16) shows the reduction in share of maternal and child health care expenditure out of non food expenditure after the households had received the emergency referral support from Relief international, Pact Myanmar and Village Health Committees. The level of reduction in share of health expenditure out of nonfood expenditure was similar in all expenditure quintiles except for the second quintile. This indicated that the financial support provided were less progressive across different population groups.

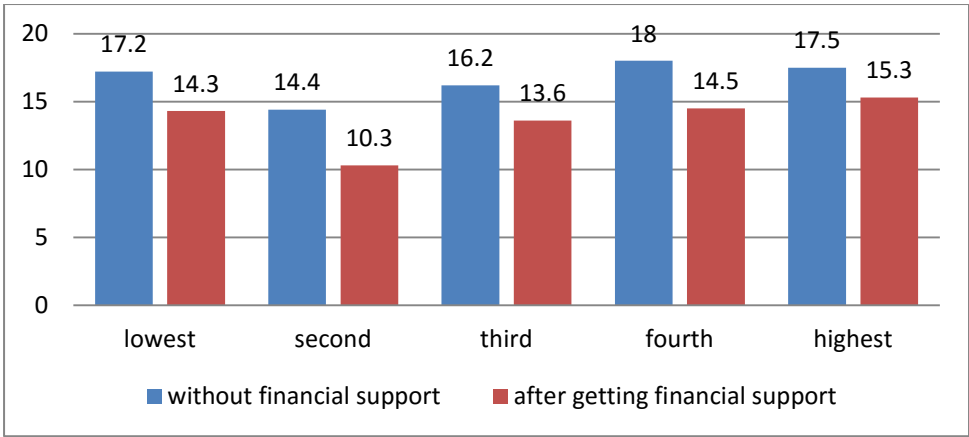


Figure 16 Gross and net share of household maternal and child health care expenditures out of non food expenditure by expenditure quintiles

5 Discussion

This study assessed the out of pocket expenditures of rural households from Dedaye Townships for health expenditures incurred on maternal and under one year old child health care. MNCH care in our study was defined as antenatal care, natal care, post natal care, care for pregnancy related health problems among mothers during their last child delivery and health care for their last child who were under one year old. The study respondents were the mothers of under one year old children. However, as this study included information of both mothers and under one year old children, the unit of data analysis was a household which means that we estimated out of pocket expenditures for MNCH care per household. Households were disaggregated into five quintiles based on their annual expenditure per capita [4].

5.1 Service Utilization

Among the mothers involved in our study, (73.8%) received antenatal care for at least four times, (68%) delivered their last child with skilled birth attendants and (74.1%) received postnatal care with skilled health personals. According to 2015 HMIS data, antenatal care coverage, skilled birth delivery and postnatal care coverage among mothers was 81%, 72% and 90% respectively [5]. Therefore comparing to the national figure, utilization of the skilled antenatal care and postnatal care were found to be lower in our study population. Majority of the children (83.9%) received childhood immunization for at least the first dose, BCG. Based on WHO and UNICEF estimates BCG coverage in Myanmar in 2014 was 86% [6]. It seems that there is little or no gap in BCG immunization coverage among our study population comparing to the national data.

Our study also analyzed the disparity among the study population on utilization of MNCH care. There was a discrepancy in utilization of maternal care services among the community. Lowest utilization of antenatal care, skilled birth attendants and post natal care were found among the households in the lowest expenditure quintile. On the contrary, utilization of maternal care services was high among the high expenditure quintiles. As regards utilization of health services for children, health problems among children was highest in the lowest quintile but the use of health care from skilled providers was lowest in this population. High health problems and low utilization of health services among the poorest households was a typical issue in most of the low and middle income countries with poor financial protection system [7,8].

5.2 Out of pocket expenditure on MNCH care

Apart from two households, almost all the households involved in this study have expensed out of pocket payments for MNCH care during the period of last child delivery. On average, the respondents of our study spent 6% of their total household expenditure only for MNCH care while previous studies conducted in Myanmar indicated that the households from rural areas spent about 5% of total household expenditure on all kinds of health care services including MNCH care [4,7]. There are a number of possible reasons for high out of pocket payment for MNCH care in our study. Firstly, our study assessed OOP only for MNCH care denoting that all the respondents had expenses for the child birth whereas history of child birth was found among less than 2% of study participants in previous studies identifying household health expenditure [7,9]. Secondly, having pregnant women and children under five years old were the significant contributing factors for high utilization of health care among the households [9]. Thirdly, a number of studies indicated that MNCH care incurred by the households made up a considerable portion of total household expenditures [8,10–13].

Expenditure for maternal care was almost five times for that of child care. Institutional delivery was the most costly health care to be received by the study population and consumed about 8% of total household expenditure. On average, institutional delivery cost approximately seven times than home delivery. Catastrophic expenditure was nine times higher among the households with institutional delivery than that with home delivery. In terms of health care expenditure for the children, hospitalization was the most expensive health care for the households in this study. Similar findings were also indicated in various international studies from many low and middle income countries [8,10,12,11,13] .

The direct medical cost was highest for most of the health services and this is consistent with the findings from a number of international studies [8]. Again, in many settings including our study, informal charges are a significant cost of MNCH care especially at the public health facilities. Informal charges are unofficial or illegal payments made to service providers to obtain publicly financed services or goods that should be available without charge to the patient [8].

Similar to service utilization, the disparity in household expenditure on MNCH care was also found. Although utilization of MNCH services was low, the share of household expenditure spent for MNCH among the households from lowest quintile was not much differ from that of high quintiles. This finding is indicating that the financial burden of MNCH care was highest in the poorest households.

In our study we found out that OOP for MNCH care caused financial catastrophe in 18.1% of households if the cutoff point is set at 30% and 9.4% of households if the cutoff point is at 40% of non food expenditures of the households. A literature review on the impact of maternal and child health care on household expenditure also revealed that, in many low income countries, household spending on maternal and child health care can even impoverish households and represent catastrophic levels of spending [8]. Therefore, MNCH care is one important area to be prioritized while implementing financial protection mechanisms.

5.3 Financial support for MNCH care

In 2014, Myanmar Government has launched user fee exemption for most of the health care services available at the public hospitals. As our study was carried out at the end of 2015, most of the households involved in our study utilized MNCH care services after initiation of user fee exemption mechanism. However, almost all of our study population had paid out of pocket health expenses for maternal and child health care. Additionally, direct medical expenses (expenses for medicines and investigations) consumed largest share of household expenditures for MNCH care. Therefore it can be assumed that the government's attempt on the exemption of user fee did not have much impact on reducing OOP on MNCH care until the end of 2015, even on the costs for medicines and investigations.

Again, six townships in Ayeyarwaddy Region, including Dedaye, have been benefited from maternal and child health emergency referral program since 2010. On average the emergency referral support reduced the out of pocket payment by 6% of total household expenditure and 13% of non food expenditure on MNCH care among the beneficiaries. The households were reimbursed the expenses for medicines, investigations, travel and meal for both patient and an attendant therefore they remained to pay informal fees to the providers by themselves.

We found out that there was a disparity among the households, in terms of expenditure quintiles, in receiving the emergency referral support. The beneficiaries of Relief international were mainly

concentrated in second lowest and high quintiles while Pact Myanmar focused on the middle quintile. In terms of amount of financial support, the reduction in out of pocket payment due to emergency referral support was most prominent in second lowest quintile while the reduction was quite similar in other quintiles. Although share of MNCH care expenditure out of household expenditure was high in the lowest quintile, households from this quintile did not get much benefit from emergency referral support. It is likely that the selection criteria of the organizations to provide emergency referral support would pay less attention on the wealth status of the households or there would be a gap in identifying the poor households.

6 Conclusion

To our knowledge, there is very little or no study assessing out of pocket expenditure on MNCH care services among rural households in Myanmar. This study highlighted that MNCH care alone can cause households to be in financial catastrophe. Current initiatives on financial protection are not sufficient enough to protect households from financial catastrophe. There was a discrepancy in both utilization and household expenditure on MNCH care across the expenditure quintile. Financial burden was high among households where the women had undergone institutional delivery.

7 Recommendations

(a) Recommendation for policy makers

1. As out of pocket expenditures on maternal and child health care alone can cause financial catastrophe among the households, MNCH care should be considered as a priority area in establishing financial protection mechanisms
2. Financial burden of institutional delivery on the households should be taken into account while strengthening institutional delivery

(b) Recommendation for implementers of emergency referral support

3. To consider poorest households' constraints in meeting eligible criteria while providing emergency referral support

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Annex

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