



Out-of-Pocket Expenditures: Sources and Impacts on the Children's Family Undergone Pediatric Surgical Treatment

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Abstract

Background: Financial risk protection is vital for universal health coverage and out-of-pocket (OOP) expenditures of patients are one of the major sources of funding for healthcare particularly for sustainable surgical care in low- and middle-income countries like Bangladesh. This study was aimed to find out the sources and the effects of out-of-pocket (OOP) expenditure among the hospital admitted pediatric surgical patients undergone for surgery. **Methods:** Data was were collected to the family members of as a part of a household level survey of three public hospitals of Dhaka city, Bangladesh. Descriptive analysis was undertaken to assess socio-demographic characteristics, sources and impacts of OOP expenditure. **Result:** Among total 400 respondents of the study, 62.5% of the families came from low socioeconomic class where only 23.5% had formal occupation and 37.5% had sustainable income. 94.5% and 88.5% correspondingly did not have any health budget allocation and health insurance coverage. 97% families there had only 1-2 earning member. Monthly family income was the major source for health expenditure and 30.5% families spent this from internal sources, 14.5% from external sources and 55% from both external and internal resources. Loan was the major way (55.3%) for external expenditure however, only 32.1% had the capability to repay. Among total OOP expenditure, 77.5% cost was of operative cost, 16.5% for postoperative, 3.5% preoperative and 2.5% for others. Considering the effects of OOP expenditure, among 400 participant families, 74.5% were affected either temporarily (53%) and permanently (4%) or in both (17.5%) in several ways and majority (93.4%) had to change their food habit practices. **Conclusion:** The study findings illustrate that hospitalization for surgical treatment of pediatric patients resulted a significant OOP expenditure for their families, leading to catastrophic health effects (CHEs) and impoverishment of households. The impacts were unevenly more on the vulnerable groups and majority of the families were affected both temporarily and permanently.

Keywords:- Out of pocket expenditure; catastrophic health effects; Pediatric Surgical Patients; Sources; Impacts.

INTRODUCTION

Out-of-pocket (OOP) expenditures which are the major sources for healthcare financing in most low- and middle-income countries (LMCs) like Bangladesh act as a deterrent for utilization of the healthcare services for a significant proportion of the population.^[1] Worldwide modeled data on catastrophic and impoverishing expenditure (i.e. Total out-of-pocket (OOP) related to surgical care reveals that peoples of LMCs are mostly affected because of this expenditure.^[2] Bangladesh encounters the highest rate (17%) of catastrophic expenditure, in the Asia-Pacific region, along with about 24% of the poorest households and 7% of the richest households that are forced to borrow money or sell household assets for paying the costs related to diseases.^[3] So, this is assumed that, unless and until there has been a change in health policy, 20% of the population may have to encounter catastrophic health expenditure and about 10% of those will be fall into poverty for seeking health care in 2030. However, these shocking statistics, in Bangladesh, health insurance system is still lag behind particularly in public sector.^[4] About 30% of the global burden of disease is surgical and in Bangladesh, a study also showed that, about 71.86% neonates were needed to managed surgically out of total (2492) surgically admitted cases.^[5,6] Delivery of basic, life-saving surgical care is highly cost effective for low- and middle-income countries (LMICs). So, lack of financial risk protection measures, accessing surgery be catastrophically expensive for patients and might avert health-seeking behavior particularly for the poor.^[7,8] In Bangladesh, however, in general, there are some studies regarding out-of-pocket expenditure but there is no available data

regarding an important issue that is the out-of-pocket expenditure for surgically treated patients particularly for pediatric surgical patients. Henceforth, the present study is aimed to detect the sources of out-of-pocket expenditure and its effects in perspective of Bangladesh among the families whose children undergone for surgical treatment.

MATERIAL AND METHODS

This cross-sectional observational study was carried out in the department of pediatric surgery in three major public hospitals (Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka Medical college hospital (DMCH) and Sir Salimullah Medical College hospital (SSMCH) in Dhaka city of Bangladesh from July 2013 to June 2015 among total 400 respondents (76% were from BSMMU, 16.5% were from DMCH and 7.5% were from SSMCH). The admitted patients undergoing treatment in pediatric surgical departments were enrolled by random selection technique with taking the consent and willing to comply with the study. Families/ attendants unwilling to take part in the study were excluded. Survey respondents were selected from a convenience sample of family members (total 400) taking care of patients admitted to the pediatric surgical inpatient wards for surgical procedures. Pre-tested questionnaire/checklist was filled through face-to-face interview. Survey questions were structured around previously validated tools including the Labor and Health Short Form Questionnaire and Household Consumer Expenditure Survey.^[9,10,11] A prospective survey administered to the patients' families determined OOP expenditure. As the respective hospitals are public, they offered the available

health care services, basic laboratory tests, medical supplies bed space, and a daily meal freely for patients, and so OOP spending should theoretically be minimized. But, medical supplies as were not always available in sufficiently hence the patients were needed to purchasing certain medications. Data were analyzed using SPSS software version 24.

RESULTS

The results of sociodemographic status showed that, among 400 respondents 77% lived in rural area and 23% in urban area (Figure: I). 72% had permanent house however, 28% had temporary houses. About 31.5% family had at least three (3) members, 3.64% had 3-5 family members and 4.5% had more than 5(five) members and in 97% families there had only 1-2 earning member. 51% families had 1-2 children who went to school and about 75.5% families had members who were suffering from several chronic diseases [Table 1]. Regarding literacy rate 29.5% had no literacy, 24% had informal literacy, 23.5% had formal literacy, 8.5% were up to primary level and only 4% were of post-secondary level education status [Figure 2]. Regarding occupation of head of the family: only 23.5% were involved in formal occupation and 76.5% were involved in informal occupation [Figure 3]. The results showed that, about 50% the family head 's monthly income was < 10000/- taka, 35.5% income was 10000/- 30000/-taka and only 14.5% monthly income was >30000/-taka [Figure 4]. According to income socioeconomic classes of the family is divided into - lower class (62.5%), middle class (20%) and higher class (17.5%) [Figure 5]. Among 400 families, 62.5% had unsustainable income whereas only 37.5% had sustainable income and 94.5% and 88.5% respectively did

not have any health budget allocation and health insurance coverage [Table 2]. The statistics of resources of health care expenditure [Figure 6,7], there had been found that 30.5% families paid this from internal resources, 14.5% had from external resources and 55% managed this from both external and internal resources. Among internal resources 27.1% came from cash savings, 63.5% from monthly family income and 9.4% came from sale of temporary / permanent assets. The sources of external resources include- from government (2.8%), from donation of relatives (18.4%), from NGOs (23.5%) and 53.5% from loans of different sources. About out of pocket health care expenditure [Figure 8] there was found that, among 400 respondents, 3% families spent 5,000/- to 15,000/-, 24.5% spent 16,000/- to 45,000/-, 42.5 % was consumed 46,000/- to 75,000/-, 16.5% participants paid 76, 000/- to 150,000/- and 13.5% respondents paid > 150,000/-. Among the total out of pocket expenditure [Figure 9], 77.5% cost was of operative cost, 16.5% for postoperative, 3.5% preoperative and 2.5% for others (hospital stay cost for caregivers). Regarding effect of out-of-pocket expenditure, OOP, data showed [Figure 10 & Table 3] that out of total 400 respondents though 25.5% have no effect due to health care expenditure however, 74.5% had either permanent (4%) or temporary (53%) or both (17.5%) permanent and temporary effects. Regarding temporary effects, 93.4% respondents had to change their food habit practices (51.8% reduce 10%, 38.3% reduces >10% and 9.9% reduces >20%) and 11.1% suspended their daughter's marriage. 88% had effect on children's education (93.3% cases one child affected and 6.4% cases two children were educationally affected). 64.2% needed to limit in purchasing family durable goods and

developmental activities. Regarding permanent effects 4.9% had to sell actual property, 59% were threatened to sale property.12.7%

respondents said that they had to shift their living establishment to low-cost areas.

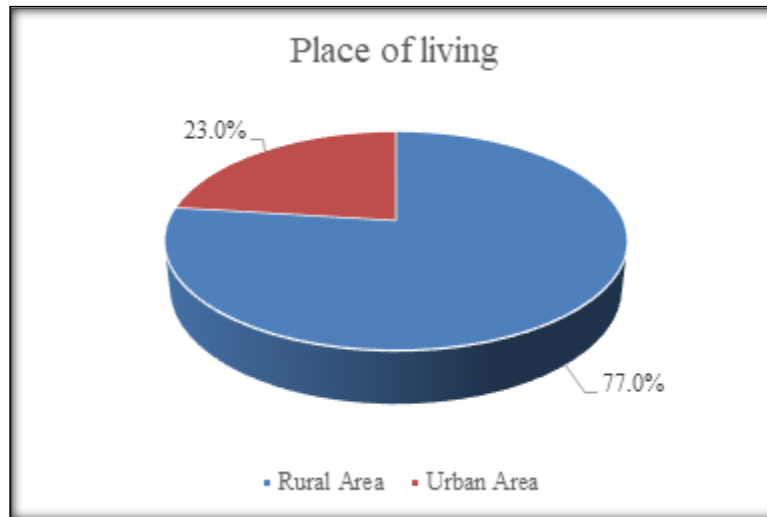


Figure 1: Place of living of the respondents (n=400)

Table 1: Residence and Family Status of study population

Parameters	n	%
Type of residence (n=400)		
Permanent	288	72.0
Temporary	112	28.0
Total family members (n=400)		
03	126	31.5
3-5	256	64.0
>5	18	4.5
Earning member in the family (n=400)		
1-2	388	97.0
3-4	12	3.0
School going children		
None	186	46.5
1-2	204	51.0
3-4	10	2.5
Family member suffering from		
chronic illness	302	75.5
None	98	24.5

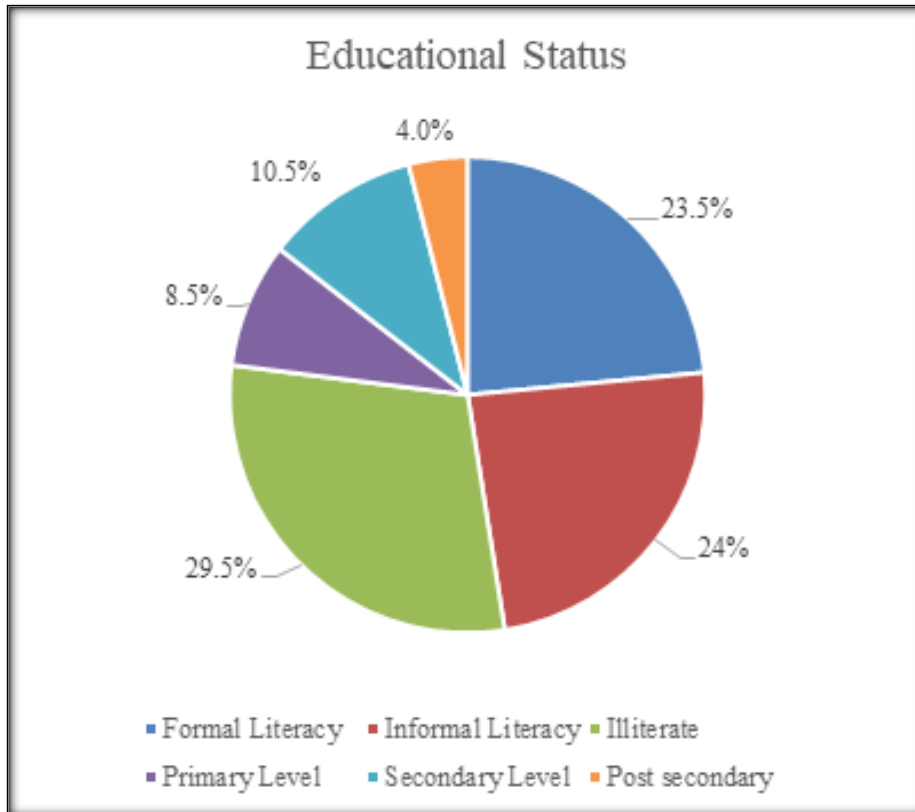


Figure 2: Educational status of the head of the family

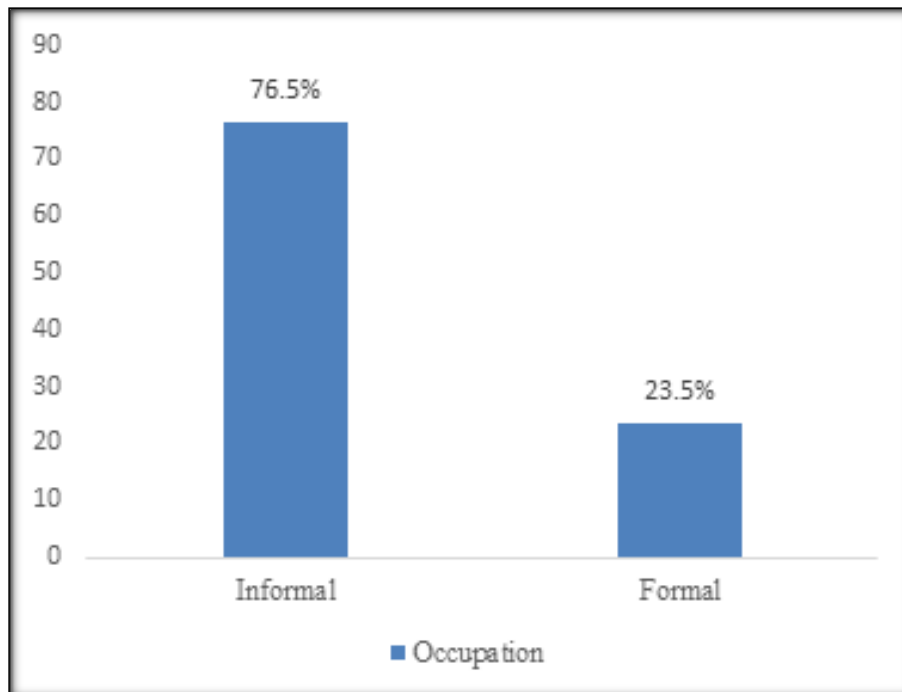


Figure 3: Occupation of the head of the family

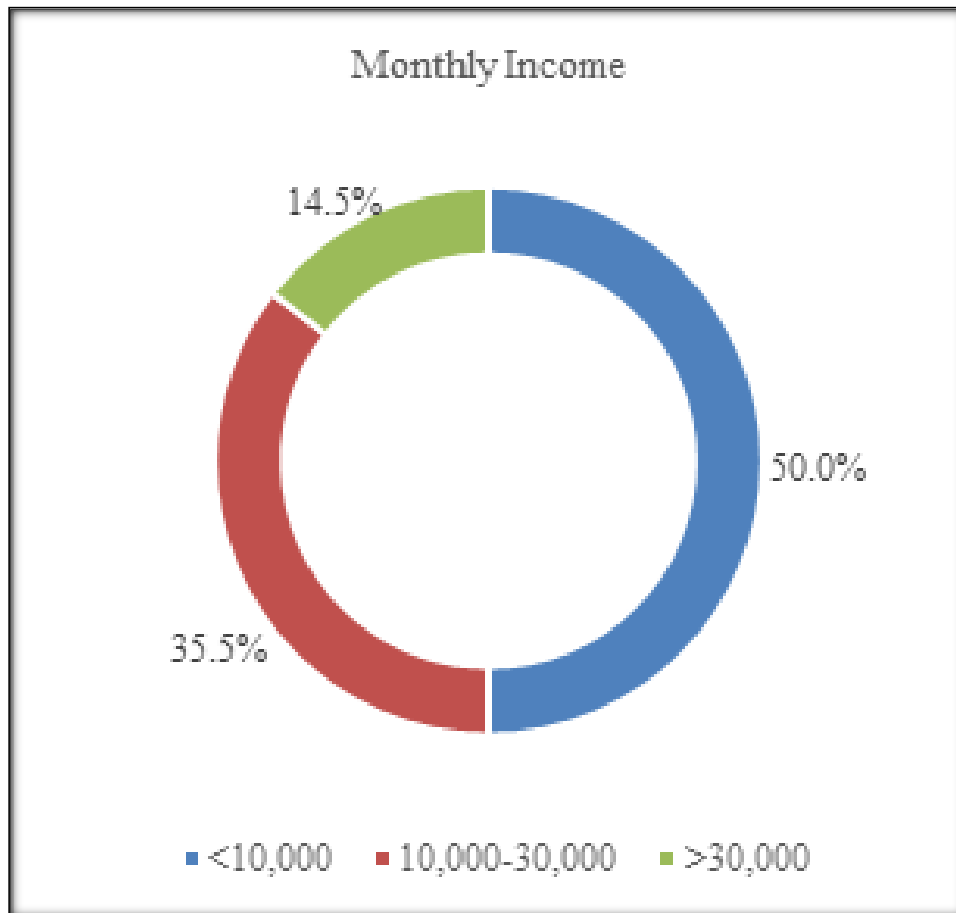


Figure 4: Monthly family income (Taka/month)

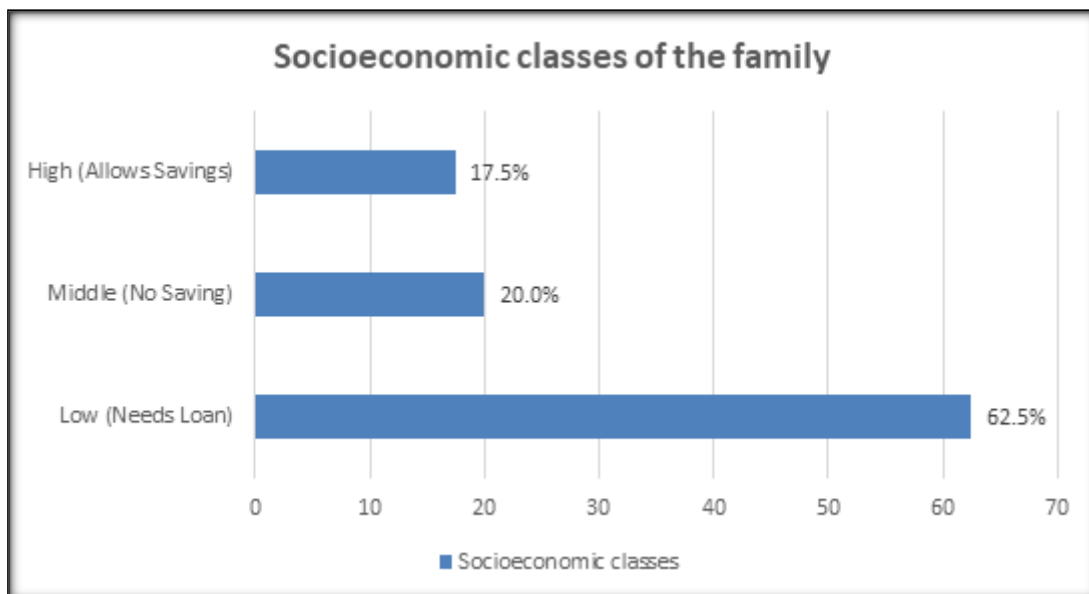


Figure 5: Socioeconomic classes of the family

Table 2: Pattern of income sources & Expenditure

Parameters	n	%
Nature of income (n=400)		
Sustainable	150	37.5
Unsustainable	250	62.5
Specific allocation for Family health budget (n=400)		
Yes	22	5.5
No	378	94.5
Proportion of allocation for Health budget from monthly Income (n=22)		
<10%	22	100.0
Health insurance coverage (n=400)		
Yes	46	11.5
No	354	88.5

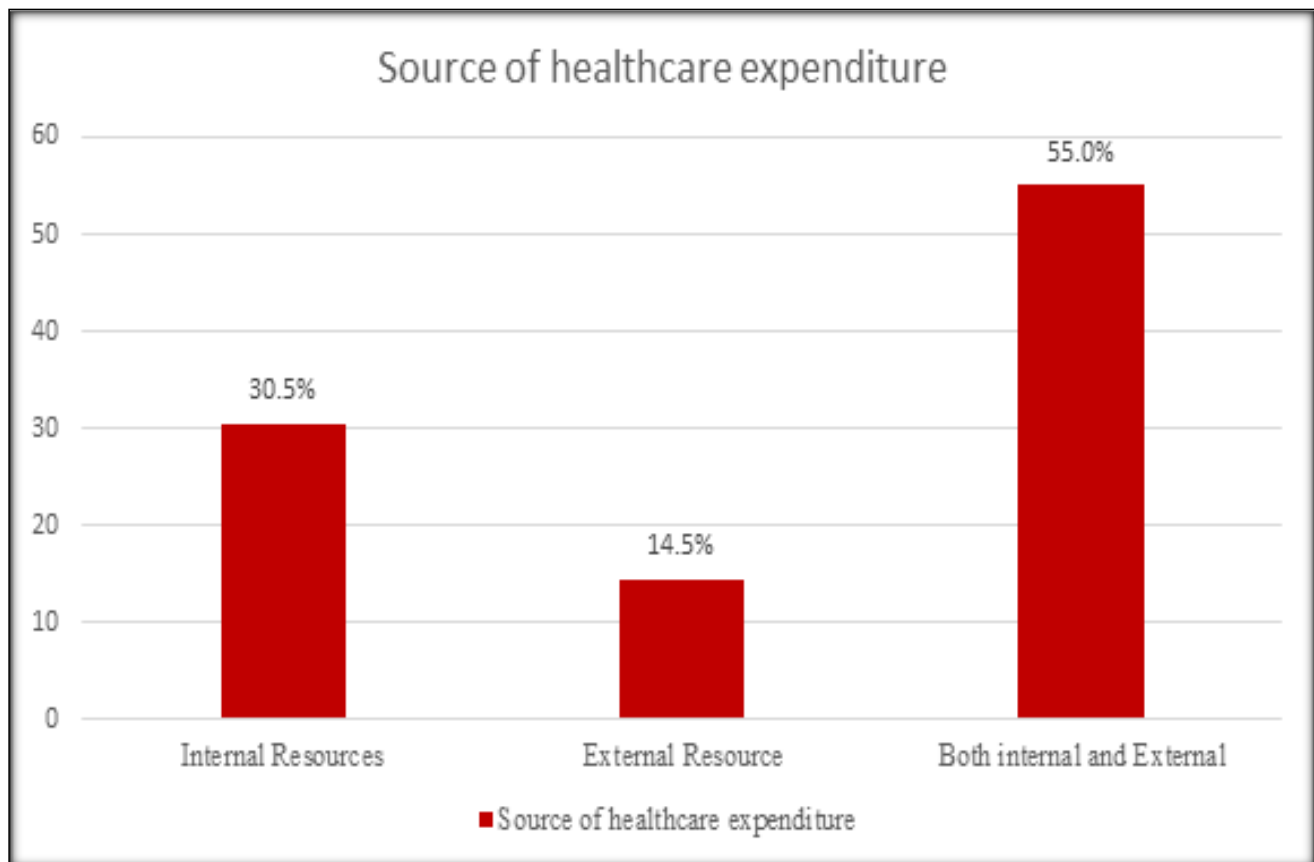


Figure 6: Source of healthcare expenditure of the respondents

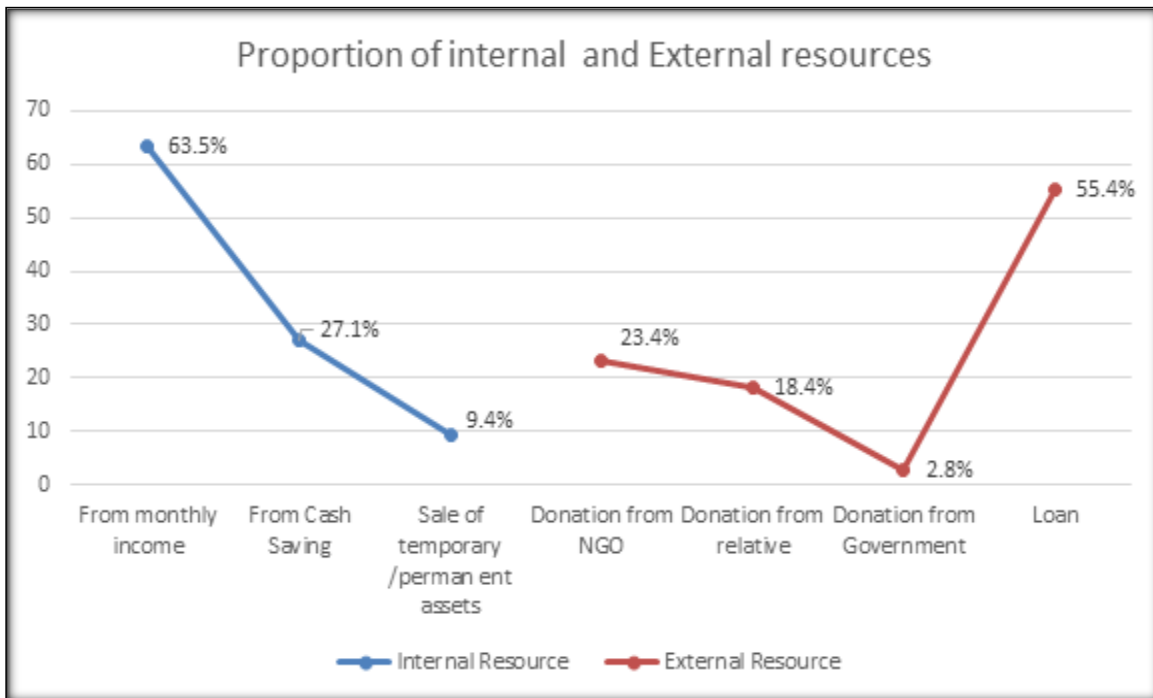


Figure 7: Proportion of resources for health care expenditure

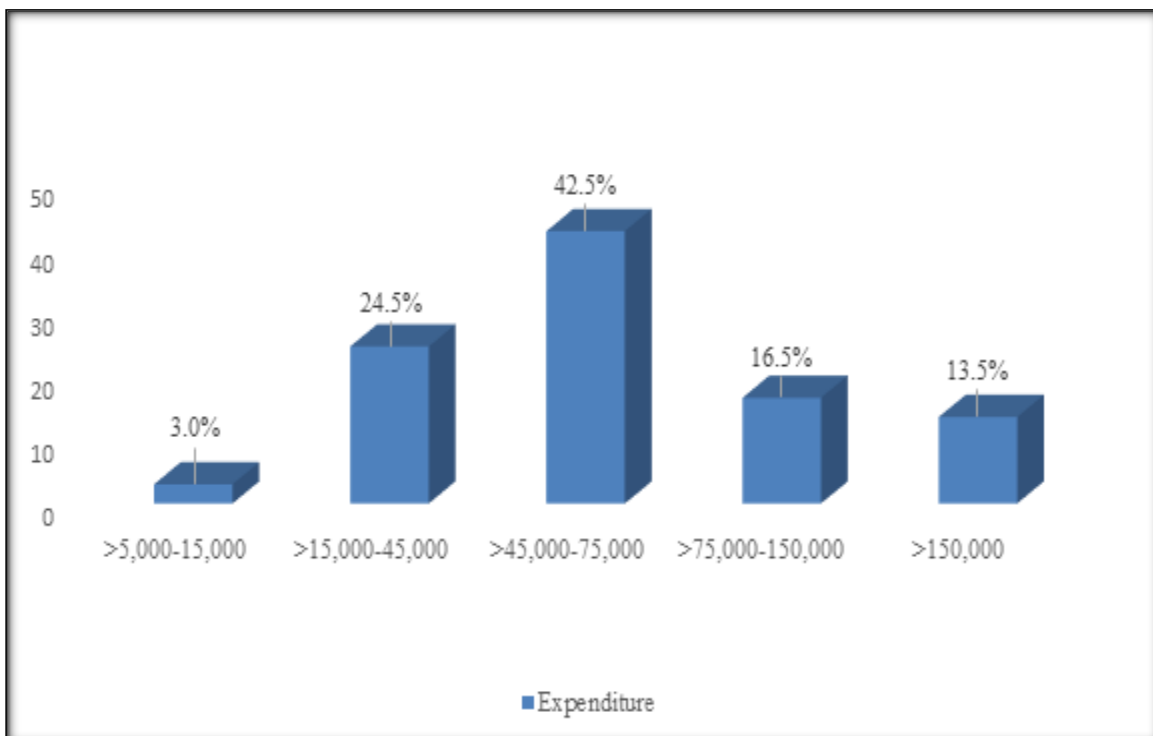


Figure 8: Out-of-pocket healthcare expenditure

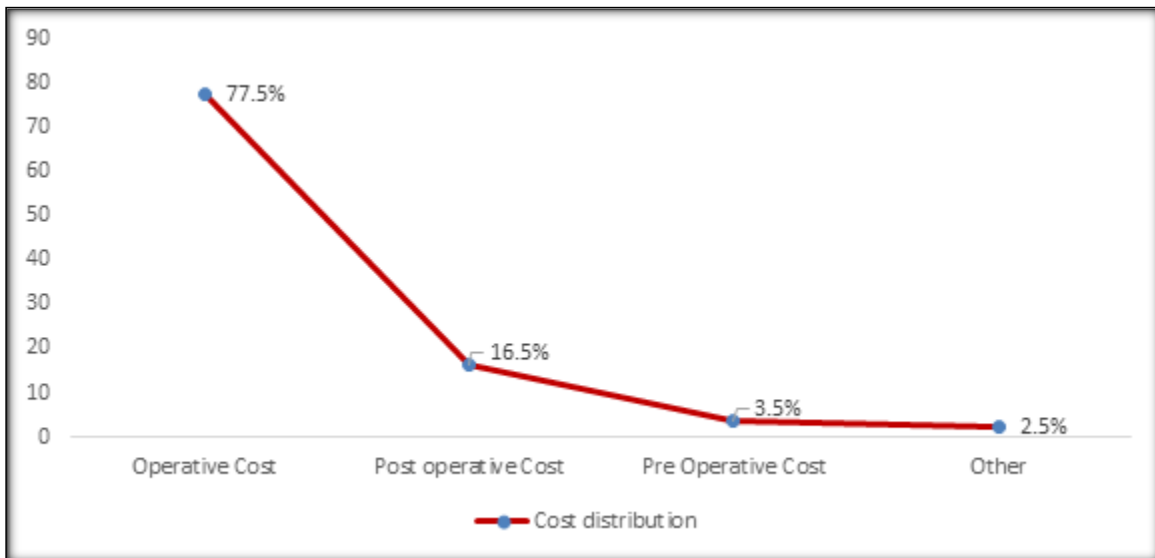


Figure 9: Cost Distribution of healthcare expenditure

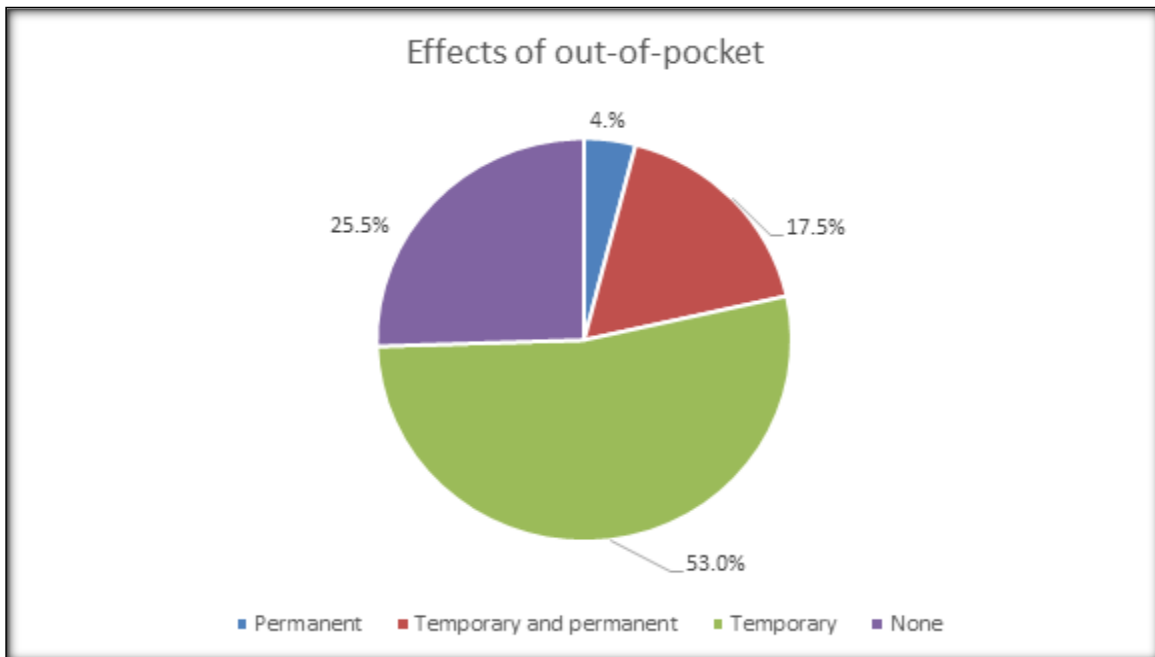


Figure 10: Distribution of effects of out-of-pocket healthcare expenditure

Table 3: Proportion of different effects of out-of-pocket healthcare expenditure

Parameters	n	%
Temporary effects		
On Children's Effects (n=284)		
Yes	250	88.0
No	34	12.0
Number of affected children (n=250`1)		



One	22	5.5
Two	378	94.5
Limiting /restricting / reducing non-essential social /family (n=302)		
Yes	180	59.6
No	122	40.4
Limiting/restricting/reducing purchase of consumer goods (n=302)		
Yes	194	64.2
No	122	35.8
Limiting/restricting/reducing family development activities (n=302)		
Yes	196	64.9
No	106	35.1
Effect on family's food consumption (n=302)		
Yes	282	93.4
No	20	6.6
Proportion of effect on family's food consumption (n=282)		
<10%	146	51.8
10-20%	108	38.3
>20%	28	9.9
Effect on essential social event (Like daughter's marriage) (n=302)		
Yes	82	27.2
No	220	72.8
Curtailment on family expenditure (n=302)		
Yes	234	77.5
No	68	22.5
Permanent effects of healthcare expenditure on family (n=244)		
Forced sell of property		
Actual	12	4.9
Threatened	144	59.0
No	88	36.1
Shifting of living establishment to low-cost area		
Actual	0	0
Threatened	31	12.7
No	213	87.3
Loss of job		
Actual	0	0
Threatened	0	0
No	244	100.0
Homelessness		
Actual	0	0
Threatened	0	0
No	244	100.0

DISCUSSION

In many developing countries Out-of-pocket (OOP) expenditure on health care has significant impacts on people's life. Sometimes, this may result to divert resources from other basic needs and possibly the protection of the poor from user charges.^[12,13] However a functioning health system is vital for the entire development of a country and access to surgery is progressively recognized as a critical component for this.^[14] Surgical conditions particularly pediatric surgical cases often distinctively placed patients/parents at risk for financial catastrophe because of time-critical, life threatening, and fraught with large up-front costs.^[15]

This study was carried out in the department of pediatric surgery of three leading public hospitals in Dhaka city of Bangladesh, namely Bangabandhu sheikh Mujib Medical University, Dhaka Medical college hospital and Sir Salimullah Medical college and Mitford hospital where majority of pediatric surgical cases happen to evaluate the sources of out of pocket expenditure in families of pediatric population which patients undergone surgical treatment of these hospitals. A total of 400 respondents were studied. Among them 76% were from BSMMU, 16.5% were from DMCH and 7.5% were from SSMCH. On evaluation of sociodemographic status of participating families, in this study there found that among total 400 respondents, 77% belong to rural areas and 23% belong to urban areas and 72% had permanent house but 28% had houses that were temporary.

Regarding educational status of family head, 29.5% respondents had no literacy, 24% had informal literacy, 23.5% had formal literacy,

8.5% were up to primary level and only 4% are of post-secondary level. Among the respondents 23.5% had formal, 76.5% had informal occupation. Majority (62.5%) of the patients came from lower socioeconomic class where 50% head of the family had monthly income was < 10000/- taka, 35.5% family had monthly income was 10000/---30000/-taka and only 14.5% had monthly income was >30000/-taka. Study of Yap A et al. 2018 and Mungyereza BP. 2016 showed that in their studies most of the families were from low socioeconomic background and they involved mostly in non-formal occupation and do not earn a solid for-profit income.^[16,17] This reflects that the low employment rate could imitate the country's working demographics and the distinction between employment and work of its population. The present study results also demonstrated such a picture of the sociodemographic feature of Bangladesh where majority of people were form low socioeconomic background and occupied in informal employment.

Regarding income sources and related health expenditure, in present study, among 400 families, 62.5% had unsustainable income whereas only 37.5% had sustainable income and among them, any 94.5% and 88.5% respectively did not have any health budget allocation or health insurance coverage. Again, families who had health budget allocation (94.5%), surprisingly, none of them (100%) had any allocation for health budget from monthly income. About the sources of health care expenditure of the participants, 30.5% came from internal sources where the monthly family income (63.5%) was the major source, 14.5% came from external resource and 55% from both external and internal sources and loan from

different sources was the major (53.5%) way of external expenditure. About the cost of out of pocket expenditure for health care of the children of 400 participants, 13.5% though paid the highest amount that was >150,000/- but majorities (42.5%) expenditure cost was 45,000/- to 75,000/- and then 16.5% participants paid 76,000/- to 150,000/- and the rest 3% respondents expenditure cost was the least one which was 5,000/- to 15,000/- takas. Among the total out of pocket expenditure, 77.5% cost was of operative cost, 16.5% for postoperative, 3.5% preoperative and 2.5% for others (e.g. transportation cost, hospital stay cost for caregivers). Here, costs drugs and related investigations costs were included in each stage that is during operation, pre and post-operative period. The results indicate that in Bangladesh the OOP expenditures for health care services are sufficiently costly and households have to pay a significant portion of its income for this purpose. A study done by Huq et al. 2015 and study of Ministry of Health and family welfare (MoHFW) (2010),^[18,19] also support the report where this was found that in Bangladesh a household, on an average, spends 7.5% of its total income and the poorest 20% spent approximately 13.5% of their income for purchasing health care in various aspects and approximately 29.2% of the households spend more than 5% of their total resources for health care.

Regarding effects of out-of-pocket expenditure, among 400 participant families, (74.5%) of the families were affected either temporarily (53%) and permanently (4%) or in both (17.5%) in several ways though 25.5% families did not find to be affected by any way. 93.4% of the respondents had to change their food habit practices, 88% had effect on children's

education, 11.1% suspended their daughter's marriage, 64.2% cases had to limit purchasing family durable goods and developmental activities, 4.9% sold actual property, 59% were threatened to sale property and 12.7% respondents said they had to shift their living establishment to low-cost areas, however, none of the family member had to quit from the job or none of them became homeless. The results illustrate a distressed picture of the effects of OOP expenditure of the participants. About similar results are observed in the study of Anderson GA et. al. 2017 and Balasubramanian D et al 2015.^[20,21] The study of Anderson GA et. al. 2017 showed that, eighteen percent of families had to borrow money, and 9% sold household items to pay for their child's surgical care and these transactions were also observed at a higher percentage (53% and 21% respectively) in a regional referral hospital of Uganda. Another OOP spending study of Balasubramanian D et.al.2015 showed that 47.2% of the poorest 20% of patients borrowed money to pay for surgical care, although the prevalence of catastrophic expenditure was much lower at 5.6%. Both the studies observed a recurring tendency of loaning and pawning of families which suggests that these families struggle to pay for their surgical costs and need to find temporary coverage that may put them in debt. Again, study of Yap A et al. 2018, denote that in their study families OOP costs were derived mainly from productivity loss (33%) and to a lesser extent food and lodging. In present study such a picture was also noted.

Limitations of The Study

However, the present study was done only among the patients of three public hospitals of Dhaka city: the results may not represent the



overall scenario of the whole country. Besides, there was methodological and data limitations also.

CONCLUSIONS

The current study findings conclude that pediatric patients undergoing surgery resulted in a significant OOP expenditure with a catastrophic impacts on health expenditures (CHEs) particularly for vulnerable groups. Hence, alleviation of OOP costs is critically needed to provide a sustainable surgical care among pediatric populations. ~~and also~~ Along with this indiscriminately to all wealth

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