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Role of Health Insurance in Child Health Care Utilization in Misungwi District, Tanzania

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Abstract

Background
Health insurance is one of the health financing methods aiming at bringing equity in health care by providing access of quality and affordable health care services to all groups of the population. In Tanzania, children are mainly covered as dependents with no well- established insurance programmes that target children. The burden of out of pocket payments for health care and hence low health care utilization for the uninsured is significant.

Study Objective
To assess the role of health insurance on health service utilization among children in Misungwi District.

Methods
A multi-stage cluster sampling was used and interview administered questionnaire with both closed and open ended questions was used to gather primary data on insurance coverage patterns, health care utilization and facility pretences in Misungwi. The sample size used was 227. Analysis was done using statistic computer software SPSS version 20 and data was interpreted and presented based on objectives.

Results
Health Insurance coverage among children was found to be low with overall coverage being 16.7%. Health insurance status of the child was found to influence health care seeking behaviour of parents and hence health care utilization of the child. Out of pocket payments burden to parents of the uninsured children was evident with 13.6% reporting to borrow money from relatives.

Conclusion
In this study, it was found that health insurance coverage is low and the child's health insurance coverage influence the health care seeking behaviour with high cost burden to uninsured children. The need for health insurance coverage is importance for improvement of health service utilization and thus worth further studies.

Keywords: *Health insurance, Healthcare utilization, Children, Misungwi, Tanzania.*

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Background

Health insurance coverage among children is of paramount importance to the future generation. Children are classified as among the vulnerable or at risk groups, hence, financial protection is necessary to enhance health care utilization and better health outcomes in children. Health Insurance and Exemption System applies in most African countries for children: specifically, Maternal and Child Health (MCH) services and basic health care for children under 5 years of age to provide financial protection (1,2,3,4,5).

Insurance status is known to affect health care utilization. Though, its effect is not always linear depending on equity policies for different population groups as well as quality of services provided (4). A study conducted in South Africa showed that though health insurance coverage increased health care utilization, the case was not uniform between public and private health services whereby the insured were more likely to use private health services than public (6). In Rwanda, Dhillon et al reported that health insurance coverage led to change in health seeking behaviour of the insured individuals, increasing health care utilization. For example, children covered by Mutuelle, a popular and affordable insurance scheme in Rwanda, were 30 to 60% more likely to be treated when sick (7).

In Ghana, children under 18 years are exempted from premium fees for enrolment into the National Health Insurance scheme. This is an example of low and middle income countries where children are specifically and directly incorporated into the national insurance scheme and are provided with special cards by the scheme in an effort to move towards universal health care coverage. The impact of health insurance in Ghana has been evident where health care utilization increased together with improved health outcomes like dropping of child mortality rate (2). In 1993, Egypt introduced the School Health Insurance Programme (SHIP) to cover over 15 million students and school age children. Later in 1997, the coverage was extended to include children under one year. The main goal of SHIP, among others, includes improving access and equity in access to health care for Egyptian children (8). A study by Yip and Berman showed that SHIP significantly improved access by increasing outpatient visit rates while at the same time reducing the financial burden of out of pocket expenditures for health care services (3).

Tanzania recognizes children as a vulnerable group, and greater attention is given to this group to ensure access to health care is not jeopardized by out of pocket payments. This effort includes the introduction of exemption and waivers as well as increasing health insurance coverage (9). However, exemption and waivers systems for children are limited as they mostly cover only the under-fives, and they have proved not to eliminate out of pocket expenditures, again calling for need of equitable health insurance schemes as a solution (10,11,12). The influence of health insurance on out of pocket payments for child health care is less studied, most likely due to the fact that children are covered as dependents in most health insurance schemes, and there are limited schemes that target children (13). Manzi et al, in a study on role of Integrated Management for Childhood Illnesses (IMCI) on out of pocket payments among under-fives in southern Tanzania, revealed the presence of out of pocket payments regardless of insurance status (14).

Different health insurance schemes are available with different enrolment eligibility criteria, contribution rate, and benefit package for different age groups. The National Health Insurance Fund (NHIF) insuring about 9% is a mandatory scheme for public servants including 5 dependants including children below 18 years. Community Health Fund (CHF), Social Health Insurance Benefit (SHIB), Private health Insurance and Micro-schemes such as chawana are other available schemes. NSSF is voluntary for private and parastatal employees and covers up to five dependents including children. The Community Health Fund (CHF) (now Improved Community Health Fund) covers 25% of the population offering rural voluntary household enrolment for a couple and their children under 18 years (22). Micro-schemes such as Chawana include market vendors, and individual enrolment. For several years, insurance schemes cover children under the umbrella of dependents and programmes targeting children directly are rare; moreover, the pattern of coverage in children is less known (15,1,16).

In Tanzania, Kuwawenaruwa et al, reported highest health care utilization rate for the under-fives regardless of insurance status only followed by a dramatic drop in health care utilization for higher age groups (12). For example, children of age group 5-14 years were found to score lowest in health care utilization, with the situation being much worse for the uninsured compared to insured counterparts. This is due to the fact that costs for health care rises after five years as the child becomes ineligible to the exemption policy, hence, health care utilization is affected as most refrain to seek care due to higher OOP payments.

Moreover, the insured members were less (12) likely to seek medical care at drug shops compared to the uninsured parts. Outpatient utilization rates were higher among NHIF members than CHF/TIKA members. In terms of facility preferences NHIF members in urban areas preferred private facilities and public hospitals, whereas those in rural areas were more likely to go to public primary and faith-based facilities (15).

In a health system where pre-payment schemes coverage is low, together with poor health care services delivery with shortage of drugs and medical supplies in public facilities and high workload to health sector human resource, out of pocket expenditure is inevitable (17) (18). Manziet al reported the existence of out of pocket payments in rural southern Tanzania among under-fives (the exempted group) and the insured group which proved that the exemption system doesn't always work, provided the prevailing challenges of the health care system (14). However as is the case for low and middle income countries, there are few insurance schemes that are directed to children. Few studies have been done to assess health care equity among children in Tanzania (19). This study aimed to explore the role of health insurance on health care utilization with a specific focus on children.

Methods

Study setting and design

A community based cross-sectional descriptive study was carried out from September 2018 to September 2019 in Misungwi district situated in Mwanza region. Based on the 2012 national census this district has a total population of 351,606. The district is divided into 4 divisions, 27 wards and 78 villages. The divisions are Inonelwa, Mbarika, Misungwi and Usagara. This region primarily relies on farming and fishing to sustain their livelihood (20).

Study population and eligibility criteria

Study population

The study involved parents, guardians of children aged below 18 years and children aged below 18 years in Misungwi District.

Eligibility criteria

The households with children fitting the inclusion criteria in each selected village were obtained from the administration offices. Meaning that the inclusion criteria was one child below 18 years in a household obtained by random sampling was included in the study, a

parent or guardian or head of the household was interviewed to get information of the child under study. Exclusion criteria was for children aged below 18 years whose parents or guardians, or head of the household was not present at the time of the interview. The sample size was distributed to each of the selected village in proportion to the number of children in each village. Purposively sampling was carried out after identifying an initial household by lottery method. It was used to select four villages out of 78 in Misungwi District. In addition, if more than one study participant was found in the household, the lottery method was used to select a single study participant.

Sample size was calculated by using Kish and Leslie formula (N = Z^2 P (100-P)/E^2) taking into account of the following assumptions; Z = Standard normal deviation set at 1.96 (corresponding to confidence level of 95%), P = proportion of target population covered by health insurance, which is 18% as per other recent studies (15), E = maximum error allowed which was assumed to be 5%.

N = Z^2 P (100-P)/E^2

Where;
N = minimum sample size required
Z = Standard normal deviation set at 1.96 (corresponding to confidence level of 95%)
P = proportion of target population covered by health insurance, which is 18% as per (17)
E = maximum error allowed, assumed to be 5%

Therefore,
N = 1.96^2 x 18 (100 – 18)/0.0025
N = 227.
Therefore 227 individuals were included in the study.
The sample size was therefore 227 taking into account of the above assumptions

A multi-stage sampling technique was applied to select the samples. Out of 27 wards two wards were selected by simple random sampling using lottery method. From two wards four villages were selected out of 78 villages purposively based on peri urban nature and rural characteristics to read a clear picture since most of them are not employed. From the four villages 227 households were randomly selected by lottery method. In all households that

had no children. Replacement were done. The household with more than one child, then one child was selected randomly using lottery method.

Data collection procedures

A structured questionnaire for cross-sectional data collection was used for this study. The questionnaire included both closed and open ended questions. Before data collection four research assistants were recruited, the recruited research assistants were oriented to the study objectives and data collection techniques. The tool was tested and standardized to come up with the most applicable tool. The respondents in this case parents/guardians fitting to the inclusion criteria were interviewed at a convenient place in the household. Prior to the interview, the respondents were asked for their written consent to participate in the study.

Study variables

Insurance status, age and health facility type were independent variables while health care utilization and out of pocket payment were dependent variables.

Data processing and analysis

Data Coding, entry, cleaning, processing, finally analysis and the results were done using a computer programme Statistical Package for Social Sciences (SPSS) version 20. Analysis was done as per objectives where health insurance coverage and healthcare utilization and out of pocket expenditure and their relationships were obtained by running necessary frequencies and cross tabulations. Association between Independent variables such as insurance status and age versus dependent variable health care utilization was found with Pearson Chi-squire, p-value <0.05 being used as standard for association.

Results

Demographic characteristics of participants

A total of 227 children aged below 18 years were involved in the study by their parents or guardians responding to the questionnaires. Of these children 121(53.3%) were males and 106 (46.7%) were females. Most of participants were under-fives (30%) (Table 1).

Table 1: Demographic characteristics of participants (N=227)

Variable	N (%)
Village involved in the study	
Usagara A	64 (28.2)
MAT Ukiriguru	57 (25.1)
Nyang'holongo	60 (26.4)
Nyamikoma	46 (20.3)
Sex	
Male	121 (53.3)
Female	106 (46.7)
Age group	
0-4	68 (30)
5-9	59(26.0)
10-14	60(26.4)
15-17	40(17.6)

Health insurance coverage in children

This study found insurance coverage among children to be 16.7%. Majority of the insured (86.8%) benefits as dependents (Table 2). Table 2 shows coverage of different insurance schemes whereby 9.7% are covered by NHIF, 4.8% are covered by CHF and 2.2% by Private schemes.

Table 2: Health insurance coverage (N=227)

Variable	N (%)
Insurance status	
Insured	38(16.7)
Not insured	189(83.3)
Insurance status by specific schemes	
CHF	11(4.8)
NHIF	22(9.7)
Private Schemes	5(2.2)

Enrolment means

Table 3 shows that majority of children are enrolled into insurance schemes as dependents (86.8%) with only 13.5% as individual enrolment.

Table 3: Enrolment means n=38

Variable	N (%)
Enrolment means	
As dependent	33 (86.8)
Primary enrolment	5 (13.2)

Healthcare utilization

Healthcare utilization by age groups

Table 4 shows that overall healthcare utilization rate was found being highest among under-fives with 52.9% scoring high rate, dropping to 42.4% and 33.3% for age groups 5-9 and 10-14 respectively. Healthcare utilization was therefore found to decrease with age. There was significant association between age group and healthcare utilization rates, P-value< 0.05.

Table 4: Healthcare utilization by age groups (N=227)

Age group	Healthcare utilization rate			Chi-square	p-value
	High	Moderate	Low		
0-4	36 (52.9)	9 (13.2)	23 (33.8)	20.364	0.002
5-9	25(42.4)	6 (10.2)	28 (47.5)		
10-14	20 (33.3)	0 (0.0)	40 (66.7)		
15-17	11 (27.5)	4 (10.0)	27 (62.5)		

Health insurance coverage of the child and healthcare seeking behaviour of parents

This study found that insurance status of the child modifies healthcare seeking behaviour of parents with parents of the uninsured children being less likely to find health service in a health facility when their children are sick (p-value=0.012) (Table 5). More than 20 % of the uninsured would not seek care at a health facility when their children are sick, on other hand 94.7% of parents of the insured children would go to health facility whenever their children fall sick.

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Table 5: Association between insurance status and healthcare seeking behaviour (N=227)

Insurance status	Seek care always if child is sick		Chi-square	P-value
	Yes	No	6.356	0.012
Insured	36 (94.7)	2 (5.3)		
Not insured	145 (76,7)	44 (23.3)		

Reasons not to seek healthcare at a health facility

This study found that of those who reported not to seek care at a health facility always when their child is sick, 39.1 % reported self-medication as a reason, 23.9 % reported high out of pocket payment costs and poor health services. (Figure 1).

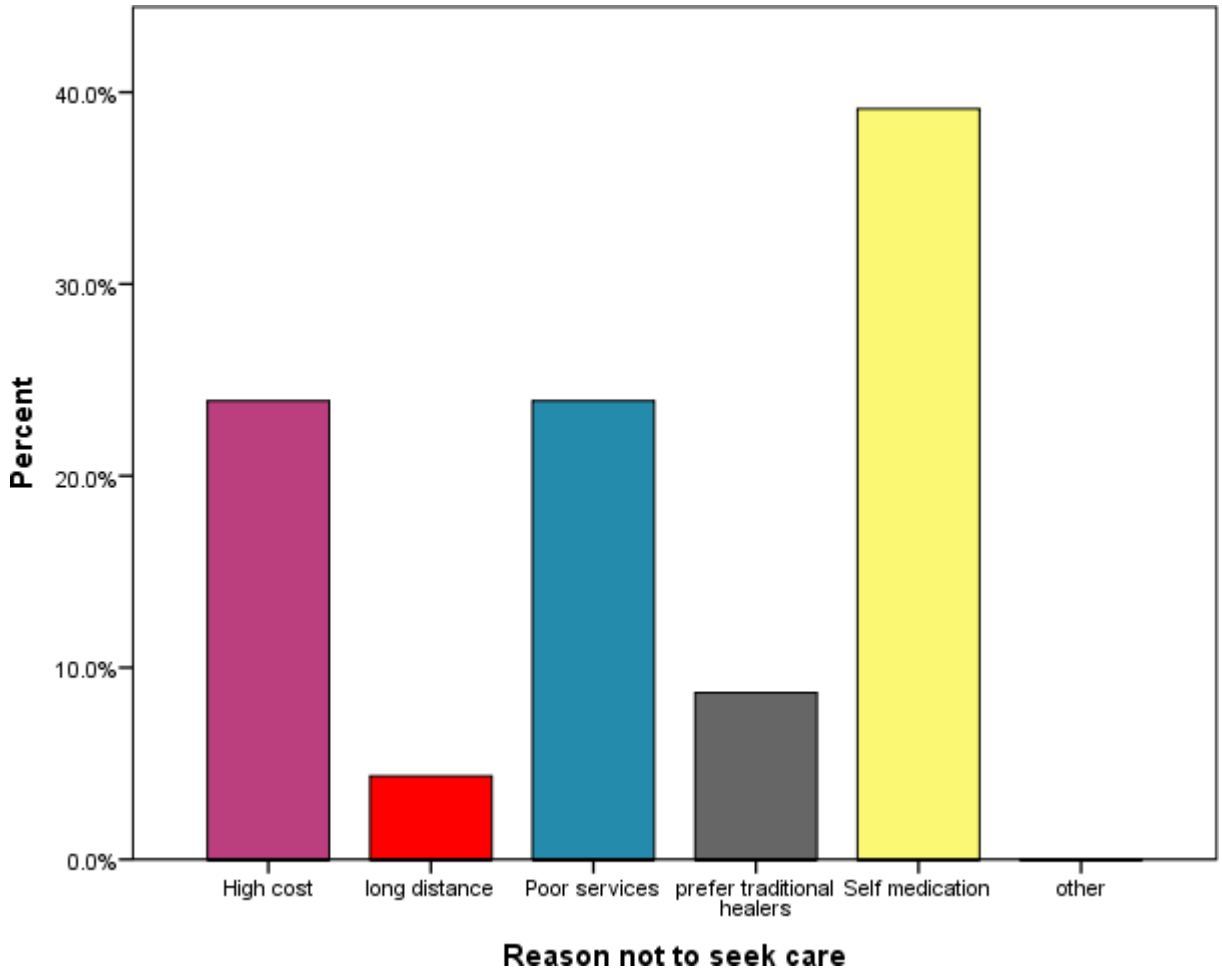

Figure 1. Reasons not to seek healthcare at a health facility

Association between insurance status of the child and parent's facility for outpatient care

Table 6 shows association between insurance status of the child and parent's facility preference for outpatient care. Eighty-Seven children had at least one outpatient care facility visit in 6 months, out of this 53.3% of the insured and 48.7% of the uninsured children got outpatient health service at private health facility. This shows an almost equal preference to private health facilities by parents regardless of insurance status of the child. There was no statistical association between insurance status and facility for outpatient care, Chi-square=1.269, p- value=0.530

Table 6: Association between insurance status of the child and parent's facility for outpatient care n=87

Insurance Status	Facility type		Chi-square	P-value
	Government	Private	1.269	0.530
Insured	7 (46.7)	8 (53.3)		
Not insured	33 (45.8)	39 (54.2)		

Association between Insurance status of the child and parent's facility for inpatient care

Table 7 shows Association between Insurance status of the child and parent's facility for inpatient care. Twenty-two children were reported to have inpatient care for the last 6 months. Six being insured and sixteen being uninsured, 50% of the insured who were hospitalized for the last 6 months their parents opted for government facilities. On other hand 56.3% of the non-insured used private facilities for the last inpatient care. However, there was no statistical association between insurance status of the child and facility for inpatient care. Chi-square=0.825, P- value=0.807.

Table 7: Association between Insurance status of the child and parent's facility preference for inpatient care (n=22)

Insurance status	Facility type		Chi-square	P-value
	Government	Private	0.825	0.807
Insured	3 (50.0)	3 (50.0)		
Not insured	9(56.3)	7 (43.7)		

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Out of pocket payment for the uninsured children

Out of pocket payment by age group among uninsured children

Table 8 shows that OOP increases with age rising from 60% among under-fives (0-4) to 73.1 % and 100 % for 5-9 and 10-14 age groups respectively. There was statistical association between age group and out of pocket payments, P-value=0.017.

Table 8: Association between age group of the child and Out of Pocket payment(n=90)

Age group	Out Of Pocket Payment		Chi-square	P-value
	Yes	No		
0-4	24 (60.0)	16 (40.0)	0.149	0.017
5-9	19 (73.1)	7 (26.9)		
10-14	14 (100)	0 (0.0)		
15-17	9 (90.0)	1 (10.0)		

Parent's source of OOP for the uninsured children

Figure 2 shows that serving/regular income was the most prevalent source of OOP accounting for 77.3% of parents/guardians followed by help from relatives, loan with interest, selling family properties by 13.6%,4.5 % and 3.0% of respondents respectively.

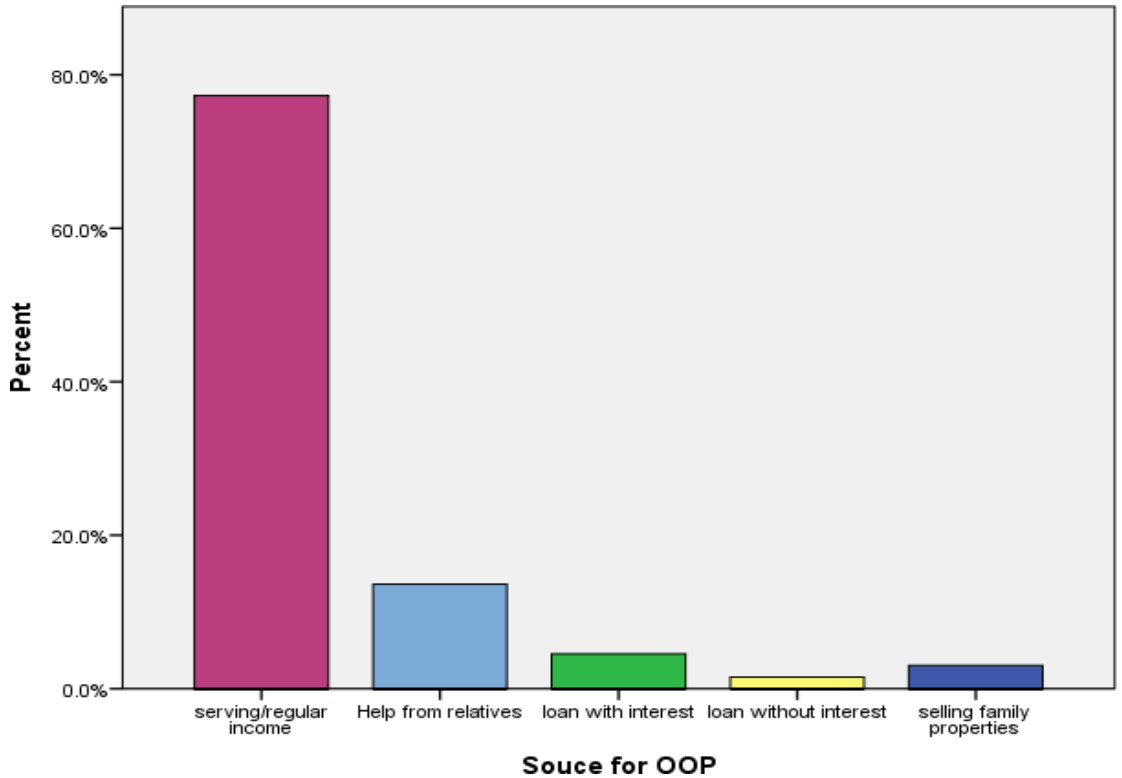

Figure 2: Source of out of pocket payment

Association between Facility for outpatient care and OOP

Table 9 shows that parents/guardians who visited private facilities when their children were sick for the last time in 6 months were more likely to pay OOP compared to those who opted for government facilities, whereby 87.8% of parents paid OOP at Private facility as compared to 48.5% for government facilities, p-value=0.001 was obtained suggesting strong association between type of facility for outpatient care and OOP.

Table 9: Association between Facility for outpatient care and OOP (n=74)

Facility for Outpatient	Out of pocket payment		Chi-square	p-value
	Yes	No	14.387	0.001
Government	16(48.5)	17 (51.5)		
Private	36 (87.8)	5 (12.2)		

Discussion

Health insurance coverage in Children

This study assessed Insurance coverage among children below 18 years of age, the coverage was found to be 16.7%. As for specific schemes 9.7% are covered by NHIF which is almost the same as for general population (15). Coverage in children by CHF however was low (4.9%) compared to studies for the general population. In 2019 for example the Ministry of Health and Social Welfare by then reported national coverage by CHF to be 25% (22), this can be explained by the fact that majority of children are covered as dependents, only few insurance programs are directed specifically to children (child only schemes). There is limited number of dependents for a member in each scheme leaving some of eligible children uninsured. This finding was expected due to nature of health insurance in Africa with lack of schemes specifically targeted to children and most of children are covered as dependents (13).

The low coverage of CHF can be explained by temporal effect of transition to improved CHF (iCHF) which has been introduced with change of premiums from Tanzania shillings range of 2000-5000 to 30,000 with expected improved outcomes. However, coverage challenges of improved CHF are less studied (16).

Healthcare utilization

This study assessed healthcare utilization in terms of outpatient services, inpatient services and medical check-ups. This study found association between age of the child and healthcare utilization (p=0.002), health care utilization is high among under-fives and decreases with age, this may be accounted for by higher morbidities among under-fives, another reason may be due to Waivers and Exemption System among under-fives and higher OOP for older children. This results are the same as are the same as a study conducted in Tanzania by Ifakara Health Institute in three urban councils (Morogoro, Ilala and Kinondoni) and four rural districts (Mbulu, Singida, Kigoma and Kilosa) (15).

Health insurance and healthcare seeking behaviour of parents

Health insurance status of the child was found to modify healthcare seeking behaviour of parents with the insured children being more likely to be treated at a healthcare facility when sick than the uninsured counterparts (P-value=0.012). This finding is the same as for a study conducted in Rwanda whereby children covered by Mutuelle an affordable insurance scheme in Rwanda were more likely to be treated at a health facility when sick compared to the uninsured counterparts (7). When specific analysis was done to understand the reasons for not seeking care at a health facility for those who did not, 23.9% reported high out of pocket payments being the reason other reasons included self-medication and poor health services. This shows that a number of children have no access to standard healthcare due to lack of financial protection for their parents. Some parents however opt to buy over the counter medications due to poor health services at health facilities.

However, this study found no association between insurance status of the child and facility preference (P-value>0.05). This is opposite to a study conducted by August et al who reported preference to private primary healthcare facilities among urban NHIF members and public and faith based facilities in rural areas (15).

Conclusion

This study found that insurance coverage in children (remains low despite efforts that has been set in by the government to ensure universal health insurance coverage. Coverage by CHF is even lower than the general population which can explained by transition to improved CHF. Lack of well-established programs targeting children makes coverage in children a challenge. Most of children of parents from the informal sector are uninsured.

Healthcare utilization is higher among under-fives as compared to older age groups. This can be explained by increased morbidities in children and presence of exemptions and waivers system in under-fives. Health insurance status of the child modifies healthcare seeking behaviour of the parents, with the uninsured children being less likely to get care at a health facility. Out of pocket payments denies children from the uninsured parents access to quality healthcare, some parents opt to buy cheap over-the-counter medications rather than facing high OOP at health facilities.

Health insurance is the best strategy to reduce Out of Pocket Payments and ensure universal healthcare coverage in children. It provides parents with financial protection and at the same time giving parents a wide range of choices regarding where to get care for their children including private facilities. Increasing the health insurance coverage in parallel with increasing number of primary public healthcare facilities well equipped and staffed to provide quality healthcare can be another strategy to reduce OOP to parents. As the role of health insurance in health care utilization among children is understudied, this study recommends further studies.

Ethical consideration

Official permission to conduct this study was obtained from Muhimbili University of Health and Allied Sciences and Misungwi District Administration. In the field participation was voluntary and written informed consent was obtained before interview. Confidentiality and privacy was observed and participant's identification such as names was not included in the questionnaire. Moreover, no unauthorized person had access to the study information at any stage.

Consent for publication

This manuscript is an original work written by the authors, SY, GM and DC who are aware of its content and approve its submission. It is also important to mention that the manuscript has not been published elsewhere in part or in entirety, and is not under consideration by another journal. All authors give their consent for publication in the International Journal for Equity in Health.

Competing interests

The authors declare that they have no competing interest.

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Abbreviations

CHF	Community Health Fund
DED	District Executive Director
IMF	International Monetary Fund
LMICs	Low and Middle Income Countries
MCH	Maternal and Child Health
NHIF	National Health Insurance Fund
NSSF	National Social Security Fund
OOP	Out of Pocket Payment
SAP	Structural Adjustment Programmes
SHIP	School Children Insurance Program
SPSS	Statistical Package for Social Sciences
TIKA	Tiba Kwa Kadi
UHC	Universal Health Care Coverage
UTI	Urinary Tract Infections
WHO	World Health Organization

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