A Cross-sectional Study on Factors Influencing Health Services Utilisation for under-Five Morbidities in South Bengaluru

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ARTICLE INFO

Original Article

Received: 08 July 2022
Accepted: 03 March 2023

OPEN ACCESS

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ABSTRACT

Background: World Health Organization (WHO) estimates that seeking prompt and appropriate healthcare could reduce child deaths by nearly 30%. In this background, the present study was conducted to 1. assess the health services utilization for diarrhoea and ARI (acute respiratory infections) among under-5 children in South Bengaluru, 2. determine the factors influencing mothers for utilization of health services.

Methods: Authors conducted a cross-sectional study in 10 randomly selected wards of South Bengaluru from July, 2019 to January, 2020 using multistage sampling. 432 mothers with under-5 children were interviewed regarding morbidities of their children in the previous one month and the health services they utilised, using a semi-structured questionnaire derived from multiple indicator cluster survey (MICS) by UNICEF. Data were analysed using SPSS 21.0 for descriptive statistics and logistic regression.

Results: 95 of the participants had illnesses in the past one month; but, only 41 had used health facilities for treatment, mainly in the private sector (68.3%). The reasons for non-utilization of healthcare services were negligence (36.9%), long waiting time at the center (22.4%), financial constraints (20.4%) and mothers' jobs (9.6%). The most significant factors influencing the health services utilisation were: literacy status of the mother (predisposing factor), low socio-economic status/ BPL (below poverty line) families (enabling factor), and severity of symptoms (need factor).

Conclusion: Utilisation of healthcare services for under-five morbidities in the studied population was inadequate. The influencing factors have to be addressed on a priority basis to fulfil the goal of universal health coverage.

Keywords: Childhood, Factors, Healthcare, Morbidities, Usage

How to cite this paper:
Ravish H, Nitu K, Ramya M, Jithin S. A Cross-sectional Study on Factors Influencing Health Services Utilisation for under-Five Morbidities in South Bengaluru. J Community Health Research 2023; 12(1): 52-59.

Introduction

The sustainable development goal (SDG) 3.2 aims to reduce under-5 mortality to as low as 25 per 1,000 live births and end preventable deaths in all countries by 2030 (1). Improving health service coverage and utilisation will be the cornerstone for achieving this through Universal Health Coverage (2, 3).

World Health Organization (WHO) estimates that seeking prompt and appropriate healthcare during these illnesses could reduce child deaths by nearly 30% (4). Healthcare-seeking behaviour is thus of prime importance and pivotal in the well-being of the child (5). On the contrary, for the most common acute childhood illness i.e., and acute diarrheal diseases (ADD); only 31% of children with suspected pneumonia receive antibiotics, and only 35% of children with diarrhoea receive oral rehydration therapy (6, 7).

Reliable, regular, and timely data are needed to monitor country's progress in improving access, quality and coverage of health services. In India, according to NFHS-4, only 78% of under-5 children received treatment for ARI, and 68% received treatment for diarrhoea from the healthcare facility or provider. In Karnataka, only 64.2% under-5 children with diarrhoea and 76.9% having ARI were taken to health facility for better management (8). The little use of health services in a population may be attributed to an array of supply and demand factors, social structure and health beliefs. The supply factors include lack of accessibility, availability, quality, continuity and comprehensiveness of health services. The demand factors are mainly social, economic and cultural. Among various social factors, the level of maternal education is one of the key determinants of utilization of health services. Among various economic factors, economic status has significant bearing on the utilization of basic reproductive and child health (RCH) services in many Asian countries, including India (9).

Community-based monitoring of utilization of health services shows the community's outreach; thereby, it helps to improve the quality of care, increases efficient management of services, and reports progress towards health plan targets and goals. Studies about healthcare seeking behaviour and utilization of health services will provide good understanding about factors. They may have educational and policy-related implications for improving service delivery to achieve universal health coverage (10).

The factors affecting use of health services can be assessed based on Andersen's health behaviour model which is widely accepted (11). Andersen's model is based on three domains: predisposing factors (demographic and social), which reflect the families likely to use health services; enabling factors (economic) are those which promote or hinder utilisation of health services; and need factors. The model tells that it is the need factor which is the most immediate reason for health service utilisation.

In this background, the present study was conducted to assess the use of healthcare services by mothers with under-5 children deaths and the factors influencing them.

Methods

The authors began this research after getting clearance from the Institutional Ethics Committee, Kempegowda Institute of Medical Sciences, Bengaluru.

Study design and setting: A cross- sectional study was conducted across 10 wards of South Bruhat Bengaluru Mahanagara Palike (BBMP) between July, 2019 and January, 2020. The selected wards were Bapuji Nagar, Vidya Peeta ward, Katriguppe, Banashankari Temple ward, Shakambari Nagar, Byrasandra, Adugodi, Pattabhi Ram Nagar, Gulbarga Colony and Jayanagar East.

Sampling: The sample size was calculated using prevalence of under-5 children suffering from diarrhoea seeking healthcare services as 64.2%.

All mothers who were residents of the selected wards for the last six months and willing to give informed consent were included in the study.

Selection of ward: A multistage random sampling technique was followed for the selection of one ward South BBMP as shown in Figure 1.

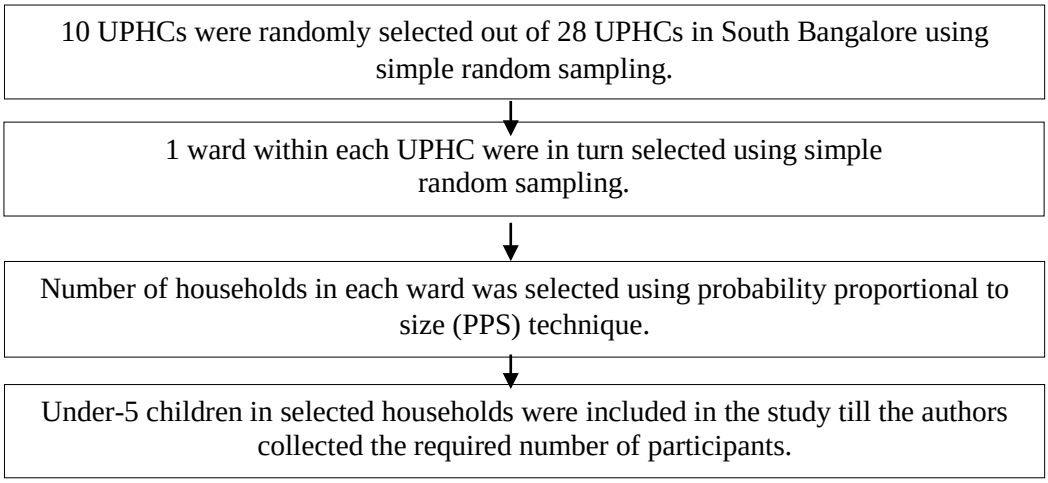

Figure 1. Flowchart Showing Selection of Participants Using a Multistage Sampling

South BBMP was conveniently selected as the medical college where the research was initiated. All the Urban Primary Health Centres (UPHCs) in South BBMP were enlisted. Authors used simple random sampling technique to select 10 UPHCs within South BBMP and one ward within the selected UPHCs. This was done through the "Randbetween" function of Microsoft Excel software (12). Families in each ward were selected using PPS technique.

Data collection: A door to door survey was conducted using a pre-tested and semi-structured questionnaire derived from Multiple Indicator Cluster Survey (MICS) for under-5 children by UNICEF (13). After all mothers with under-5 children gave their informed consent, the researchers interviewed them regarding morbidities of their children and their use of health services in the past month. If they did not use the services, the authors asked them about the reasons for not seeking health services. They were also asked about having any health insurance. The predisposing factors such as mother's education, occupation and religion, child's age and previous use of health services; enabling factors such as family income, health insurance, and availability of health services, need factors such as number of symptoms and presence of danger signs were used in the study for determining the various factors for non-utilisation of health services.

Wealth Index Scale (WIS) was used to classify socio-economic status as upper (E, U, NE), upper middle (E, > 2U, 1 NE), low middle (E, ≥ 2 U, no NE), very low (E, < 2 U, no NE) and low (no E). Essential (E) items were electricity; Useful (U) items were radio, bicycle, television, scooter and land; and Non-essential (NE) items were car and refrigerator.

Statistical analysis: Authors entered data in MS Excel and analysed them using SPSS 21 trial version. Frequency and percentages were calculated for socio-demographic characteristics, child birth and morbidities. The authors found the association between pre-disposing, enabling and need factors and health services utilisation using univariate and multivariate logistic regression. Adjusted odds ratios (AOR) and their 95% confidence intervals (95% CIs) were calculated. A P-value of less than 0.05 was considered significant.

Results

The study included 216 families with 432 under–5 children. The majority of participants were Hindus (63.6%), followed by Muslims (35.3%) and others (1.1%); most of them belonged to joint family (48.4%). Mothers were mostly literate (78.9%). Most of them had BPL card (59.3%) and belonged to upper middle socio-economic status (34.5%) according to Wealth Index scale. Only 13.4% of households had health insurance.

Among the study participants, 95 had some of other acute morbidities during the previous month as reported by their mothers. 56 (12.9%) had ARI and 39 (9%) of them had diarrhoea; no other morbidities were reported. Among these children, severe symptoms were present in 22 out of 56 children with ARI, and among 17 out of 39 children with diarrhoea (Table 1).

Table 1. Distribution of Participants according to the Severity of under-5 Children Morbidities

Particulars of under-5 Children morbidity		Frequency	Percentage
Morbidities in the past month (n = 432)	Diarrhoea	39	9.0
	ARI	56	12.9
Symptoms of severe diarrhoea* (n = 39)	Presence of blood in stools	2	5.0
	A cold and limping child	2	5.0
	A drowsy and sunken face	13	33.3
Symptoms of severe ARI* (n = 56)	Hearing sound during breathing in a calm child	4	3.8
	Rapid breathing	6	5.7
	A blocked nose	12	11.7

*Multiple choices

Out of 95 children who had acute morbidities, only 41 (43.2%) were taken to healthcare facilities for treatment. They were 28 (50%) children with ARI and 13 (33.3%) with diarrhoea. Most of them received health services at a private hospital (68.3%) followed by public hospital (31.7%). The treatment received by the under-5 children for various morbidities are shown in Table.2

Table 2. Distribution of Participants according to the Treatment Received for Morbidities

Particulars of the treatment received		Frequency	Percentage
Treatment received (n = 95)		41	43.2
Place of treatment (n = 41)	Private hospital	28	68.3
	Public hospital	13	31.7
Children with diarrhoea who took oral rehydration salts (ORS) (n = 39)		19	48.7
Children with diarrhoea who took both ORS and zinc (n = 39)		11	28.2
Children with ARI who received paracetamol and cetirizine/ chlorpheniramine maleate (n = 56)		51	91.1
Children with ARI who received antibiotics along with antipyretic (n = 56)		29	51.8
The interval between onset of illness and seeking advice/ treatment (n = 95)	≤ 24 hours	22	53.7
	➢ 24 hours	19	46.3

Among those who did not go to healthcare facilities, some, 22 (23.2%) were provided with medicines from pharmacy, and 7 (7.3%) were given home remedies. This is while 5 (5.3%) were taken to traditional healers/ priests.

The reasons for non-utilization of healthcare services were negligence (36.9%), long waiting time at health centre (22.4%), financial constraints (20.4%), lack of knowledge about available health services (13.3%), lack of family support (11.1%) and being a working mother (9.6%).

Using univariate logistic regression analysis, the researchers calculated the association between predisposing factors (socio-demographic), enabling factors (economic), need factors (severity of illness) and healthcare utilisation. This made healthcare utilisation a dependent variable (measured dichotomously) and the factors influencing (measured polychotomously) independent variables. Results were expressed in crude odds ratio with a 95% confidence interval. A statistically significant association was observed between religion, education of mother and father (predisposing factors), type of ration card, socio-economic status (need factors), severity of symptoms (need factors) and healthcare utilisation (Table 3).

Table 3. Association between Various Factors and Child Health Services Utilisation by Univariate Logistic Regression

Factors		Healthcare utilisation Yes (n= 41)	No (n=54)	Odds ratio (95% CI)	P- value
Religion	Hindu	24	18	4.1 (1.6-10.6)	**0.003**
	Muslim	10	31	-	-
	Christian	07	05	4.3 (1.1-16.8)	**0.03**
Type of family	Nuclear family	06	03	4.3 (0.9-20.7)	0.06
	Joint family	24	27	1.9 (0.8-4.8)	0.15
	3- generations family	11	24	-	-
Education of mother	Illiterate	12	45	-	-
	Literate	29	09	12.1 (4.5-32.3)	< **0.0001**
Occupation of mother	Housewife	29	32	1.7 (0.7-3.9)	0.25
	Working	12	22	-	-
Education of father	Illiterate	07	36	-	-
	Literate	34	18	9.7 (3.6-26.2)	< **0.0001**
Type of ration card	APL	22	05	12.6 (4.1-39.2)	< **0.0001**
	BPL	15	43	-	-
	Antyodaya	4	06	1.9 (0.5-7.7)	0.3
S.E. status (Wealth Index Scale)	Upper	18	05	11.5 (2.8-47.2)	**0.001**
	Upper middle	12	13	2.9 (0.8-10.6)	0.09
	Lower middle	06	20	0.9 (0.2-3.7)	0.9
	Lower	05	16	-	-
Severity of symptoms	Present	29	10	10.6 (2.2-34.9)	< **0.0001**
	Absent	12	44	-	-

Finally, to assess the overall effect of various variables on healthcare utilisation, authors applied the multivariate logistic regression model. The variables which were statistically significant in the univariate regression analysis were included in this multivariate model. Education of mother (AOR for literacy was 23.4(4.3-126.7) with 95% CI), type of ration card (AOR for APL card holder was 15.6(2.3-105.2) with 95% CI), socio-economic status (AOR for upper class was 22.4(1.5-334.1) with 95% CI), and severity of symptoms (AOR for severity present was 18.2(2.1-186.9) with 95% CI) were statistically significant and independent predictors for healthcare utilisation (Table 4).

Table 4. Association between Various Factors and Child Health Services Utilisation by the Multivariate Logistic Regression

Factors		Adjusted odds ratio (95% CI)	Std. error	Z	P- value
Religion	Hindu	4.1 (0.9-17.5)	3.0	1.9	0.06
	Muslim	-	-	-	-
	Christian	0.4 (0.05-3.6)	0.5	0.8	0.4
Education of mother	Illiterate	-	-	-	-
	Literate	23.4 (4.3-126.7)	20.2	3.7	< **0.0001**
Education of father	Illiterate	-	-	-	-
	Literate	0.9 (0.2-5.9)	0.9	0.01	0.9
Type of ration card	APL	15.6 (2.3-105.2)	15.2	2.82	**0.005**
	BPL	-	-	-	-
	Antyodaya	9.7 (0.9-99.8)	11.5	1.9	0.06
S.E. status (Wealth Index Scale)	Upper	22.4 (1.5-334.1)	30.9	2.5	**0.02**
	Upper middle	6.9 (0.7-71.1)	8.2	1.6	0.1
	Low middle	1.03 (0.1-9.5)	1.2	0.03	0.9
	Very low	-	-	-	-
Severity of symptoms	Present	18.2 (2.1-186.9)	21.4	2.2	**0.001**
	Absent	-	-	-	-

Discussion

The multi-dimensional growth of a nation is primarily dependent on its health and effective service utilization. Health-seeking behaviour largely displays the needs felt and the awareness generated in the individual as well as the community. Women's education, a clinical need for care and the decision-making power interacts in different ways to determine the health-seeking behaviour. Timely and appropriate care-seeking is crucial for good health outcomes, especially among children under five years old.

The present study suggests that > 50% of children who had various morbidities did not seek any healthcare service, pointing towards poor healthcare-seeking behaviour. Among the sick children who received treatment, about one-third of them went to a public center, while the remaining two- third either went to a private hospital or took treatment at home/ directly from pharmacy/ from traditional healers. Children of educated mothers and higher socio-economic status were more likely to receive medical treatment.

In the present study, the proportion of children suffering from diarrhoea who received oral rehydration salts was 33.3%, and those suffering from ARI who received treatment from the healthcare facility were only 50%. Similarly, a national household survey conducted across all 29 states in India including 15166 children showed that 36.9% and 28.9% of children did not receive any type of medical treatment during diarrhoea and fever/cough (14). In line with this, a study conducted in Darjeeling showed only 16.2% out of 142 male children and 42.1% of 114 female children received no treatment (15).

A community-based study was done on the use of health facilities and predictors of health-seeking behaviour for 472 under-5 children in slums of Addis Ababa, Ethiopia. It revealed that most mothers/caregivers sought care either at home (14.2%) or at health facilities 56.6% of them used facilities of public centers (76.9%). And 18.0% used health facilities of private centers (5.1%) (16).

The present study also showed that there was a statistically significant association between religion, education of mother and father (predisposing factors), type of ration card, socio-economic status (need factors), severity of symptoms (need factors) and healthcare utilisation. A study conducted in a rural area of Surendranagar district in Gujarat, India showed that mother's

literacy status had a direct association with the utilization of services for diarrhoea; 74% and 63% parents had availed health services for diarrhoea and ARI out of 154 under-5 aged children, while, nearly 26% and 37% of the parents did not seek any medical treatment for diarrhoea and ARI respectively (17). Similarly, a cross-sectional analytical study in Enugu state revealed that aging, educational level, monthly income, number of children and occupation of both women and their husbands were associated with increased MCH service utilization. Average monthly income (OR: 1.317, P = 0.048, CI: 0.073–0.986) and number of children (OR: 1.196, p < 0.01, CI: 1.563–7.000) were determinants of increased use of child care services (18).

These studies from various countries suggest that healthcare seeking is inappropriate and health services are often underutilized during childhood illnesses. Mothers' perceptions about symptoms and their severity are important factors determining healthcare-seeking behaviour or utilization of healthcare services (19). Therefore, integrated management of neonatal and childhood illness (IMNCI) emphasizes the improvement of mothers'/ families' care-seeking behaviour.

Conclusion

Using healthcare services for childhood morbidities was inadequate. It might be improved through community group development and implementation of community systems which can provide them with the support they need when seeking health care.

Acknowledgement

The authors would like to express their gratitude to the mothers who had participated in the study.

It was approved by the Institutional Ethics Committee of Kempegowda Institute of Medical Sciences, Bengaluru with Ethics code KIMS/IEC/A53-2018.

Conflict of interest

Authors declared no conflict of interest.

Authors' contributions

R. HS; conceptual design of the study, analysis of results, writing of the manuscript, revising the manuscript, N. K; conducted the experimental work, analysis of results, interpretation of results, writing of the manuscript, R. M; analysis of results, interpretation of results, writing of the manuscript, J. S; conducted the experimental work, analysis of results, interpretation of results.

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