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Primary Caregiver Knowledge about Self-Medication of Antibiotics in Children Aged 0-12 Years

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Globally, it is estimated that more than 50% of antibiotics are obtained without a prescription. The main purpose of this study is to determine the knowledge and practice of primary caregivers about self-medication in children with antibiotics, as studies on self-medication is lacking in India, also, it will help is assessing parents' knowledge and attitude towards self medication. This cross-sectional study conducted in the urban community of Shastri Nagar, Patna, aimed to evaluated antibiotic use in children aged 0-12. From January 2023 to March 2023, 173 caregivers were randomly selected through house visits. Data collection used a pre-tested questionnaire, ensuring confidentiality. In this study of 173 participants, caregivers in an urban community demonstrated varying knowledge regarding antibiotic use in children. Mothers and postgraduates possessed better awareness of antibiotic consequences. Fathers exhibited better understanding of side effects. Knowledge on antibiotics' action was seen among mothers, those aged 30-39, with family income of Rs. 20,000-40,000 and those with family members in medical field. Fathers had more incorrect beliefs about antibiotics treating viral infections. Common conditions for self-medication included cough/cold, fever and diarrhea, with hospitals being the primary source of antibiotics. Majority obtained information from pharmacies but awareness about antibiotic course completion and versatility was limited. Caregivers' antibiotic knowledge varied; mothers and postgraduates were more aware, while fathers understood side effects better.

Key Words: *Self Medication; Child; Anti-Bacterial Agents; Drug Resistance; Nonprescription Drugs*

Article History:
Received April 21, 2024
Revised August 21, 2024
Accepted August 29, 2024

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INTRODUCTION

The discovery of antibiotics in the 20th century was a monumental advancement, significantly reducing mortality and morbidity from infectious diseases worldwide. However, antibiotic resistance quickly emerged as a global concern due to the rampant and inappropriate use of antibiotics, particularly among pediatric patients.[1] Antibiotic resistance diminishes the effectiveness of treatments, increases the risk of treatment failures, and results in prolonged and more severe illness episodes, leading to higher costs and mortality rates.[2]

Self-medication refers to the utilization of antibiotics without guidance from a healthcare professional to address specific ailments—a practice increasingly prevalent among parents today due to its perceived affordability, convenience, accessibility, and cost-effectiveness.[3] The nature and prevalence of self-medication vary across different cultural and social contexts, and its impact can surpass that of medical practices.[4] In developing countries, the easy availability of various drugs and inadequate healthcare services contribute to higher rates of self-medication compared to prescribed drugs. Although over-the-counter (OTC) drugs are deemed effective and safe for self-medication, improper use due to a lack of knowledge about side effects and drug interactions can have serious consequences, especially for children, the elderly, and pregnant or lactating women.[5]

Self-medication carries several risks, including incor-

https://doi.org/10.4068/cmj.2024.60.3.174

rect self-diagnosis, wrong choice of therapy, food and drug interactions, improper administration routes, and masking of serious health conditions.[6] Globally, self-medicating children with antibiotics for viral infections is significant. It has also been noticed that over 50% antibiotics are acquired from different sources without a valid prescription.[7]

As per our knowledge, there is a dearth of research on self-medication with antibiotics among children in India. Hence, we attempt to determine the prevalence, knowledge and practice of self-administration of antibiotics in children and their association.

MATERIALS AND METHODS

1. Study design

A cross-sectional study was conducted over 12 months in the community served by the Urban Health Center of Indira Gandhi Institute of Medical Sciences, Patna. The study involved 173 primary caregivers of children under 12 years old, selected through simple random sampling from the study population area. Data collection was carried out using semi-structured, pre-tested, pre-coded questionnaire.

2. Ethics approval

The study was started after receiving approval (Letter No./807/IEC/IGIMS/2022) from the Institutional Human Ethics Committee and the Dean of Research at the Indira Gandhi Institute of Medical Sciences, Patna. The consent was obtained in understandable English and Hindi languages.

3. Data collection procedure

The participants were told about the purpose of conducting the study prior to the initiation of the enrolment process. The responses were collected personally by the investigators and recorded in the master data sheet. Strict confidentiality was ensured to all the participants. Then informed consent was taken from each participant individually prior to data collection. House-to-house visit was done and 173 participants were randomly selected. The participants were interviewed face to face and the questionnaires were filled out in two parts. The first part contains socio-demographic characteristics, and the second part consists of knowledge and practice regarding self-reported use of antibiotics in children aged 0-12 years.

The study included participants who gave consent for participation in the study and having children <12 years of age. Primary caregiver with more than 1 child under 12 years was enrolled once. Participants who were non-cooperative, non-consenting or had not resided in the study area for >6 months were excluded from the study.

4. Statistical analysis

The data from the questionnaire were coded and entered into a computerized data base and analyzed using computer software programme (PSPP). Frequencies and percentages were used for analyzing the selected socio-demographic data while logistic regression coefficients analysis

TABLE 1. Distribution of primary caregivers according to the predictor variables

Predictors	Mothers (N=119) (%)	Fathers (N=54) (%)	Total (N=173) (%)
Age			
<30	53 (30.6)	7 (4.0)	60 (34.7)
30-39	46 (26.6)	24 (13.9)	70 (40.5)
40-49	18 (10.4)	20 (11.6)	38 (22.0)
≥ 50	2 (1.2)	3 (1.7)	5 (2.9)
Education			
Secondary	5 (2.9)	0 (00)	5 (2.9)
Higher secondary	33 (19.1)	7 (4.0)	40 (23.1)
Graduate	63 (36.4)	25 (14.5)	88 (50.9)
Post graduate	18 (10.4)	22 (12.7)	40 (23.1)
Family income			
$\leq 20,000$	11 (6.4)	1 (0.6)	12 (6.9)
20,001-40,000	64 (37.0)	30 (17.3)	94 (54.3)
40,001-80,000	34 (19.7)	16 (9.2)	50 (28.9)
$>80,000$	10 (5.8)	7 (4.0)	17 (9.8)
Any family member working in medical field?			
No	98 (56.6)	36 (20.8)	134 (77.5)
Yes	21 (12.1)	18 (10.4)	39 (22.5)
Occupation			
Housewife	84 (48.6)	0 (00.0)	84 (48.6)
Service	34 (19.7)	30 (17.3)	64 (37.0)
Business	0 (00.0)	18 (10.4)	18 (10.4)
Skilled/semi skilled worker	1 (0.6)	6 (3.5)	7 (4.0)

used to estimate odds ratios for each of the independent variables and to determine the predictors of various aspects of knowledge about self-treating children with antibiotics. p-value < 0.05 was considered as statistically significant.

RESULTS

Out of 173 respondents, 68.8% were mothers and 31.2% were fathers who identified as primary caregivers. About half (50.9%) of the respondents were graduates and 54.3% had family income between Rs. 20,000 to 40,000. 77.5% of the primary caregivers did not have any family member working in medical field. Majority (48.6%) of the participants were housewives followed by service workers (Table 1).

Table 2 revealed 31.8% admitted that they give antibiotics without prescription. When asked about the consequences of antibiotic misuse, post graduate primary caregivers were 6.179 times more knowledgeable in comparison to participants of secondary education, those who had family member working in medical field (OR: 6.417, 95% CI: 2.439-16.881; p=0.000) and those who were in service had correct knowledge. Whereas fathers were 1.242 times more aware than mothers, post graduate primary caregivers, participants having family members working in medical field (p=0.008) and those who were in service ($p < 0.049$) were 5.035 times more aware in comparison to housewives about the side effects.

On enquiring about action of antibiotics i.e. whether antibiotics kill bacteria or treats viral infections, correct knowledge was seen among mothers, those between 30-39 years (3.443 times than those of < 30 years), having family income between 20,000-40,000 (1.142 times compared to $\leq 20,000$) and business persons with 1.308 times as compared to housewives. Significantly more knowledge was seen in those where any of the family member was working in medical field (OR: 6.326, 95% CI: 0.617-64.826). Fathers, 3.034 times than mothers (95% CI: 0.080-1.722; p=0.007), post graduates, 1.268 times than those having secondary education and business persons, 5.984 times than housewives (95% CI: 1.809-19.794; p=0.003) are mistakenly believed that antibiotics treat viral infections (Table 3).

Table 4 shows multiple responses where mothers show a high level of knowledge regarding use of antibiotics for treating diarrhoea (83.8%), cough/cold (78.4%), fever (78.7%), aches and pains (69.6%) and sore throat (66.7%). Equal knowledge was seen among parents regarding anti-

TABLE 2. Knowledge of primary caregivers towards self reported use of antibiotics

Predictors	Are you aware of consequences of antibiotic misuse (N=173)		Did the child experience any side effect from antibiotic use (N=173)	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Relationship with child				
Mother	Reference group		Reference group	
Father	0.217 (0.085-0.552)	0.001	1.242 (0.251-6.159)	0.791
Age				
< 30	Reference group		Reference group	
30-39	1.751 (0.751-4.085)	0.195	1.326 (0.248-7.079)	0.741
40-49	1.353 (0.479-3.820)	0.568	0.614 (0.078-4.847)	0.644
≥ 50	0.574 (0.042-7.842)	0.678	0.000 (0.000-0.000)	0.999
Education				
Secondary	Reference group		Reference group	
Higher secondary	0.659 (0.057-7.678)	0.739	59,409,981.127 (0.000)	0.999
Graduate	3.327 (0.315-35.179)	0.318	21,669,763.950 (0.000)	0.999
Post graduate	6.179 (0.508-75.113)	0.153	68,368,238.869 (0.000)	0.999
Family income				
$\leq 20,000$	Reference group		Reference group	
20,001-40,000	2.426 (0.498-11.810)	0.273	1.006 (0.083-12.136)	0.997
40,001-80,000	1.021 (0.193-5.405)	0.981	0.226 (0.012-4.220)	0.319
$> 80,000$	0.573 (0.079-4.175)	0.582	0.000 (0.000-0.000)	0.998
Any family member working in medical field?				
No	Reference group		Reference group	
Yes	6.417 (2.439-16.881)	0.000	9.077 (1.784-46.178)	0.008
Occupation				
Housewife	Reference group		Reference group	
Service	1.400 (0.728-2.694)	0.314	5.035 (1.009-25.124)	0.049
Business	0.280 (0.075-1.041)	0.057	2.412 (0.207-28.134)	0.482
Skilled/semi skilled worker	0.000 (0.000-0.000)	0.999	0.000 (0.000-0.000)	0.999

OR: odds ratio, CI: confidence interval.

TABLE 3. Knowledge of primary caregivers about action of antibiotics

Predictors	Antibiotics kill bacteria (N=173)		Antibiotics treat viral infections* (N=173)	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Relationship with child				
Mother	Reference group		Reference group	
Father	0.371 (0.080-1.722)	0.206	3.034 (1.347-6.832)	0.007
Age				
<30	Reference group		Reference group	
30-39	3.443 (0.689-17.202)	0.132	1.060 (0.490-2.296)	0.882
40-49	2.973 (0.433-20.427)	0.268	0.704 (0.267-1.861)	0.480
≥50	0.537 (0.026-11.275)	0.689	0.189 (0.019-1.928)	0.160
Education				
Secondary	Reference group		Reference group	
Higher secondary	0.000 (0.000)	0.999	0.641 (0.083-4.932)	0.669
Graduate	0.000 (0.000)	0.999	0.604 (0.082-4.467)	0.621
Post graduate	0.000 (0.000)	0.999	1.268 (0.148-10.849)	0.829
Family income				
≤20,000	Reference group		Reference group	
20,001-40,000	1.142 (0.103-12.600)	0.914	3.289 (0.769-14.075)	0.108
40,001-80,000	0.264 (0.020-3.446)	0.310	3.078 (0.664-14.278)	0.151
>80,000	0.234 (0.007-7.390)	0.410	2.428 (0.364-16.185)	0.359
Any family member working in medical field?				
No	Reference group		Reference group	
Yes	6.326 (0.617-64.826)	0.120	2.964 (1.191-7.377)	0.019
Occupation				
Housewife	Reference group		Reference group	
Service	1.154 (0.312-4.273)	0.830	4.049 (2.020-8.119)	0.000
Business	1.308 (0.148-11.580)	0.809	5.984 (1.809-19.794)	0.003
Skilled/semi skilled worker	0.462 (0.047-4.485)	0.505	2.280 (0.478-10.861)	0.301

*Incorrect response. OR: odds ratio, CI: confidence interval.

biotic use in skin wounds/infections (50% each). Mothers tend to acquire antibiotics more frequently from various sources, primarily from doctors' prescriptions (65.5%), community pharmacies (66.7%), hospitals (69.7), and leftover medicines (79.5%) compared to fathers. Additionally, mothers often rely on friends/relatives/neighbours (100%) for antibiotics, whereas fathers (00) rarely do so. Both mothers (58.9%) and fathers (41.1%) commonly rely on medication package inserts for information on antibiotic use. Mothers also frequently seek information from previous experience (80.8%), friends (87.9%), social media (100%), radio/TV/newspapers (83.3%) and pharmacists (65.0%). Fathers, however, show a lesser reliance on social media (00) and friends (12.1%).

Highest knowledge was seen for treating cough/cold (49%) and fever (53.2%) among caregivers of 30-39 and 40-49 years age group, whereas varying level of knowledge for different conditions was seen among caregivers of age <30 years. Usage of community pharmacies (66.7%) and leftover medicines (47.7%) is higher in younger age group ie. <30 and 30-39 years whereas caregivers of ≥50 age group acquired antibiotics through doctor's prescription (4.2%) and hospital pharmacy (2.1%). Antibiotics from Friend/Relative/Neighbour (100%) were seen only among caregivers of 30-39 years age group. Regarding source of information, caregivers of 30-39 age group rely mostly on their previous experiences (44.2%), friends (48.5%) and social media (100%), whereas those in 40-49 age groups show reliance mostly on Medicine package insert (27.4%) followed by previous experience (23.1%). Pharmacists are a significant source of information across all age groups, with relatively consistent usage percentages.

Only 41% primary caregivers were aware that antibiotic effectiveness is reduced if full course of antibiotic is not completed, and majority (74.6%) of the participants were not sure whether same antibiotic can be used to treat different infections.

DISCUSSION

The practice of self-medicating with antibiotics is becoming prevalent worldwide, posing substantial economic burdens and health risks.[8] In developing countries like India, the extensive use of antibiotics is facilitated by lax laws, making it easy to obtain antibiotics without prescriptions, leading to widespread abuse of these medications.[1] In this study, mothers were the main respondents (69%), unlike Kumar and Vimal[9] study, which had 63.1% male respond-

TABLE 4. Knowledge of primary caregivers on the basis of age and relationship with children

	Relationship with child		Age of primary caregiver				Total (N=173) (%)
	Mothers N (%)	Fathers N (%)	<30 N (%)	30-39 N (%)	40-49 N (%)	≥50 N (%)	
Conditions for which parents self-medicated children with antibiotics[#]							
Diarrhea	31 (83.8)	6 (16.2)	9 (24.3)	21 (56.8)	7 (18.9)	0 (00.0)	37 (100)
Burns	2 (100)	0 (00.0)	0 (00.0)	1 (50.0)	1 (50.0)	0 (00.0)	2 (100)
Aches and pain	16 (69.6)	7 (30.4)	7 (30.4)	8 (34.8)	8 (34.8)	0 (00.0)	23 (100)
Skin wounds/infections	9 (50.0)	9 (50.0)	4 (22.2)	9 (50.0)	5 (27.8)	0 (00.0)	18 (100)
Cough/cold	40 (78.4)	11 (21.6)	15 (29.4)	25 (49.0)	11 (21.6)	0 (00.0)	51 (100)
Fever	37 (78.7)	10 (21.3)	13 (27.7)	25 (53.2)	9 (19.1)	0 (00.0)	47 (100)
Sore throat	2 (66.7)	1 (33.3)	1 (33.3)	1 (33.3)	1 (33.3)	0 (00.0)	3 (100)
Source of antibiotic[#]							
Doctor's prescription	78 (65.5)	41 (34.5)	46 (38.7)	43 (36.1)	25 (21.0)	5 (4.2)	119 (100)
Community pharmacy	4 (66.7)	2 (33.3)	4 (66.7)	1 (16.7)	1 (16.7)	0 (00.0)	6 (100)
Hospital pharmacy	99 (69.7)	43 (30.3)	46 (32.4)	58 (40.8)	35 (24.6)	3 (2.1)	142 (100)
Left over medicines	35 (79.5)	9 (20.5)	13 (29.5)	21 (47.7)	10 (22.7)	0 (00.0)	44 (100)
Friend/relative/neighbor	1 (100)	0 (00.0)	0 (00.0)	1 (100)	0 (00.0)	0 (00.0)	1 (100)
Source of information for antibiotic use[#]							
Previous experience	42 (80.8)	10 (19.2)	17 (32.7)	23 (44.2)	12 (23.1)	0 (00.0)	52 (100)
Medication package insert	43 (58.9)	30 (41.1)	28 (38.4)	23 (31.5)	20 (27.4)	2 (2.7)	73 (100)
Friends	29 (87.9)	4 (12.1)	9 (27.3)	16 (48.5)	8 (24.2)	0 (00.0)	33 (100)
Social media	1 (100)	0 (00.0)	0 (00.0)	1 (100)	0 (00.0)	0 (00.0)	1 (100)
Radio/TV/newspaper	5 (83.3)	1 (16.7)	3 (50.0)	3 (50.0)	0 (00.0)	0 (00.0)	6 (100)
Pharmacist	93 (65.0)	50 (35.0)	48 (33.6)	57 (39.9)	33 (23.1)	5 (3.5)	143 (100)
Antibiotics effectiveness is reduced if a full course of antibiotics is not completed							
Yes	42 (24.3)	29 (16.8)	27 (15.6)	29 (16.8)	15 (8.7)	0 (00.0)	71 (41.0)
No	25 (14.5)	7 (4.0)	13 (7.5)	11 (6.4)	5 (2.9)	3 (1.7)	32 (18.5)
Sometimes	52 (30.1)	18 (10.4)	20 (11.6)	30 (17.3)	18 (10.4)	2 (1.2)	70 (40.5)
Same antibiotic can be used to treat different infection							
Yes	10 (5.8)	12 (6.9)	6 (3.5)	13 (7.5)	3 (1.7)	0 (00.0)	22 (12.7)
No	13 (7.5)	9 (5.2)	5 (2.9)	7 (4.0)	7 (4.0)	3 (1.7)	22 (12.7)
Sometimes	96 (55.5)	33 (19.1)	49 (28.3)	50 (28.9)	28 (16.2)	2 (1.2)	129 (74.6)

[#]Multiple answer choice.

ents. Additionally, 77.5% of primary caregivers had no family members in the medical field, and the majority (48.6%) was housewives, similar to another study by Chakraborty et al.[2] where 49.6% of the respondents were housewives. In this study, prevalence of self-medication with antibiotics was 31.8%, comparable to studies by Alfalogy et al.[8] where 39.3% participants were practicing self medication and Lin et al.[10] showed 40.5%. Though other studies reported higher rates i.e., 58.82%, 51.2% and 54% respectively.[4,9,11] Mothers and postgraduate primary caregivers were 6.179 times more knowledgeable about the consequences of misuse in comparison to participants of secondary education, while fathers were 1.242 times more aware than mothers and service persons were 5.035 times more aware in comparison to housewives about the side effects. Other studies also found that 74.2% respondents were aware of the consequences of antibiotic misuse,[7,8] although one study reported no awareness (00) of adverse drug reactions (ADRs) or precautions.[4] Knowledge about antibiotics' actions was accurate among mothers, primary caregivers aged 30-39 (3.443 times than those of < 30 years), those with a family income of 20,000-40,000 (1.142 times), and business persons with 1.308 times as compared to housewives. Conversely, fathers are often mistakenly believed antibiotics treat viral infections (OR: 3.034; 95% CI: 1.34-6.832; p-value=0.007), a misconception held by 26.1% in another study.[1] A systematic review found that over 60% of parents believe antibiotics were effective against viral diseases.[12] Most common conditions for self-medicating children were coughs and colds (51/173), fever (47/173), and diarrhea (37/173). Another study identified headaches as the most common symptom, followed by colds and fevers,[9] whereas Keshari et al.[13] found fevers, pain, and respiratory symptoms to be most prevalent.

In this study, the primary source of antibiotics was hospital pharmacies (142/173), similar to another study,[7] while doctors were the main source of information in a study in Northeast India.[2] Pharmacists were the primary source of information in this study (143/173), consistent with findings by Balamurugan and Ganesh.[5] Previous doctor's prescriptions were the main source of information in a study conducted in Barabanki.[13] In this study, 41% were aware that not completing the full course of antibiotics reduces their effectiveness, while another study reported that 30% of participants understood the importance of completing their medication courses.[4]

To conclude, absence of fundamental understanding about medicines used and incorrect knowledge about various common medicines is a matter of great concern particularly when children are concerned. Keeping this in mind, health education program about hazards of self-medication and its complications should be available for the public. And secondly policy makers should prevent availability of over the counter drugs.

The study addresses a critical public health issue as self medication with antibiotics can lead to antibiotic resistance adverse drug reactions and ineffective treatment of infections. This study concentrates on a particularly vulnerable population that is highly susceptible to the misuse of antibiotics due to reliance of caregivers decisions. Publishing the result can raise awareness among health professionals, policy makers and general public about the importance of appropriate antibiotic use in children.

The study was conducted in only one region of Patna, so these results cannot be generalized to the whole of Bihar. Sample size of the study is also very small.

CONFLICT OF INTEREST STATEMENT

None declared.

REFERENCES

1. Agarwal S, Yewale VN, Dharmapalan D. Antibiotics use and misuse in children: a knowledge, attitude and practice survey of parents in India. J Clin Diagn Res 2015;9:SC21-4.
2. Chakraborty K, Chakraborty A, Saha S, Deb D. Parental knowledge, attitude and practice regarding antibiotic use in children at a municipal corporation in Northeast India. Int J Community Med Public Health 2020;7:3008-13.
3. Zyoud SH, Shtaya RM, Hamadneh DQ, Sawalmeh SN, Khadrah HA, Zedat RR, et al. Parental knowledge, attitudes, and practices towards self-medication for their children: a cross-sectional study from Palestine. J Asia Pac Fam Med 2019;18.
4. Sontakke S, Magdum A, Jaiswal K, Bajait C, Pimplkhute S, Dakhale G. Evaluation of parental perception about self-medication and other medicine use practices in children. Eur J Pharm Med Res 2015;2:179-85.
5. Balamurugan E, Ganesh K. Prevalence and pattern of self medication use in coastal regions of South India. Br J Med Prac 2011; 4:a428.
6. Mukattash TL, Alkhatatbeh MJ, Andrawos S, Jarab AS, AbuFarha Rk, Nusair MB. Parental self-medication of antibiotics for children in Jordan. J Pharm Health Ser Res 2020;11:75-80.
7. Sharif SI, Masalmeh BEM, Awad HMA, Osama A, Abdulmqasood YAA, Bugaighis LMT. Parents' knowledge and attitude to self-medication of children with antibiotics. Arch Pharm Pract 2015; 6:71-6.
8. Alfalogy EH, Nafadi HB, Rehaili SHA, AL-Harbi BA. Prevalence and predictors of self-medication with antibiotics for children in Makkah, Saudi Arabia. Eur J Prev Med 2017;5:60-4.
9. Kumar P, Vimal AK. Study on prevalence and pattern of self medication practices in a rural area of Bihar. Asian J Med Res 2020;9:CM04-6.
10. Lin L, Harbarth S, Hargreaves JR, Zhou X, Li L. Large-scale survey of parental antibiotic use for paediatric upper respiratory tract infections in China: implications for stewardship programmes and national policy. Int J Antimicrob Agents 2021;57: 106302.
11. Paulsamy P, Venkatesan K, Hamoud Alshahrani S, Hamed Mohamed Ali M, Prabahar K, Prabhu Veeramani V, et al. Parental health-seeking behavior on self-medication, antibiotic use, and antimicrobial resistance in children. Saudi Pharm J 2023;31: 101712.
12. Bert F, Previti C, Calabrese F, Scaioli G, Siliquini R. Antibiotics self medication among children: a systematic review. Antibiotics (Basel) 2022;11:1583.
13. Keshari SS, Kesarwani P, Mishra M. Prevalence and pattern of self-medication practices in rural area of Barabanki. Indian J Clin Pract 2014;25:636-9.