



Original Research Article

Self- medication in paediatric age group: The current scenario

Sristi Ganguly¹, Jyoti Ranjan Champatiray¹, Bijaylaxmi Mallick¹,
Narendranath Soren¹, Kiran Chandra Pankaj^{2,*}

¹Dept. of Pediatrics, SVPPGIP & SCBMCH, Cuttack, Odisha, India

²Dept. of Pediatrics, Bal Gopal Children Hospital, Raipur, Chattisgarh, India



ARTICLE INFO

Article history:

Received 06-01-2021

Accepted 28-04-2021

Available online 24-11-2021

Keywords:

Self-medication

Children

Drug errors

ABSTRACT

Background: Self-medication, the practice of administering drugs without doctor's consultation, is a double-edged sword. However, drug errors, side-effects, misuse and misdiagnosis are the challenges, especially in vulnerable population such as children. This study aims to assess the trends and factors associated with self-medication in children.

Materials and Methods: This was a hospital based cross-sectional study done in pediatric outdoor of SCBMCH and SVPPGIP, Cuttack, enrolling children aged above 1 month to 14years, during December 2019- May 2020. A questionnaire assessing socio-demographic variables and details of drugs self-medicated, was administered. Those parents who were unable to recollect details of drugs nor evidence of same, were excluded. Data obtained was analysed using SPSS 18.0.

Results: Among the 300 cases, prevalence of self-medication was 61%, the commonest reason being similar illness previously, mostly on the advice of the pharmacist. Fever followed by cough and cold were the usual conditions and antipyretics, the most common drugs self-administered. OTC drugs constituted 46.5% of the total drugs and 75% had errors in dose/duration. 43.3% of parents considered self-medication safe and 54.6% believed patients recovered with the same. A significant association was seen between self-medication and the child's age (p-value=0.013), Socioeconomic status (p-value= 0.0004), mother's education (p =0.003) and family income (p =0.0001), distance from nearest health centre (p =0.004), chronic illness in child (p-value=0.0001) and health professional in the family (p-value= 0.004).

Conclusion: Self-medication is fairly common practice among children in Odisha, reasons being multifactorial. Thus, there is need for further studies regarding same, along with mass education and legal against illegal dispensing of the drugs, to combat this practice.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

Drugs, the essential component of management of most diseases are a double-edged sword- in the experienced hands and right context, they can save life. On the other hand, the same drug, if used erratically by unauthorised people can cause fatal disasters. Studies conducted in developed and developing countries emphasise drug misuse and errors of

prescription.¹⁻³

The International Pharmaceutical Federation (IPF) defines self-medication as non-prescription drugs use by individuals on their own initiative.⁴ It includes drugs purchased without an authorized or previous prescription, use of leftover medicines stored at home and medicines advised by family members or friends.⁵

Children, who contribute largely to the population receiving ample drugs, due to frequent common ailments, are often the victims of self-medication and non-prescribed

* Corresponding author.

E-mail address: kiran.pankaj7@gmail.com (K. C. Pankaj).

drugs.^{6,7} Factors like increased and easy drug accessibility, costlier healthcare services and avoiding frequent doctor visits have increased the practice of self-medication.

Responsible self-medication can be used to prevent and treat minor ailments that are less likely to need medical consultation, reducing pressure on medical services, especially when resources are limited.⁸ However, self-medication has its own set of associated risks including inappropriate diagnosis and drug, resistance and adverse drug reactions, inadequate dosage and double medication, may lead to serious consequences.⁹ In the event of such untoward effects could lead to hospitalisation and further wastage of health care facilities.¹⁰ The fact that the self-medicated drugs are not limited to over the counter drugs, also indicates the need for a robust pharmacovigilance team to regulate the distribution of drugs.¹¹

With risks of antibiotic resistance and need for rational drug use looming in the corner, there is need for further study into the matter of self-medication and the underlying factors responsible for the same.

2. Materials and Methods

This study was a hospital based cross-sectional study done in SCBMCH and SVPPGIP, Cuttack, Odisha from December 2019 to April 2020.

2.1. Inclusion criteria

All patients aged > 1 month attending paediatric outdoor at the SVPPGIP and SCBMCH, Cuttack.

2.2. Exclusion criteria

1. Patients whose attendants were unable to recall the required information pertaining to study such as names of the medications or provide any kind of evidence for the same.
2. Critically ill.

Ethical clearance was obtained from the institutional ethical committee.

3. Aims and Objectives

To assess the current prevalence of self-medication in paediatric age group in tertiary care hospital and note any association with the demographic factors.

3.1. Study tools

A structured dichotomous questionnaire was prepared including details of demography, socio-economic scale, the list of medications that have been self-administered for the current complaints and other instances where self-medication was instituted. The reasons and perceptions for need of self-medication were further documented.

The questionnaire was prepared in both English and Odiya for convenience of the patient attendants, and was verbally administered for parents who were illiterate/ could not comprehend. Informed consent was obtained from the patient attendants prior to the admission of the questionnaire. A pilot study was done at the start for period of 1 month, and necessary changes made in the questionnaire.

3.2. Data analysis

All the data was collected and compiled systematically. Data was evaluated with SPSS version 18.0 and analysed with Chi-square test and percentages.

4. Results

Among the total of 300 cases studied, majority of them were male (62.7%) and belonged to the age group 5 to 14 years (41%). The average age of the child's father was 35 and mother, 29.6 years respectively. 63.7% belonged to rural households, with nearly half (50.7%) of the study population earning a monthly income of around Rs. 5000 to Rs. 10000 (Table 1).

The prevalence of self-medication in the study population was found to be 61%. Out of total 183 patients who practised self-medication, 35% did so upon being advised by the pharmacist from medical stores. Following closely behind were parents themselves with 32.2%, followed by advice from medical person over phone (18.6%). The most common reason for self-medication was found to be similar illness previously (44.8%), followed by doctor not available (24.6%) and to save time (22.4%). [Figure 1]. More than half (52.4%) had newly bought the medicine from medical store. Others had the medicine previously available at home (43.2%) or borrowed from neighbourhood (4.4%). Among the various conditions that patients self-medicated for, the most common was fever (75.4%) followed by cold cough (74.3%) and loose stools (18%) and pain abdomen (14.8%). [Figure 2] Antipyretics (91.8%) were the most frequently self-medicated drugs followed by cough and cold medications (56.8%), antimicrobials (38.2%), antiemetic and antidiarrheal medications (40.4%). OTC drugs consisted of 46.5% of the total drugs and 53.5% were non- OTC drugs (Schedule H-49% and schedule H1- 4.5%).

However, a high figure of 75% of drugs which were self-medicated was noted to be incorrect, either in dose or duration.

It was observed that 54.6% felt that patient recovered with self-medication, where as 38.8% of parents felt they recovered sometimes. 43.3% of parents considered self-medication as safe as compared to 17.3% who had no opinion about the same.

An attempt was made to find the factors associated with the practice of self-medication. A significant association was seen between self-medication and the child's age (p -value= 0.013), Socioeconomic status (p -value= 0.0004), mother's education (p -value=0.003) and family income (p -value=0.0001), distance from the nearest health centre (p -value=0.004), presence of chronic illness in child (p -value=0.0001) and presence of health professional in the family (p -value= 0.004). Further, increased annual frequency of fever was also significantly associated (p =0.0001) [Table 2]. However, no association could be found between gender (p =0.93), father's education (p =0.56), number of children in family (p =0.99) or type of family (p =0.56).

Table 1: Study characteristics of study population

INCOME (in rupees)		
<5000	44	14.7%
5000 – 10000	152	50.7%
10000 – 20000	46	15.3%
20000 – 40000	22	7.3%
>40000	36	12%
No. of children		
1	99	33%
2	152	50.7%
3	32	10.7%
>4	17	5.7%
Chronic illness		
Yes	74	24.7%
No	226	75.3%
Socioeconomic status		
Upper (i)	27	9%
Upper middle (ii)	51	17%
Lower middle (iii)	80	26.7%
Upper lower and lower (>iv)	142	47.3%
Health professional in family		
Yes	45	15%
No	255	85%
Distance from health centre		
<2 km	56	18.7%
2-5 km	115	38.3%
5-10 km	87	29%
>10km	42	14%

5. Discussion

The prevalence of self-medication in our study conducted in tertiary care hospital in Odisha was estimated to be 61%. Numerous studies done in adults^{12–15} reported rates between 45-85% and the scenario was similar in children, as seen in studies done in France (96%),¹⁶ China (62%),¹⁷ Italy (69.2%),¹⁸ Pakistan (51.3%),¹⁹ Yemen (60%)²⁰ and Brazil (56.6%).²¹

Different forms of self-medication exist- depending upon the mode and source of procuring the medication. It could be based on previous prescriptions, on advice of

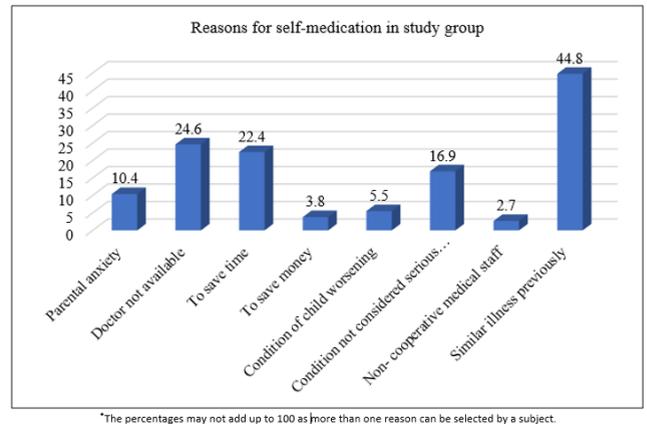


Fig. 1: Reasons for self-medication

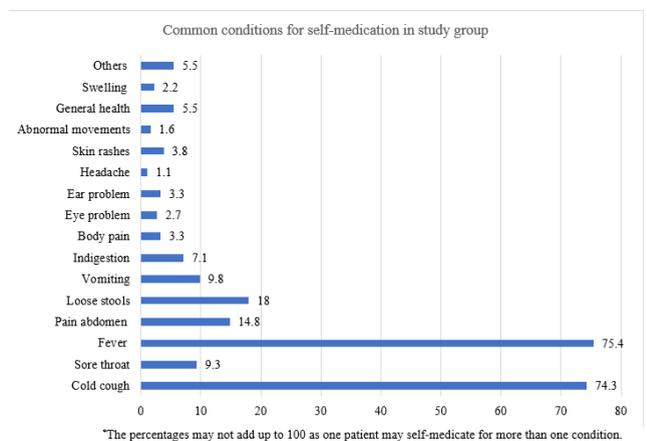


Fig. 2: Common conditions for self-medication

person not qualified to prescribe medications such as family and relatives, pharmacists, or even doctors having a degree in forms of medicine other than the one they are trained in (eg. Non- allopathic doctor prescribing allopathic drugs). Furthermore, it includes the prescriptions made verbally over telephone even by a qualified doctor.

Contrary to the law in India,²² majority (35%) of the cases practiced self-medication as advised by the pharmacists in medical stores. Parents, especially mothers, often used previous prescriptions with a false sense of security that the treatment is medically correct. The simultaneous lack of clinical assessment by qualified medical professional results in overlooked diagnosis and inappropriate treatment. Though over-the-counter drugs are approved for sale in pharmacies, the ground reality is that in many pharmacies, drugs are dispensed by unqualified people who may not be able to provide the required information to their customers. In a study done in Rio,²¹ 51% of the drugs were indicated by mothers, 7.8% by fathers, and 20.1% by pharmacists. Similar trend was seen in study done by Mohanna et al²⁰ and Gohar et al.¹⁹

Table 2: Self medication based on frequency of common ailments in a year

Cold & Cough	Self-medication		P value
	Yes	No	
No episode	2(1.1%)	2(1.7%)	0.13
<5	109(59.6%)	82(70.1%)	
>5	72(39.3%)	33(28.2%)	
Total	183	117	
Fever	Self-medication		P value
	Yes	No	
No episode	8(4.4%)	24	0.0001
<5	141(77%)	83	
>5	34(18.6%)	10	
Total	183	117	
	Self-medication		P value
	Yes	No	
No episode (166)	100(54.6%)	66	0.50
<5	78(42.6%)	51	
>5	5(2.7%)	0	
Total	183	117	

Further, in our study, of the 312 drugs self-medicated in the current episode, OTC drugs consisted of 46.5% of the total drugs and 53.5% were non- OTC drugs (Schedule H- 49% and schedule H1- 4.5%), which again is a practice against legal terms, as only OTC drugs are allowed to be dispensed by the pharmacist without prescription.

The situation is more complicated in children as, in addition to the right drugs and combination of medication, duration and dose is a challenge. In our study, a high figure of 75% of drugs which were self-medicated were noted to be incorrect, either in dose or duration. In the study done by Alba²³ et al regarding the use of OTC drugs, few parents mentioned giving a larger dose when they felt their children were sicker than usual. In a developing country like ours, where people are not medically aware of diseases and untrained to recognise warning and danger signs, or aware of various drugs, their side-effects or even if they are appropriate for the age-group, self-medication, even for a supposedly similar illness is more of a bane than boon.

The factors leading to self-medication are diverse, including combination of social and demographic variables, fragmented health care system, the waiting time to see a doctor and obtain treatment, health care costs and facilities and level of education or awareness regarding diseases and their implications, long and short term.

In this study, the most common reason for self-medication was found to be presence of similar illness previously (44.8%), followed by non-availability of doctor (24.6%) and to save time (22.4%). In studies conducted in Pakistan¹⁹ and Vietnam,²⁴ most parents reported similar reason of previous illness for self-medication as leading cause for self-medication in their population, in similar terms to our study. Similarly, study done in South India, also found that similar illness previously along with the efficacy of self-medication for the same, the leading cause for self-

medication among parents (45%).²⁵

Non- availability, according to the patient referred not only to absence of a doctor nearby, but also non-accessibility at night, absence of a specialist. For some patients, it even referred to the absence of the doctor they were wishing to consult. Self- medication, in these situations, acted like a buffer period till the doctor was available. 11% of the population in study done by Gohar¹⁹ and 9% in the study by Omalase²⁰ reported the above reason, which is slightly lower than seen in our study population (24.6%). 22.4% reported lack of time as reason for self-medication, which was comparable to studies done by Gohar et al,¹⁹ Alba et al,²³ Sontakke et al⁷ and Ahmed S et al.²⁶

Among the various conditions that patients self-medicated for, the most common was fever (75.4%) followed by cold cough (74.3%) and loose stools (18%) and pain abdomen (14.8%). Similarly, most common illness for which self-medication was resorted to was fever (77%) followed by cough and cold (60%), in study by Naaraayan et al.²⁵ Fever was the most common complaint in various other studies of self- medication conducted in China, Madagascar and Sudan, as well.^{26–28}

Among the various drugs that were self-medicated by the study population either in current episode or past, leading the list was antipyretics (91.8%) followed by cough and cold medications (56.8%), antimicrobials (38.2%), antiemetic and antidiarrheal medications (40.4%). The most common drug was paracetamol. The results were almost identical in the study done by Gohar et al. where, antipyretics were at the top i.e., 94% then cough and cold preparations 60%, antimicrobials 34% and antiemetics 32%.¹⁹ Similar trend was observed in studies done by Naaraayan et al,²⁵ Pereira et al,²¹ Sontakke et al⁷ and Jemma et al.²⁹

54.6% felt that patient recovered after the medication. This high response rate was also seen in studies done by

Gohar et al,¹⁹ which is a positive attitude. The fact that majority of the population was improving would mean that parents are conscious about their child's health and acted promptly. This trend can be still considered positive, to reduce the burden on overcrowded health care facilities but only after laws of dispensing only OTC drugs are put in place and after further parent education about the treatment of minor ailments and warning signs explained.

Whether self-medication can be considered safe is an issue of debate all over the world. 43.3% of parents considered self-medication as safe but 17.3%, however, had no opinion about the same. This was comparable to study done Alba et al²³ and Gohar¹⁹ et al. It is important to note that almost one-fifth of our study population had no opinion about the safety of self-medication, which shows the lack of awareness about phenomenon of self-medication, about the right and wrong practices.

Increasing age was seen to have a significant association with self-medication (p value =0.013). Various studies done in Germany,³⁰ Rio,²¹ South India²⁵ and Madagascar²⁸ revealed a similar significant association between age and self-medication. Similarly, a significant association was noticed between the income of parents and self-medication (p- value =0.0001)

It was seen that 48.6% of the mothers who self-medicated were educated up to high to intermediate, and self-medication was seen least in illiterate (10.4%). A significant difference was noted among the self-medication practices between mothers who were educated and who weren't. A significant association was established between the education of the mother and self-medication. Mother, being the first line of care, her knowledge and awareness about health plays a great role in self-medication practices.

Among the patients having a chronic disease, the prevalence of self-medication was higher amongst those not having a prior chronic disease, which was further statistically highly significant (p value-0.0001). This is probably because in a child with chronic illness, parents are more cautious and afraid to self-administer any drug, lest it react with other medicines child maybe taking. Some parents also reported that pharmacists are also reluctant to give medicines and thus these patients directly show up in health care facilities, for specialist care.

A significant association was obtained between self-medication and the distance from nearest health centre in our study. However, no such significant association was seen in previous study done in South India by Naarayan et al.²⁵

Self-medication is a normal trend in those families where there is already a health professional. Such parents often resort to advice over phone, find it easier to have non-formal conversations by establishing contacts and family friends, to reach diagnosis and treatment. The prevalence of self-medication in patients having health professional at home/ relatives was observed to be 21.3% whereas only 5.1% of

those who had health professional at home/ relative did not self-medicate. This association was found to be statistically highly significant. Similar result was obtained in a study done in Sudan by Ahmed et al.²⁶

Though responsible self-medication of the approved drugs may aid in reducing the burden on the already burdened health system in developing countries, the lack of awareness in our population, the free access to drugs and antimicrobials over the counter and the high rate of errors in drug administration is noted, especially in vulnerable children in India, implies that it is still a dangerous practice in India. There is need for educating the communities and parents, and provision of legal action against illegal drug dispensing is warranted before self-medication can be promoted.

6. Conclusion

Self-medication or the administration of medications by patients themselves is practised worldwide and constantly evolving phenomenon. It is a fairly common practice among paediatric population, in present times, everywhere in our country including Odisha, the reasons being varied and multifactorial. Most people are unaware about the lack of safety of self-medication, which poses a major threat to health, especially in children, as they are the vulnerable population, depending solely on their caregivers. This, in turn will aggravate the childhood morbidity and mortality, worsening the quality of health in our country. There is, thus, great need for further studies regarding appropriate measures to promote responsible self-medication and the adverse effects that occur as consequence of self-medication, as limited studies exist in relation to self-medication in children. At the same time, mass educational efforts directed by health care professionals to make them more aware and empower consumers to make more informed decision regarding health conditions, are needed. Policy makers should ensure strict enforcement of law regarding the wrong and unethical dispensing of medications, to ensure the best results with self-medication.

7. Conflict of Interest

The authors declare that there are no conflicts of interest in this paper.

8. Source of Funding

None.

References

1. Edwards DJ, Richman PB, Bradley K, Eskin B, Mandell M. Parental use and misuse of antibiotics: are there differences in urban vs. suburban settings? *Acad Emerg Med.* 2002;9(1):22–6. doi:10.1111/j.1553-2712.2002.tb01162.x.

2. Olayemi SO, Akinyede AA, Oreagba AI. Prescription pattern at primary health care centres in Lagos State. *Niger Postgrad Med J*. 2006;13(3):220–4.
3. Oshikoya KA. Evaluation of paediatric drug prescriptions in a teaching hospital in Nigeria for rational prescribing. *Paed Perinat Drug Ther*. 2006;7:183–8.
4. Eticha T, Mesfin K. Self-medication practices in Mekelle Ethiopia. *PLoS ONE*. 2014;9:e97464. doi:10.1371/journal.pone.0097464.
5. Filho AL, Lima-Costa MF, Uchôa E. Bambuí Project: a qualitative approach to self-medication. *Cadernos de Saude Publica*. 2004;20(6):1661–9. doi:10.1590/s0102-311x2004000600025.
6. Jasim AL. Parental self-medication of antibiotics for children in Baghdad city. *Int J Pharm Pharm Sci*. 2014;6(10):485–9.
7. Sontakke DS, Magdum A, Jaiswal K, Bajait C, Pimpalkhute S. Evaluation of parental perception about self-medication and other medicine use practices in children. *European J Pharm Med Res*. 2015;2:179–85.
8. Lal V, Goswami A, Anand K. Self-medication among residents of urban resettlement colony. *Indian J Public Health*. 2007;51(4):249–51.
9. Hughes CM, Mcelnay JC, Fleming GF. Benefits and risks of self-medication. *Drug Safety*. 2001;24(14):1027–37. doi:10.2165/00002018-200124140-00002.
10. Eticha T, Mesfin K. Self-medication practices in Mekelle. *Ethiopia PLoS ONE*. 2014;9:97464–97464.
11. Bergmann JF. Self-medication: from European regulatory directives to therapeutic strategy. *Fundam Clin Pharmacol*. 2003;17(3):275–80. doi:10.1046/j.1472-8206.2003.00141.x.
12. James H, Handu SS, Khalid AK, Ootom S, Sequeira RP. Evaluation of the knowledge, attitude and practice of self-medication among first-year medical students. *Med Princ Pract*. 2006;15(4):270–5.
13. Pandya RN, Jhaveri KS, Vyas FI, Patel VJ. Prevalence, pattern and perceptions of self-medication in medical students. *Int J Basic Clin Pharmacol*. 2013;2(3):275–80.
14. Gupta P, Bobhate P, Shrivastava S. Determinants of self-medication practices in an urban slum community. *Asian J Pharm Clin Res*. 2011;4(3):54–7.
15. Ali SS, Sharma S, Tabish A, Sharma R, Jaiswal M, Chaurasia R, et al. Evaluation of self-medication amongst nursing students of Bastar region: A questionnaire-based study. *Int J Pharm Res*. 2015;5(6):145–9.
16. Escourrou B, Bouville B, Bismuth M, Durrieu G, Oustric S. Selfmedication in children by parents: A real risk? A cross-sectional descriptive study. *Rev Prat*. 2010;60(6):27–34.
17. Yu M, Zhao G, Lundborg CS, Zhu Y, Zhao Q. Knowledge, attitudes and practices of parents in rural China on the use of antibiotics in children: A cross-sectional study. *BMC Infect Dis*. 2014;14:112. doi:10.1186/1471-2334-14-112.
18. Garofalo L, Giuseppe GD, and IFA. Self-medication practices among parents in Italy. *Bio Med Res Int*. 2015;.
19. Haider S, Thaver IH. Self-medication or self-care: implication for primary health care strategies. *J Pak Med Association*. 1995;45(11):297–8.
20. Mohanna M. Self-medication with antibiotic in children in Sana. City, *Yemen Oman Medical Journal*. 2010;25:41–43.
21. Pereira FS, Bucarety F, Stephan C, Cordeiro R. Self-medication in children and adolescents. *Jornal de Pediatria*. 2007;83(5):453–8. doi:10.2223/JPED.1703.
22. Clarification on Pharmacy Practice Regulations, 2015 notified by Pharmacy Council of India in Gazette of India No.17 dt.16.1.2015. Available from: <http://www.pci.nic.in/pdf/38.pdf> Accessed.
23. Albsoul-Younes A, Tahaine L, Moumani B. Parents' Knowledge, Perception, and Practices of Over-the-counter Medicines Used for Their Children. *Jordan J Pharm Sci*. 2011;4(3):181–9.
24. Le TH, Ottosson E, Nguyen T, Kim BG, Allebeck P. Drug use and self-medication among children with respiratory illness or diarrhea in a rural district in Vietnam: a qualitative study. *J Multidiscip Healthc*. 2011;4:329–36. doi:10.2147/JMDH.S22769.
25. Naaraayan A, Rathinabalan I, Seetha V. Self-medication pattern among children attending a tertiary hospital in South India: a cross-sectional study. *Int J Contemp Pediatr*. 2016;3(4):1267–71.
26. Eldalo AS, El-Hadiyah TM, Yousif MA. Sudanese parents' knowledge, attitudes and practice about self-medication to their children: Qualitative study. *Saudi J Health Sci*. 2013;2(2):103–7.
27. Bi P, Tong S, Partonc K. Family self-medication and antibiotics abuse for children and juveniles in a Chinese city. *Soc Sci Med*. 2000;50(10):1445–50.
28. Tsifiregna R, Safidinarindra H, Razafimahatratra. Self-medication practice among children in Antananarivo, Madagascar. *Int J Res Med Sci*. 2016;4(12):5172–5.
29. Jemaa FC, Khaldi A, Bessioud L, Borhene J, Akkad T, Ltaief G, et al. Self-Medication in Children at the District of Tunis (Tunisia): Focus on Antibiotic Self Medication. *Pediatric Res*. 2010;68:645. doi:10.1203/00006450-201011001-01304.
30. Du Y, Knopf H. Self-medication among children and adolescents in Germany: Results of the National Health Survey for Children and Adolescents (KiGGS). *Br J Clin Pharmacol*. 2009;68(4):599–608. doi:10.1111/j.1365-2125.2009.03477.x.

Author biography

Sristi Ganguly, Senior Resident

Jyoti Ranjan Champatiray, Associate Professor

Bijaylaxmi Mallick, Assistant Professor

Narendranath Soren, Professor

Kiran Chandra Pankaj, Senior Resident

Cite this article: Ganguly S, Champatiray JR, Mallick B, Soren N, Pankaj KC. Self-medication in paediatric age group: The current scenario. *Panacea J Med Sci* 2021;11(3):383-388.