

# Use of medicines in neonates and infants: A report of mothers' practices

Ufuoma Shalom Ahwinahwi<sup>1\*</sup> , Valentine Uche Odili<sup>2</sup>, Magdalene Odunvbun<sup>3</sup>, Anthony Ifeanyi Okeke<sup>4</sup>, Uche Everister Soeze<sup>5</sup>

<sup>1</sup>Department of Clinical Pharmacy and Pharmacy Administration, Faculty of Pharmacy, Delta State University, Abraka, Nigeria.

<sup>2</sup>Department of Clinical Pharmacy and Pharmacy Practice, Faculty of Pharmacy, University of Benin, Benin City, Nigeria.

<sup>3</sup>Child Health Department, University of Benin, Benin City, Nigeria.

<sup>4</sup>Department of Clinical Pharmacy and Pharmacy Management, Faculty of Pharmaceutical Sciences, Chukwuemeka Odumegwu Ojukwu University, Uli, Nigeria.

<sup>5</sup>Department of Pharmacy Technician Training, NKST College of Health Technology, Gboko, Nigeria.

## ARTICLE INFO

Received on: 30/11/2022

Accepted on: 28/04/2023

Available Online: 04/07/2023

### Key words:

Neonates, infants, medicines use, pediatrics, mothers-reported.

## ABSTRACT

In developing countries, mothers of neonates and infants use medicines recommended by personnel other than the physician in the management of illnesses in their young. Mothers' self-reported medicines use in neonates and infants as it relates to incidence, types of medicines used, reasons for use, and personnel recommending the medicines were evaluated. This cross-sectional study included mothers of children aged 1 year and under attending vaccination clinics across three senatorial districts in Delta State, Nigeria. Data which included socio-demographics, information on medicines used such names of medicines, reasons for use, duration of use, personnel recommending medicines, and other remedies used were taken. Data were analyzed using descriptive statistics and reported as percentages and proportions. Mothers of 782 children aged 1 year and under were included in the study. Incidence of medicines use was 91.3%. A total of 2,236 medicines were administered with 437 (19.5%), 646 (29.0%), 573 (25.6%), and 71 (3.2%) were recommended by the physician, nurse, mother of child, and pharmacist, respectively. Paracetamol was the most frequently used medicine (673, 30.1%) while fever and pain were the major reasons for medicines use. Majority of children were exposed to medicines use and infantile conditions were frequently treated without a physician's advice.

## INTRODUCTION

A larger proportion of the population in developing countries are children, and they are exposed to several illnesses because of poverty. Drugs used in children include prescribed and nonprescribed drugs. Mothers of neonates and infants especially in developing countries often use medications recommended by persons other than healthcare professionals in the management of

conditions which affect their young. Inappropriate use of medicines which could occur as a result of nonmedical prescription of drugs is a major contributory factor to drug-related problems. This is often common where there is poor regulation of drug distribution and in communities where communal lifestyles also include medical care of the young. Access to prescribed and nonprescribed medicines in Nigeria is possible, provided there is money to purchase them from the different available sources (Agbaje and Uwakwe, 2003).

Use of medicines in children has been studied previously: in a study conducted in England for children aged between 0 and 7.5 years, it was found that 75% of the study sample had used medicinal products before the age of 2 months (Headley and Northstone, 2007). Also, infants had a prevalence of drug use of 65% and 69% in their first and third months of life, respectively (Strina *et al.*, 2001). Santos *et al.* (2009) had also studied drug use

### \*Corresponding Author

Ufuoma Shalom Ahwinahwi, Department of Clinical Pharmacy and Pharmacy Administration, Faculty of Pharmacy, Delta State University, Abraka, Nigeria.  
E-mail: [ushaloma@yahoo.com](mailto:ushaloma@yahoo.com)

in children living in poor areas in Brazil and reported a prevalence of 48% in children aged between 4 and 11 years, and a population-based study among Finnish children also reported that 17% and 50% of children aged under 12 years used prescription medicines and self-medication, respectively, in the 2 days preceding the study (Ylinen *et al.*, 2010).

Several studies on drug utilization in children have been conducted in Nigeria; the majority of these were in the hospital setting to determine rationality of drug use based on WHO prescribing indicators (Ahwinahwi *et al.*, 2021; Nwolisa *et al.*, 2006; Olayemi *et al.*, 2006; Oshikoya *et al.*, 2006). Also some studies have been done in Nigeria on caregivers self-medication in children (Adegboyega *et al.*, 2005; Ezechukwu *et al.*, 2005; Okunola 2020; Oshikoya *et al.*, 2007).

Drugs commonly administered to children include analgesics/antipyretics and antibacterials, and in addition to these are teething mixtures and colic medicines for infants. Some are self-prescribed by the caregivers while others are prescribed by healthcare professionals. Oshikoya *et al.* (2009) reported 67.7% of infants were treated for colic by self-medication while 28.1% were treated by seeking medical intervention (Oshikoya *et al.*, 2009). A study in south-eastern Nigeria also reported 73.1% caregivers using one form of medication or the other to treat colic in their children (Chinawa *et al.*, 2013). Some of these medicines are used in oblivion of the medical implications in some children within an age bracket for which they are not recommended.

This study evaluated medicines used in neonates and infants with respect to incidence, types, personnel recommending medicines, and reasons for use.

## METHODS

This was a cross-sectional study of mothers who had either a neonate or an infant (children aged 1 year and below). The study was conducted between November 2018 and January 2019 at vaccination clinics attached to three Central hospitals in the three senatorial districts in Delta state.

### Data collection

Data were collected while the mothers were waiting before the clinic commenced. The mothers were addressed and informed of the nature and the purpose of the study. Data collection was by means of a face-to-face interview with the mothers who attended the clinic. The interviewers included one of the authors assisted by final year pharmacy students who were trained on the process of the data collection. All information was documented with the aid of a data collection form. The interview was divided into three sections which comprised eliciting information on the respondents' sociodemographics, drug use, and herbal remedies use. The demographics collected include the age of the mother/caregiver, educational qualification, occupation, age of child, birth order, place of delivery, and type of breastfeeding method used. Information on drug use included name of drug used, reason for use, duration of use, and the person who recommended it. While the section on herbal/alternative medicines use included the name of the herbal medicine/alternative medicine used, reason for use, and the person who recommended it.

### Statistical analysis

Data were analyzed using descriptive statistics and reported as proportions and percentages. Incidence of medicine

use was calculated as the ratio of neonates of infants exposed to at least one medicine since birth to that of the total population in percentage. Data analysis was done with the aid of the Statistical Package for Social Sciences Version 23 (Armonk, NY: IBM Corp.).

## RESULTS

A total of 782 mothers of 734 infants (93.9%) and 48 neonates (6.1%) completed the interview process. Mean age of the mothers who were interviewed was  $30.3 \pm 5.38$  years (range 16–47 years). Three hundred and eighty (48.6%) of the mothers had secondary level education while 6 (0.8%), 38 (4.9%), 186 (23.8%), 162 (20.7%), and 10 (1.28%) had no basic education, primary, OND/NCE, HND/bachelors, and postgraduate education, respectively. Trading was the commonest means of livelihood among the mothers (312, 39.9%); others included but not limited to artisans (193, 24.7%), public employees (58, 7.4%), private employees (12.25), and housewives (48, 6.1%). The Urhobos (266, 34.0%) and Ikas (183, 23.4%) were the major ethnic groups in this study. The majority (531, 67.9%) delivered their children in the hospital/clinic and received prenatal care (762, 97.4%) while only about half (386, 49.4%), practiced exclusive breastfeeding. Details are as shown in Table 1.

A total of 714 (91.3%) mothers had administered one or more medicines to their children since birth (that is, within the last 1 year) and 354 (45.3%) had administered other remedies which were mainly of herbal origin.

A total of 2,236 medicines were reported to have been used by the mothers for their infants and neonates. Four hundred and thirty-seven (19.5%) of the medicines were prescribed by a physician, 646 (29.0%) were by a nurse, 573 (25.6%) were self-prescribed, and 71 (3.2%) were recommended by a pharmacist. Patent medicine vendors, health workers at immunization clinics, relatives, neighbors, friends, and traditional midwives recommended most of the other drugs. Details are shown in Table 2.

Paracetamol was the most frequently used medicine by the mothers for their children (673, 30.1%). Other frequently used medicines were vitamin C, (308; 13.8%), antibacterials (295; 13.2%), multivitamins (291; 13.0%), and gripe water (228; 10.2%).

Cough syrups were also reported to be administered in 92 (4.1%) cases, 69 (75%) of which were for cough, and 23 (25%) for catarrh and other indications.

Antimalarials were only administered in 56 children (2.5%) as reported by the mothers. Thirty-nine (75%) of these were for the treatment of malaria, 9 (17.3%) for fever, and 4 (7.7%) for other reasons they did not know. There were three instances where *Convulsan*<sup>®</sup> (contains chloroquine and paracetamol) was administered for convulsion. Antihistamine syrups (with or without paracetamol) were also administered to the children, 20 (69%) of the total 29 cases of administration were for the relief of catarrh. Cod liver oil was used in 22 of the children with majority of the users (14, 63.6%) indicating that they used the medicine to improve the child's overall health. *Piccan*<sup>®</sup> was used in eight children to relieve the discomfort associated with teething. Other vitamins which included vitamin A, vitamin B complex, folic acid, and vitamin D were also administered to the children for various reasons like appetite enhancement (6, 40%), prevention or treatment of infections (2, 13.3%), overall health (2, 13.3%), and unknown

**Table 1.** Demographics of study population.

Variable	Agbor (N = 266)	Warri (N = 308)	Ughelli (N = 208)	Total (N = 782)
	F (%)	F (%)	F (%)	F (%)
Educational level				
No basic education	2 (0.8)	3 (0.1)	1 (0.5)	6 (0.8)
Primary	9 (3.4)	22 (7.1)	79 (0.4)	38 (4.9)
Secondary	108 (40.6)	158 (51.3)	114 (54.8)	380 (48.6)
OND/NCE	80 (30.1)	53 (17.2)	53 (25.5)	186 (23.8)
HND/bachelors	62 (23.3)	68 (22.1)	32 (15.4)	162 (20.7)
Postgraduate	5 (1.8)	4 (1.3)	1 (0.5)	10 (1.3)
Occupation				
Student	7 (2.6)	2 (0.6)	4 (1.9)	13 (14.5)
Housewife	13 (4.9)	16 (5.2)	19 (9.1)	48 (6.1)
Unemployed	34 (12.8)	16 (5.2)	0 (0)	50 (6.4)
Trader	84 (31.6)	139 (45.1)	89 (42.8)	312 (39.9)
Artisan	73 (27.4)	72 (23.4)	48 (20.7)	193 (24.7)
Farming	2 (0.75)	0 (0.0)	0 (0)	2 (0.3)
Public employee	18 (6.8)	25 (8.1)	15 (7.2)	58 (7.4)
Private employee	34 (12.8)	36 (11.7)	25 (12.0)	95 (12.1)
Others	1 (0.4)	2 (0.6)	8 (3.9)	11 (1.4)
Ethnicity				
Ika	176 (66.2)	6 (2.0)	1 (0.5)	183 (23.4)
Urhobo	11 (4.1)	127 (41.2)	128 (61.5)	266 (34.0)
Edo	15 (5.6)	30 (9.7)	5 (2.4)	50 (6.4)
Delta ibo	11 (4.1)	1 (0.3)	5 (2.4)	17 (2.2)
Ukwuani	11 (4.1)	9 (2.9)	1 (0.5)	21 (2.7)
Yoruba	4 (1.5)	10 (3.2)	3 (1.4)	17 (2.2)
Efik /Ibibio	7 (2.6)	4 (1.3)	19 (9.1)	30 (3.8)
Isoko	2 (0.8)	34 (11.0)	34 (16.4)	70 (9.0)
Ethnicity				
Itsekiri	0 (0)	18 (5.8)	0 (0)	18 (2.3)
Ijaw	0 (0)	18 (5.8)	10 (4.8)	28 (3.6)
Others	8 (3.0)	12 (3.9)	2 (1.0)	22 (2.8)
Place of delivery				
Hospital/clinic	249 (93.6)	265 (86.0)	176 (84.6)	531 (67.9)
Maternity home	10 (3.8)	12 (3.9)	9 (4.3)	31 (4.0)
Traditional birth attendant	1 (0.4)	6 (2.0)	2 (1.0)	9 (1.1)
Home	6 (2.3)	23 (7.5)	23 (11.1)	49 (6.3)
Church	0 (0)	2 (0.6)	0 (0)	2 (0.3)
Age group of child				
Neonate (birth-1 month)	29 (10.9)	18 (5.8)	1 (0.5)	48 (6.1)
Infant (> 1 month- 1 year)	237 (89.1)	290 (94.2)	207 (99.5)	734 (93.9)
Birth order				
First	94 (35.3)	69 (22.4)	63 (30.3)	226 (28.9)
Second	76 (28.6)	80 (26.0)	65 (31.3)	221 (28.3)
Third and higher	96 (36.1)	159 (51.6)	80 (38.4)	335 (42.8)
Prenatal care				
Yes	261 (98.1)	298 (96.8)	203 (97.6)	762 (97.4)
No	5 (1.9)	10 (23.2)	5 (2.4)	20 (2.6)
Exclusive breastfeeding				
Yes	141 (53.0)	176 (57.1)	69 (33.2)	386 (49.4)
No	125 (47.0)	132 (42.9)	139 (66.8)	396 (50.6)

**Table 2.** Personnel recommending drugs used in neonates and infants.

Personnel who prescribed drug	Number of drugs prescribed ( <i>F</i> )	Percentage
Self	573	25.7
Physician	438	19.7
Pharmacist	71	3.2
Nurse	647	29.0
Immunization healthcare workers	100	4.4
Patent medicine vendors	138	6.2
Relative	184	8.3
Friend	27	1.2
Neighbor	43	1.9
Traditional midwife	6	0.3
Cannot remember	9	0.4
Total	2236	100

reasons (5, 33.3%). Other medicines administered included *Otrivin*<sup>®</sup> nasal drops (contains xylometazoline), phenobarbitone, teething powder, and *Actifed*<sup>®</sup> (contains pseudoephedrine and triprolidine). Details of the drugs used are shown in Table 3.

Fever and pain (635, 28.7%) were the major reasons for which medicines were used, with paracetamol accounting for use in 606 (27.1%) of such cases. Colic accounted for 303 (13.7%) of the reasons for medicine use. *Gripe water*<sup>®</sup> was the most frequently used medicine for colic (207, 9.3%). *Gripe water*<sup>®</sup> contains varying constituents depending on the manufacturer, a common brand contains dill seed oil, bicarbonate, ginger tincture, and a small percentage of alcohol. *Nospamin*<sup>®</sup> syrup which contains homatropine methylbromide was also administered for colic (68, 3.0%). Some 178 (8.0%) children received medication for appetite stimulation and 107 (4.8%) of the children received multivitamins for this purpose. Easing the discomfort associated with teething was the indication for which medicines were administered in 123 (5.5%) instances and the majority of drugs used were commonly known as teething mixtures; *Bonabebe*<sup>®</sup>, *Babyrest*<sup>®</sup>, and *Bentolit*<sup>®</sup> were used in 110 (5.0%) of the cases. Vitamin C (114, 37.6%) was used in children for catarrh in majority of the cases. Details of reasons for medicine use are shown in Table 4.

Paracetamol was used frequently on nurse's recommendation (250, 37.2%) and self-medication by the mothers (212, 31.5%), physician (95, 14.1%), pharmacist (8, 1.2%), patent medicine vendor (22, 3.3%), relative (31, 4.6%), and immunization clinic staff (39, 5.8%), and others (14, 2.1%) were neighbor, friend, and traditional midwife.

In the study, 94 (31.9%) antibacterial agents were prescribed by physicians, 40 (13.6%) by mothers, and 26 (8.8%) by relatives. Ampicillin/cloxacillin was the most frequently used antibacterial agent accounting for 195 (66.1%).

*Gripe water*<sup>®</sup> was often recommended by nurses (70, 31.4%) and by the mothers for their infants (59, 26.5%). Similarly, *Nospamin*<sup>®</sup> was frequently recommended by nurses and mothers at a frequency of 23 (28.8%) and 18 (22.5%), respectively.

Multivitamins were recommended by 75 (26.8%), 74 (26.4%), and 60 (21.4%) physicians, nurses, and mothers, respectively. Of the cases in which they were administered, vitamin C was most frequently recommended by the mothers

(82, 26.8%), nurses (75, 24.5%), and physicians (70, 22.9%); others were patent medicine vendors (26, 8.5%) and relatives, friends, and neighbors (31, 10.1%), pharmacists (12, 3.9%), and immunization clinic workers (8, 2.6%).

## DISCUSSION

This study determined the use of medicines in neonates and infants as reported by their mothers. The prevalence of drug use among children in our study was high and this is comparable with a previous study among Dutch children where the annual prevalence of drug use in children aged 0–1 year ranged from 87% to 97% (Schirm *et al.*, 2000).

Paracetamol was the most frequently used medicine in the study population. This corroborates findings among children aged between 0 and 23 months old where it (acetaminophen) had the highest prevalence of use of 23% (Vernacchio *et al.*, 2009). Paracetamol had also been reported as the most frequently used over-the-counter drug for fever and pain in children (Pileggi *et al.*, 2015). In this study, paracetamol was used more for its antipyretic property than analgesic effects which could be due to a higher frequency of occurrence of pyrexia than pain in children; also fever is more easily detected than pain in children. The high incidence of use of paracetamol and self-medication with it as observed in our study supports findings from other studies: 62.7% of caregivers of children aged between 0 and 16 years had administered paracetamol to their children for fever, 45% of the cases being self-prescribed by caregivers and only 20% by a physician (Obu *et al.*, 2012); 75% of parents studied in Riyadh, Saudi Arabia gave unprescribed antipyretics in their home management of fever (Al Ateeq *et al.*, 2018). Fever was adjudged by 94% of parents as the most common reason parents practice self-medication for their children (Gohar *et al.*, 2017). Furthermore, it was also reported by caregivers of children on admission that analgesics/antipyretics were the most frequently used drugs (47.6%) for self-medication, with self-medication accounting for 74.1% of the main therapeutic path of first recourse (Penda *et al.*, 2018). Self-medication was determined in 60% of children to whom paracetamol was administered for fever (Lubrano *et al.*, 2016) and 65.2% of caregivers also reported administration of paracetamol for no or minimal elevations in body temperature. It was, however,

**Table 3.** Medicines used by neonates and infants.

Name of medicine	Frequency	Percentage
Paracetamol	673	30.1
Vitamin C	308	13.8
Multivitamins	291	13.0
Gripe water	228	10.2
Antibacterials	295	13.2
Nospamin	80	3.8
Cough syrup	92	4.1
Bonabebe/bentotit/babyrex	110	4.9
Antimalarials (quinine, amodiaquine, chloroquine, artemether/lumefantrine)	56	2.5
Antihistamines	25	1.1
Cod liver oil	22	1.0
Piccan	10	0.4
Vitamins A, B, D, folic acid	15	0.7
Others	31	1.4

**Table 4.** Conditions for which medicines were used.

Conditions	Frequency	Percentage
Fever and pain	635	28.7
Teething	123	5.6
Colic	303	13.7
Appetite enhancer	178	8.0
Cough	126	5.7
Catarrh	183	8.3
Malaria	58	2.6
Treat/prevent infections	102	4.6
Treat/prevent jaundice	43	1.9
Boils/blisters/wounds	74	3.3
Improve overall health	139	6.3
Do not know	235	10.6
Others	14	0.6
Total	2,213	100

reported by Lawani and Akhogba (2015) that only 8% of parents of under-five children administered paracetamol at home (Lawani and Akhogba, 2015).

The use of medications to ease the discomfort associated with teething was common in our study. Medications such as Bonabebe<sup>®</sup>, Babyrest<sup>®</sup>, and Bentotit<sup>®</sup> were the most commonly used. Bonabebe<sup>®</sup> and Babyrest<sup>®</sup> contain paracetamol, chlorpheniramine, and dill water/oil while Bentotit<sup>®</sup> contains paracetamol and conc dill oil. Dill is *Anethum graveolens* which contains essential oils believed to have carminative effects. Some of the mothers administered these drugs to their children daily for a prolonged period of time completely unaware of the paracetamol content and concurrently administered paracetamol to control fever and pain in the same children, inadvertently overdosing which could lead to paracetamol toxicity in such children. Although chlorpheniramine can reduce the itchiness of the gum during teething, prolonged use in children is not encouraged. Piccan<sup>®</sup> was administered by a few of the mothers to ease the discomfort of teething. Piccan<sup>®</sup> available

for sale in the Nigerian market today contains paracetamol and diphenhydramine, an antihistamine. The use of antihistamines is not recommended for use in children below 24 months and children to whom Piccan<sup>®</sup> is administered for teething are infants who are younger than 12 months old. The medications administered for teething in our study were also consistent with those in other studies in Nigeria. A study in Benin city, a southern Nigerian city revealed 74.4% of remedies for teething problems to be teething syrups (Adam and Abhulimhen-Iyoha, 2015). About 37.6% of mothers attending an out-patient department in southwest Nigeria also administered teething mixtures to infants (Olatunya *et al.*, 2020). Furthermore, 31% and 42% of adults in a rural community recommended teething powder and teething mixtures, respectively (Bankole and Lawal, 2017). Another study had earlier reported that teething powder was administered in 46.9% of cases in South-East Nigeria (Adimorah *et al.*, 2011). Up to 68% and 66.8% of mothers who participated in an Indian study used systemic and topical analgesics, respectively, among other nonpharmacological measures to soothe their infants' discomfort of teething (Elbur *et al.*, 2015). Healthcare professionals in New Zealand suggested various measures to reduce the discomfort associated with teething with 65% and 60% suggesting paracetamol and teething gels respectively as pharmacological remedies (Ispas *et al.*, 2013). The majority of mothers in Nigeria tend to find ways to alleviate symptoms which they perceive are associated with teething and this quest for remedies has led to the unfortunate incidence of "my pikin<sup>®</sup>" where 84 deaths were recorded among children (Boseley, 2009).

Colic was another major condition for which drug was administered to neonates and infants in our study. These medicines are not only self-recommended by the mothers but also by some healthcare professionals. In a study conducted in Lagos, Nigeria, mothers reported the use of herbal remedies (51.8%), Nospamin<sup>®</sup> (35.4%), Gripe water<sup>®</sup> (30.0%), Bonabebe (5.4%), and teething powder (1.1%) for self-medication, while Nospamin, Gripe water<sup>®</sup>, Piccan<sup>®</sup>, Erythromycin, and Abidec<sup>®</sup> syrups were prescribed by the physicians for colic in 49.5%, 43.05%, 12.9%, 10.8%, and 9.7% of infants respectively (Oshikoya *et al.*, 2009). It was also reported in another Nigerian study that paracetamol, Gbomoro<sup>®</sup> (a herbal



mixture which contains paracetamol and compound oil tincture), teething powder, salt water, *Buscopan*<sup>®</sup> (Hyoscine butylbromide), and *Gripe water* were administered by 33.1%, 16.2%, 15.45%, 13.2%, 7.75%, and 4.6% of mothers, respectively, to their infants for the relief of colic (Chinawa *et al.*, 2013)

The majority of mothers in this study administered multivitamins to their children from birth to enhance their appetite. Multivitamin use has also been reported among children in the US with a prevalence of 7.4%, 24%, and 19% among those aged 0–23 months, 2 years, 5 years, and 6–11 years, respectively (Picciano *et al.*, 2007). In a similar study, vitamins accounted for 37% of medicines used among Finnish children below age 12 (Ylinen *et al.*, 2010). The use of vitamin C among Nigerian infants can be said to be high as our study portrayed and this is also supported by a previous study among another pediatric population in Nigeria (Oshikoya *et al.*, 2007).

Antibacterials were used to a substantial proportion in this population with ampicillin /cloxacillin being the most frequently used; this trend corroborates another study in Nigeria where ampicillin/cloxacillin accounted for the most frequently used antibacterial and it was mostly not prescribed by the physician (Oshikoya *et al.*, 2007). However, a recent study by Ahwinahwi *et al.* (2021) reported that antibacterials were frequently prescribed for young children attending an outpatient clinic for young children. This is concerning as the trend could result in antimicrobial resistance in this age group and portends the danger of antimicrobial therapy failure in young children.

Cough syrups were also used for cough and colds among our study population. The use of mucokinetic and mucolytic agents in children under 2 years is however deemed inappropriate by a prescribing tool in pediatrics (Prot-Labathe *et al.*, 2014). Antihistamines were also used for treating catarrh in this population and this is inappropriate as it is contraindicated in the age bracket studied (Prot-Labathe *et al.*, 2014).

Self-medication was predominant in this study. About a quarter of medicines used in infants was recommended by mothers, which was next only to those recommended by nurses. This may be due to mothers trying to take responsibility for the health of their children. There is, however, the need to educate them on responsible self-medication to forestall the danger of exposing their infants to inappropriate medications. Relatives play a huge role in recommending medicines used in infants in our community as seen in our study. This buttresses the assertion that the African child belongs to all.

## CONCLUSION

The majority of neonates and infants in the study were exposed to medicines. Self-medication by mothers for their young ones was a major therapy recourse. There was inappropriate use of medicines for teething and other infantile conditions and these were mostly administered without a physician's prescription.

## ACKNOWLEDGMENTS

The authors wish to thank all the mothers of infants who participated in this study.

## AUTHOR CONTRIBUTIONS

All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of

data; took part in drafting the article or revising it critically for important intellectual content; agreed to submit to the current journal; gave final approval of the version to be published; and agree to be accountable for all aspects of the work. All the authors are eligible to be an author as per the international committee of medical journal editors (ICMJE) requirements/guidelines.

## FINANCIAL SUPPORT

There is no funding to report.

## CONFLICTS OF INTEREST

The authors report no financial or any other conflicts of interest in this work.

## ETHICAL APPROVALS

This study was approved as part of a large study by the Central Hospital, Warri Ethics and Research Committee with protocol number CHW/ECC/VOL1/159.

## DATA AVAILABILITY

All data generated and analyzed are included in this research article.

## PUBLISHER'S NOTE

This journal remains neutral with regard to jurisdictional claims in published institutional affiliation.

## REFERENCES

- Adam VY, Abhulimhen-Iyoha BI. Teething: beliefs and behaviors of mothers attending well baby clinics in Benin City, Nigeria. *Afr J Med Health Sci*, 2015; 14:8–12.
- Adegboyega AA, Onayade AA, Salwu O. Care-seeking behaviors of caregivers for common childhood illnesses in Lagos Island local government Nigeria. *Niger J Med*, 2005; 14(1):65–71.
- Adimorah GN, Ubesie AC, Chinawa JM. Mothers' beliefs about infant teething in Enugu, South-east Nigeria: a cross sectional study. *BMC Res Notes*, 2011; 4:228.
- Agbaje EO, Uwakwe LO. Irrational use of antimicrobial agents in Surulere local government area of Lagos State, Nigeria. *Nig Q J Hosp Med*, 2003; 13:68–71.
- Ahwinahwi US, Odili VU, Eghwudje RE. Prescribing pattern in a pediatric outpatients clinic of a secondary healthcare facility in Delta State, Nigeria. *Afr J Pharm Res Dev*, 2021; 13 (1):018–25.
- AlAteeq MM, AlBader BO, Al-Howti SY, Alsharyoufi M, Abdullah JB. Parent's knowledge and practice in home management of fever in their children in Riyadh, Saudi Arabia. *J Fam Med Prim care*, 2018; 7 (5):12–18.
- Bankole OO, Lawal FB. Teething: misconceptions and unhealthy practices among residents of a rural community in Nigeria. *Int Q Community Health Educ*, 2017; 37(2):99–106.
- Boseley S. (Contaminated medicine kills 84 children. *The Guardian*, 2009. Available via [www.theguardian.com/world/2009/feb/07/nigeria](http://www.theguardian.com/world/2009/feb/07/nigeria). (Accessed 14 January 2022)
- Chinawa JM, Ubesie AC, Adimora GN, Obu HA, Eke CB. Mothers' perception and management of abdominal colic in infants in Enugu, Nigeria. *Niger J Clin Pract*, 2013; 16 (2):169–73.
- Elbur AI, Yousif MA, Albarraq AA, Abdallah MA. Parental knowledge and practices on infant teething, Taif, Saudi Arabia. *BMC Res Notes*, 2015; 8:699.
- Ezechukwu CC, Egbuono I, Chukwuka JO. Drug treatment of common childhood symptoms in Nnewi: what mothers do. *Niger J Clin Pract*, 2005; 8 (1):1–3.

- Gohar UF, Khubaib S, Mehmood A. Self-medication trends in children by their parents. *J Dev Drugs*, 2017; 6(2):173.
- Headley I, Northstone K. Medication administered to children from 0-7.5 years in the Avon longitudinal study of parents and children(ALSPAC). *Eur J Clin Pharmacol*, 2007; 63920:189–95.
- Ispas RS, Mahoney EK, Whyman RA. Teething signs and symptoms: persisting misconceptions among health professionals in New Zealand. *N Z Dent J*, 2013; 109:2–5.
- Lawani EU, Akhogba AO. Parental perceptions and home management of pyrexia in children in a malaria endemic area. *Int J Med Med Sci*, 2015; 7(2):20–5.
- Lubrano R, Paoli S, Bonci M, Ruzza L, Cecchetti C, Falsaperla R, Pavone P, Matin N, Vitaliti G, Gentile I. Acetaminophen administration in pediatric age: an observational prospective cross-sectional study. *Ital J Pediatr*, 2016; 42:20.
- Nwolisa CE, Erinaugba EU, Ofoleta SI. Prescribing practices of doctors attending to underfives in a children's outpatient clinic in Owerri, Nigeria. *J Trop Pediatr*, 2006; 52(3):197–200.
- Obu HA, Chinawa JM, Ubesie AC, Eke CB, Ndu IK. Paracetamol use (and/or misuse) in children in Enugu, south-east, Nigeria. *BMC Pediatr*, 2012; 12:103.
- Okunola OA. Patterns of self-medication practices by caregivers of under-five children in south-western Nigeria. *Child Care Pract*, 2020:1–11; doi:10.1080/13575279.2020.1845121.
- Olatunya OS, Adeniyi AT, Babatola AO, Fatunla OA, Olajuyin OA, Ogundare EO, Komolafe AK, Fadare JO, Oyelami OA. Teething beliefs, misconceptions, and practices among mothers attending a tertiary hospital in Nigeria: implications for child health and clinical practice. *J Nepal Paediatr Soc*, 2020; 40(3):247–54.
- Olayemi SO, Akinyede AA, Oreagba AI. Prescription pattern at primary healthcare centres in Lagos State. *Niger Postgrad Med J*, 2006; 13(3):220–4.
- Oshikoya KA, Chukwura HA, Ojo OI. Evaluation of outpatient paediatric drug prescriptions in a teaching hospital in Nigeria for rational prescribing. *Paediatr Perinat Drug Ther*, 2006; 7(4):183–8.
- Oshikoya KA, Njokanma OF, Bello JA, Ayorinde EO. Family self-medication for children in an urban area in Nigeria. *Paediatr Perinat Drug Ther*, 2007; 8(3):124–30.
- Oshikoya KA, Senbajo IO, Njokanma OF. Self-medication for infants with colic in Lagos, Nigeria. *BMC Pediatr*, 2009; 9:9.
- Penda CI, Moukoko ECE, Youmba, JFN, Mpondo EM. Characterization of pharmaceutical medication without a medical prescription in children before hospitalization in a resource-limited setting, Cameroon. *Pan Afr Med J*, 2018; 30:302.
- Picciano MF, Fisher KD, Thomas PR, Yetley EA, Mosfegh AJ, Levy PS, Neilsen SJ, Marriot BM. Dietary supplement use among infants, children, and adolescents in the United States, 1999-2002. *Arch Pediatr Adolesc Med*, 2007; 61(10):978–85.
- Pileggi C, Mascaro V, Bianco A, Pavia M. Over-the-counter drugs and complementary medications use among children in Southern Italy. *Biomed Res Int*, 2015; 8:413912; doi: 10.1155/2015/413912.
- Prot-Labarthe S, Weil T, Angoulvant F, Boukdedid R, Alberti C, Bourdon O. POPI (Pediatrics; omission of prescriptions and inappropriate prescriptions): development of a tool to identify inappropriate prescribing. *PLoS One*, 2014; 9(6):e101171.
- Santos DB, Barreto ML, Coelho HL. Drug use and associated factors in children living in poor areas. *Rev Saude Publica*, 2009; 43(5):768–78.
- Schirm E, van den Berg P, Gebben H, Sauer P, De Jong-van den Berg L. Drug use of children in the community assessed through pharmacy dispensing data. *Br J Clin Pharmacol*, 2000; 50(5):473–8.
- Strina A, Cairncross S, Barreto ML, Larrea C, Prado MS. Childhood diarrhea and observed hygiene behavior in Salvador, Brazil. *Ann Epidemiol*, 2001; 157(11):1032–8.
- Vernacchio L, Kelly JP, Kaufman DW, Mitchell AA. Medication use among children <12 years of age in the United States: results from the slone survey. *Pediatrics*, 2009; 124(2):446–54.
- Ylinen S, Hameen-Anttila K, Sepponen K, Lindblad AK, Ahonen R. The use of prescription medicines and self-medication among children—a population-based study in Finland. *Pharmacoepidemiol Drug Saf*, 2010; 19(10):1000–08.

**How to cite this article:**

Ahwinahwi US, Odili VU, Odunvbun M, Okeke AI, Soeue UE. Use of medicines in neonates and infants: A report of mothers' practices. *J Appl Pharm Sci*, 2023; 13(07):226–232.