

# Prevalence of Self-Medication for Acute Respiratory Infections in Young Children in Namibia: Findings and Implications

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ABSTRACT

**Objective:** Acute respiratory infections (ARIs) are a leading cause of morbidity and mortality among under-fives. However, self-medication and “self-care” care practices remain common, especially among informal settlements in Namibia. Consequently, we sought to ascertain the rationale for this to guide the future activities. **Methods:** Mixed method approach among residents in an informal settlement in Namibia to determine the extent of health-seeking behaviors and the rationale for any self-medication. **Findings:** Of the 100 everyday households surveyed, 60% used self-medication for ARIs in children under five including cold/flu medication, paracetamol, and decongestants. There was no self-purchasing of antibiotics. The main drivers of self-medication were a perceived diagnosis of ARI as “minor or mild” as well as long waiting times and queues to receive care at public health facilities. **Conclusion:** The majority of households in this settlement self-medicate their children for ARIs. There are needs for outreach primary health care services in the future in townships to screen and appropriately manage ARI to address concerns. This can include increasing pharmacy services.

**KEYWORDS:** Acute respiratory infections, Namibia, prevalence, self-medication

## INTRODUCTION

There are increasing concerns with rising rates of antimicrobial resistance across countries driven by inappropriate use of antibiotics, especially for viral infections such as acute respiratory infections (ARIs).<sup>[1-3]</sup> Self-purchasing of antibiotics is a key driver of their inappropriate use, especially among developing countries with poor regulatory practices despite legislation banning this.<sup>[4-6]</sup> This can change with financial

penalties and greater enforcement as well as with increased knowledge among pharmacists to recommend appropriate management enhanced by the availability of guidelines.<sup>[2,7-9]</sup> Equally, there are concerns if high-risk patients such as children are self-medicated at home

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without any professional input.<sup>[10]</sup> Pharmacists are often the first health-care professional patients contact for the management of ARIs for themselves or their children in view of their access and issues of affordability, especially if patients cannot afford to see a physician and purchase their recommended medicines.<sup>[2,8]</sup> Alternatively, patients cannot afford travel costs and/or take time off work to attend distant public health-care clinics (PHCs) for themselves or their children even if physician costs and medicines are provided free within a universal health-care system.<sup>[11]</sup> Similarly, if there are long waiting times in PHCs, which again may adversely affect patients' or parents income, and consequently they seek care from private physicians or community pharmacists.<sup>[12,13]</sup> The increasing role of pharmacists in managing patients with ARIs is recognized in a number of countries leading to the development of guidelines and other activities to improve subsequent patient care.<sup>[8,14]</sup> Despite this, patients may still wish to self-medicate for their or their children's ARIs if they have difficulties affording even antipyretics or there are still considerable difficulties accessing health-care professionals. This is a concern, especially in children where ARIs are a leading cause of mortality.<sup>[10,15]</sup>

Consequently, the principal objective of this study was to assess self-medication practices for children under five with ARIs within an informal settlement in a township in Namibia. This includes the types of medicines kept for self-medication and their storage, as well as factors influencing self-medication. Informal settlements were chosen as typically they have higher rates of ARIs due to issues of overcrowding exacerbated by extended families, poor housing, and household air pollution. In addition, where self-medication is likely to be highest as there can be issues with distances and access to health-care services, including medicines in the public health-care system with limited numbers of patients on medical aid.<sup>[16]</sup> We hypothesize that there will be considerable self-medication for ARIs, among children but limited self-purchasing of antibiotics for ARIs even in informal settlements as this is illegal in Namibia coupled with regular inspections in pharmacies. This is different from the situation in an appreciable number of low- and middle-income countries where there is extensive self-purchasing of antibiotics despite the legal regulations.<sup>[4,6,17]</sup> The findings will be used to suggest pertinent initiatives for the future in Namibia and wider.

## METHODS

A cross-sectional study design was used among residents at the Tobias Hainyeko informal settlement in the Outapi Township, which is a typical informal settlement in Namibia, although there can be ethnic variations

between the different informal settlements in Namibia. All households in this informal settlement were initially approached for the survey (120 in total), although we are aware that household numbers are lower than the 200 households included in the study of Kibuule *et al.* assessing the extent of self-medication with antibiotics among children under five in Uganda.<sup>[5]</sup>

Quantitative data were collected on the sociodemographics of participants as well as the extent of ARIs among children under five in households. Qualitative data were collected via open-ended questions, which included data on attitudes, practices, and behaviors for the management of ARI within households, with the instrument pretested before use. To qualify for this study, at least one member of the household should have suffered an ARI in the past 6 months, should have self-medicated, and the head of the household must be an adult. The interviewers went back during different times of the day to improve the chance of a range of ages and employment among the participants to enhance the robustness of the findings, e.g., in the evening or weekends to include those in employment.

The quantitative data were analyzed using descriptive statistics. Inferential statistics were used to analyze the data collected regarding factors influencing self-medication. Overall, the methodology complied with the STROBE guidelines.<sup>[18]</sup>

Ethical approval to conduct the study was obtained from the Ministry of Health and Social Services, Namibia, and all participating households gave their consent to be involved.

## RESULTS

One hundred households eventually participated in giving a response rate of 80%. The vast majority of participants were living in shacks (99%) with only 1% living in concrete dwellings, headed mainly by middle-aged parents or guardians (<40 years) – 72%. 79% of the respondents were female (79%). 46% of respondents were mothers, 15% fathers, and 39% others including guardians. 94% of households did not have access to medical aid (additional insurance); consequently, they were reliant on the public health-care system for their needs or alternatively self-pay in retail pharmacies. The majority of respondents were self-employed (43%), with only 9% in formal employment. Other demographics are included in Table 1.

60% of the respondents self-medicate their children at the household level for ARIs and other ailments, with homemade remedies including gargling with salt water and inhaling vapor from dissolving menthol-containing ointments in water the most common

**Table 1: Demographic characteristics of the study population (n=100)**

Characteristics	Percent
Age of respondent (years)	
24–30	24.0
31–35	29.0
36–40	19.0
41–45	11.0
46–50	7.0
51–55	8.0
56–60	1.0
71–75	1.0
Number of adults in the dwelling	
One adult	40.0
Two adults	40.0
Three adults	17.0
Four adults	2.0
Five adults	1.0
Children <5 years	
None	75.0
One child	22.0
Two children	2.0
Three children	1.0
Children >5 years	
None	51.0
One child	33.0
Two children	13.0
Three children	3.0
Family size total (total members)	
One	25.0
Two	21.0
Three	21.0
Four	19.0
Five	11.0
Six	1.0
Seven	2.0
Number of schoolgoing children	
None	51.0
One	32.0
Two	12.0
Three	4.0
Four	1.0
Total	100.0
Respondent's highest level of education	
No education	3.0
Primary	15.0
Secondary	80.0
Tertiary	2.0
Number of household members that are employed	
None	6.0
One	66.0
Two	20.0
Three	7.0
Four	1.0

form (36%) [Table 2]. There was also the use of herbal medicines for ailments. 29% of respondents sought

medical help at the hospital or clinic for their ARIs, for their children with 11% ignoring symptoms including ARI.

Irritants and menthol preparations were the most common treatments for managing ARIs specifically [Table 3]. There was limited use of other preparations.

The most medicines, including homemade medicines, were from supplies at home (63%), with only a minority of participants obtaining medicines directly from the pharmacy (27%), primary care clinic (7%), or hospital. Respondents (87%) commonly stored their medicines in boxes on shelves out of sunlight and away from children.

From those who responded, common reasons for their children self-medicating without seeking professional help, including principally for ARIs, was that the condition was minor and could be managed at home (54.8%) [Table 4].

## DISCUSSION

It was encouraging to see no self-purchasing for antibiotics to treat ARIs in this study in Namibia unlike the situation in a number of other African countries or those in Asia.<sup>[4,6,19-21]</sup> This confirms our hypothesis. We believe this lack of self-purchasing was helped by strict policies regarding obtaining antibiotics in Namibia, which can only be dispensed with a valid prescription with community pharmacies regularly monitored. In addition, the costs of antimicrobials may have been prohibitive among some of the participants given their low economic status, and the majority lacked additional medical insurance cover. However, further research is needed before we can make more definitive statements.

As expected, there was appreciable self-medication of ARIs in young children in this informal settlement in Namibia, which needs to be addressed. The medicines that were obtained from the hospital and/or clinic and used to manage ARIs were reported to be leftovers from the last visit to a healthcare provider, similar to studies in other countries.<sup>[22]</sup> This is also a concern as it means either patients were provided with excessive medication, or they did not finish earlier courses of treatment for themselves or their children. This will again be investigated further.

A number of recommendations can be made from this study, given the extent of self-medication of ARIs in this study. First, the need for greater availability and access to healthcare workers in the public health-care system in ambulatory care to address issues of long waiting times in clinics and long distances to access care. This includes pharmacists working in the public health-care

**Table 2: Prevalence of self-medication practices among households for ailments including acute respiratory infections**

Treatment approach	Percentage
Treated with herbs grown at home	1
Treated with herbs locally purchased	2
Ignored the symptoms	11
Treated with medication including tablets or syrups	21
Sought medical help at a clinic or hospital	29
Given home remedies including gargling with salt water or inhaling vapors from dissolving menthol-containing ointments in water	36

**Table 3: Common remedies used for managing acute respiratory infections**

Remedies used to manage ARIs	Percentage
Herbs	2
Cough syrups	2
Common cold medications	6
Inhaled herbs (uuhutu)	6
Antipyretics (such as paracetamol)	6
Gargle with saltwater	12
Irritants and menthol preparations	66

AIRs=Acute respiratory infections

**Table 4: Factors influencing self-purchasing**

Factors	Percentage	Quotes
Assists with first aid	29	<i>"It is my go-to treatment"</i>
Common minor ailment/ can be treated at home	54.8	<i>"I can manage it a home"</i>
The hospital has no medicines	3.2	<i>"The hospital never has medicines"</i>
Distance to the hospital	3.2	<i>"The hospital is far"</i>
Long queues at the clinics/ hospital	9.7	<i>"the clinic is always full"</i>

system to help educate parents regarding ARIs given the high rate of self-medication among children. Second, having trained pharmacists can help reinforce the message about the viral origin of most ARIs to help reduce inappropriate prescribing and dispensing of antibiotics. However, pharmacists need to be vigilant if such infections persist, especially given high rates of community-acquired pneumonia and other serious respiratory infections in Namibia.

Third, the supplies of medicines to PHCs also needs to be improved where there are concerns with medicine availability [Table 4], building on examples in other African countries including South Africa.<sup>[23]</sup> Fourth, educational campaigns are also needed among patients and parents to alert them to take the full course of any prescribed medicine. This alongside warnings of the dangers of self-medication and directing patients to pharmacists and other professionals in the health-care

system to appropriately manage their ARIs, building on initiatives in other countries.<sup>[2,8]</sup> This includes addressing concerns with any knowledge gaps of pharmacists regarding ARIs and antibiotics generally where there are identified issues.<sup>[24,25]</sup> We will be monitoring possible developments in the future.

We are aware of a number of limitations with this study. This includes the fact that we only conducted the study in one informal settlement in Namibia and not wider. Despite this limitation, we believe our findings are robust and provide direction for the future.

The majority of households in this informal settlement in Namibia self-medicate for ARIs in their children for a number of reasons which is a concern. This includes irritants and menthol preparations. Encouragingly, there was no self-medication with antibiotics in our study. Given the potential concerns with self-medicating for ARIs, especially in children, it is recommended that there is an increase in outreach primary health-care services to help screen and appropriately manage patients with ARIs, with appreciable input from pharmacists. We will be monitoring this in the future to improve the care of these patients.

## AUTHORS' CONTRIBUTION

Monika Kamati and Dan Kibuule developed the study design, with Monika Kamati undertaking the data collection and analysis principally under the supervision of Dan Kibuule. Monika Kamati prepared the first draft of the manuscript while Brian Godman and Dan Kibuule provided a critical review to the manuscript. All authors read and approved the final manuscript.

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## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

- O'Neill J. Antimicrobial Resistance: Tackling a Crisis for the Health and Wealth of Nations. The Review on Antimicrobial Resistance; 2014. Available from: [https://amr-review.org/sites/default/files/AMR%20Review%20Paper%20-%20Tackling%20a%20crisis%20for%20the%20health%20and%20wealth%20of%20nations\\_1.pdf](https://amr-review.org/sites/default/files/AMR%20Review%20Paper%20-%20Tackling%20a%20crisis%20for%20the%20health%20and%20wealth%20of%20nations_1.pdf). [Last accessed on 2019 Oct 28].
- Mukokinya MM, Opanga S, Oluka M, Godman B. Dispensing of antimicrobials in Kenya: A cross-sectional pilot study and its implications. *J Res Pharm Pract* 2018;7:77-82.
- Dyar OJ, Beović B, Vlahović-Palčevski V, Verheij T, Pulcini C; on behalf of ESGAP (the ESCMID [European Society of Clinical Microbiology and Infectious Diseases] Study Group for Antibiotic Policies). How can we improve antibiotic prescribing in primary care? *Expert Rev Anti Infect Ther* 2016;14:403-13.
- Kalungia A, Godman B. Nonprescription antibiotic sales in China and the implications. *Lancet Infect Dis* 2019;S1473-

- 3099(19)30408-6.
5. Kibuule D, Kagoya HR, Godman B. Antibiotic use in acute respiratory infections in under-fives in Uganda: Findings and implications. *Expert Rev Anti Infect Ther* 2016;14:863-72.
  6. Nepal G, Bhatta S. Self-medication with antibiotics in WHO Southeast Asian region: A systematic review. *Cureus* 2018;10:e2428.
  7. Jacobs TG, Robertson J, van den Ham HA, Iwamoto K, Bak Pedersen H, Mantel-Teeuwisse AK, *et al.* Assessing the impact of law enforcement to reduce over-the-counter (OTC) sales of antibiotics in low- and middle-income countries; a systematic literature review. *BMC Health Serv Res* 2019;19:536.
  8. Marković-Peković V, Grubiša N, Burger J, Bojanić L, Godman B. Initiatives to reduce nonprescription sales and dispensing of antibiotics: Findings and implications. *J Res Pharm Pract* 2017;6:120-5.
  9. FIP Statement of Policy – Control of Antimicrobial Medicines Resistance (AMR). Available from: [http://www.fip.org/www/uploads/database\\_file.php?id=289&table\\_id](http://www.fip.org/www/uploads/database_file.php?id=289&table_id). [Last accessed on 2019 Oct 28].
  10. Ocan M, Aono M, Bukirwa C, Luyinda E, Ochwo C, Nsambu E, *et al.* Medicine use practices in management of symptoms of acute upper respiratory tract infections in children ( $\leq 12$  years) in Kampala city, Uganda. *BMC Public Health* 2017;17:732.
  11. Nashilongo MM, Singu B, Kalemeera F, Mubita M, Naikaku E, Baker A, *et al.* Assessing adherence to antihypertensive therapy in primary health care in Namibia: Findings and implications. *Cardiovasc Drugs Ther* 2017;31:565-78.
  12. Rezal RS, Hassali MA, Alrasheedy AA, Saleem F, Yusof FA, Kamal M, *et al.* Prescribing patterns for upper respiratory tract infections: A prescription-review of primary care practice in Kedah, Malaysia, and the implications. *Expert Rev Anti Infect Ther* 2015;13:1547-56.
  13. Soleymani F, Godman B, Yarimanesh P, Kebriacezade A. Prescribing patterns of physicians working in both the direct and indirect treatment sectors in Iran; findings and implications. *JPHS* 2019. p. 1-7.
  14. World Health Organization. The Role of the Pharmacist in Self-Care and Self-Medication. Available from: <http://apps.who.int/medicinedocs/pdf/whozip32e/whozip32e.pdf>. [Last accessed on 2019 Oct 28].
  15. Gianino MM, Lenzi J, Bonaudo M, Fantini MP, Siliquini R, Ricciardi W, *et al.* Patterns of amenable child mortality over time in 34 member countries of the organisation for economic co-operation and development (OECD): Evidence from a 15-year time trend analysis (2001-2015). *BMJ Open* 2019;9:e027909.
  16. Checkley W, Pollard SL, Siddharthan T, Babu GR, Thakur M, Miele CH, *et al.* Managing threats to respiratory health in urban slums. *Lancet Respir Med* 2016;4:852-4.
  17. Ocan M, Obuku EA, Bwanga F, Akena D, Richard S, Ogwal-Okeng J, *et al.* Household antimicrobial self-medication: A systematic review and meta-analysis of the burden, risk factors and outcomes in developing countries. *BMC Public Health* 2015;15:742.
  18. Vandembroucke JP, von Elm E, Altman DG, Gøtzsche PC, Mulrow CD, Pocock SJ, *et al.* Strengthening the reporting of observational studies in epidemiology (STROBE): Explanation and elaboration. *Int J Surg* 2014;12:1500-24.
  19. Kalungia AC, Burger J, Godman B, Costa JO, Simuwelu C. Non-prescription sale and dispensing of antibiotics in community pharmacies in Zambia. *Expert Rev Anti Infect Ther* 2016;14:1215-23.
  20. Ahiabu MA, Magnussen P, Bygbjerg IC, Tersbøl BP. Treatment practices of households and antibiotic dispensing in medicine outlets in developing countries: The case of Ghana. *Res Social Adm Pharm* 2018;14:1180-8.
  21. Ekwochi U, Chinawa JM, Osuorah CD, Odetunde OI, Obu HA, Agwu S, *et al.* The use of unprescribed antibiotics in management of upper respiratory tract infection in children in Enugu, South East Nigeria. *J Trop Pediatr* 2014;60:249-52.
  22. Richman PB, Garra G, Eskin B, Nashed AH, Cody R. Oral antibiotic use without consulting a physician: A survey of ED patients. *Am J Emerg Med* 2001;19:57-60.
  23. Meyer JC, Schellack N, Stokes J, Lancaster R, Zeeman H, Defty D, *et al.* Ongoing initiatives to improve the quality and efficiency of medicine use within the public healthcare system in South Africa; A preliminary study. *Front Pharmacol* 2017;8:751.
  24. Hoxha I, Malaj A, Kraja B, Bino S, Oluka M, Marković-Peković V, *et al.* Are pharmacists' good knowledge and awareness on antibiotics taken for granted? The situation in Albania and future implications across countries. *J Glob Antimicrob Resist* 2018;13:240-5.
  25. Saleem Z, Hassali MA, Hashmi FK, Godman B, Saleem F. Antimicrobial dispensing practices and determinants of antimicrobial resistance: A qualitative study among community pharmacists in Pakistan. *Fam Med Community Health* 2019;7:e000138.