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# Medicine Use Behaviour and Antibiotic Related Knowledge among Adults in Rural Communities of Nagpur District, Maharashtra: a Pilot Cross-Sectional Survey

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**ABSTRACT :**

**Aims:** To describe medicine use behaviour and antibiotic related knowledge among adults in four rural communities of Nagpur District and to identify practical areas for community health education.

**Instruments & Methods:** A cross-sectional pilot survey was conducted among 40 adults from Narkhed and Warud talukas, Maharashtra. Participants were selected by convenience sampling. A 15 item self constructed questionnaire covered health seeking behaviour, antibiotic awareness, medicine use, leftover medicines, medicine sharing, non prescription antibiotic purchase and sources of health information. The instrument was self constructed and did not undergo formal validation or reliability testing. Verbal informed consent was obtained and no personally identifying information was recorded. Analysis was descriptive and based on the completed Excel dataset.

**Findings:** The mean age was 39.9 yr (range 19–82); 21 (52.5%) participants were women. Thirty seven (92.5%) had heard of antibiotics, but only 16 (40%) knew that antibiotics do not treat common viral cold or flu. Seventeen (42.5%) reported taking medicines without consulting a doctor. Fourteen (35%) had kept leftover medicines, eight (20%) had used leftover medicines later, and 13 (32.5%) had shared medicines with family members. Nine (22.5%) reported purchasing antibiotics without a prescription. Although 34 (85%) regarded taking medicines without a doctor's advice as harmful, 17 (42.5%) reported that they had done so. Twenty four (60%) had heard that frequent or incorrect antibiotic use can reduce future effectiveness.

**Conclusions:** The survey suggests that recognition of antibiotics was relatively common, but specific understanding and everyday medicine use practices were less consistent. The difference between favourable attitudes and reported behaviour indicates that community education should address practical decisions about consultation, leftover medicines, medicine sharing and antibiotic use for viral illness. The findings are preliminary and require confirmation in larger studies using validated instruments and appropriate ethical oversight.

**Keywords:** Antibiotics; antimicrobial resistance; self medication; medicine use; rural health; community health education

## INTRODUCTION

Antibiotics remain essential for bacterial infections, yet their benefit is compromised when they are used without an appropriate indication or outside professional guidance. At community level, decisions about medicines are shaped by more than knowledge alone; access to care, previous experience, advice from relatives or medicine sellers, and ease of obtaining medicines can all influence behaviour [1–4].

Self medication and non prescription access to antibiotics have been documented across low and middle income settings [5,6]. Indian community studies have likewise reported gaps in understanding antibiotic indications and continued use of medicines without professional consultation [3,4,7,8]. Because these behaviours vary between populations, local descriptive data can help identify realistic priorities for health education.

This pilot survey examined medicine use behaviour and antibiotic related knowledge among adults in four rural communities associated with Narkhed and Warud talukas in Maharashtra. The analysis reports individual questionnaire responses rather than constructing a composite KAP score, with particular attention to whether stated attitudes are reflected in reported practice.

## INSTRUMENT AND METHODS

**Study design and participants:** This cross sectional pilot survey included 40 adults from Narkhed, Ganeshpur (Tahsil Warud), Pethmuktapur (Tahsil Narkhed) and Belona (Narkhed Taluka). Ten participants were included from each location through convenience sampling.

**Questionnaire:** A 15 item self constructed questionnaire covered first responses to common symptoms, medicine use without consultation, awareness of antibiotics, recognition that antibiotics do not treat common viral cold or flu, behaviour after receiving a five day prescription, retention and later use of leftover medicines, medicine sharing, usual source of medicines, non prescription antibiotic purchase, perceived harm from unsupervised medicine use, awareness of reduced effectiveness with frequent or incorrect antibiotic use, hygiene practices and sources of health information. The questionnaire was not formally validated. The source questionnaire is preserved in the study records.

**Data analysis:** The completed participant records were compiled in Microsoft Excel and this dataset was treated as the primary source for all numerical results. Categorical responses are presented as frequencies and percentages. No composite KAP score or inferential test was used because the study was exploratory and the sample was small and non probabilistic.

**Ethical considerations:** Verbal informed consent was obtained before questionnaire administration and anonymity was maintained. Formal institutional ethics committee approval was not obtained before data collection. This limitation is stated explicitly.

## Findings

**Participant profile:** Forty adults were included. Mean age was 39.9 yr (range 19–82); 21 (52.5%) were women and 19 (47.5%) were men. Twelve (30%) participants were graduates, 11 (27.5%) had secondary education, nine (22.5%) had higher secondary education, six (15%) had primary education and two (5%) had no formal education. Each of the four study locations contributed 10 participants.

**Antibiotic awareness and understanding:** Thirty seven (92.5%) participants had heard of antibiotics and three (7.5%) had not. Recognition of the term was therefore much more common than correct knowledge about viral illness: 16 (40%) correctly stated that antibiotics do not work against common viral cold or flu, while 18 (45%) answered no and six (15%) were unsure.

**Medicine use practices:** Seventeen (42.5%) participants had taken medicines without consulting a doctor. Fourteen (35%) had kept leftover medicines at home and eight (20%) had later used leftover medicines without consultation. Thirteen (32.5%) had shared medicines with family members. Nine (22.5%) had bought antibiotics from a medical shop without a prescription; 28 (70%) had not and three (7.5%) were unsure.

**Attitudes and awareness of antibiotic effectiveness:** Thirty four (85%) considered taking medicines without a doctor's advice harmful; three (7.5%) did not and three (7.5%) were unsure. Twenty four (60%) had heard that frequent or incorrect antibiotic use can make antibiotics less effective in the future.

**Sources of medicines and health information:** Thirty two (80%) participants reported a private medical shop as their usual source of medicines and eight (20%) reported a government hospital. Doctors were the main reported source of health information (29, 72.5%), followed by ASHA workers (6, 15%), family or friends (3, 7.5%) and mobile/internet sources (2, 5%).

**Table 1. Participant characteristics (n=40)**

| Characteristic | n (%) |
|---|---|
| Age, yr; mean (range) | 39.9 (19–82) |
| Female | 21 (52.5) |
| Male | 19 (47.5) |
| No formal education | 2 (5.0) |
| Primary education | 6 (15.0) |
| Secondary education | 11 (27.5) |
| Higher secondary education | 9 (22.5) |
| Graduate | 12 (30.0) |
| Narkhed | 10 (25.0) |
| Ganeshpur (Tahsil Warud) | 10 (25.0) |
| Pethmuktapur (Tahsil Narkhed) | 10 (25.0) |
| Belona (Narkhed Taluka) | 10 (25.0) |

**Table 2. Selected questionnaire responses concerning medicine use and antibiotics (n=40)**

| Question | Yes, n (%) | No, n (%) | Don't know, n (%) |
|---|---|---|---|
| Ever taken medicines without consulting a doctor | 17 (42.5) | 23 (57.5) | — |
| Heard of antibiotics | 37 (92.5) | 3 (7.5) | — |

| | | | |
|---|---|---|---|
| Knows antibiotics do not work against common viral cold/ flu | 16 (40.0) | 18 (45.0) | 6 (15.0) |
| Kept leftover medicines at home | 14 (35.0) | 26 (65.0) | — |
| Used leftover medicines later without consulting a doctor | 8 (20.0) | 32 (80.0) | — |
| Shared medicines with family members | 13 (32.5) | 27 (67.5) | — |
| Bought antibiotics without a prescription | 9 (22.5) | 28 (70.0) | 3 (7.5) |
| Believes taking medicines without doctor's advice is harmful | 34 (85.0) | 3 (7.5) | 3 (7.5) |
| Heard frequent/ incorrect antibiotic use can reduce effectiveness | 24 (60.0) | 16 (40.0) | — |

**Table 3. Reported sources of medicines and health information (n=40)**

| Variable | Source | n (%) |
|---|---|---|
| Source of medicines | Private medical shop | 32 (80.0) |
| | Government hospital | 8 (20.0) |
| Source of health information | Doctor | 29 (72.5) |
| | ASHA worker | 6 (15.0) |
| | Family/friends | 3 (7.5) |
| | Mobile/internet | 2 (5.0) |

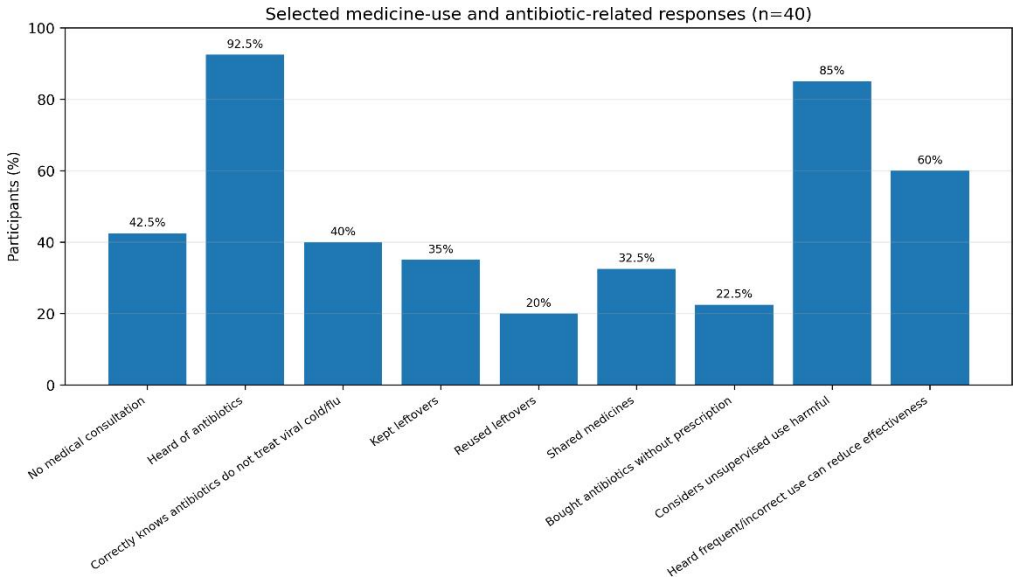



**Figure 1. Selected medicine use and antibiotic related responses**

Percentages are based on the 40 completed participant records.

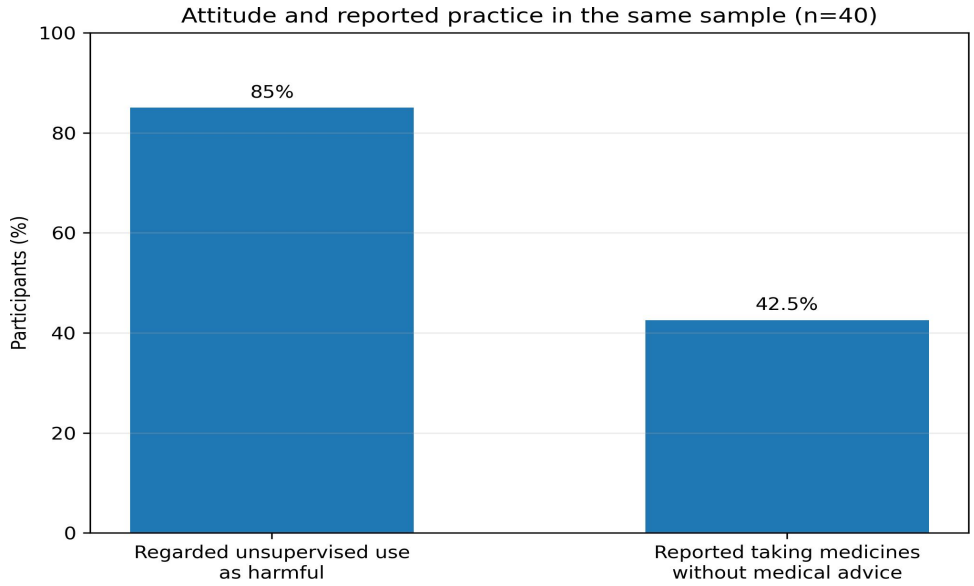



**Figure 2. Difference between a stated attitude and a reported practice**

## DISCUSSION

The clearest finding from this pilot survey is the difference between familiarity with the word antibiotic and more specific understanding of antibiotic use. Nearly all participants had heard of antibiotics, but only 40% correctly recognized that they are not useful for common viral cold or flu. This distinction is important for community education because nominal awareness does not necessarily indicate functional knowledge.

The medicine use responses show several behaviours that deserve attention. More than two fifths of participants reported taking medicines without professional consultation; one third retained leftover medicines, and 32.5% reported sharing medicines with family members. One in five had subsequently used leftover medicines without consultation, and 22.5% reported obtaining antibiotics without a prescription. These observations are compatible with evidence from community settings showing that self medication and non prescription antibiotic access remain important public health concerns [5,6].

The results should not, however, be interpreted as a prevalence estimate for rural Maharashtra. The sample comprised only 40 people and was selected by convenience. Comparisons with other Indian studies are also imperfect because study populations, wording of questions and definitions of self medication differ. The value of the present survey is therefore primarily local and exploratory.

The contrast between attitude and behaviour is also worth noting. Eighty five per cent regarded taking medicines without a doctor's advice as harmful, while 42.5% reported that they had nevertheless done so. This does not establish that knowledge failed to influence behaviour, nor does it identify the reason for the discrepancy. It simply shows that a favourable stated attitude coexisted with reported behaviour that was potentially inconsistent with that attitude. Similar gaps between awareness and practice have been discussed in community antibiotic use studies [7,10].

The reported information sources provide a practical direction for future health education. Doctors were the main source of health information, followed by ASHA workers. Community messages could therefore be reinforced during routine primary care encounters and outreach activities. Rather than focusing only on the abstract concept of antimicrobial resistance, education could address everyday decisions: when antibiotics are appropriate, why viral colds generally do not require them, why medicines should not be shared, and why leftover medicines should not be reused without professional advice.

The pharmacy finding deserves separate attention. Eighty per cent of participants identified a private medical shop as their usual source of medicines, and 22.5% reported buying antibiotics without a prescription. Community pharmacy research has identified non prescription antibiotic access as an important stewardship challenge in India and other low and middle income countries [6,11,12]. The present survey did not assess dispensing practices or reasons for purchase, so it cannot determine what factors produced these reports.

Limitations. The study is small, cross sectional and based on convenience sampling. Responses were self reported and may be affected by recall or social desirability bias. The questionnaire was self constructed and had not undergone formal validation or reliability testing. No composite KAP score was calculated and no inferential associations were tested. The survey did not record antibiotic names, indications, prescriptions or microbiological findings. Finally, formal institutional ethics committee approval was not obtained before data collection.

## CONCLUSION

In this small rural sample, awareness of antibiotics was widespread, but specific understanding of antibiotic use for viral illness was less consistent. Self reported non consultation medicine use, retention and reuse of leftover medicines, medicine sharing and non prescription antibiotic purchase were also observed. The coexistence of these practices with generally negative attitudes toward unsupervised use suggests that community education should focus on practical medicine use decisions rather than awareness alone. Larger studies with validated instruments, broader sampling and appropriate prospective ethical oversight are needed.

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