"WITHOUT ANTIBIOTICS, I CANNOT TREAT" – PRESCRIBING PRACTICES IN WEST BENGAL, INDIA: MIXED-METHODS STUDY
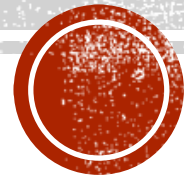
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INTRODUCTION

- The World Health Organization has warned that the world is entering a "post-antibiotic" era [1]

- In 2010, India was the world's largest consumer of antibiotics for human health [2]

- India accounts for the highest number of over-the-counter, non-prescription sales of antibiotics in the world [2]

- Antibiotic resistance increases healthcare costs through longer hospital stays, longer treatment regimens, and higher prescription load of advanced antibiotics [3]

STUDY OBJECTIVES

- To understand public perceptions and vocabularies of illness regarding antibiotics

- To understand knowledge, attitudes, and practices among formal (allopathic doctors, nurses, and pharmacists) and informal healthcare providers

- To understand perceptions of antibiotic use and drivers for prescription choices

METHODS

- Mixed-methods study design: explanatory sequential design
- Self-administered, cross-sectional survey (n=384)
  - Convenience sampling
  - 96 doctors, 96 nurses, 96 pharmacy workers, 96 informal health providers
- In-depth interviews (n=28)
  - Participants were purposively sampled until saturation was attained
- Survey data was collated in Excel and analyzed in SPSS
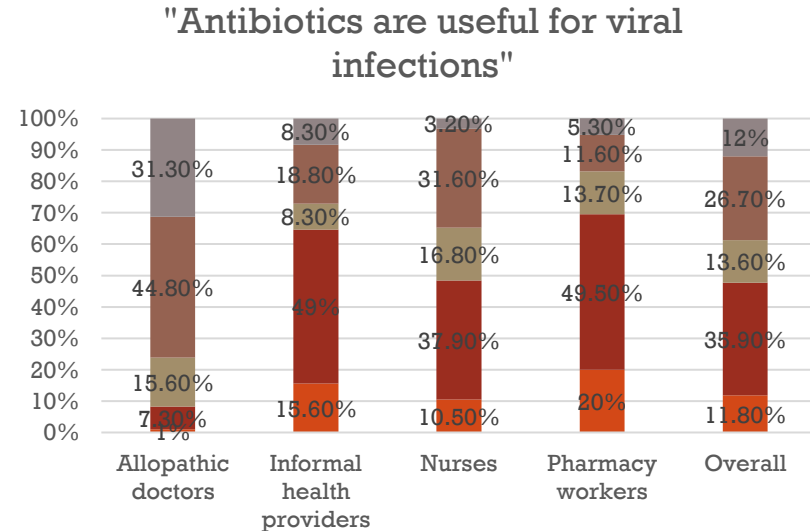- Qualitative data was analyzed using the framework method

DEMOGRAPHICS

	Doctors N (%)	Informal providers N (%)	Nurses N (%)	Pharmacy shopkeepers N (%)	Total N (%)
Age group (years)					
18-25	0 (0)	1 (1.0)	3 (3.1)	9 (9.4)	13 (3.4)
26-35	36 (37.5)	14 (14.6)	32 (33.3)	23 (24.0)	105 (27.3)
36-45	19 (19.8)	41 (42.7)	38 (39.6)	37 (38.5)	135 (35.2)
45-60	35 (36.5)	33 (34.4)	23 (24.0)	20 (20.8)	111 (28.9)
>60	6 (6.2)	7 (7.3)	0 (0)	7 (7.3)	20 (5.2)
Mean $\pm$ SD age (years)	42.5 $\pm$ 11.5	44.2 $\pm$ 10.1	39.9 $\pm$ 10.2	40.2 $\pm$ 11.2	41.7$\pm$ 10.9
Gender					
Male	76 (79.2)	95 (99)	0 (0)	93 (96.9)	264 (68.8)
Female	20 (20.8)	1 (1)	96 (100)	3 (3.1)	120 (31.3)
Work setting					
PHC	31 (32.3)	0 (0)	61 (63.5)	11 (11.5)	103 (26.8)
District hospital	61 (63.5)	2 (2.1)	35 (36.5)	0 (0)	98 (25.5)
Private hospital	0 (0)	1 (1.0)	0 (0)	0 (0)	1 (0.3)
Private clinic	3 (3.1)	90 (93.8)	0 (0)	2 (2.1)	95 (24.7)
Pharmacy	0 (0)	3 (3.1)	0 (0)	81 (84.4)	84 (21.9)
Others	1 (1.0)	0 (0)	0 (0)	2 (2.1)	3 (0.8)
Work experience (months)					
1-11	13 (13.5)	0 (0)	3 (3.1)	4 (4.2)	20 (5.2)
12-60	29 (30.2)	12 (12.5)	29 (30.2)	21 (21.9)	91 (23.7)
61-120	17 (17.7)	9 (9.4)	23 (24.0)	17 (17.7)	66 (17.2)
>120	37 (38.5)	75 (78.1)	41 (42.7)	54 (56.3)	207 (53.9)

SURVEY RESULTS

- Doctors had comparatively better knowledge, but knowledge did not translate into practice
  - >88% of doctors and >85% of informal providers gave antibiotics for a cold

- Attitudes between providers were very similar

- 30.8% (n=118) of all providers and 58% (n=56) of all informal health providers relied on pharmaceutical company representatives as a source of knowledge about antibiotics

"Antibiotics are useful for viral infections"

	Allopathic doctors	Informal health providers	Nurses	Pharmacy workers	Overall
Strongly disagree	31.30%	8.30%	3.20%	5.30%	12%
Disagree	44.80%	18.80%	31.60%	11.60%	26.70%
Neutral	15.60%	8.30%	16.80%	13.70%	13.60%
Agree	7.30%	49%	37.90%	49.50%	35.90%
Strongly agree	1%	15.60%	10.50%	20%	11.80%

Strongly agree Agree Neutral Disagree Strongly disagree

SCORING THE KAP SURVEY

- Likert scale responses scored from 5 (most accurate answer) to 1 (least accurate)

- Maximum possible score:
  - Knowledge: 32
  - Attitudes: 45
  - Practices: 20
  - Total score: 97

- An average percent score was calculated to make scores comparable across categories

AVERAGE PERCENT SCORES

- Dissonance between knowledge and practice among doctors
- Informal providers exhibit very poor knowledge of antibiotics

Occupation	Knowledge Mean % (SD)	Attitudes Mean % (SD)	Practice Mean % (SD)	Composite KAP score Mean % (SD)
Allopathic doctors	77.3 (12.7)	87.3 (7.7)	67.6 (11.1)	79.9 (6.9)
Informal health providers	56.9 (11.5)	80.0 (9.6)	71.2 (11.6)	70.6 (7.8)
Nurses	63.4 (11.2)	79.9 (9.2)	75.5 (12.6)	73.5 (7.2)
Pharmacy shopkeepers	57.8 (9.7)	79.3 (9.6)	72.1 (12.8)	70.7 (7.0)

QUALITATIVE RESULTS (1)

- Patient demands for quick cures drive irrational antibiotic usage

- Antibiotics are provided to prevent against "secondary" infections

- Lack of adequate testing facilities contribute to empiric treatment

- Pervasive influence of pharmaceutical company representatives

- Eroding trust in the doctor-patient relationship

- 3-day course of antibiotics due to poor follow-up and perceived lack of adherence

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QUALITATIVE RESULTS (2)

> "I would give Paracetemol for a fever patient. I will have to give a halka–phulka antibiotic along with that. Ampicillin, Amoxcillin- I will have to give for first aid"
> -Male, 48, IHP

- "Halka phulka antibiotics" [low-power antibiotics] as first-aid treatment

- Interdependency between doctors, informal providers, and pharmaceutical company representatives

- Inadequate public facilities trigger dependence on informal providers

- Patients switch medical providers frequently to seek the fastest cure

CONCLUSIONS

- Current initiatives to tackle antibiotic resistance in Asia focus on surveillance systems, regulation of antibiotic sales, and national guidelines for use

- We fail to account for patient perceptions, relationships between different providers, and the role of pharmaceutical company representatives

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REFERENCES

[1] WHO | Antimicrobial resistance: global report on surveillance 2014; WHO (2016) Published by World Health Organization.

[2] Laxminarayan R, Chaudhury RR (2016) Antibiotic Resistance in India: Drivers and Opportunities for Action. PLOS Medicine 13(3): e1001974. doi: 10.1371/journal.pmed.1001974

[3] Antimicrobial resistance and its containment in India. (2016). Retrieved November 21, 2017, from Inter-Ministerial Review Meeting on Antimicrobial Resistance