

**Self medication with Antibiotics in Yogyakarta City
Indonesia**

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“Telling humans what to do is like asking stones to flow. Stones cannot flow until they become fluid within. And so it is with the human. It is not worth anyone telling you what to do, because you will do what you are. External law will fail until it becomes internal law. External law tells you what to do. Internal law reveals how to be” (Simon Parke, The Beautiful Life, Bloomsbury publishing London, 2007, p.35).

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List of Abbreviations

SMA	: Self medication with antibiotics
TPB	: Theory of planned behaviour
WHO	: World Health Organisation
IMoH	: Indonesia Ministry of Health
OTC	: Over-the-counter
FIP	: International Pharmaceutical Federation
WSMI	: World self medication industry
FDA	: Food and Drug Administration
USA	: United States of America
UK	: United Kingdom
OWA	: Obat Wajib Apotek (Bahasa Indonesia) – Pharmacy-only medicines
TB	: Tuberculosis
MAI	: Medication appropriateness index
PNSP	: Penicillin-non-susceptible streptococcus pneumonia
CA-MRSA	: Community-Associated Meticillin Resistant Staphylococcus aureus
GDP	: Gross Domestic Product
STDs	: Sexually transmitted diseases
PHC	: Primary Health Care
HBM	: Health belief model
TRA	: Theory of reasoned action
A	: Attitude towards the behaviour
SN	: Subjective norm
PBC	: Perceived behavioural control
BB	: Behavioural belief
OE	: Outcome evaluation
NB	: Normative belief
MC	: Motivation to comply
CB	: Control belief
PC	: Control belief power
I	: Intention
CI	: Confidence interval
ICC	: Intra-cluster correlation
PPS	: Probability proportionate to size
SPSS	: Statistical package for social science
FGD	: Focus group discussion
GP	: General practitioner
SMA-Q	: Self medication with antibiotics questionnaire
URTI	: Upper respiratory tract infection
MTP	: Monitoring training planning
CBIA	: Cara Belajar Ibu Aktif (Bahasa Indonesia) – Mothers active learning method

- PKK : Program Kesejahteraan Keluarga (Bahasa Indonesia) – Family welfare program
- PPNI : Persatuan Perawat Nasional Indonesia (Bahasa Indonesia) – The Indonesian nurse association
- IAI : Ikatan Apoteker Indonesia (Bahasa Indonesia) – The Indonesian pharmacist association
- IBI : Ikatan Bidan Indonesia (Bahasa Indonesia) - The Indonesian midwife association
- DIY : Daerah Istimewa Yogyakarta (Bahasa Indonesia) – Yogyakarta Special Province

Abstract

In Indonesia, legislation mandates a medical prescription for purchase of antibiotics. However, people can, in fact, purchase antibiotics without prescription which may be used inappropriately. Therefore, a comprehensive understanding of why people self medicate with antibiotics is essential to develop intervention programs for improving the safe use of antibiotics in the community.

The aims of the research were to identify the prevalence and patterns of self medication with antibiotics (SMA) in Yogyakarta City Indonesia; to explore individuals' knowledge and beliefs about antibiotics; to identify factors that influence individuals' intentions to SMA; to explore underlying reasons of why individuals self medicate with antibiotics; and to explore stakeholders' perspectives about how to improve the safe use of antibiotics in the community.

The research applied a mixed-method approach and involved adults (over 18 years) of Yogyakarta City, Indonesia. The theory of planned behaviour (TPB) was applied as a conceptual framework to assist in identifying psychological factors associated with SMA at the individual level i.e. attitudes, subjective norms, and perceived behavioural control. The research was initiated by interviews with 25 participants to explore common beliefs about SMA practice among Indonesians. The interviews were informed by the TPB. Results of the interviews were used to structure TPB questions for a population-based survey. The survey had a sample size of 625 adults and applied a cluster random sampling technique. Following the survey, in-depth

interviews with a group of the respondents in the survey, who had experience in using antibiotics for self medication, were conducted to explore underlying reasons of SMA practice. The overall results were then discussed with a group of stakeholders in Yogyakarta Province to formulate recommendations on how to improve the safe use of antibiotics in the community. The methods described above were approved by the Human Research Ethics Committee (HREC) at the University of Adelaide and the City Government of Yogyakarta Indonesia.

A range of beliefs about SMA practice is highlighted through the interviews includes advantages, disadvantages, approvals, disapprovals, facilitators and barriers of such practice. The survey results in a 90% of response rate and 7.3% period prevalence of SMA. Although information and advice about antibiotics are mainly derived from doctors and pharmacists, the patterns of SMA indicate that antibiotics are used inappropriately. Misconceptions about antibiotic use also exist. Most of the survey respondents are aware of the disadvantages of SMA; and therefore, they are not in favour of practicing SMA. They also reported pressures from their social networks to not practice SMA, and noted that practicing SMA is not easy. However, experience in using antibiotics and the ease of obtaining antibiotics without prescription make the practice of SMA easier.

To reduce SMA practice it is required to increase the provision of accurate information about antibiotics especially for improving people's awareness regarding the risks of using antibiotics inappropriately. It is imperative to improve antibiotic prescription policy and to optimize the role of health professionals especially in providing reliable advice about antibiotics. It is also urgent to decrease access to antibiotics without prescription.

Declaration

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1. **Aris Widayati**, Sri Suryawati, Charlotte de Crespigny, Janet E. Hiller. Self medication with antibiotics in Yogyakarta City Indonesia: a cross sectional population-based survey. *BMC Research Notes* 2011, 4:491
doi:10.1186/1756-0500-4-491.
2. **Aris Widayati**, Sri Suryawati, Charlotte de Crespigny, Janet E. Hiller. Beliefs About the Use of Nonprescribed Antibiotics Among People in Yogyakarta City, Indonesia: A Qualitative Study Based on the Theory of Planned Behaviour. *Asia Pacific Journal of Public Health* 2012, XX(X) 1-12, published online, doi: 10.1177/1010539512445052.
3. **Aris Widayati**, Sri Suryawati, Charlotte de Crespigny, Janet E. Hiller. Knowledge and Beliefs About Antibiotics Among People in Yogyakarta City Indonesia: a Cross-sectional Population Based Survey. *Antimicrobial Resistance and Infection Control*, 2012, 1:38.

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Aris Widayati,

Signature: _____ Date: _____

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