

Abstract

Identifying Key Beliefs of Self Medication with Antibiotics in Yogyakarta City Indonesia

Widayati, Aris (1,3,4); Suryawati, Sri (2); de Crespigny, Charlotte (3); Hiller, Janet E. (4,5)

1: Faculty of Pharmacy Sanata Dharma University Yogyakarta, Indonesia; 2: Faculty of Medicine Gadjah Mada University Yogyakarta, Indonesia; 3: School of Nursing, University of Adelaide Australia; 4: Discipline of Public Health, University of Adelaide Australia; 5: Faculty of Health Sciences, Australian Catholic University Australia.
ariswidayati@usd.ac.id

Problem statement: Although antibiotics in Indonesia are categorized prescription-only medicine, people may purchase antibiotics without prescription. Beliefs about self medication with antibiotics (SMA) that might influence SMA behavior remain unexplored, however.

Objectives: To identify key beliefs of SMA based on theory of planned behavior (TPB), including behavioral, normative, and control beliefs and associations between these beliefs and intention of SMA

Design: This descriptive study used an interview guideline informed by the TPB and a pre-tested questionnaire developed from findings of the preceding interviews.

Setting: This study was a population-based study.

Study population: Population included adults (>18 years old). Snowball and cluster random sampling were applied to select 25 participants for semi-structured interview and 640 participants for self administered questionnaire, respectively.

Outcome measure(s): Key beliefs of SMA and their associations with intention of SMA

Results: In total, 25 face to face interviews were conducted. Participants reported that advantages of using non-prescribed antibiotics were to save money and time - as a result of avoiding a medical consultation - and to avoid taking too many types of medicines commonly prescribed by doctors. Fear of adverse effects, poor outcome, and antimicrobial resistance were declared as disadvantages. Availability of antibiotics to be purchased without prescription in pharmacies, drug stores, and shops/kiosks, and previous successful antibiotic use made this behavior easier. Participants tended to seek advice from medical practitioners for their children's health concerns, however. Family members and friends, especially those with a health education background, were more likely to approve of this behavior. Results of the questionnaire (n = 283 participants who were familiar with antibiotics) showed that, as expected, a range of beliefs of SMA significantly correlates with intention to do SMA. Most participants were aware with risks of SMA, had no pressure from their social networks to practice SMA, and were reluctant to obtain non-prescribed antibiotics from shops/kiosks. Participants would be more likely to have intention to do SMA when they have previous successful experience in using antibiotics and they can purchase antibiotics without prescription from pharmacies with odds ratios of 0.27 (0.06–0.95) and 0.15 (0.03–0.81), respectively.

Conclusions: Variety of people's beliefs in using non-prescribed antibiotics revealed by interviews was useful to generate a valid and reliable tool for investigating key beliefs of such use through population-based survey based on the TPB. Findings suggest that strengthening people's awareness regarding the harmfulness of SMA may be effective to discourage intention to do so. Since shops/kiosks are not popular as source of non-prescribed antibiotics, efforts for improving SMA should be focused on pharmacies and drug stores. Underlying factors of such behavior should be further investigated.

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Background

- Self medication with antibiotics (SMA) becomes an important factor driving antibiotic resistance (WHO, 2001).
- Although antibiotics in Indonesia are categorised as prescription-only medicine, people may purchase antibiotics without prescription (Hadi, 2008).
- Many promising strategies to improve the safe use of antibiotics have been undertaken, particularly targeted to health practitioners (Norris, 2007).
- Given the magnitude of SMA practice, investigation about individual's behaviour related to SMA is required.

WHO, *WHO global strategy for containment of antimicrobial resistance*, 2001, Switzerland: WHO.

Hadi U, et al: Survey of antibiotic use of individuals visiting public healthcare facilities in Indonesia. *International Journal of Infectious Diseases*, 2008, **12**:622-629.

Norris, P., *Intervention to improve antimicrobial use: evidence from ICIUM 2004, 2007*, Switzerland: WHO Press.

Theoretical framework:

Theory of Planned Behavior (TPB)

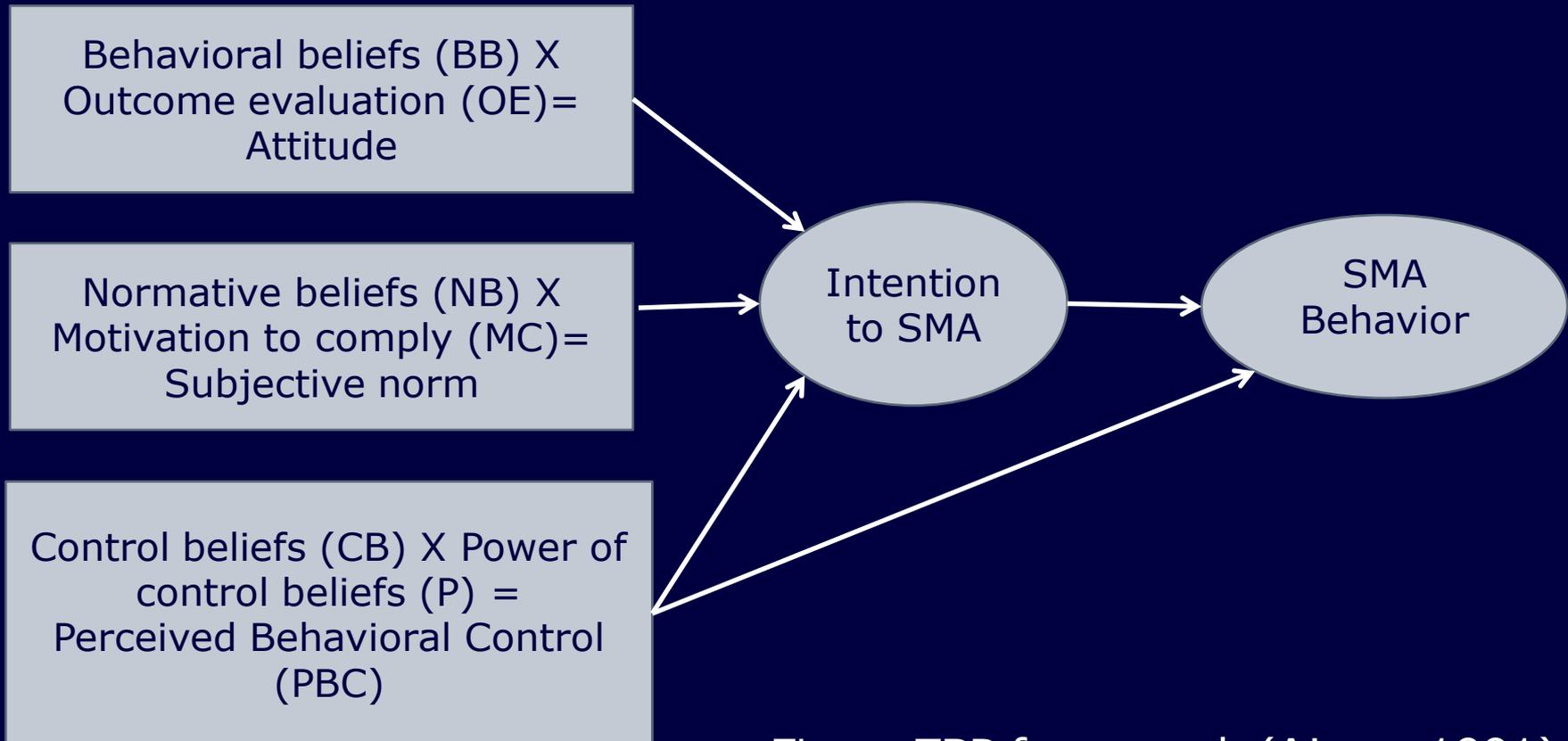


Figure: TPB framework (Ajzen, 1991)

Objectives of the study

1. To describe people's opinions about beliefs regarding SMA, i.e. behavioural (advantages & disadvantages), normative (approval & disapproval) , and control (facilitator & barrier).
2. To determine beliefs affecting the intention to SMA.

Methods

- A mixed-methods Tashakkori, A. and C. Teddlie, Eds. (2003): in-depth interviews (phase 1), followed by questionnaire (phase 2).
- Study population: adults (over 18 years) in Yogyakarta City Indonesia.

Phase 1	Phase 2
<ul style="list-style-type: none">➤ 25 respondents : snowball sampling➤ Data collection: in-depth interview using a TPB guideline; November, 2009.➤ Data analysis: thematic-content analysis using NVivo8➤ Findings were used to develop a TPB questionnaire	<ul style="list-style-type: none">➤ Respondents: cluster random sampling➤ Data collection: using a TPB questionnaire; March to May, 2010➤ Data analysis (n=283): descriptive statistics and logistic regression using SPSS ver. 17

Findings: quotes regarding behavioral beliefs

"If I go to a doctor, the doctor tends to prescribe many types of medicines besides antibiotics, while I can just buy medicine that I need without prescription" (RB).

"I am afraid, if [I] purchase [antibiotics] without prescription, perhaps the dosage or the antibiotics chosen is wrong....then I may resist to the antibiotics" (TS).

"I was worried I might get fake antibiotics if I purchase them outside a pharmacy" (T).

Findings: quotes regarding normative beliefs

"My friend who has a health education background [suggested]..., I believed in her as she is an official in a hospital. She runs a clinic and has an authorisation to give medical treatment. I really believe in her" (C).

"Family...friends...my wife also [gave approval for me to use non-prescribed antibiotics]. My family member who gave me advice is a GP [doctor]" (RB).

"When my symptom did not improve after self medicating with antibiotics... my GP [doctor] blamed me for such use" (C).

Findings: quotes regarding control beliefs

"If I had similar symptoms to the previous ones which had been successfully treated using antibiotics, I will use such antibiotics again without medical consultation" (T).

"Purchasing antibiotics without prescription in a pharmacy is easy, even though "prescription-only medicine" was written on the package "(JAS).

"Because I am sure that if I go to a doctor I will be prescribed the same antibiotic or even more types of other medicines" (DAR).

"If it is for my child, I must take them to the doctor. Although, I may seek a loan to pay the fees" (ST).

Findings: beliefs regarding SMA

Behavioural beliefs

Advantages of SMA:

- Saving time
- Saving money
- Avoiding taking too many medicines commonly prescribed by doctors

Disadvantages:

- Concerns about side/adverse effects, antimicrobial resistance, misdiagnosing, and inappropriate antibiotics selection

Normative beliefs

Approval for SMA practice:

- families + friends, particularly with health education / industry background,
- pharmacy staff

Disapproval:

- doctors (GPs).

Control beliefs

Factors that facilitate SMA:

- availability of antibiotics over-the-counter;
- successful experience in using antibiotics;
- perception about similar antibiotics prescribed by doctors;
- respondents' knowledge about antibiotics

Factors that impede SMA:

- medication for children

Findings: agreeing about SMA beliefs

Beliefs regarding SMA	Percentage (%) N: 283			Median (range) of weighted beliefs
	Disagree	in between	Agree	
Behavioral beliefs regarding SMA:				BBxOE
Unsafe	13	15	72	-4 (-10 to 10)
Microbial resistance	15	23	62	-4 (-10 to 5)
Incorrect antibiotic selection	12	11	77	-4 (-10 to 10)
Worsening medical condition	15	18	67	-4 (-10 to 10)
Saving time	38	14	48	2 (-5 to 10)
Affordable (low cost)	39	13	48	4 (-6 to 10)
Avoid over prescription	35	24	41	3 (-10 to 10)
Normative beliefs regarding SMA:				NBxMC
Approval from family	66	14	20	-4 (-10 to 8)
Approval from friends	68	18	14	-4 (-10 to 10)
Approval from pharmacist	58	20	22	-2 (-10 to 10)
Approval from paramedics	63	18	19	-3 (-10 to 16)
Approval from lay drug sellers	71	17	12	-2 (-8 to 8)
Disapproval from doctor *)	19	10	71	-2 (-8 to 8)
Control beliefs regarding SMA:				CBxP
Successful experience	35	13	52	-2 (-10 to 10)
SMA for adults	40	19	41	-2 (-8 to 16)
Similar future prescription	40	16	44	-2 (-8 to 10)
OTC antibiotics in pharmacy	35	14	51	-2 (-8 to 12)
OTC antibiotics in drug store	44	16	40	-2 (- 8 to 16)
OTC antibiotics in kiosks (OTC: over-the-counter)	64	16	20	-2 (-8 to 8)

Findings:

beliefs that affect intention of SMA

Results of logistic regression:

- Respondents would be more likely to have the intention to SMA when:
 - ✓ they have previous successful experience in using antibiotics; OR=0.27 (0.06 – 0.95)
 - ✓ they can purchase antibiotics without prescription in outlets other than kiosks, especially in pharmacies; OR=0.15 (0.03 – 0.81)

Conclusion

The findings show that respondents:

- have negative attitude towards SMA practice,
- have no pressure from their social network to practice SMA,
- express that doing SMA is not easy

Beliefs that significantly affect the intention of SMA are:

- successful experience in using antibiotics
- availability of antibiotics to be purchased without prescription in pharmacies or drug stores.

Implications and further studies

Policy:

- Enhancing public awareness regarding the risks of SMA
- Strengthening regulations regarding antibiotics supply and distribution
- Improving prescribing policies

Practice:

- Health messages to public should focus on disadvantages of SMA
- Health practitioners should improve the provision of information about the safe use of antibiotics

Further studies:

- Investigation underlying factors influence behavior of self medication with antibiotics

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Corresponding author

- Aris Widayati, M.Si. Pharm.
- Faculty of Pharmacy, Sanata Dharma University Yogyakarta, Indonesia, Kampus III, Paingan, Maguwoharjo, Depok, Sleman, Yogyakarta Indonesia. 55281.



Telp : +62-274-883037

Fax : +62-274-886529

Email: ariswidayati@usd.ac.id

