



UNIVERSITI PUTRA MALAYSIA

***EFFECTS OF ELECTRONIC MODULE INTERVENTION ON TEACHERS'
KNOWLEDGE, BELIEFS AND PRACTICES IN DRUG ABUSE
PREVENTION AMONG BALIKPAPAN HIGH SCHOOL STUDENTS,
INDONESIA***

GHOZALI

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By

GHOZALI

Thesis Submitted to the School of Graduate Studies Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

May 2019

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

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May 2019

Chairman : Ahmad Azuhairi Ariffin, PhD
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In spite of the widely campaign against drugs has been conducted, the problem of drug abuse stays at a very bothering level. In 2017, the number of drug abusers in Indonesia was 3,367,154 people or 1.77% of the population age 10-59 years, where East Kalimantan was ranked third out of 34 provinces with the prevalence of 2.12%. This study was aimed to develop and evaluate the effects of intervention using electronic module on teachers' knowledge, beliefs, and practices in drug abuse prevention.

An interventional study was conducted towards teachers in selected public junior high schools. A cluster random sampling was used to select schools in this study. A total of 260 teachers was involved in this study, 128 teachers in the group 1 and 132 teachers in group 2. Teachers' knowledge, beliefs and practices of drug abuse prevention were measured using questionnaires at three times, baseline before intervention given, post-test 1 at one month after intervention and post-test 2 at six months after intervention. Electronic module of drug abuse was applied to group 1, while the usual printed one for group 2. Sociodemographic and baseline data were analyzed descriptively. Paired-t and Wilcoxon Test were used to analyzed effects of intervention towards teacher's knowledge, beliefs and practices within group, while independent-t and Mann Whitney U Test were used to compare the effects between 2 groups. Effects of intervention between and within group then was analyzed using two-way repeated measures ANOVA.

Knowledge, beliefs, and practices at six months after intervention were significantly higher rather than at baseline ($P < 0.05$). There were no significant differences between groups in mean of knowledge and practices at six month after intervention ($P > 0.05$), while the mean score of beliefs in electronic module group was significantly higher than printed module group ($P < 0.001$).

Within group comparison showed that electronic module significantly increased teachers' beliefs and practices from baseline to one month and from one month to six months. The different condition for the knowledge, there was significant improvement from baseline to one month, but decreased from one month to six months. Printed module continuously increased teachers' knowledge and practices but not for beliefs. There was significant increased of teachers' beliefs from baseline to one month, but no significant changes from one month to six months.

Based on consistency of results, educational intervention using electronic module was better than usual printed module in improving teachers' beliefs, but not for teachers' knowledge. Electronic and printed modules have the almost equal positive effect on teachers' practices. Intervention using electronic module was significantly increased teachers' knowledge, beliefs, and practices in drug abuse prevention.

Keywords: *electronic module, drug abuse prevention, teachers' knowledge, beliefs and practices*

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**KESAN INTERVENSI MODUL ELEKTRONIK
TERHADAP PENGETAHUAN, KEPERCAYAAN DAN AMALAN GURU
MENGENAI PENCEGAHAN DADAH PADA MURID SEKOLAH MENENGAH
BALIKPAPAN, INDONESIA**

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Walaupun kempen meluas terhadap dadah telah dijalankan, masalah penyalahgunaan dadah tetap pada tahap yang sangat mengganggu. Pada tahun 2017, bilangan penyalahguna dadah di Indonesia adalah 3,367,154 orang atau 1.77% daripada penduduk umur 10-59 tahun, dimana Kalimantan Timur menduduki tempat ketiga daripada 34 wilayah dengan kelaziman 2.12%. Kajian ini bertujuan untuk membangun dan menilai kesan intervensi menggunakan modul elektronik dalam meningkatkan pengetahuan, kepercayaan, dan amalan guru dalam pencegahan penyalahgunaan dadah.

Kajian intervensi dijalankan ke arah guru-guru di sekolah menengah awam terpilih. Pensampelan rawak cluster digunakan untuk memilih sekolah dalam kajian ini. Sejumlah 260 guru terlibat dalam kajian ini, 128 guru dalam kumpulan 1 dan 132 guru dalam kumpulan 2. Pengetahuan, kepercayaan dan amalan guru terhadap pencegahan penyalahgunaan dadah diukur dengan menggunakan soal selidik pada tiga kali pengukuran, data asas sebelum intervensi diberikan, ujian pasca 1 pada satu bulan selepas intervensi dan ujian pasca 2 pada enam bulan setelah intervensi. Modul elektronik penyalahgunaan dadah telah digunakan untuk kumpulan 1, sementara modul biasa yang dicetak untuk kumpulan 2. Data sosiodemografi dan garis dasar dianalisis secara deskriptif. Paired-t dan Wilcoxon Test digunakan untuk menganalisis kesan intervensi terhadap pengetahuan, kepercayaan dan amalan guru dalam kumpulan, manakala ujian bebas-t dan Mann Whitney U digunakan untuk membandingkan kesan antara 2 kumpulan. Kesan intervensi diantara dan didalam kumpulan kemudian dianalisis dengan menggunakan ANOVA berulang dua langkah.

Pengetahuan, kepercayaan, dan amalan pada enam bulan selepas intervensi adalah lebih tinggi daripada pada asas dalam kedua-dua kumpulan ($P < 0.05$). Tidak ada perbezaan

yang bermakna antara kumpulan dalam pengetahuan dan amalan pada enam bulan selepas intervensi ($P > 0.05$), manakala terdapat perbezaan yang signifikan dalam skor kepercayaan ($P < 0.001$), nilai min kepercayaan dalam kumpulan modul elektronik lebih tinggi daripada kumpulan modul cetak.

Perbandingan dalam kumpulan menunjukkan bahawa modul elektronik telah meningkatkan kepercayaan dan amalan guru dari awal hingga satu bulan dan dari satu bulan hingga enam bulan. Keadaan yang berbeza untuk pengetahuan, terdapat peningkatan yang signifikan dari asas hingga satu bulan, tetapi menurun dari satu bulan hingga enam bulan. Modul cetak secara berterusan meningkatkan pengetahuan dan amalan guru tetapi tidak untuk kepercayaan. Terdapat peningkatan kepercayaan guru dari asas kepada satu bulan, tetapi tiada perubahan signifikan dari satu bulan hingga enam bulan.

Berdasarkan konsistensi hasil, intervensi pendidikan menggunakan modul elektronik adalah lebih baik daripada modul cetak dalam meningkatkan kepercayaan guru, tetapi bukan untuk pengetahuan guru. Modul elektronik dan cetak mempunyai kesan positif hampir sama pada amalan guru. Intervensi menggunakan modul elektronik telah meningkatkan secara bermakna pengetahuan, kepercayaan, dan amalan guru dalam pencegahan penyalahgunaan dadah.

Kata kunci: *modul elektronik, pencegahan penyalahgunaan dadah, pengetahuan, kepercayaan dan amalan guru*

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy.

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LIST OF ABBREVIATIONS

AAS	Anabolic Androgenic Steroids
ANOVA	Analysis of Variance
ATS	Amphetamine Types Stimulant
BNN	<i>Badan Narkotika Nasional</i> (National Narcotics Board)
BPS	<i>Badan Pusat Statistik</i> (Central Bureau of Statistics)
CD	Compact Disc
E-book	Electronic book
HBM	Health Belief Model
IDU	Injecting Drug User
NEP	Needle Exchange Program
NIDA	National Institute of Drug Abuse
NPS	New Psychoactive Substances
UNGASS	United Nations General Assembly Special Session
UNODC	United Nations Office on Drugs and Crime
USB	Universal Serial Bus
WHO	World Health Organization

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CHAPTER 1

INTRODUCTION

1.1 Background

Drug abuse is one of the global health problems. Globally, 275 million people in the world, which is roughly 5.6 per cent of the global population aged 15 to 64 years, used drugs at least once during 2016 and recently 450,000 people died as result of drug use in 2015 (UNODC, 2018). World Health Organization (WHO) defined drug abuse as the use of a drug or substance for the purpose not consistent with legal or medical indication and guidelines (Comer et al., 2013). Drug use affects not only individual users, but also their families, friends, co-workers and communities. Drugs generate crime, street violence and social problems that harm communities. In some regions, illicit drug use is contributing to the rapid spread of infectious diseases like HIV and hepatitis.

United Nations Office on Drugs and Crime (UNODC) also reported that most studies implied that early (12–14 years old) to late (15–17 years old) adolescence is a critical risk period for the initiation of drug abuse and become highest among young people aged 18–25 years. Approximately 13.8 million teenagers aged 15–16 years old used cannabis in the past year and this continued to cause the most harmful condition, about 76 per cent of deaths where drug use disorders were implicated (UNODC, 2018).

Survey of Indonesia National Narcotics Board (BNN) in 2017 estimated that the number of drug abusers in Indonesia was 3,367,154 people or 1.77% of the population aged 10-59 years. Based on drug case classification in 2017, there is an increasing trend of overall drug cases, the biggest increase is psychotropic cases with an increase of 137.14%, which is from 1,540 cases in 2016 to 3,652 cases in 2017. While based on the classification of suspected drug cases in the year 2017, there was an increasing trend of suspected narcotics and psychotropic cases, where the biggest increase occurred in psychotropic suspects at 135.85%, which was from 1,771 suspects in 2016 to 4,177 in 2017 (BNN, 2018a). Percentage of drug users in East Kalimantan Province in 2017 ranked third of 34 provinces nationwide, amounting to 2.12% of the population aged 10-59 years. Balikpapan ranked second in East Kalimantan after Samarinda for the largest drug user compared to other cities (BNN, 2017b).

The vast majority of those who take drugs in Indonesia are young people, aged between 15 and 24 year old (Nasir, Rosenthal, & Moore, 2011). In the study of factors associated with drug abuse among clients with drugs use disorders in south Kalimantan (2014), there is an evidence that most of the subjects in this study

(74%) started using drugs in adolescence, aged 11 to 20 years old (Kholik, Mariana, & Zainab, 2014).

Adolescent and young adult age is a critical period for the individual development because in this period any developmental tasks must be passed out, physically, psychologically and socially. Adolescence, girls and boys, face challenging developmental tasks, such as fitting into a peer group, differentiating from the family and developing individual identity (Markova & Nikitskaya, 2017). In this period, adolescent also will undergo conflicts, that one of these is a conflict between the need to self-control and the need to be independent. According to these conditions, adolescents require other persons which able to guide them to do anything. The role of Counselor for the adolescents is very important.

The nature of education as a normative enterprise entrusts teachers with a mission of educating children and young people beyond particular subject areas. Teachers are often referred to as key contributors to preparing future generations for the changed world. There seems to exist a general consent that education, and teachers in particular, have an important role to play by imparting knowledge, values and skills, as well as by acting as models for the young. Teachers should have adequate preparation to play their role sufficiently and effectively, which involves a combination of cognitive and practical knowledge and skills, values, motivation and attitudes. The lack of this set of preparation will give bad influence on the students' learning outcomes and also students' behaviors. Jonasson (2016) stated that facilitating the rapid developments of knowledge, skills, social and technological environment of teachers becomes crucial for their continued professional competence (Jónasson, 2016).

According to Green & Kreuter reviewed by Porter (2016), teacher may be placed as one of the enabling and reinforcing factors of student's behavior, not excepted for health behavior (Porter, 2016). Sufficient knowledge is needed for teachers to play their role as available and accessible resource of enabling factors for students, as well as beliefs and practices for their role as a part of reinforcing factors and good models for students. One of the essential things is knowledge, beliefs and practices of teachers in drug abuse prevention.

It is possible, and desirable, for schools to be concerned with drug demand reduction, drug supply reduction and mitigating the health and social consequences of drug use, with the major focus on demand reduction. However, education authorities should not accept sole responsibility for changing student health behaviors, including drug use. Schools can and should report to the community on the achievement of educational outcomes that have been identified as contributing to the achievement of the broader health goals of preventing drug use and reducing adverse consequences to individuals and community (UNODC, 2004).

The effort to empower and to improve teacher's role in preventing drug abuse among students is viewed as an appropriate alternative, especially on its effectiveness and sustainability. As best of researcher knowledge, there is no significant and sustainable intervention that involving teachers as important part in school-based drug abuse prevention in Indonesia. The existing school-based program is just occasional lectures from doctors, psychiatrists and polices. Drug abuse prevention programs need to imparting training of teachers on good practices, such as how to rewarding appropriate student behavior with techniques fostering students' positive behavior, achievement, academic motivation, and school bonding (Sznitman, Olsson, & Room, 2008).

In Mexico, a preventive program for drug and substance abuse involving teachers is viewed as a best practice, whereby a workshop to train teachers on how to promote life skills and substance abuse prevention was developed. Teachers reported positive changes in themselves, as well as in their teaching competence. Ultimately, they had a more complete vision and understanding of what integrative prevention is and felt capable of supporting and guiding their students regarding prevention of drug abuse. Students' results revealed significant changes in attitudes toward themselves and life. The results also showed strong attitudes against drug use, and an increase in critically analyzing drug advertisements and messages after the program (Givaudan & Susan Pick, 2007).

Teachers as educator had extra role in preventing and handling substance use among students. A study in Sao Paula revealed that position and previous knowledge of educator were consistent with the most promising predictive models, such us offering alternative solutions, health education, changes in school environment and life skill training. Teachers are believed to be a person who can develop and facilitate a drug prevention projects and programs for school by emphasizing schools environment as a protective factor (Moreira, Lemos, & De Micheli, 2015).

Hanley et al. studied the influence of teacher training on the fidelity of substance use prevention program implementation in the United States. This study concluded that teacher training significantly increased the fidelity of implementation (Hanley et al., 2009). Giles et al. identified that need for cognition was associated with lower alcohol use rates while impulse decision making related to lower rates of marijuana use in classes with interactive teaching (Giles et al., 2010). Furthermore, Webb, Sniehotta and Michie stated that Health Belief Model is one of Social Cognition Models recommended for used in intervention to modify relevant cognitions in the field of drug addiction (Webb, Sniehotta, & Michie, 2010).

The Health Belief Model (HBM) is a widely recognised conceptual framework for health behaviour. HBM, especially after being supported with the construct

of self-efficacy in 1980s, is a fairly robust model and can be appropriate for alcohol and drug education interventions (Sharma, 2011). This model is based on the concept that the perceived threat of disease and perceived benefit of action to prevent disease are the key factors in motivating a positive health behaviour. So that the provision of factual information about the negative effects of drugs will prevent drug abuse by creating the negative attitude towards drug abuse. Mahmoodabad et al. (2017) stated that the first step to change people's behaviours about an issue is by having enough knowledge and awareness about that. This study included knowledge as the preliminary factor of health beliefs (Mahmoodabad, Khoshab, Vafa, Fallahzadeh, & Seyed MojtabaYassini Ardekani, 2017).

Nowadays in Indonesia and many other developing countries, in the field of media and health promotion methods on drugs and the prevention of abuse, as far as the researcher's knowledge, it is still very rare to find media or methods of delivering messages with a more complete substance that utilizes technological advances, especially for the specific targets like teachers. The electronic messaging media are mostly just short messages via television or radio for universal targets. Media with more complete message content only in the form of books or printed brochures, and even then generally only to target teenagers and the general society. Teachers as educational facilitators require more complete message material, which can be an adequate provision for transfer to students and as a provision to act as a drug educator in schools. In another aspect, teachers as part of an educated society, in general little or much must have been exposed to the development of learning message delivery technology. For that we need the alternatives of media and methods of delivering message that is more interesting and more take advantage of technological developments, more practical and of course with a cheaper cost. In the view of researchers, one of the efforts that need to be developed is the use of books and electronic modules. This research is an effort to develop alternative methods of learning media to empower teachers in preventing drug abuse in the school setting.

1.2 Problem Statement

In spite of wide campaign against drugs has been conducted by the government of Indonesia, the problem of drug abuse stays at a very bothering level. There is an increasing trend of overall drug cases based on the type of drugs being abused, the biggest increase is psychotropic cases with an increase of 137.14%, which is from 1,540 cases in 2016 to 3,652 cases in 2017. Meanwhile, based on the classification of 2017 drug case suspects, there was an increasing trend where the biggest increase occurred in psychotropic suspects, which amounted to 135.85% from 1,771 suspects in 2016 to 4,177 suspects in 2017. While for confiscated evidence, the largest increase occurred in the number of marijuana found with a percentage of 990.93% from 13.89 tons found in 2016 to 151.53 tons found in 2017. Shabu with an increase of 183.34%, which is from 2,631.07 kg in 2016 to 7,454.78 kg in 2017. Then ecstasy with a percentage of 83.25%,

which is from 1,694,970 tablets confiscated in 2016 to 3,106,009 which were confiscated in 2017 (BNN, 2018a).

The estimated loss of economic costs due to drug abuse in Indonesia in 2017 is estimated to be around Rp. 84.7 trillion, up from Rp. 63.1 trillion in 2014, an increase of 34%. If sorted, it is estimated to be Rp. 77.42 trillion for loss of private costs and Rp. 7.27 trillion for loss of social costs. For personal expenses, most of it is used for drug consumption costs (90%). While for social costs, most of the costs incurred due to death related to drugs (premature death) (58%), other costs that are quite large are costs due to criminal acts (17%) (BNN, 2018a).

Recently, researcher was shown an increased in the obstacles of delivering information about prevention of drug abuse in Indonesia. The geographical condition of Indonesia, which is the largest archipelagic country in the world, with a very wide area stretching from Sabang to Merauke, is a very important factor for the high cost of logistics distribution, likewise with health promotion media that need to be distributed nationally. This is a reason for the importance of media in electronic form, in addition to other economic and practical reasons. In line with this reason, the limited budget available for the promotion of drug prevention in Indonesia further strengthens the intention to develop media in this form. According to BNN press release, there are still many limitations of the BNN, both in terms of the number of human resources, budgets, facilities and infrastructures. This causes constraints in efforts to promote drug prevention due to the inaccessibility of the entire Indonesian territory (Putra, 2017).

In the context of school-based drug abuse prevention, drug prevention program in the school setting that existed in Indonesia according to BNN survey majority in the form of socialization lectures and the use of usual printed pamphlets media (BNN, 2018b). Some evidences showed that the use of media in electronic form may reduce and minimize the cost requirements, especially for the cost of distributing media throughout the wide territories. The existence of communication and internet network facilities that have been relatively evenly distributed throughout the Indonesian region has made it possible to become a cheaper means of disseminating this media.

Adolescents and young adults are very vulnerable ages to start using drugs (UNODC, 2018). This age group is mainly middle school age. In Indonesia, this is also revealed by the BNN survey results which showed that 85% of drug users in the student group are experimental user categories (BNN, 2017c). The role of the teacher as parents of students in school is very important. Teachers should ideally act as educators, counselors and good models for students. These roles are very crucial in order to help students deal with developmental tasks at their age, face peer pressure, and efforts to develop individual identities (Markova & Nikitskaya, 2017). Teachers should have adequate readiness to carry out this role. On the other hand, there is no program specifically to empower teachers to

take a role in drug abuse prevention. Efforts that have so far existed more on direct socialization by the police or National Narcotics Agency for students temporarily without any clear and systematic follow-up involving teachers.

1.3 Significance of Study

This research was conducted to develop, implement and evaluate the effects of electronic module about drug abuse prevention on teachers' knowledge, beliefs and practices in drug abuse prevention. At the local level, educating teachers in Balikpapan increased their knowledge about drug abuse, improved their beliefs about drug abuse and the prevention, and increased their practices in preventing drug abuse at school setting. At national level, the findings of this research add to the existing knowledge of teachers' practices in preventing drug abuse in Indonesia which contribute to the adolescence and community health. Developing the comprehensive electronic module for the specific target of junior high school teachers has been for the first time in Indonesia. Moreover, use of electronic and printed health education module about drug abuse prevention provide information for health policy maker to find the most effective strategy for delivering health education and improving teachers' practices in drug abuse prevention.

1.4 Research Questions

1. What are sociodemographic characteristics of junior high school teachers in Balikpapan?
2. What is the level of knowledge, beliefs (perceived susceptibility, severity, benefits, barriers, self-efficacy) and practices in drug abuse prevention among junior high school teachers in Balikpapan?
3. How is the effects of electronic module intervention on teachers' knowledge, beliefs and practices in drug abuse prevention?

1.5 Objectives of Study

1.5.1 General Objective:

To develop, implement and evaluate the effects of electronic module on teachers' knowledge, beliefs and practices in drug abuse prevention.

1.5.2 Specific Objectives

1. To determine and compare sociodemographic characteristics of respondents
2. To determine and compare knowledge, beliefs about drug abuse and the prevention (perceived susceptibility, severity, benefits, barriers, self-efficacy) and practices of respondents at baseline
3. To develop intervention modules on drug abuse and the prevention
4. To implement intervention modules on drug abuse and the prevention
5. To compare teachers' knowledge about drug abuse and the prevention between and within groups after intervention (at one and six months)

6. To compare teachers' beliefs about drug abuse and the prevention (perceived susceptibility, severity, benefits, barriers, self-efficacy) between and within groups after intervention (at one and six months)
7. To compare teachers' practices in drug abuse prevention between and within groups after intervention (at one and six months)

1.6 Research Hypotheses

- a. There are significant differences within and between study groups for knowledge about drug abuse and the prevention before and after intervention (one and six months)
- b. There are significant differences within and between study groups for beliefs about drug abuse and the prevention (perceived susceptibility, severity, benefits, barriers, self-efficacy) before and after intervention (one and six months)
- c. There are significant differences within and between study groups for practices in drug abuse prevention before and after intervention (one and six month).
- d. Electronic module is better than printed module in improving teachers' knowledge, beliefs and practices in drug abuse prevention

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LIST OF PUBLICATIONS

Ghozali G, Azuhairi A A, Mohd Zulkefli NA and Ibrahim F. The effect of an electronic module about drug abuse prevention on teachers' beliefs in Indonesia. *F1000Research* 2019, 8:115 (<https://doi.org/10.12688/f1000research.17628.1>)

Ghozali G, Azuhairi A A, Mohd Zulkefli NA and Ibrahim F. The different long term effect of electronic and printed module on teachers' knowledge about drug abuse prevention in Indonesia. PMEDICINE-D-19-02602. Submitted on 16 July 2019





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