

RESEARCH ARTICLE

Exploring Recommendations for an Effective Smoking Prevention Program for Indonesian Adolescents

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Abstract

Background: The present qualitative study assessed the need, acceptability and appropriateness for implementing effective and culturally appropriate smoking prevention programs for adolescents in schools in Indonesia. **Methods:** Snowball sampling was used to recruit participants. The study sample comprised a mixture of staff in the education department, junior high school teachers and individuals who had taught junior high school students in Aceh Province, Indonesia. Data were collected through one hour in-depth face to face or telephone interviews and analyzed using a descriptive content analysis procedure. **Results:** School teachers and policy makers in education firmly supported the implementation of a school-based smoking prevention program in Aceh. An appropriate intervention for smoking prevention program in schools in Aceh should involve both health and Islamic based approaches, and be provided by teachers and external providers. Potential barriers to the program included smoker teachers and parents, time constraints of students and/or teachers, lack of teachers' ability, increase in students' load, the availability of tobacco advertising and sales, and lack of tobacco regulation and support from community and related departments. To increase program effectiveness, involvement of and coordination with other relevant parties are needed. **Conclusions:** The important stakeholders in Indonesian childhood education agreed that school-based smoking prevention program would be appropriate for junior high school students. An appropriate intervention for smoking prevention program for adolescents in schools in Indonesia should be appropriate to participants' background and involve all relevant parties.

Keywords: Smoking - adolescent - smoking prevention in Indonesia

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Introduction

Tobacco use is an everyday part of lives for many Indonesians (Hurt, 2012), putting the country as the third biggest tobacco consumers in the world (WHO, 2008). Among adolescents, findings of the 2000 – 2007 Global Youth Tobacco Survey (GYTS) indicates that approximately 11.8% of adolescents in Indonesia currently smoked cigarettes and 3.8% of them used tobacco products other than cigarettes (Centers for Disease Control and Prevention, 2008).

Researchers in many jurisdictions have tried to find an effective measure to prevent young people from beginning to smoke and to date, empirical evidence suggest that school-based smoking prevention programs could provide positive effects on adolescents smoking behaviors (Pertusa, 2011; Menrath et al., 2012). It is suggested that school-based smoking prevention programs should be sensitive to participants' cultural, ethnic, and socio-economic background (Shetgiri, 2011; McKennitt and Currie, 2012). In other words, in the case of Indonesia a thorough understanding of cultural practices, values and traditions of people should be considered in any smoking

prevention education programs for adolescents in schools in Indonesia.

Numerous articles have reported the effectiveness of school-based smoking prevention programs. From their systematic reviews and meta-analyses of published articles between 1985 and 2006, Dobbins (2008) report that school-based smoking prevention programs could reduce smoking behaviours, initiation and intentions at least in the short term. Lotrean (2010) suggest that that school-based smoking prevention programs increased adolescents' negative attitude toward smoking and social self-efficacy, and reduced the students' smoking behaviours and intention. Other report (Berman, 2011) concludes that the program increased perceived exposure to anti-tobacco education program and provided positive impact on participants' smoking knowledge, attitude, and behaviours.

To our knowledge, there are no studies focusing on the implementation of school-based smoking prevention and cessation programs in Indonesia. Also, it is unknown whether such a program would be acceptable or appropriate for Indonesian adolescents.

The present study assessed the need, acceptability and

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appropriateness for implementing a culturally appropriate school-based smoking prevention programs in schools in Aceh, Indonesia. Specifically, the study aimed to identify: (1) the need from the perspective of teachers and policy makers of smoking prevention programs for junior high schools students in Aceh, (2) the scope and components of the school based smoking prevention program, (3) the types of program providers of the school-based smoking prevention program and, (4) the potential barriers of program implementation.

Campbell et al. (2000) recommend beginning any intervention by testing proof of concept so that an appropriate design can be chosen. The present study was part of larger research concerning school-based smoking prevention programs to adolescents in Indonesia.

Materials and Methods

Participants

Study participants were recruited from a mixture of junior high school teachers, policy maker from the education department in the Aceh Province, Indonesia, and the Acehnese postgraduate students from universities in the southern part of Australia. A snowball sampling method was used in selecting the study participants (Hanson, 2011), by asking the selected participants to invite their friends participating in this study. Inclusion criteria for participants were that they were or had been junior high school teachers in Aceh or working for education department in the province.

Initially, researcher contacted one of target participants to inform them about the present study. Next, this potential participant identified others who might be selected for this study. Potential participants who matched the inclusion criteria above were asked to contact researcher directly if they want to participate in the study. Once a confirmation for participation had been received, the researcher re-contacted the participants by oral, phone or e-mail to discuss about the study procedures further.

Instruments

Semi-structured interviews were used with the interview guide being constructed in English and then translated into Indonesia language to allow participants to express their ideas comfortably. Questions explored the following: 1) the need for smoking prevention program for junior high school students in Aceh, 2) the type of program providers, 4) the scope and component of the program, and 5) the possible barriers of program implementation. Additionally, all participants were asked some questions about their personal background including age, education, sex and tobacco smoking experiences.

Study design

This study employed a qualitative design. Data were collected in 2010 through one hour in-depth face to face or telephone interviews. The semi-structured interviews were conducted in Indonesian, to allow participants to comfortably express their ideas. Face to face interviews were carried out in South Australia. While telephone interviews were conducted with respondents in Indonesia.

The dates, times and places for the interviews were arranged by participants based on their convenience. Participants informed their interviews schedule to researcher by oral, telephone, and/or email, as appropriate.

Data analysis

Data analysis was completed manually using content analysis (Graneheim and Lundman, 2004; Tsitsani et al., 2012). Initially, the first researcher reviewed the interview transcripts thoroughly and identified the meanings of each response. The meanings were then condensed and developed into subthemes and themes. Next, the frequency occurrence of each category was determined. Initial findings were then forwarded to and discussed with other researchers to seek whether the co-researchers agree with the findings and way how those data were analyzed.

Overall, contents of the interview transcripts were classified into nine themes: the need of the program, reasons for the program importance, scope and components of the program, religious roles in the program, reasons for the use of religion, program providers, target participants and implementation methods, potential barriers, and strategy to increase program effectiveness.

Some responses were quantified using four categories; for "a fewer", response rates were less than 25% of participants; for "some", response rates were between 25-50% of participants; for "many" response rates were between 50-75% of participants; and for "most", response rates were over 75% of participants (Thomas, 2010). In keeping with the overall aims of qualitative research, the study aimed to examine a depth of understanding, rather than provide generalizable views that were representation of the study population. Table 1 provides one example of the data analysis procedure.

Results

Characteristics of respondents

A total of 16 participants were recruited for the study, six participants were in South Australia and had face to face interviews and ten participants were in Indonesia and had telephone interviews. Of the ten participants involved in telephone interviews, 70% were male; 40% aged between 41-50 years; 60% had a bachelor degree; 50% had worked as junior school teacher for over 20 years; and only 40% had never used/smoked cigarettes. Whilst for face to face interviews, many of the participants were male (50%); aged between 26-30 years (66.7%); held a bachelor's qualification (66.7%); taught junior school students for one to ten years (66.7%); and had never smoked/used cigarette (66.7%). Demographic description of the sample is summarized in Table 2.

School-based smoking prevention program for Adolescents in Indonesia

The need for the program: In response to the question "to what extent do you agree with the implementation of smoking prevention programs in schools in Aceh", all participants indicated that they agreed with the implementation of school-based smoking prevention programs in schools in their region. The ways in which

Table 1. One Example of Theme, Category, Sub-Category, and Code of Data Analysis

Scope and component of the program		
Category	Sub-categories	Codes
Information		
Cigarette smoking		-Concept of smoking
		-Chemical substances in cigarette
		-Advantages and disadvantages of cigarette smoking
Health effects		-Health concept
		-Risks of smoking
		-Effects of smoking on human body
Social economic effects		-Effect of smoking on children
Educational effect		-Economic impacts of smoking
Addiction		-Effect of smoking on education
Skill	General skill	-Addiction
		-Self-confidence
		-Self-esteem
		-Self-discipline
	Refusal skill	-Extra-curricular activities
		-Motivation
		-Cigarette refusal techniques
		-Culturally appropriate approach to reject smoking

Table 2. Characteristics of the Study Participants (n = 16)

Characteristics		Frequency (f)	%
Sex	Male	10	62.5
	Female	6	37.5
Age (years)	26-30	4	25.0
	31-40	6	37.5
	41-50	4	25.0
	51-60	2	12.5
Education	Diploma	3	18.8
	S1/BS	10	62.4
	S2/Masters	3	18.8
Work experiences (years)	<10	7	43.7
	11-20	4	25.0
	>20	5	31.3
Tobacco smoking	Current smokers	1	6.3
	Ever used tobacco	7	43.7
	Never use tobacco	8	50.0

the participants expressed their agreements with the implementation of the program to children in Aceh were: strongly agreed (31.2%); very important (37.5%); strongly support (12.5%); and obviously appropriate and/or necessary (18.8%). "I strongly agree with a program to prevent children from smoking. This program is appropriate for students to prevent them from many diseases. Children are our future leaders" (Participant 06). "This is a very important and good program to children. It should be implemented in school because students are at high risk for smoking" (Participant 04).

Reasons for the program importance: When asked about the reasons why they agree with the implementation of smoking prevention program in schools in their region, nearly half (43.8%) of the respondents perceived that the prevalence of tobacco smoking were very high among children in Aceh. Some participants viewed tobacco smoking is addictive (31.2%) and could provide adverse effects on students' health (37.5%) and social and economy

(37.5%). A few of participants were also concerned that smoking could negatively affect study progress of students (12.5%) and had warned students about the dangers of smoking (12.5%). One of the participants hoped that this program could strengthen their endeavor to prevent smoking among students. "at present condition .. many school age children are actively smoking, even worse in my home town....., I saw elementary schools' children have been starting to smoke..." (Participant 01). "... smoking is absolutely ethically inappropriate for junior high school students..... Then, ..as far as we are concerned that cigarette contains very dangerous chemical substances and especially for brain....." (Participant 02). "...because many children have started smoking since elementary schools and became chronic in junior high schools. Currently there is no smoking prevention education program for children in schools" (Participant 16).

Scope and components of the program: Participants advised that any specific program for smoking prevention in schools in Aceh should provide students information about smoking and the adverse effects of smoking, including those on health, social and economic status, educational effects, and addiction. ".....they smoke cigarettes without knowing what the purposes are... Smoking is defined as identity and assumed to be mature... I suppose that this assumption should be corrected... Also.....they are not deeply aware of and don't understand what is the risk of smoking, chemical substances contained in cigarette....Those kind of information need to be explained to them in details". (Participant 02). "...we inform students that smoking is dangerous...reducing life expectancy and causing economical burdens to their parents...." (Participant 06).

Further the participants stressed that the program should develop individual skills of the students including general skills and cigarette refusal skills. There was acknowledgement that it is not easy for students to say no to smoking because the invitation to smoke is massive in their environment. "We should provide information in detail on how to deal with smoking invitations from friends so that they quit smoking, or continue to abstain from smoking.... yeah we can get cigarettes very easily everywhere and the price is also, also not that expensive, so if we want to implement this program, its scope is wide" (Participant 15).

The role of religion: In response to the question "Do you think there is any religious role in smoking prevention programs?" most of participants (93.8%) agreed that the use of Islamic components will be worthy for the program effectiveness. "...it is needed, need to be included into the program because recently there is an edict about smoking haram in Indonesia issued by MUI and Muhammadiyah.....so smoking prevention program is appropriate with the rule, religious rules" (Participant 06).

In terms of Islamic components, the results identified two topics as being required to be included in the program: smoking effects from an Islamic perspective, and Islamic

rules about smoking. “.....We should explain about the meaning of “haram (prohibition)” of smoking to students; what sort of prohibition is that? ..and we should also elaborate a number of reasons on how and in what ways smoking is prohibited...(Participant 02).

Reasons for the use of religion in the smoking prevention program: Further analysis data of this study indicates that the participants use the Islamic edict not to smoke as the main reason why they believe Islamic teaching should be involved in smoking prevention program in school in their region. As religious people, participants consider children in Aceh would follow the program if Islamic teaching was used. However, the participants noted that this strategy should be used cautiously since not every Muslim considers smoking haram (forbidden). “...we know that there is no direct mention of banning smoking in the Qur’an and hadits, but I think there is some verses in the Qur’an and also hadits...which suggest that smoking is not good for our health, economy and etc” (Participant 04). “I think it is very important to involve religion, but I am afraid children have already known that smoking in the context of religion is not prohibited. This is an issue....but I suggest we should slightly link to religion where smoking can harm their health, we can say to them that harming our health intentionally is prohibited in our religion” (Participant 13).

Types of program providers: As regard program providers, many participants (75.0%) considered that the program should be delivered by school teachers (internal providers) and experts from relevant fields (external providers). A few participants thought that the program should be run by internal providers only (12.5%) or external providers only (12.5%). The most frequent types of program providers mentioned by the interviewed participants were teacher (87.5%), followed by health personal/expert (68.7%), Islamic leader (56.25%) and others (25.0%). “Since smoking influences health, I think it will be more appropriate if we involve health party in this program....it seems that we also need to employ religious leaders ...” (Participant 08). “....involve all relevant parties...from parent in home.... school teacher in school...experts in smoking or people who know about smoking such health experts and religious leaders.....” (Participant 09).

Target audiences and mode of program implementation: In term of target audiences, many respondents (50.0%) thought that the program would be useful to all junior high school students in grades 7-9. A few of them advised that this program should be provided to students in certain grades, such as grades 7 (25.0%) or 8 or both (25.0%). “The most appropriate target participants for this program are students in second year (grade 8), they are in the middle program....not too young or old.....” (Participant 15).

As regard with the program implementation strategy, two alternatives were proposed by participants: (1) run the program as an independent course or (2) combined

it with other courses. It will be better if the program is administered during school hours. “We do not need a special course for smoking prevention program. We can integrate it into other existing relevant courses in the school such as math, physic, social sciences....” (Participant 14). “... I think it might be ineffective if provided after school hours because children have other activities” (Participant 09).

The most frequent terms regarding the appropriate teaching methods for smoking prevention programs in schools in Aceh reported by respondents were lectures (62.5%), followed by using interesting audiovisual aid (37.5%), interactive teaching methods with high of students’ involvement (31.2%), case studies (18.8%), skill practices (18.8%), seminars (12.5%), good presentation techniques (6.2%), reward and incentives (6.2%), all matched with students’ characteristics and background.

Potential barriers of the program: Some participants (43.8%) viewed smoker teachers as the main potential barrier to this program. While other told time constraint, lack of teachers’ ability, increase students’ load, tobacco advertising, and the availability of tobacco in school cafeteria. However, there were a few participants (25.0%) who reported that the program can be implemented in schools in Aceh without any problems. “I observed that many teachers are active smokers...So, If they can not give students good example, how this program could be implemented” (Participant 01).

Participants also suggested that several external factors such as tobacco and its regulation, smoking parents, community and support from health department should be addressed to assure the program can be run successfully. “Teachers, the teachers smoke cigarettes in class rooms... the high proportion of smokers among religious leaders and parents....tobacco plantation....tobacco industries... and the easy access of cigarettes in the community” (Participant 16).

Strategies to increase program effectiveness: The respondents highlighted several recommendations for the effectiveness of program implementation as follows: involving relevant parties into the program implementation and process, providing training to providers, preparing program resources such as module to providers, material to students, and budget; establishing smoke free environment in school, running the program gradually and continuously, and avoiding any burdens to students. “...initially we invite relevant departments including health department to provide training to teachers or we could ask people from health department to administer the program to students directly....Also school should be free from smoking including smoker teachers and the availability of cigarettes and cigarette advertisements in school canteen” (Participant 15)

Discussion

Findings of this study suggest that school-based smoking prevention and cessation programs were strongly supported by junior high school teachers and

policy makers in educational setting in Aceh, Indonesia. The prevalence of tobacco smoking is considered unacceptably high among children in Aceh. Smoking was considered inappropriate for school children from moral, health, economic, and educational perspective by the respondents. These notions correspond with previous reports that describe the high tobacco smoking proportion and its associated problems in Indonesia including among children.

Indonesia is home for millions of tobacco users with males reported to have the highest user rates (65%) and far below was females (4%) (Nichter, 2010). Tobacco use is a part of culture for many Indonesians, playing a significant role in social and political system in the country (Hurt et al., 2012). For children, tobacco smoking is viewed as identity and a medium to increase their social status, maturity, self-confident, and friendship (Nawi, 2007).

As the proportion of tobacco smoking among children in their region is high, the introduction of smoking prevention program in schools was considered vital by the participants. There was evidence for a belief that school-based smoking prevention programs could be used as an effective strategy for tobacco control program for children in a variety of ways. School-based smoking prevention program could provide positive effects on students' smoking knowledge (Wen et al., 2010; Berman et al., 2011), attitude (Berman et al., 2011; Lotrean et al., 2010), intention to smoke (Lotrean et al., 2010; McKennitt and Currie, 2012) and behaviours (Wen, et al., 2010; Berman et al., 2011)

The findings of this study suggest that an appropriate strategy for smoking prevention program for adolescents in Aceh should include information about smoking, smoking effects, and tobacco refusal skills. These findings are in line with current development in school-based smoking prevention program elsewhere. The US Centers for Disease Control and Prevention (CDC) education curricula for tobacco put these components into the curricula (La Torre et al., 2010). According to the CDC (La Torre et al., 2010), successful and effective program components to prevent tobacco use should comprise information about effects of tobacco smoking, social influence toward tobacco use, and tobacco refusal skills. Wiehe (2005) found three categories of program interventions in their systematic review of school-based smoking prevention trial: (1) information deficit/health belief, (2) social competence/affective information, and (3) social influence model.

Cultural sensitivity is important to increase program effectiveness (Flay, 2009). To be optimally effective, school-based prevention program should match the needs of participants and be representative of, and sensitive to the participants' socio-economic and cultural background (Shetgiri, et al., 2011; Colby et al., 2012).

As a religious area in which Islamic laws are applied, the use of Islamic teaching is believed by some participants to be a method of increasing the effectiveness of the program in children in Aceh. However, since adherence to the smoking law is varied among the Acehnese Muslims, some respondents argued against this approach. Indonesian Muslims differ in their view about smoking,

some perceive smoking haram (forbidden) while other consider makruh (objectionable) (Taylor, 2009; The Jakarta Post, 2009). Also, using Islam in intervention including in tobacco control remains controversial among public health community (Jabbour and Fouad, 2004). However, empirical evidence suggests that Islam can be an effective strategy for smoking prevention (Jabbour and Fouad, 2004; Yong, 2009; Tahlil, 2010).

With regard to program participants, the findings indicate that school-based smoking prevention programs should be appropriate to students in grades 7-9 but would be better if it can be started at elementary schools. School-based smoking prevention program should be provided to students at an early age, when individual undergoing the important stage of their development and before they start tobacco smoking (Sherman and Primack, 2009). Students at all education levels are possible participants of the interventions, with elementary schools students considered as the most appropriate age to start the program (La Torre et al., 2010).

Almost all of participants in this study agreed that the program could be run by school teachers. Some participants also noted the importance of including external providers such as health professionals and religious leaders as program provider. Other studies believed teachers were the most appropriate people to run school-based smoking prevention programs (Dobbins et al., 2008). Further, Dobbins, et al suggests that the involvement of external providers such as health professionals, volunteers, and researchers appeared to produce positive effects on program (Dobbins et al., 2008).

In general, the participants recommended the use of lectures, interactive teaching methods, demonstrations/ by audiovisual aids, case studies, seminar, and counseling as program delivery methods. A recent review of school-based smoking prevention programs by Park (2006) show that majority of the programs were delivered through lectures, discussion, and by video. While other used experiments, brain storming and role play, questions and answers, poster and material display, and introduced information communication technology, newspaper in education and games (Park, 2006). Further, Park noted that program effects were higher among interactive programs than those in non-interactive ones.

This study also identified several potential problems for the implementation of school-based smoking prevention programs in Aceh include the high frequency of teacher smokers and the availability of tobacco and tobacco advertisements in or around school building. Tobacco is accessible to Indonesians, cigarette price and taxes are low in Indonesia. Tobacco advertisements, promotions, and sponsorships can be found easily across the country. Warren et al. (2008) reported approximately 64.7% of young Indonesians having been exposed to environmental tobacco smoke (ETS) in their dwellings and over 81% reported having exposed to the ETS in different public places. Additionally, the vast majority of adolescents in Indonesia reported having viewed cigarette advertisements on billboards (92.9%) and newspapers or magazines (82.8%) (Aditama et al., 2008) at some time or another..

Limitations of this study include, firstly, as a small qualitative study, this study did not randomly select participants, and involved only a small proportion of the teachers or ex-teachers in Aceh Province and they were predominantly from the capital of Aceh. Thus, findings of this study might not represent opinion, knowledge, and attitude of all teachers and policy makers in education in Aceh. Secondly, results of this study are based on face to face and telephone interviews. Although the participants had been assured that their responses would be confidential, they might not report their responses accurately. Nevertheless, the findings agreed with the CDC recommendation on school-based smoking prevention program. Thus, given the consistency of, findings of this study may not be underestimated.

In conclusion, the primary aim of this study was to identify an effective and culturally appropriate strategy for a smoking prevention program for adolescents in schools in Aceh, Indonesia. We found that the implementation of a school-based smoking prevention program for junior high school students is supported by school teachers and policy makers in education in the Aceh Province. An appropriate intervention for smoking prevention and cessation program for students in Aceh should include scientific and religious based interventions and be provided by school teachers using lectures and interactive teaching methods. To increase the program effectiveness, the involvement of and coordination with other relevant fields are needed.

Findings of this study clearly highlight the importance of school-based smoking prevention and cessation program for adolescents. Future research is needed to assess the impact of the program on adolescents in Indonesia, especially in Aceh. Also, the findings underscore the role of cultural and religious components into the program. Thus, additional future research is also needed to assess the effectiveness of religious involvement including religious leader in the programs. The above barriers of the program implementation should be considered in the implementation of future interventions.

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