Original Articles

The effects of positive interactive education on adolescent perception and attitudes towards smoking behaviour

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Abstract

Background: Prevention and treatment of adolescent novice smokers by suggesting the negative effects of smoking cigarettes are considered less effective. Nursing action, as one of the strategies to prevent adolescent novice smokers, aims to provide interactive education by exposing the positive effects of absence of smoking cigarettes resulting in changes in attitude and perception of adolescents about smoking behaviour.

Objective: To examine the effects of positive interactive education on adolescent perception and attitudes towards smoking behaviour.

Method*:* This was a quasi-experimental study with time series approach, comprising intervention and control groups of 72 junior high school students. Simple random sampling was employed to determine the target area, schools, and respondents of the research.

Results*:* Results of the study showed that positive interactive education significantly affected the perception ($p = 0.001$) and attitude ($p = 0.001$) in the first post-test as well as the perception ($p = 0.002$) and attitude ($p = 0.001$) in the second post-test.

Conclusions*:* Positive interactive education affects adolescent perception and attitudes concerning smoking behaviour so that this interactive education could be used as one of the strategies to prevent adolescents from smoking.

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(Key words: Adolescents, attitudes, health education, positive interactive education, smoking behaviour perception)

Background

It is reported that approximately 1.1 billion people smoked cigarettes, with Indonesia in the third place, after China and India, on the list of global cigarette smokers[1]. One population highly contributing towards the increase of smoking prevalence are adolescents because they have been targeted by tobacco companies[2]. It is closely related to their willingness to become independent and mature, in which male adolescents desire to be adult men while female adolescents desire to be adult women[3].

In 2014, Global Youth Tobacco Survey (GYTS) reported that Indonesia had the highest adolescent smokers in the world, followed by Russia, China, Philippine, and Vietnam. It was estimated that 45% adolescents in Indonesia, aged 13 to 19 years, smoked[4]. Indonesia smoking prevalence in children below 15 years old increased from 32.4% in 2007 to 34.7% in 2010 and 36.3% in 2013[1]. There has been a shift in the ages of first time smokers, and it tended to be younger each year. In 2013, the average first time smokers were in the age range 15-19 years, while in 2014, it shifted to 12-13 years[4,5]. The shift of first time smokers' age is caused by their views, perception, attitudes and beliefs towards themselves[6,7]. A study in Indonesia demonstrated that male adolescents had 2.6 times more favourable perceptions on smoking compared to female adolescents, that 23% of adolescents perceived that smoking make them seem more masculine, and that 28.9% believed that smoking can relieve stress[6]. Another study regarding adolescent attitudes on antismoking advertisements showed that adolescent smokers had undesirable perception towards all anti-smoking advertisements and believed that smoking has no detrimental consequences on health, contradicting what has been asserted in the advertisements[8]. These perceptions and attitudes influenced adolescents to try cigarettes. Nonetheless, adolescents could experience dependence and addiction on cigarettes shortly after their first cigarette[9].

The government of Indonesia had made an effort to address smoking issues through health promotion by implementing the government regulation number 109 of year 2012 concerning control of materials that contain addictive substances in tobacco products in the interests of health[1]. Health promotion was conducted through television as well as health messages in pictorial and textual warnings on cigarette packaging. It shows that the government is willing to increase public awareness regarding the danger of cigarette smoking through pictorial health warning because using label and graphic warning significantly lowers positive attitudes and effectively promotes cessation behaviour[10]. However, the use of traditional strategy, particularly fear-based advertisement, for health promotion has not been fully successful in convincing the audience to accept the campaign, and has even made smokers averse to health messages. This type of advertisement used scare tactics or other anxiety-generating tools to underline the harms of smoking. A qualitative study in senior high school in Indonesia showed that adolescents were apt to avoid seeing the health messages in cigarette packaging[11]. Another study suggested that the government needs to reconsider the use of scare pictures and textual messages about the effects of smoking on health, and rather use humour and emphasize the benefits of non-smoking particularly for adolescents[8].

Innovative health promotion is important to raise the adolescent awareness to live healthily without smoking. Nevertheless, it requires multisector efforts and the nurse, as an integral part of healthcare professionals, plays an essential role as a health educator to solve this prominent problem[12]. Health education has been proved to be effective in treating smoking addiction and preventing smoking behaviour[13,14]. Interactive health education is one of the most commonly used and effective methods that could encourage the audience to perform desirable healthy behaviour.

The use of interactive methods and media in health education creates pleasant feelings and experience for the audience[15]. Consequently, the audience will be attracted to participate in the learning process until the end of the programme. Currently, health education on smoking behaviour is focusing on quit smoking therapy and information on the negative impacts of smoking to health. Several studies associated with health education suggested the use of interactive media. It was shown that health education with the use of video games that described positive physical activities, interactive leaflets that presented the benefits of not smoking with humour and in interesting ways, and the involvement of adolescents in creating anti-smoking advertisements have significantly encouraged adolescents in implementing desirable healthy behaviour[8,16,17].

Based on given elaboration regarding health education treatment on smoking, we conducted a study on the effect of positive interactive education on adolescent perception and attitude toward smoking behaviour. Positive interactive education in this research refers to a method that elaborates the benefit of not smoking, self-control, and the implementation of positive attitude as a method of prevention. This study was developed based on previous studies about positive education which can improve skills and mind-sets that promote positive emotions, positive relationships and character strengths and also gain academic success, otherwise suitable for handling disruptive behaviour in adolescents such as smoking[8,19,20].

Objectives

The aim of this study was to assess the effect of positive interactive education on adolescent perception and attitude toward smoking behaviour.

Method

Study design and sample: Our main study interest was the effect of positive interactive education on youth perception and attitude toward smoking behaviour. This research used a quasi-experiment with time series approach. Random sampling was done with the assistance of random.org in order to determine which school was to be an intervention group. Citra Bangsa Junior High School was chosen to be the control group and Setia Negara Junior High School the intervention group. The sample size in the study was determined using different formula that had considered the drop out sample and the design effect. The studies involved 72 respondents consisting of 36 respondents in control group and 36 respondents in intervention group in accordance with the inclusive criteria of adolescents 11-15 years old who were willing to join the intervention process for two weeks. The minimum sample size in this study was calculated using a hypothesis test calculation of the two population pairs. Calculation of sample size used the following formula:

$$n = \left[\frac{(Z_\alpha + Z_\beta) \times S_d}{d}\right]^2$$

n: sample size, S_d: Standard deviation from the average difference, Z_α: Error type I, α (specified), Z_β: type II, β (specified) error and d: difference in the mean of the two groups that are considered meaningful, d (clinical judgment)

Previous research conducted by Zadeh, Changizi, Sadeghi (2014) related to health education about the use of illegal drugs and addictive substances to the perceptions of adolescents obtained the difference in standard deviation of 6.44 and the difference in mean XI-X2 = 22.14 - 16.17 = 5.97. Based on the research, the minimum number of samples obtained through calculations is as follows:

Sd: 6.44, d: 5.97, Z_α: 5% = 1.96, Z_β: 10% = 1.282

$$n = \left[\frac{(1.96 + 1.282)\times 6.44}{5.97}\right]^2$$

n = 12.23 rounded to 13

This study uses design effects to prevent mismatches between population and sample proportions. In addition, increasing the number of samples with the design effect also aims to ensure that there are no discrepancies between sampling and estimation bias. This design effect explains how designs can influence the calculation of statistical results and minimize sampling error by calculating design effects as twice the number of samples calculated (Walker & Denise, 2003).

Design effect calculations in this study are: Design effect 13 x 2 = 26 respondents

The researcher must anticipate the possibility that there will be a drop out and loss to follow-up subject during the research process by adding a number of samples so that the sample size is fulfilled using a simple formula (Sastroasmoro & Ismail, 2014). The formulas used are:

$$n' = \frac{n}{(1-f)}$$

n = sample size before counting, n'= revised sample size, f = estimated proportion of drop out (10-30%) in this study used 30%

n '= 26 / (1-0.3) = 38.8 = 39 rounded to 40

Based on the calculation of the number of samples obtained the number of samples was 40 respondents in the intervention group and 40 respondents in the control group, so that the total sample in this study amounted to 80 respondents. Sampling procedure can be seen in Figure 1.

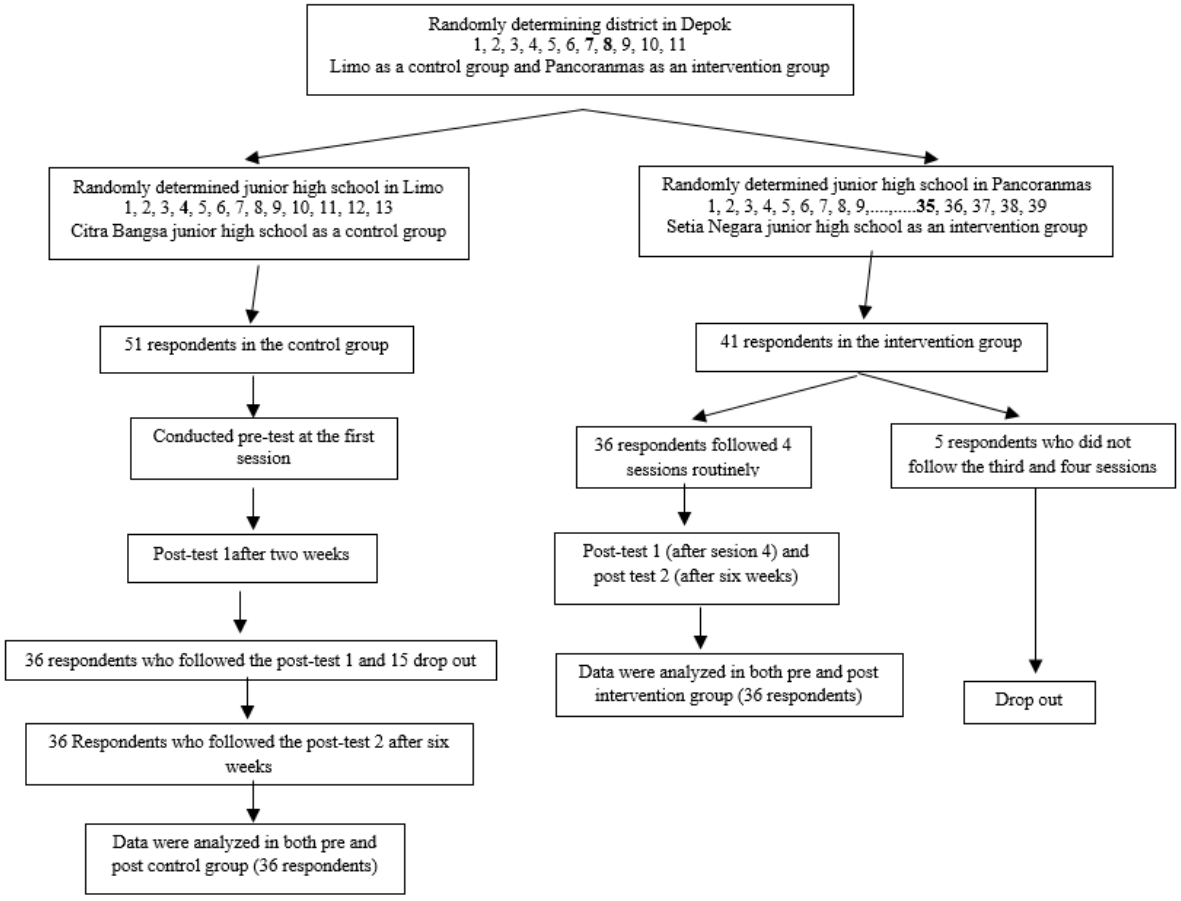

Figure 1: ***Sampling procedure***

Participants' characteristics: The questionnaire was developed based on Global Youth Tobacco Survey (GYTS) in Indonesia. Variables included ages, pocket money for a week, advertisement of tobacco products, parents smoking tobacco, closest friends smoking tobacco, the teachers' smoking habit in school[4].

Perception: The instrument developed based on previous study pertinent to smoking prevention

programme integrated with Health Belief Model (HBM) element regarding respondents' perception. Based on validity and reliability test, there were 23 items of perception variable (*Cronbach's alpha* = 0.916). The questions pertain to perceived susceptibility (4 items), perceived severity (4 items), perceived benefits (5 items), perceived barriers (5 items), and perceived self-efficacy (5 items)[21].

Attitude: This study employed Smoking Attitude Scale (SAS) to measure an individual's smoking behaviour. Based on validity and reliability test, there were 16 items of attitude variables (*Cronbach's alpha* = 0.881) that were valid and reliable. The questions pertain to reflecting on the relationship with smoker (5 items), smoking restrictions and cigarette laws (5 items), hazard of cigarette (3 items), and the sale and marketing of cigarette (3 items)[22].

Procedure: This study comprised four sessions (45-60 min each) within two weeks, and afterwards, there were two times of data collections: the first was conducted after the provision of positive interactive education and the second data collection was conducted after six weeks. Interventions were carried out by community nursing nurses (researchers) and 3 facilitators. The intervention phase was carried out with four sessions of two weeks with two sessions each week by giving material about the concept of cigarettes, positive information about cigarettes, and assertive communication using different interactive methods depending on the topic given. The interactive methods used in delivering health education materials included interactive lectures, focus group discussions, interactive video watching and 60 minutes of role play for each meeting. In the intervention group to keep the process carried out still interactive, it was divided into two groups, each of which had 20 respondents. The education was done on the same day for both groups but at different times. The supervisor has been consulted regarding the material provided with and the expertise test has been carried out. The final evaluation was carried out after the intervention was carried out, namely positive interactive education in the intervention and control groups. Adolescent perceptions and attitudes towards smokers were reassessed at this stage and carried out by researchers and facilitators using the same questionnaire as the initial data collection.

Ethics approval: This study was approved by the Nursing Research Ethics Committee at Universitas Indonesia (No.222/UN2.F12.D/HKP.02.04/2017). Written informed consent was obtained from all participants, and participants received written contracts, which stated they could withdraw from participation at any time during the study.

Results

The respondents of both control and intervention groups were adolescents aged 13-15 years, with the proportion of male respondents higher than female respondents in the two groups. The highest proportion of economic background of the respondents' parents in the control group was the ones with income above the regional minimum wage in Depok of Indonesia (*n=23; 63.9%)* and in the intervention group there were equal proportion of those whose income was above and under the minimum wage (*n=18 ;50%*).

Cigarettes affordability was determined according to respondents' pocket allowances per week. In the control group, the highest proportion was the ones with more than IDR 50,000/ week (*n*=12; 33.3%). On the other hand, pocket allowances of the intervention group was lower, ranging from IDR 21,000-30,000 (*n*=14; 38.9%). Regarding cigarette availability in school and house environment, all participants responded that they could find places where cigarettes were sold or offered. In the smoking behaviour category, majority of the respondents had smoking fathers in two groups. Meanwhile, 23 (63.9%) respondents in the control group and 29 (80.6%) respondents in the intervention group had never seen their teachers smoking at school. Most respondents in the 2 groups had smoking peers. All respondents both in the control and intervention groups had been exposed to cigarette advertisement from mass media. The characteristic of respondents can be seen in Table 1.

The analysis showed that there was a noticeable difference in perception and attitude of the respondents, which increased after the intervention, was done ($p<0.05$) both in the first and second measurement. On the other hand, the control group did not show significant improvement on perception and attitude of the respondents both in the first and second measurement ($p >0.05$). The results of the analysis can be seen in Table 2.

The analysis of pooled t-test showed that there was a noticeable difference in perception and attitude variables after the intervention between the control and intervention group. The results of the analysis can be seen in Table 3.

Table 1: ***Distribution of respondents characteristic (n= 72 respondents*****)**

Characteristic	Control group *(n=36)* Number (%)	Intervention group *(n=36)* Number (%)	p-value
Gender			
Male	25 (69.4)	18 (50.0)	0.092
Female	11 (30.6)	18 (50.0)	
Economic background of parent			
< Regional minimum wage	13 (36.1)	18 (50.0)	0.064
≥ Regional minimum wage	23 (63.9)	18 (50.0)	
Pocket allowances per week			
Rupiah 21.000-30.000	07 (19.4)	14 (38.9)	
Rupiah 31.000-40.000	11 (30.6)	07 (19.4)	0.076
Rupiah 41.000-50.000	06 (16.7)	02 (05.6)	
> Rupiah 50.000	12 (33.3)	13 (36.1)	
Cigarette availability in school and house environment	36 (100.0)	36 (100.0)	0.096
Parent smokers			
None	12 (33.3)	15 (41.6)	
Both	01 (02.8)	01 (02.8)	0.073
Father only	22 (61.1)	19 (52.8)	
Mother only	01 (02.8)	01 (02.8)	
Teachers smoking behaviour in school	12 (33.3)	07 (19.4)	
Don't know	23 (63.9)	29 (80.6)	0.69
Never	01 (02.8)	0 (0)	
Sometimes			
Closest friends smoker			
None	07 (19.4)	06 (16.7)	0.065
All of them	29 (80.6)	30 (83.3)	
Cigarettes advertisement (during the past 1month)	02 (05.6)	0 (0)	0.061
Not seen	34 (94.4)	36 (100.0)	
Seen			

Table 2: ***Differences of respondents' perception and attitudes in control and intervention groups***

Variable	Group		Mean	SD	Mean Diff	P *value*
Perception	Intervention	Pre-test	86.56	10.10		
		Post-test 1	94.19	7.95	7.6	0.001
		Post-test 2	92.19	5.37	5.63	0.004
	Control	Pre-test	84.67	12.45		
		Post-test 1	85.33	12.91	0.66	0.448
		Post-test 2	84.86	8.05	0.19	0.847
Attitudes	Intervention	Pre-test	75.72	10.97		
		Post-test 1	93.33	9.39	17.61	0.001
		Post-test 2	88.36	6.37	12.64	0.001
	Control	Pre-test	73.39	11.63		
		Post-test 1	74.81	11.93	1.42	0.249
		Post-test 2	74.42	8.68	1.03	0.289

Table 3: ***The effects of positive interactive education on adolescent perception and attitude***

Variable	Group	Mean	SD	P *value*
Perception	Intervention	92.19	5.37	0.001
	Control	84.86	8.05	
Attitudes	Intervention	88.36	6.37	0.001
	Control	74.42	8.68	

Discussion

The results showed that positive interactive education influenced the variables of adolescent perception and attitudes towards smoking behaviour, and there was also an average increase in measurements done both after the intervention and six weeks afterwards. These findings were relevant with the previous study that classified perceptions by using Health Belief Model (HBM) theory, five components of which experienced average increase in the intervention group[23]. Likewise, another study also using HBM components to measure the perception of smoking behaviour, found that there was an average increase in perception components towards vulnerability, efficacy response, and self-efficacy[24]. This result indicated that interactive education could improve respondents' perception about smoking indicated by the changing in perception that affected the respondents' attitude of not trying to smoke cigarettes.

Attitude is a part of an individual's behaviour and either readiness or willingness to act, and it will not be formed until the individual obtains information, sees or knows about the object[25]. The increase in attitude score of the observed adolescents was affected by the increase of knowledge obtained from interactive education process given in four sessions to the control group, where one of topics discussed was about how adolescents implement positive attitudes in preventing smoking behaviour. In addition, they were also taught about assertive communication so that they could communicate well and politely when admonishing or even refusing influence or pressure to smoke. This is in line with a study stating that the attitude of respondents joining peer education has meaningfully changed compared to those in the control group[26]. It shows that the effective and interactive health education has the effect of changing knowledge, attitudes, and skills simultaneously[27].

Our finding was also in agreement with a previous study which found that health education could change adolescent attitudes towards smoking behaviours, with $p < 0.05$ in the intervention group and $p > 0.05$ in the control group[28]. It shows that giving proper health education to adolescents could improve their knowledge about smoking, resulting in changes in their attitudes regarding smoking behaviour. Developing positive attitudes by acquiring new information and then learning to explore it further can create changes, particularly in smoking behaviours[29]. This statement was in line with the theory used as a basis of this study, HBM stating that acquiring information can change one's perception, and then give direct effect towards the change of preventive behavioural change, particularly, based on this study, adolescents attitudes on smoking behaviour. Developed HBM theory, particularly in the component of *cues to action,* shows that information regarding health issues can influence an individual's perception towards disease threats resulting in implementing of preventive behaviour on smoking, in which attitude is one of the components that can develop an individual's behaviour[12,25].

The results of our study showed that positive interactive education affected the adolescents' perception and attitude on smoking behaviour[27]. It is in line with a previous study which argues that using interactive speeches as well as demonstration can significantly increase participants' knowledge and there is also a significant difference between intervention and control groups, but for the variable attitudes, the result of this study is not in line with the study stated previously. Interactive education methods are used to promote behavioural changes in individuals, groups and communities by giving them opportunities to explore health problems they have experienced[30]. Interactive methods focus on a reciprocal process between the speakers and participants. These methods are applied accordingly based on target audience background, for example: motivational and education strategies for adult participants, socio-drama and doll performance for child participants, and focus group discussion for adolescent participants[30]. Another study stated that an interactive education method using various media such as booklets, pamphlets, posters, or films to deliver positive information as a strategy to quit smoking has proven effective to improve healthy life[23].

A study about the effect of health education on smoking habits amongst adolescents shows that there is correlation between adolescent attitudes toward cigarette selling and advertisement ban[28]. Our study, likewise, showed that the interactive education method significantly affected adolescent attitudes on smoking behaviour. It showed that the improvement of knowledge can alter one's attitude, although attitude alteration can also be influenced by other factors like personal experiences, emotional and psychological state, culture, close friends or relatives as role models, mass media, educational and religious institutions as well as emotion of the individuals[31]. The differences on attitude in both control and intervention group found in this study can be affected by the respondent's characteristic differences since in the control group, the characteristics of gender, parents' economic background and cigarette availability have higher percentages and are more varied than those in the control group. It is in accordance with the theory developed in this research stating that various factors can affect an individuals' perception resulting to changes in attitudes[21,25]. Positive interactive education method can be assigned as an

intervention to change adolescent perception as well as attitude on smoking cigarettes by explaining benefits of not smoking cigarettes to them. It is a breakthrough for the recent common method where the government only exposes the danger of smoking cigarettes that has proven a less effective campaign for adolescents in Indonesia. It is also possible to integrate this method with school health programmes as well as teenager health programmes and needs cooperation from all parties involved to prevent smoking cigarette behaviour in early ages.

It is suggested that there will be further research to develop interactive education to measure other variables such as preventing behaviour that covers knowledge, attitude, and skill. The slope on post-test score indicates that the interactive education can be applied periodically in schools involving parents, education department, health department, public health centre and other relevant parties.

Conclusions

Positive interactive education affects adolescent perception and attitudes concerning smoking behaviours so that this interactive education could be used as one of the strategies to prevent adolescents from smoking.

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References

1. Ministry of Health of the Republic of Indonesia. World Tobacco Infodatin-Day. 2015. www.depkes.go.id. Accessed 20 Oct. 2016.

2. Ng Nawi, Weinehall L, Öhman A.'If i don't smoke, i'm not a real man'- Indonesian teenage boys' view about smoking. Oxford Journal. 2007; https://doi.org/10.1093/her/cyl104 PMid: 16987943

3. Hurlock. Child development. Volume 2. Jakarta: Erlangga; 2012.

4. WHO. Global Youth Tobacco Survey (GYTS): Indonesia report 2014. 2015. www.searo.who.int. Accessed 3 Sep 2016.

5. RI Ministry of Health. 2013. 2013.www.depkes.go.id basic health research. Accessed 3 Sep 2016.

6. Nurhidayat. Putra Bangsa Middle School students' perceptions of smoking behavior. 2012. lib.ui.ac.id. Accessed 5 Sep 2016.

7. Johnston V, Westphal Darren W, Earnshaw C, Thomas David P. Starting to smoke: a qualitative study of the experiences of Australian Indigeneous youth. *BMC Pubic Health* 2012; doi: 10.1186/1471-2458-12-963. https://doi.org/10.1186/1471-2458-12-963 PMid: 23140529 PMCid: PMC3545896

8. Yudarini LPL. Students' perceptions of anti-smoking advertisements. 2014. lib.ui.ac.id. Accessed 5 Sep 2016.

9. Barber S, Ahsan A, Adioetomo S M, Setyonaluri D. Tobacco economics in Indonesia. Paris: International Union Against Tuberculosis and Lung Disease; 2008

10. Popova L, Ling Pamela M. Nonsmokers' responses to new warning label on smokeless tobacco and electronic cigarettes: an experimental study. *BMC Public Health* 2014; https://doi.org/10.1186/1471-2458-14-997 PMid: 25253295 PMCid: PMC4190284

11. Rahmawati AAD. Adolescent perceptions of the scary impression on pictorial health warnings on cigarette packs are reviewed from the Extended Parallel Process Model. 2015. lib.ui.ac.id. Accessed 8 Sep 2016.

12. Nies M S, McEwen M. Community public health nursing: Promoting the health of populations(6th ed). St Louis: Elsevier; 2015.

13. Cao Z, Chen Y, Wang S. Health belief model based evaluation of school health education programme for injury prevention among high school students in the community context. *BMC Public Health* 2014;**14**(26):1–8. https://doi.org/10.1186/1471-2458-14-26 PMid: 24410991 PMCid: PMC3922908

14. Kaushal P, Singh T, Padda AS, Deepti SS, Bansal P, Satija M, et al. Impact of health education on the knowledge , attitude and practices of teachers regarding reproductive health of adolescents of Amritsar , Punjab. *Journal of Clinical and Diagnostic Research* 2015; **9**(5):18–21. https://doi.org/10.7860/JCDR/2015/13583.5985 PMid: 26155502 PMCid: PMC4484094

15. Joseph P, Fleary S. The Development of a Community-Based Adolescent Health Promotion Social Media Intervention. Proquest LLC. 2016; 10118648.

16. Ambarwati UAK, Kurniawati F, Kuswandari TD, Darojah S. Media leaflets, videos and knowledge of elementary school students about the dangers of smoking (studies in students of SDN 78 Sabrang Lor Mojosongo Surakarta). *KEMAS Public Health Journal* 2014;10(1), 7-13.

17. Peng W, Crouse JC, Lin J. Using Active Video Games for Physical Activity Promotion : A Systematic Review of the Current State of Research. 2012; https://doi.org/10.1177/1090198112444956 PMid: 22773597

18. Bernard M, Walton K. The effect of you can do it! Education in six school on student perceptions of wellbeing, teaching, learning and relationships. *Journal of Student Wellbeing* 2011; **5**: 22-37 https://doi.org/10.21913/JSW.v5i1.679

19. Green S, Oades L, Robinson P. Positive education: creating flourishing students, staff and schools. *InPsysch* 2011; **33**(2), 16-17.

20. Waters L. A review of school-based positive psychology interventions. *The Australian Educational and Developmental Psychologist* 2011; https://doi.org/10.1375/aedp.28.2.75

21. Pool MK, Pashaei T, Mansorian M, Qorbani M. School-Based Smoking Prevention Programs for Middle School Students in Nowshahr- Iran : a Randomized Controlled Trial. 2016; doi:10.22038/ijp.2016.7533.

22. Shore TH, Thaschian A, Adam JS. Development and validation of a scale measuring attitudes toward smoking. *The Journal of Social Psychology.* 2010; https://doi.org/10.1080/00224540009600501 PMid: 11059207

23. Pool MK, Zarei F, Pashae T, Shojaeizadeh D. The effect of an educational intervention based on healtn belief model on improving smoking preventive behaviors. *Iranian Journal of Health Education and Health Promotion* 2016; **4**(4): 300–8. https://doi.org/10.18869/acadpub.ihepsaj.4.4.300

24. Gharlipour Z, Mohammad S, Hazavehei M, Moeini B, Nazari M, Belgi AM, et al. The effect of preventive educational program in cigarette smoking : Extended Parallel Process Model. *Journal of Education and Health Promotion* 2015; **4**:18–24.

25. Gilbert GG, Sawyer RG, Mcneill EB. Health Education: Creating Strategies for School and Community Health, Third Edition.

26. Hayati M. Pengaruh peer edukasi tentang jajanan sehat terhadap perilaku anak usia sekolah di Kota Lhokseumawe Nangggroe Aceh Darussalam. Lib.ui.ac.id. (2009). Accessed 17 Jul 2017.

27. Astuti NR. Promotion of dental and oral health with interactive lecture methods and demonstrations accompanied by teaching aids on Elementary School teachers as facilitators. *International Dental Journal* 2013; **2**(2):16–25.

28. Salaudeen A, Musa O, Akande T, Bolarinwa O. Effect of health education on cigarette smoking habits of young adults in tertiary institutions in a northern Nigerian state. *Heath Science Journal* 2013; **7**(1):54–67.

29. Ball MJ, Douglas J V, Walker PH, DuLong D, Gugerti B, Hannah KJ, et al. Nursing informatics. London: Springer; 2011

30. Fertman CI, Allensworth DD. Health promotion programs: from theory to practice. San Francisco: Jossey-Bass; 2010

31. Azwar S. Attitudes and Behaviour. 2nd ed. Yogyakarta: Student Library; 2010