



Effect of Peer Promoters on Changes in Adolescent Smoking Knowledge and Attitudes: A School-based Intervention Study

Muhammad Rachmat^{1*}, Nur Arifah Arif², Sitti Andriani Anwar³, Tanti Asrianti⁴, Andi Tenri Awaru⁵

¹Department of Health Promotion and Behavior, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia; ²Department of Hospital Management, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia; ³Department of Epidemiology, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia; ⁴Department of Epidemiology, Faculty of Public Health, Mulawarman University, Samarinda, Indonesia; ⁵Department of Health Promotion, Nusantara Sehat Assignment Individual Batch 1, Ministry of Health Republic of Indonesia, Jakarta, Indonesia

Abstract

BACKGROUND: Smoking is currently a trend among youths, with the public emergence of new smokers shifting to this group.

AIM: This study aims at analyzing the effect of peer promoters as communicators on the knowledge and smoking attitudes of junior high school adolescents.

METHODS: The quasi-experimental and non-equivalent control group designs were used. Furthermore, the respondents included 1062 students from two junior high schools in Makassar City, Indonesia, with 473 and 589 males and females, respectively. A total of 801 respondents had paired data (pre- and post-test) consisting of 334 in the intervention and 467 in the control school. Paired t-test was used to measure the difference in the pre-test and post-test scores of intervention and control schools. Independent t-test was used to determine mean difference between the pre-test and post-test scores between intervention and the control schools.

RESULTS: The results showed that 18.4% (n = 1062) had smoked, with subtleties of 39.4% male and 1.5% female understudies. The knowledge score increase of 0.82 (p = 0.000) and 0.22 (p = 0.004) was observed in the intervention and control schools, respectively (n = 801). The attitude score also increased by 2.23 (p = 0.080) in the intervention and 2.51 (p = 0.000) in the control school (n = 801). Differences in the knowledge and attitude scores between both schools obtained p = 0.004 and 0.766, respectively.

CONCLUSION: Education by peer promoters increase knowledge and change adolescent smoking attitudes indicated the promotion of school-based smoking prevention efforts with intensive peer approach.

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***Correspondence:** Muhammad Rachmat, Department of Health Promotion and Behavioral Sciences, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia. E-mail: rachmat.muhammad@unhas.ac.id

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Introduction

A study conducted in 2014 showed that 50.3% of teenagers between 15 and 19 years were smokers [1]. This occurrence is a result of child supervision by their parents and school, as well as the patterns of adolescent interaction. In addition, the smoking conduct of youths is impacted by few variables, including a weak disposition, the impact of guardians, and peers who smoke. These phenomena result in the need to know how cigarettes taste. Overall, youths smoke 1–8 cigarettes daily, with this form of abuse being more prevalent among elementary, middle, and high school students. However, short and quick puff examples are mostly used by rudimentary and center school understudies.

Despite the several years of anticipation endeavors, the smoking rate among teenagers remains high. Furthermore, although the negative well-being effects of tobacco use emerge at a young age, approximately 36% of secondary school understudies are presently dynamic smokers [2]. Consequently,

individuals who smoked during their youth were more likely to become adult smokers. Furthermore, 5,000,000 persons, including those 17 years or less, will become smokers and kick the bucket rashly from smoking-related diseases in adulthood, provided the rate of tobacco use remains constant [3].

Fortunately, teenage smokers seem to be aware of the risks associated with smoking. Approximately 75% of the auxiliary school students involved in this act endeavored to quit at least once. This finding is similar to a cross-sectional investigation of smokers, where 12.31% had attempted to stop severally [4]. However, the attempts of teen smokers to quit are hampered by two primary variables, including experiencing issues building up to a rational arrangement for stopping [5]. Studies on the techniques used by teenagers to quit smoking advocate that this group is less mindful of the several procedures effectively used by adults. According to Anjum *et al.*, 2016, school affects the behavior of individuals [6]. Furthermore, several studies have relied on adolescent perceptions rather than reports on their behavior to assess similarities in smoking among peers.

Consequently, when youths project their smoking behavior onto their peers; the likelihood of smoking similarities between these groups increases [7].

Furthermore, there have been insufficient investigations estimating peer smoking conduct and analysis of the overall impact of a juvenile's closest companions. Although good friends are part of the teenage friends' network, the level of interaction and closeness that determine the best friendships have a greater influence on these adolescents' decision to smoke than larger groups of friends [8]. Accepted practices in schools regarding cigarette use and how peer pressure influences a juvenile's smoking conduct have received little consideration. Furthermore, schools with different populace densities cannot be disaggregated by sex or race because they are associated with a more significant level of student-school relationships. The school environment's ability to shape adolescent behavior has been demonstrated to be very influential [9].

Therefore, popular students have the potential to become transmitters of standards that strengthen or authorize certain practices based on the number of relationships, they have within the school. These understudies add to the commencement and upkeep of well-being-related practices through the utilization of peer display and fortification [10]. The social impact hypothesis features adjustment to aggregate standards as a significant measure for clarifying individual conduct. Furthermore, within this hypothetical structure, juvenile's fundamental need to be important in a gathering causes accepted practices to influence the individual's perspectives, qualities, and conduct [11].

Therefore, school-based intercessions, which are focused on social impact, are implemented if this accepted practice is smoking, as indicated by schools with a high smoking prevalence. The peer pressure segment is coordinated to counter smoking and compel friends not to engage in this act.

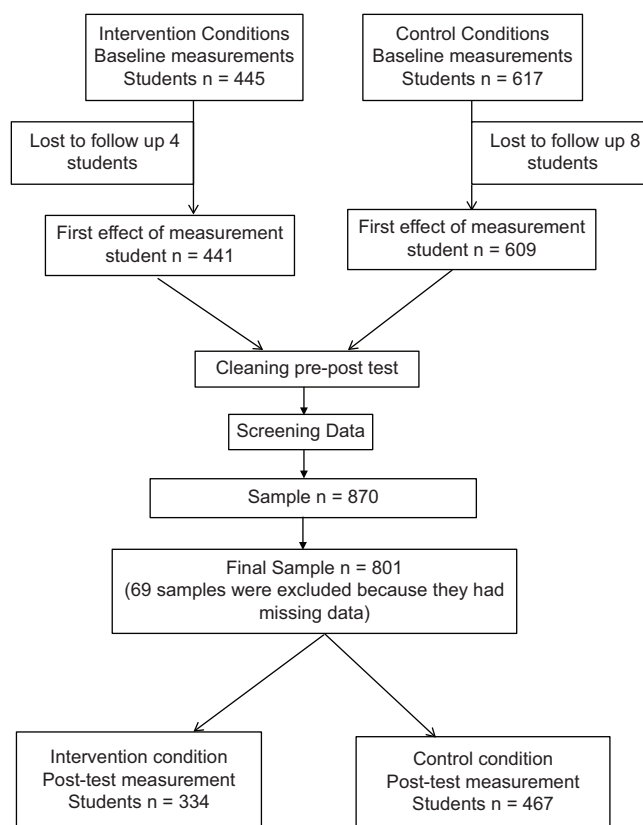
Materials and Methods

Quantitative strategies and a semi-test (semi-test) plan with the non-equivalent benchmark group strategy were used in the exploration configuration. Furthermore, junior high school (SMP) understudies in the coast territory of Makassar City were utilized as an example. The semi-trial research configuration model (semi-exploratory) through the non-equivalent benchmark group plan can be described below:

Non-randomized

Schools n = 2 schools

Sample n = 1062.



Participants

This study is a primer report (pattern) for a mediation focused on junior high school understudies. The examination information was obtained from 1062 students evaluation in Grades 7 and 8 of junior high schools in Makassar City, South Sulawesi, Indonesia. Moreover, essential data were acquired through a series of organized surveys that were distributed to the male and female understudies, who were available at the time of data collection. Junior high school students were identified as peer promoters in this study after measuring (pre-test) the knowledge and attitudes of 42 individuals. These prospective peer promoters were selected based on the recommendation of the student section teacher, where each class was represented by 2–3 students. Subsequently, the Health Promotion and Behavioral Science Students from the Faculty of Public Health provided these persons with communication, skills, and knowledge provisions related to smoking attitudes for 4 weeks. A demonstration test was given to the peer promoter each week and an evaluation in the form of a post-test at the end of the briefing.

Intervention

Peer groups, including schoolmates, organizations, or playmates, have a significant influence on adolescents. The impact of parents begins to decrease at this stage because adolescents have formed peer groups to achieve their autonomous

Table 1: Characteristics of respondents

Characteristic	Baseline (1062)		p-value	Responses group (n = 801)		p-value
	Intervention n = 445	Control n = 617		Intervention n = 334	Control n=467	
Grade						
7 th grade	230 (51.7)	319 (51.7)	0.000	162 (48.5)	239 (51.2)	0.001
8 th grade	215 (48.3)	298 (48.3)		172 (51.5)	228 (48.8)	
Sex						
Male	187 (42.0)	286 (46.4)	0.247	121 (36.2)	198 (42.4)	0.490
Female	258 (58.0)	331 (53.6)		213 (63.8)	269 (57.6)	
Level of knowledge						
Low	36 (8.1)	17 (2.8)	0.000	4 (1.2)	5 (1.1)	0.940
Average	223 (50.1)	267 (43.3)		125 (37.4)	180 (38.5)	
High	186 (41.8)	333 (54)		205 (61.4)	282 (60.4)	
Attitude						
Bad	72 (16.2)	53 (8.6)	0.000	28 (8.4)	24 (5.1)	0.000
Good	373 (83.8)	564 (91.4)		306 (91.6)	443 (94.9)	

Table 2: Comparison of the knowledge level and attitude scores between the intervention and control groups at the first follow-up measurement by independent t-test

Variable	Intervention		p-value	Control		p-value
	Baseline	Follow-up measurement		Baseline	Follow-up measurement	
Knowledge level	2.34	2.64	0.000	2.51	2.60	0.004
Attitude	1.83	2.00	0.000	1.91	2.00	0.080

development (independence). These groups are seen as being able to offer or provide more attractive social rewards (rewards) than families. Grindler argues that the orientation of adolescents toward maturity is temporarily replaced by peer status needs (the need to obtain status in the group). Therefore, social learning theory interprets peer group activities as closely related to promising rewards, namely, the social rewards of peers, who provide a sense of pleasure.

During the preparation for the formation of peer promoters from a facilitator team, a module was created to equip these facilitators to properly practice the promoter training. This was done to produce skilled promoters, who understand the components of the material provided (types of cigarettes and smoker, content and effects of cigarettes, and how to quit smoking) in great detail and depth. The facilitator is a principal actor in the training activities, especially in peer promoter exercises, which are designed to be participatory.

Furthermore, these individuals are required to prepare with some activities for this training to be effective. These activities include studying the full promoter training module, developing training schedules, and learning methods, such as brainstorming, discussions, and demonstrations. Furthermore, coordination meetings should be conducted between facilitators and tasks shared. These individuals are also to have knowledge on and the ability to create training equipment and understand the youth characteristics. Important topics that provide skills and knowledge for potential peer promoters include understanding cigarettes, their types and content, kinds of smokers, dangers or impacts of cigarettes, and what makes quitting smoking difficult as well as how to avoid its influence. Furthermore, factors that encourage this act reasons

why adolescents are targeted in cigarette marketing, ways and steps to quit, and its benefits, as well as tips to stop smoking.

Sample size and control

A pre-test was conducted on 1062 students at the two schools to identify the respondents' knowledge and attitudes of smoking. Furthermore, a total of 42 were trained to become peer promoters in the control school. This process lasted for a day and each class was represented by 2–3 individuals. Each peer promoter was provided with a training module. The education by peer promoters, who have been alternately trained 2 times a week for 4 weeks in each class, was used as a follow-up to this training. Subsequently, the post-test was measured with 1050 participants.

Outcome

The students' knowledge and attitudes about smoking data were collected using a questionnaire that was developed by the researcher. Moreover, the quality control of the questionnaire was conducted using validity and reliability tests. The validity test was executed by correlating the scores of each variable with the total. A variable was said to be valid if the score was significantly associated with the total. The validity test used the Pearson product moment correlation and was performed on all questions from the concept variable, while the reliability test used the Cronbach's alpha.

Statistical methods

Two tests, namely, paired t- and independent t-tests were used in this study. The paired t-test was used to assess the difference in the mean score of adolescent knowledge and attitudes before and after the intervention in each group. Meanwhile, the independent t-test assessed the difference between the adolescent's average score of knowledge and attitudes between the intervention and control groups represented by state junior high school 37 Galangan Kapal, Makassar, and state junior high school 25 Sudiang, Makassar, respectively.

Results

Table 1 shows the predominant members in the pre-test bunch included 230 (51.7%) Grade 7 understudies in the intercession gathering and 319 (51.7%) in the benchmark group. Grade 8 had the largest intervention group, with 172 people (51.5%) while 7 had the dominant control group, with 239 individuals (51.2%) at the time of post-test. Furthermore, predominantly women were observed in the gender variable at the pre-test, with 258 (58%) and 331 (53.6%) in the intervention and control groups, respectively. Meanwhile, at the post-test, the intervention and control groups consisted of 213 (63.8%) and 269 individuals (57.6%), respectively. The knowledge level variable shows that the pre-test group with 50.1% in the intervention group and 43.9% in the control is dominant in the medium knowledge category. However, the dominant level of knowledge was 61.4% and 60.4% in the intervention and control groups, respectively, in the post-test group. In addition, the attitude variable illustrated that the student's approach toward smoking is significant in the good category, with 373 people (83.8%) in the intervention group and 564 (91.4%) in the control. Similarly, the post-experimental group was predominant in the great demeanor class, with 306 (91.6%) in the intercession gathering and 443 (94.9%) in the benchmark group.

The Table 2 shows that the knowledge level of the intervention and control groups increased from 2.34 to 2.64 and 2.51 to 2.60, respectively, at the time after follow-up. Furthermore, the attitude variable in the intervention and control groups increased from 1.83 to 2.00 and 1.91 to 2.00, respectively.

Table 3: Differences in mean value of knowledge and attitudes before and after the intervention

Observation	Knowledge Mean ± SD	p-value	Attitude Mean ± SD	p-value
Before intervention	13.40 ± 2.44	0.000*	93.13 ± 11.58	0.000*
After intervention	13.87 ± 2.48		95.53 ± 12.58	
Difference (change)	0.47 ± 2.91		2.39 ± 12.78	

*Paired t-test, sig. <0.05.

Table 3 shows the mean score of the knowledge and attitude variables before and after treatment. The analysis results illustrate that the obtained mean value was 13.40 and 13.87 in the knowledge variable, before and after treatment, respectively. Therefore, a change or increase of 0.47 in the score was concluded. The factual test utilized a combined t-test and acquired $p = (0.000) < 0.05$, hence, there is a critical change in the mean score before and after treatment. Meanwhile,

the analysis results showed a mean value of 93.13 after the treatment and 95.53 after, on the attitude variable. Therefore, there was a change or an increase of 2.39 in the score. Statistical test was conducted with a paired t-test to obtain $p = (0.000) < 0.05$, hence, there is a significant change in the mean score before and after treatment.

Table 4 shows the mean score on the knowledge and attitude variables before and after treatment in both schools. Furthermore, the analysis results from the intervention group showed that the mean values of 13.04 and 13.86 were obtained in the knowledge variable before and after the treatment, respectively. Hence, there was a change or increase of 0.82 in the score. $p = (0.000) < 0.05$ was obtained from the statistical test, which was performed using the paired t-test. Therefore, there is a significant change in the mean score before and after treatment. However, the analysis results in the control showed that the mean values were 13.65 and 13.88 before and after the treatment in the knowledge variable. This finding demonstrates that there was a change or an increase of 0.22 in the score.

Furthermore, the analysis results in the intervention school showed that an average value of 91.58 and 93.81 was obtained on the attitude variable before and after treatment. This finding demonstrates that there was a change or an increase of 2.23 in the score. The statistical test was conducted using the paired t-test and $p = (0.080) > 0.05$ was acquired. This implies that there is no critical change in the mean score due to the treatment. The investigation results on perspectives show that a normal worth of 94.24 and 96.75 was obtained before and after the treatment in control schools. Therefore, a change or expansion of 2.51 in the score was presumed. $p = (0.000) < 0.05$ was obtained from the factual test conducted with the matched t-test; hence, there is a huge change in the mean score before and after treatment.

The results showed that $p = (0.004) < 0.05$ was obtained in the knowledge variable based on the differences or changes that occurred before and after the intervention. Therefore, there is a variation in the mean value between the intervention (mean difference 0.82) and control school (mean difference 0.22). However, $p = (0.766) > 0.05$ was obtained for attitudes; hence, there are no differences in the mean score between the intervention (mean difference 2.23) and control school (mean difference 2.51).

Table 4: Differences in the knowledge and attitudes mean value before and after intervention by school

School	Knowledge				Attitude			
	Before Mean ± SD	After Mean ± SD	Difference Mean ± SD	p-value	Before Mean ± SD	After Mean ± SD	Difference Mean ± SD	p-value
Intervention	13.04 ± 2.47	13.86 ± 2.46	0.82 ± 3.07	0.000 *	91.58 ± 12.32	93.81 ± 13.69	2.23 ± 14.14	0.080 *
Control	13.65 ± 2.39	13.88 ± 2.49	0.22 ± 2.77	0.004 *	94.24 ± 10.89	96.75 ± 11.58	2.51 ± 11.74	0.000 *
	p-value		0.004**		p-value		0.766**	

*Paired t-test, sig. <0.05. **Independent t-test, sig. <0.05.

Discussion

Although electoral explanations are usually ignored, smoking among adolescents is widely associated with peer group influence [12]. This phenomenon is generally a major factor in the consideration of drug use among youths, as these individuals cannot be directly influenced by friends. However, peer groups might impact smoking activities if the group modeled behaviors are characterized by this act. In the view of modern psychology, adolescence is a natural developmental phase. Consequently, a teenager will not experience difficulties if their development is natural and in accordance with their emotional and social tendencies [13].

Human behavior, which is manifested in the form of knowledge, attitudes, and actions, results from all kinds of experiences and interactions with the environment. Behavior is the response/reaction of an individual to an external or internal stimulus [14]. Moreover, when viewed from a psychological perspective, smoking is used for relaxation, reducing tension, and temporarily forgetting the problem at hand. This phenomenon was observed in the interaction between respondents and families who smoke. Approximately 28.2% of the participants smoked and interacted with smoking families. Furthermore, this act was prevalent in 27.5% of this group and 28.3% often found cigarettes at home [15].

The media, such as advertisements, are another factor that influences smoking. According to the results, 28.3% of the respondents who smoked were often attentive to cigarette advertisements. These commercials include information media, which have the power to visualize objects and provide audio. Advertising has a direct and indirect persuasive effect on viewers. The study results by Martini and Sulistyowati (2005) showed that 87%, 75%, 42%, and 32% of adolescents are exposed to cigarette advertisements through television, billboards, radio, and newspapers, respectively [16]. According to Hanse et al. (2019), exposure to cigarette and e- cigarettes advertisements can increase its use at an early age and the likelihood of an early adoption of e-cigarettes, cigarettes, and hookahs [17].

Furthermore, a research in 2013 about the influence of peers on smoking behavior adolescents is very large which is proven that 54% of students been offered to smoke by a friend. Peers positively affect adolescent smoking intention (p value= 0.000) and became the most dominant factor in among other independent variables. Peer groups is an important source of adolescent first cigarettes. With reference to the concept of behavioral transmission, in basically behavior can be transmitted through transmission vertical and horizontal. Horizontal transmission is carried out by peers in this case the environment of friends [18].

Adolescents were identified as potential long-haul smokers due to peer pressure, which was seen to be the strongest predictor [19]. The increasing number of young smokers will have a negative impact on the general health of the population. Therefore, investing in the well-being advancement for the anticipation and mediation of smoking behavior in schools is critical [20].

According to this study, adolescents selected friends who had psychological qualities, such as interests, attitudes, values, and personalities relatively similar to theirs [21]. Furthermore, conformity or the tendency to give up, follow the opinions, values, habits, hobbies, and desires of others (peers) develops during this period. However, this development of conformity resulting a positive or negative impact on adolescents [22]. Imitating peers that display morally or religiously accountable attitudes and behavior, such as a group of adolescents who are obedient to worship, have a noble character, are studious, and active in social activities, increase the likelihood of these adolescents to display good personalities [23]. Conversely, these individuals are likely to adopt the attitudes and behaviors of the group if they have indifferent or insulting moral values. Specifically, several teenagers, especially in big cities, have access to narcotics, ecstasy, methamphetamine, alcoholic drinks, and even free sex, due to their association with peer groups who are familiar with these entities [24].

Conclusion

There were significant changes in the students' knowledge and attitudes toward smoking before and after treatment in the control and intervention schools.

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