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Article

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Cogent Business & Management

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Suggested Citation: Fitrianto, Mohammad Eko; Dharmmesta, Basu Swashta; Purwanto, Bernardinus Maria (2024) : Imagine it happening to my classmates: using video testimonials as a social marketing intervention in adolescent smoking cessation programs, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 11, Iss. 1, pp. 1-15, <https://doi.org/10.1080/23311975.2024.2321927>

This Version is available at:

<https://hdl.handle.net/10419/326115>

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To cite this article: Mohammad Eko Fitrianto, Basu Swashta Dharmmesta & Bernardinus Maria Purwanto (2024) Imagine it happening to my classmates: using video testimonials as a social marketing intervention in adolescent smoking cessation programs, Cogent Business & Management, 11:1, 2321927, DOI: [10.1080/23311975.2024.2321927](https://doi.org/10.1080/23311975.2024.2321927)

To link to this article: <https://doi.org/10.1080/23311975.2024.2321927>



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Imagine it happening to my classmates: using video testimonials as a social marketing intervention in adolescent smoking cessation programs

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ABSTRACT

Each year, the average age of new smokers decreases in Indonesia, and at least one student in the classroom is a smoker. However, previous literature on adolescent smoking that focused on emotion and peer relationship remains largely underexplored. This study aimed to examine the effects of the antecedent and moderator variables of empathic concern on altruistic motivation in context of adolescent smoking prevention. We designed a school-based smoking cessation program as a social marketing intervention tool to influence high-school student behavior using a testimonial video. A simulation with a hypothetical scenario was conducted to observe students' reactions to the stimulus. Participants were exposed to a testimonial video of a young person who has suffered because of smoking, and were asked to imagine such consequences happening to their own peers. The program development started in June 2022, and was implemented in August-September 2022. A total 78 students from two experimental studies was participated. We use ANOVA to test the effect of stimuli on empathic concern and regression analysis to test the effect of empathic concern on altruistic motivation. This study found that salience of the need (light vs. severe condition) and attachment style (secure vs. Insecure) significantly affect student empathic concern. Simultaneously, empathic concern also significantly affected altruistic motivation, and no significant interaction effect was reported. In addition, the result also suggest that the affective approach is more effective in affecting empathic concern and altruistic motivation than the cognitive approach. The implications of this research suggest that schools, as organizations, can utilize a multimedia approach (e.g., video testimonials) to design comprehensive social marketing programs focused on peer relationships.

ARTICLE HISTORY

Received 17 May 2023
Accepted 16 February 2024

KEYWORDS

Video testimonial; social marketing program; adolescent smoking; peer relationship; empathic concern; altruistic motivation

REVIEWING EDITOR

Kaouther Kooli,
Bournemouth University,
United Kingdom

SUBJECTS

Marketing
Communications; Health
Communication

1. Introduction

Adolescent smoking continues to be a social problem in many countries, including Indonesia. Indonesia's Ministry of Health reported a one percent annual increase in the prevalence of adolescent smokers (Ministry of Health Republic of Indonesia, 2018). This number continues to grow and is expected to reach 16 percent by 2030 if immediate measures are not taken. Ironically, the average age of first-time adolescent smokers is decreasing annually (Statistics Indonesia, 2018). Habitual smoking by adolescents can lead to various health problems such as frequent upper respiratory infections, delayed lung development, decreased maximum vital capacity, and lung cancer (Andrews et al., 2014). Although a countermeasure, the smoking cessation approach, is available to suppress the increase in the number (Brose et al., 2014), most of it focuses on a vertical relationship (advertisement restriction, health warning label, no smoking area, or other regulations). On the other hand, the use of horizontal relationships (e.g.,

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 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/23311975.2024.2321927>.

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interpersonal communication, peer relationships) appears promising in behavioral change interventions (Baptista et al., 2022; Shin & Pettigrew, 2022).

The dangers of smoking for adolescents can threaten anyone, especially in schools where most of their time is spent. In the context of peer relationships, teen smokers can be present anywhere. The reality is that peers have a strong influence on adolescent behavior (Zhang et al., 2017). This potentially leads to both positive and negative behaviors and outcomes. There is a strong indication that at least one of the class members in every classroom is a smoker (Prabandari & Dewi, 2016). This leads to an important question: What is their possible reaction if one of their classmates deals with health problems caused by smoking? In the case of age similarity, can they understand and feel the emotions of friends who need help? Understanding and sharing others' needs requires an ability called empathy. Promoting empathy within peer relationships can enhance prosocial behavior among adolescents (Fry & Runyan, 2018; Wentzel et al., 2007).

Prosocial behavior has been discussed in social marketing literature (Keller & Wilkinson, 2017; Tran et al., 2020); however, few studies have addressed empathy in the same field. Prosocial behavior is characterized by actions that support, help, and share with others (Barry & Wentzel, 2006). According to the International Social Marketing Association, the main objective of social marketing is to develop and integrate marketing concepts with other approaches to social change to influence behavior that benefits individuals and communities for the greater social good (Rundle-Thiele, 2015). Saleme et al. (2020) used gamification as empathy training to improve prosocial behavior in children, whereas Jang (2021) used children's facial expressions to influence donor behavior. Although emotion-based studies have contributed to behavioral changes in social marketing (Sato et al., 2017), research exploring the factors that evoke empathy and motivation to help still receives limited attention (Allred & Amos, 2018).

Empathy refers to other-oriented emotional responses elicited by and congruent with the perceived welfare of a person in need (Batson et al., 2007). Empathy has two aspects: affective empathy, which refers to feeling the same affective state as another person, and cognitive empathy, which refers to the tendency to understand or the state of understanding others' internal states (Clark et al., 2019). Batson et al. (2014) stated that when someone is exposed to a *need situation* (a condition in which someone needs help), empathy becomes an empathic concern. In this context, a need situation is that of a friend or peer with health problems caused by smoking. Exposure to a needs situation may activate their ability to understand and share others' feelings and motivate them to increase their welfare. According to this theory, exposure to a needs situation from the victim (adolescents with smoking-related health problems) may evoke empathic concern and lead to altruistic motivation to help. Video testimonials can serve as an effective medium to present these situations of need (Pereira et al., 2016).

This study focused on the reaction when someone is exposed to a triggering or distressing situation. Our external stimuli were designed to deliver *salience of a need situation*; therefore, we used situational empathy. Besides the external stimuli factor, prior studies suggest using individual differences as an antecedent of empathic concern, that is, attachment style (Batson, 2011). In the context of peer relationships, it is important to investigate the determining factors that affect adolescents' social support. The attachment style reflects a single global orientation toward close relationships (Mikulincer & Shaver, 2007).

This study has two main objectives. The first was to examine the main and interaction effects on empathic concern. Two factors are set as antecedence of empathy: (1) salience of the need (as a situational factor) and (2) attachment style (as an individual difference factor). The second was to examine the effect of empathic concern on altruistic motivation to help. According to the empathy-altruism hypothesis, empathic concern produces altruistic motivation to help (Batson, 2011).

2. Theoretical background

2.1. Empathy-Altruism hypothesis

In the early 1980s, Daniel Batson initiated an intensive research program on empathy-altruism (Batson et al., 1981). Several traditions from prior studies, such as similarity (Batson et al., 1981), escape (Batson et al., 1986; Schroeder et al., 1988; Toi & Batson, 1982), and perceive-taking procedures (Batson et al., 2007) conducting tests to understand this dynamic. According to the empathy-altruism hypothesis, the

prosocial motivation evoked by empathy aims to increase the welfare of the person in need (Batson et al., 1991; Toi & Batson, 1982). This claim has received considerable empirical support (Cavallini et al., 2021; McCamant, 2006).

Empathy-altruism hypothesis testing must satisfy the needs situation as a basic assumption. Specific empathic emotions meet the needs situation (someone in a need situation or suffering), called empathic concern. It refers to other-oriented emotions elicited by and congruent with the perceived welfare of someone in need. Understanding what evokes empathic emotions is important, because they have powerful motivational consequences (Lishner et al., 2011). Watching someone suffering from smoking is one form of need. We used the empathy-altruism hypothesis to assess whether a need situation could help adolescents become more aware of the dangers of smoking.

2.2. Attention theory

Every time human senses are exposed to various stimuli, some are relevant and others are not. Consequently, goal-directed behavior requires a higher degree of selection when processing these stimuli. This phenomenon can be explained using Broadbent's theory of attention (Broadbent, 1958). According to this theory, people do not process unattended stimuli beyond an analysis of their fundamental physical properties. Nevertheless, certain physically salient stimuli (e.g. a sudden loud sound) would capture attention (Broadbent, 1958, p. 86). People can direct their attention toward interesting objects even without corresponding eye movements. Treisman & Gelade (1980) proposed the feature integration theory to complement the theory of attention. People still process unintended stimuli focused on the intended stimuli (or other attenuated channels). For example, when someone hears someone yelling 'fire!' They automatically paid more attention to the situation, even if the word did not become relevant to their situation (e.g. he was reading the newspaper when someone shouted).

The health consequences of smoking are ubiquitous and are easily exposed to everyone (Kees et al., 2010). Various forms of stimuli are used to convey messages (e.g. through eyesight or hearing). Selective attention refers to the process by which a person directs awareness of relevant stimuli or ignores irrelevant stimuli (Wickens, 2021). This process is related to the amount of information that can be processed within a given time. Selective attention allows one to ignore unimportant details and to focus on what is required. In this study, we translated the health consequences or need situations into two levels (light and severe suffering). The threshold until the message is recognized (i.e. light or severe suffering) is called the salient.

2.3. Attachment theory

Humans tend to form strong emotional bonds with significant others (Mikulincer et al., 2009), especially in adolescence. It is known that, peer influence is the most determinative factor in experimental smoking (Arnett, 2007; Chang et al., 2011). Peers' strong influence potentially leads to positive and negative behaviors (Benish-Weisman et al., 2022). Simultaneously, adolescents try to build strong bonds based on close relationships such as classmate relationships. Some people feel comfortable with their close relationships and fear intimacy. Attachment researchers refer to these individual differences as attachment styles or orientations (Fraley et al., 2015; Mikulincer & Shaver, 2010).

According to Bowlby (1982), the attachment theory is based on the fundamental idea that innate behavioral systems, such as attachment, exploration, caregiving, and sexual mating, organize human behavior. Attachment theory assumes that individuals seek proximity to significant others or attachment figures (Mikulincer & Shaver, 2001). Being comfortable in relationships with others is a core concept in attachment style. Furthermore, attachment style also refers to a single global orientation toward close relationships (Mikulincer & Shaver, 2007). A secure pattern of attachment is characterized by positive views of both the self and others (Mikulincer et al., 2010). Conversely, attachment insecurities are conceptualized in terms of anxiety and avoidance (Ein-Dor et al., 2011). The avoidance dimension reflects the degree to which individuals feel uncomfortable with the closeness and emotional intimacy in their relationships (Pan et al., 2017). The anxiety dimension reflects the degree to which individuals worry and ruminate about

being rejected or abandoned by their partners (Pan et al., 2017). In brief, attachment theory literature found that secure people are more empathic than insecure people (Mikulincer et al., 2009).

3. Conceptual model and hypothesis

3.1. Salience of the need and empathy

This study used negative health consequences as situations that affect empathy. We chose video testimonial to maximize the stimulation of the participants' senses (sight and hearing). We visualized the situation and manipulated the severity level. To compare the effects on empathic concern, we divided the salience of need into two levels (light and severe). In the video, an actor provides testimony about the health conditions caused by smoking. In light of the suffering conditions, an (male or female actor) gave their testimony about coughing and shortness of breath. Conversely, in a severely suffering condition, an actor testified to a severe cough every day, shortness of breath, and hospitalization. A high level of salience (severe suffering) is expected to generate a higher level of empathy than a low level of salience (light suffering). Both hypotheses were tested using the cognitive and affective approaches. Thus, this study hypothesizes the following:

H1a. Students witnessing severe suffering condition will have high empathic concern than those witnessing light suffering condition.

3.2. Attachment style and empathy

It is known that, trait levels of attachment security (low attachment avoidance and low attachment anxiety) are associated with greater empathy, and experimentally priming attachment security increases empathy (Mikulincer et al., 2001). We predicted that people with secure attachment would have a higher level of empathic concern than those with insecure attachment. We manipulated attachment style to investigate the effects of individual differences on empathy. Attachment style manipulation is based on the appearance of an attachment figure. We asked participants to recall their attachment figure (for a secure attachment style) or avoidance attachment figure (for an insecure attachment style). A model in the video narrated the story according to these two attachment styles. In the secure attachment style condition, the actor said, 'I have someone who always accompanies me.' In the insecure attachment style condition, the actor said, 'Unfortunately, I do not have someone who always accompanies me.' Furthermore, we investigated the role of attachment style as a moderator variable in the relationship between salience of need and empathic concern. As in the previous study, both hypotheses were tested using two approaches: cognitive and affective empathy. The following two hypotheses were proposed:

H1b. Students in secure attachment style condition have high empathic concern than those in insecure attachment style condition.

H1c. Attachment style moderates the relationship between salience of need and empathic concern.

3.3. Empathic concern and altruistic motivation

Empathy and altruism are related to prosocial behavior (Batson, 2011). The empathy literature distinguishes between two subtypes of empathy: affective and cognitive (Davis, 1983; Roberts & Strayer, 1996). Altruism refers to the motivation to improve an individual's well-being. Altruistic behavior is demonstrated through helping, comforting, sharing, cooperation, philanthropy, and community services (Batson et al., 1988). Batson (2011) stated that altruism adds value to those whose needs are met and the benefactor. Altruistic helpers have better mental and physical health, whereas those whose needs are met have benefits in line with their areas of need. The research hypotheses were as follows:

H2. Empathic concern induces an altruistic motivation to help.

3.4. Prior knowledge and prior belief

We suspect that a third variable may influence the dependent variable. The two variables identified as covariates are prior knowledge and beliefs. Prior knowledge refers to what one already knows about the dangers of smoking. In contrast, prior beliefs are associated with a strong feeling that something or somebody exists or is true of the dangers of smoking. The data collection process for covariate variables was conducted by disguising the process as a quiz or a trivia. To remove the effect of any uncontrolled metric independent variables on the dependent variables (covariates), we used ANCOVA. ANCOVA is a regression-like procedure used to remove extraneous (nuisance) variation in the dependent variables due to one or more uncontrolled metric independent variables or covariates (Hair et al., 2014., p. 666). We analyzed the models with and without covariates. If the covariates did not improve the statistical power or had no effect on the significance of the treatment effects, they were excluded from the final analysis (Hair et al., 2014., p. 698).

4. Study overview

We conducted three studies for the period 2021–2022. The first study conducted in 2021 was an Focus Group Discussion (FGD) and instrumental development, and the last two studies conducted in 2022 were experimental. IBM SPSS Statistics Version 23 was used for the analysis, and Google Forms was used for online data collection. Study I focused on the development and production of instruments (video testimony). Studies II and III were experimental studies, wherein Study II used a cognitive approach and Study III used an affective approach. The participants in Studies II and III were from two public schools in Yogyakarta, the Special Region of Yogyakarta, Indonesia. Briefly, we developed and produced a research manipulation in Study I, and conducted an experimental study in Studies II and III.

4.1. Video testimonial

Video testimonials were used to describe the consequences of smoking. Several studies have reviewed the use of video testimonials in social marketing to obtain responses from audiences. Diegelmann et al. (2020) used video testimonials in safe driving campaigns in the UK, while Pereira et al. (2016) reviewed cases of eating disorders. The use of multimedia to convey messages can stimulate more than one sense (multisense activation). We also used the video testimonial format to convey a victim's emotions and perceptions of trust (Hunsaker et al., 2022; Slattery et al., 2019). Every video testimonial consisted of two parts. The first part was about a negative smoking consequence (salience of need), and the second consisted of the attachment style (attachment figure). To avoid psychological exhaustion and irrelevant messages, we designed short messages (the duration of each video was 1–1.30 min). This study used a 2×2 factorial design, with one control condition. To avoid gender bias, we provided two versions of the videos based on gender. Participants watched video testimonials of actors that matched their genders. Overall, we provided ten versions of the manipulation videos (four experimental conditions plus one control condition multiplied by two).

4.2. Comprehensive social marketing program

Social marketing goes beyond creating awareness; it involves creating strategies to change behavior, and this involves several core marketing concepts (Deshpande, 2014). According to Andreasen (2002) there are three approaches to designing social marketing interventions. The first is addressed to individuals whose behaviors are identified as social problems (e.g., smoking, drunk driving). The second aims at major social changes, such as shifts in social norms and interpersonal influences. The third focuses on social structures, including laws, institutions, technology, and public policies. The 'imagine my classmates suffering because of smoking' initiative is a school-based comprehensive social marketing program designed to effect change through interpersonal influence. This intervention integrates the theory of attention (Broadbent, 1958), attachment theory (Bowlby, 1982), and empathy-altruism hypothesis (Batson, 1991).

Social marketing intervention is built on the core of the marketing concept, that is, marketing mix and segmentation & targeting. As audience-oriented individuals, we conducted a focus group discussion to understand the consequences of smoking, especially targeted to adolescent smoking. Video testimonials contain situational and individual factors that influence positive behavior. We adopted traditional marketing mix principles, such as product, price, place, and promotion for social marketing intervention. In *product strategy*, we sold an idea about 'imagine my classmates suffering because of smoking' Theoretical support suggests that individuals are likely to behave empathetically to prevent their friends from suffering in the future (Batson, 2011). In *price strategy*, it involves the emotional cost incurred by witnessing someone suffer. In *place strategy*, focuses on the school setting, a common environment where smoking can occur daily. Finally, our *promotional strategy* utilizes video testimonials to disseminate the idea, distributing them through multi-platform messaging apps, such as WhatsApp.

4.3. Study I – program development

We designed a smoking cessation program as part of a school program to observe and influence student behavior. The initial stage of developing the manipulation involved exploring information related to the antecedent variables of empathy. According to this theory, it stems from various antecedent variables such as disposition and situational variables (Batson 2011). This study used a situational empathy variable that affects empathic concerns. The predictor variable used in this study was salience of need. We conceptualized the salience of need as someone who observes someone else experiencing the negative consequences of smoking. This situation leads to empathy and motivation for helping. To obtain accurate information about health consequences and conceptualize the manipulation, we created an audience and conducted an FGD at a lung hospital in Yogyakarta, Indonesia, in May 2021. During FGD, we obtained data and stories about adolescent patients who had experienced health problems due to smoking. The details of the patients' personal information were confidential. We also provided an explanation for the light and severe conditions associated with smoking. Finally, we transform it into a video testimonial transcript.

To obtain video talent or teenage actors to enact testimonials, we contacted a high School A Yogyakarta (*School A*) at the end of July 2022. Video Testimonial was enacted by actors according to the script. All actors (or models) gave their consent and were always accompanied by the homeroom teacher for all processes. We recorded the video testimony in a high-definition format (full HD 1080p/60fps) using a Sony Alpha 6000. Video editing was performed using Camtasia Studio 2019 in mp4 format. All video recording processes were conducted in early August 2022. The school randomly selected four students (two boys and two girls) to participate as models, who played teenage patients who were victims of smoking. Each actor had five versions of scripted testimony. The models were students in class XI or of the same age as the research participants. We matched the participants' and actors' ages as part of the researcher's control of the effect of age on empathy. We also matched their genders to mitigate gender bias.

4.4. Study II - Experiment 1

This study aimed to examine the effects of the antecedent and moderator variables of empathic concern and empathic concern on altruistic motivation. This study used the cognitive empathy approach, in which participants were exposed to experimental manipulation. Participants were manipulated using a cognitive approach. Participants were asked to watch video testimonials and understand what was happening to the video actor using their perspective. Briefly, an actor in the video testimonial said, 'Do you know that smoking is dangerous?' The participants imagined that the person in the video was their friend.

4.4.1. Prediction

We predicted that, according to the cognitive empathy approach, both the antecedent and moderator variables significantly affect empathic concern (H1a, H1b, and H1c) and have a similarly significant effect on the theory testing prediction; empathy induces altruistic motivation to help (H2).

4.4.2. Participants

Fifty students were originally chosen for Experiment 1, but only 21 participated (mortality rate of 58 percent). All participating students were in grade XI at the Public High School in Yogyakarta (School A), Indonesia. This study was conducted in mid-August 2022 using an online method. The random sampling method for this study was conducted based on a list of potential participants received a few days before implementation. The school provided a list of all registered students (per class), ensuring that every student had an equal chance of being selected as a participant. We used a web application to randomly distribute participants into five groups (experimental and control groups). Randomization was conducted using a web application called a random-team generator. A new name list is created and stored in pdf file format. We added a direct link and matched their names, sex, and group to which they belonged. The final PDF file contained a list of names with a unique link that was distributed only during the study. For simplicity, we call it 'the pdf files.'

4.4.3. Procedure and stimuli

All the experiments were performed individually. We obtained written informed consent from the participants one day prior to the commencement of the study. The homeroom teacher helped the students explain the intent and purpose of the research activities. All student activities in participating in a series of research activities were accompanied and supervised by the homeroom teacher. The homeroom teacher helped share the link of manipulation (PDF files) via class group chat while the students stood by at their places. Each student received a unique link to access the materials. Participants were advised to prepare themselves with personal audio equipment, such as earphones, to attentively listen to the audio content. We used references from Smith et al. (1989) and Davis et al. (1994) to 'watch a video containing the manipulation' method.

Experimental Study 1 was conducted using a synchronous method (at the same time). We invited the participants to participate via a virtual conference platform (via zoom meetings). After the participants joined, we shared a file containing a list of names and links for each participant. Each link was unique and specific to an individual. For example, male participant no.1 was a member of Group A based on randomization. He received a link containing the male version of the Group A Manipulation Form. The participants received an online form containing video testimonial manipulation materials. The participants were asked to follow the instructions carefully, such as watching video testimonials and responding.

We used the salience of the need to deliver a needs situation (someone in need or suffering). Video narration was used to manipulate the salience of the need variables (light and severe suffering). For example, in the light-suffering condition, the participant listened to a model saying, 'Every day I have a cough and shortness of breath when breathing.' In another way, attachment style manipulation (secure versus insecure attachment style) was operationalized by the script (i.e. 'I have someone who always accompanies me' for the secure attachment style condition) (see [Supplementary Appendix](#)).

4.4.4. Measures

Two dependent variables were used: empathic concern and altruistic motivation. Empathic concern was measured using the empathy index interval (Batson et al., 1987), which includes six emotions: sympathetic, softhearted, warm, compassionate, tender, and moved. We measured altruistic motivation using a modified altruistic motivation index from Batson (2011). This index contains five questions on self-reporting altruistic motivation. Empathic concern and altruistic motivation were measured using a self-report questionnaire that ranged from 1 (strongly disagree) to 7 (strongly agree).

4.4.5. Manipulation checks

Manipulation checks were conducted to ensure the success of the experimental manipulations and that the participants responded accordingly (Kapoor and Singhal, 2021). We also applied the double-blind method (Moser, 2019), in which only the researcher knew the participant's membership in the group (i.e. it was almost impossible to guess the type of manipulation). We performed a manipulation check for two independent variables—salience of need and attachment style—on empathic concern. We asked several questions for each independent variable, using a five-point Likert scale. An Independent sample

Table 1. Manipulation check for study II.

	Level	Mean	SD	t	Sig. (2-tailed)
Manipulation check SoTN (composite)	Light	3.809	.339	-2.185	.049
	Severe	4.333	.535		
Manipulation check AS (composite)	Secure	4.371	.604	2.416	.033
	Insecure	3.685	.445		

Note: $n=14$; SoTN: Saliency of The Need; AS: Attachment Style.

Table 2. General Linear Model for study II.

	Model with covariates			Model with no covariates		
	Mean Square	F	Sig	Mean Square	F	Sig
Corrected Model	1.735	11.700	.002	2.602	8.584	.004
Intercept	.002	.013	.911	389.912	1286.493	.000
PK	.575	3.882	.084	–	–	–
PB	.006	.039	.848	–	–	–
SoTN	.725	4.891	.058	.043	.141	.715
AS	1.001	6.753	.032	6.608	21.804	.001
SoTN * AS	3.498	23.592	.001	.860	2.838	.123

Note: PK: Prior Knowledge; PB: Prior Belief; SoTN: Saliency of The Need; AS: Attachment Style. $n=14$.

Table 3. Associative test between empathic concern and altruistic motivation for study II.

	β -estimates	t-value	p-value	Result
Constant	2.324	2.151	.053	–
Empathic concern	.669	3.367	.006	Supported

Note: Dependent variable = Altruistic motivation, $r=0.697$, $r^2=0.486$, $f=11.340$, $sign = 0.006$, $n=14$.

t-test confirmed that the respondents perceived the salience of need to be significantly different ($M_{severe} = 4.333$, $SD = 0.535$ and $M_{light} = 3.809$, $SD = 0.339$, $p < 0.05$). Meanwhile, an independent sample t-test confirmed that the respondents perceived the attachment style to be significantly different ($M_{secure} = 4.371$, $SD = 0.604$ and $M_{insecure} = 3.685$, $SD = 0.445$, $p < 0.05$). Hence, the manipulation check confirmed that both salience of need and attachment style manipulation worked as intended (see Table 1).

Before we analyzed the main model, we conducted analysis of covariance (ANCOVA) procedures to ensure the existence of covariate variables. A General Linear Model (GLM) analysis was conducted as the main analysis. We added prior knowledge and beliefs to the GLM model. We tested the hypotheses with and without prior knowledge and beliefs as covariates (Table 2). The significance and direction did not change for any of the analyses examined based on their inclusion or exclusion of prior knowledge (p -value = 0.084) and prior belief (p -value = 0.848). Furthermore, they were excluded from all reported analyses (Awagu & Basil, 2016). We tested salience of need and attachment style as independent variables and empathic concern as the dependent variable. The results did that H_{1a} and H_{1c} were not supported (p -value = 0.715, p -value = 0.123). Conversely, only H_{1b} was supported (p -value = 0.001). In brief, cognitive empathy in this study supports the idea that the type of attachment style can affect the level of empathic concern (H_{1b} is supported).

Regression analysis was used to test the effect of empathic concern on altruistic motivation. As shown in Table 3, empathic concern significantly affects altruistic motivation ($\beta=0.669$, p -value = 0.006). The results of this study follow the predictions of the empathy-altruism hypothesis, which states that empathic concern results in altruistic motivation.

Debriefing. After the participants submitted their responses, we announced the purpose of the study and thanked them for their time. This procedure is part of the ethics research code.

4.5. Study III - Experiment 2

This study was similar to the previous one, except that we used an affective empathy approach for manipulation. Participants were manipulated using an affective approach or by experiencing the victim's emotions. Experiment 2 examined the effects of antecedent and moderator variables of empathic concern and empathic concern on altruistic motivation. This study used the affective empathy approach when the participants were exposed to experimental manipulation. Participants were asked to watch

video testimonials and understanding what had happened to the actor from their perspective. In a video testimonial, the actor said, 'I feel bad because of smoking.'

4.5.1. Prediction

We predicted that, according to the affective empathy approach, both the antecedent and moderator variables significantly affect empathic concern (H_{1a} , H_{1b} , and H_{1c}) and have a similarly significant effect on the theory testing prediction; empathy induces altruistic motivation to help (H_2).

4.5.2. Participants

Experiment 2 was followed by 72 Grade XI students from the Public High School in Yogyakarta, Indonesia (named 'School B'). The mortality rate (participants frequently dropped out of the experiments while they were taking place or before they finished) in this study was 20.83 percent (15 students). This study was conducted in September 2022 through field visits. This study was conducted in a school classroom to ensure external validity. We masked this study with the school program activities (students thought they were participating as part of the school program). We visited a High School for this study. We received a list of students who participated in this study (random sampling method) a few days before implementation. We used a web application to randomly distribute participants into five groups (experimental and control groups). The randomization process was conducted using a random team generator. Similar to the previous one, a new name list was created and stored in pdf file format, which was then distributed via a messaging app. To prevent systematic errors, the PDF file containing the research manipulation was distributed only during the study period.

4.5.3. Procedure, stimuli, and measure

The procedure, stimuli, and measures used were almost identical to those used in the previous procedure. We have made some adjustments for practical use in the field. The experiments were conducted individually and followed the research ethics and participant consent procedures of our institution. We provided written and verbal informed consent and asked the participants to provide consent one day prior to the study. The homeroom teacher helped share the link of manipulation (PDF files) via class group chat while the students stood by at their places. Every student had a unique link to manipulation. We used references from Smith et al. (1989) and Davis et al. (1994) to 'watch a video containing the manipulation' method. We used the salience of the need to deliver the needs situation (someone in need or suffering). Video narration operationalizes the salience of the need for manipulation (light and severe suffering). For example, in the light suffering condition, the participant listened to a model saying 'Every day I have a cough and shortness of breath when breathing.' In another way, attachment style manipulation (secure versus insecure attachment style) was operationalized by the script (i.e. 'I have someone who always accompanies me' for the secure attachment style condition) (see [Supplementary Appendix](#)).

4.5.4. Manipulation checks

Similar to a previous method, the double-blind method was applied in this study (Moser, 2019). A manipulation check was performed for two independent variables, salience of need and attachment style. An independent sample t-test confirmed that the respondents perceived the salience of need to be significantly different ($M_{\text{severe}} = 4.290$, $SD = 0.561$ and $M_{\text{light}} = 3.939$, $SD = 0.589$, $p < 0.05$). Similarly, the independent sample t-test confirmed that the respondents perceived attachment styles to be significantly different ($M_{\text{secure}} = 4.427$, $SD = 0.498$ and $M_{\text{insecure}} = 3.930$, $SD = 0.645$, $p < 0.05$). Hence, the manipulation check confirmed that both manipulation of the salience of need and attachment style worked as intended (see [Table 4](#)).

We conducted an ANCOVA to ensure that no covariate variables were included. We added prior knowledge and beliefs to the GLM model. Furthermore, we tested the hypotheses with and without prior knowledge and beliefs as covariates (see [Table 5](#)). The significance and direction did not change for any of the analyses examined based on their inclusion or exclusion of prior knowledge (p -value = 0.574) and prior belief (p -value = 0.579). Furthermore, we excluded them from all reported analyses. We tested salience of need and attachment style as independent variables and empathic concern as the dependent variable.

Table 4. Manipulation check for study III.

	Level	Mean	SD	t	Sig. (2-tailed)
Manipulation check SoTN (composite)	Light	3.939	.589	2.049	0.047
	Severe	4.290	.561		
Manipulation check AS (composite)	Secure	4.427	.498	2.896	0.006
	Insecure	3.930	.645		

Note: $n=45$; SoTN: Saliency of The Need; AS: Attachment Style.

Table 5. General linear model for study III.

	Model with covariates			Model with no covariates		
	Mean Square	F	Sig.	Mean Square	F	Sig.
Corrected Model	2.265	2.234	.070	3.519	3.581	.022
Intercept	5.781	5.704	.022	1196.219	1217.141	.000
PK	.326	.322	.574	-	-	-
PB	.317	.313	.579	-	-	-
SoTN	4.897	4.832	.034	5.291	5.384	.025
AS	4.022	3.968	.053	4.455	4.533	.039
SoTN * AS	1.064	1.050	.312	1.187	1.208	.278

Note: PK: Prior Knowledge; PB: Prior Belief; SoTN: Saliency of The Need; AS: Attachment Style, $n=45$.

Table 6. Associative test between empathic concern and altruistic motivation for study III.

	β -estimates	t-value	p-value	Result
Constant	4.747	9.398	.000	-
Empathic concern	.296	3.089	.004	Supported

Note: Dependent variable = Altruistic motivation, $r=0.426$, $r^2=0.182$, $f=9.542$, $sign = 0.004$, $n=45$.

The results showed that H_{1a} ($p=0.025$) and H_{1b} ($p=0.039$) were supported, whereas H_{1c} was not ($p=0.278$). In brief, affective empathy in this study supports the notion that the level of saliency of need and attachment style can affect the level of empathic concern (H_{1a} and H_{1b} were supported).

Regression analysis was used to test the effect of empathic concern on altruistic motivation. As shown in Table 6, empathic concern significantly affects altruistic motivation ($\beta=0.296$, p -value = 0.004). The results of this study also support the predictions of the empathy-altruism hypothesis, which states that empathic concern results in altruistic motivation.

Debriefing. As in the previous study, we announced the purpose of the study and appreciated their participation after they completed and submitted their responses.

5. General discussion and conclusion

Our findings provide a more comprehensive social marketing program that extends beyond communication strategies. We found that emotion studies based on peer relationships can contribute to social marketing literature. The behavior-change strategies that involved several core marketing concepts and were strong theoretical-based in this study succeeded in explaining adolescent smoking behavior. Both attention theory (Broadbent, 1958) and attachment theory (Bowlby, 1982) can explain how different levels of manipulation affect student empathy. Some information supports the implementation of marketing concepts in the social marketing area (that is, the segmentation & targeting and marketing mix). As for the audience-oriented program, research instruments created from focus group discussions succeeded in delivering a positive behavioral idea via social marketing intervention.

The social marketing intervention in this study is thoughtfully designed as a school-based program that employs an interpersonal influence approach to effect behavioral change. We built on the premise, 'What if one of your classmates suffers because of smoking?' to evoke student's empathy. Further, the health consequences of smoking can affect anyone; and what if it happens to my friend? From other perspectives (health practitioners' view), the phenomenon of adolescent patients who had experienced health problems due to smoking was validated with an FGD in Study I. Empathy for inducing behavior is promising in social marketing. For example, children's behavioral intentions became significantly more empathic following program participation (Saleme et al., 2020).

Traditional marketing mix principles have been formulated as social marketing interventions. Regarding product strategy, we found that using a video testimonial, which contained situational and individual factors, significantly affected students' empathy (Experiments 1 and 2). Simultaneous empathic concern also significantly affected altruistic motivation to help. This means that different levels of stimulus affect empathy; the more severe the suffering, the higher the student empathy, and this creates an altruistic motivation to help. Conversely, attachment-style manipulation was supported by both approaches (Studies II and III). This finding shows that both the main effects support our predictions. Consequently, a friend voluntarily provided altruistic help after being exposed to the video testimonial. We expect this helping behavior to happen daily in every classroom and integrate and engage with routine school-based programs for program sustainability.

Finally, we found that the salience of need manipulation was more effective in evoking empathic concern in an affective approach than in a cognitive approach. This finding supports the empathy-altruism hypothesis that emotional empathy accounts for values better than cognitive empathy (Persson & Kajonius, 2016). Consistent with Decety & Norman (2015), when individuals empathize, they feel the emotions of others vicariously, which can promote affective communication and motivate them to behave prosocially. Thus, we suggest that the school-based program is more effective when use affective approach than cognitive approach. In addition, the success in mitigating confounding factors makes the research model robust. As prior knowledge and beliefs did not significantly affect the model, no covariate issues were found in this study.

6. Managerial implications

We provide an important insight and managerial implication supported with well-established theory foundation for school-based program development. This study is one a few study that have employed social marketing interventions in a video testimonial format. It has recommends the development of school-based adolescent smoking cessation program based on peer relationships. Second, it is more effective to employ an affective approach as a situational stimulant rather than a cognitive approach to evoke empathy and altruistic motivation. School as an institution plays important role to reduce adolescent smoking. They can encourage the youth people to have a positive influence on other peers to avoid smoking activity. Continually positive influence from peers can contribute to the success of the program.

7. Limitation and future research

This study had some limitations. First, we included only a limited number of participants. This is not because we lacked the number of students but because it required a lot of effort to maintain internal (and external) validity when employing a large number of participants. Therefore, an experimental study in a real classroom situation must be carefully conducted. Involving several participants can disrupt the daily teaching and learning routine. Future research should consider this research protocol as part of a school program. Schools are expected to adopt such programs in their curriculum. Second, future research could conduct field experiments if this 'research protocol' is embedded in a school program. The main difference between laboratory and field experiments is the manipulation embedded in daily routine activities (Morales et al., 2017). The school programs employed as experimental bases may have gained a natural response from the participants. Third, as situational empathy does not interact with individual differences, future research should examine the effects of dispositional empathy. Finally, we should note that our manipulations of the relational context were symbolic (based on imagining or thinking about what-if situations). Future researchers should examine relational ambivalence in real-life situations involving participants' actual close relationship partners (Mikulincer et al., 2010).

Acknowledgement

The authors are grateful to Professor Daniel Batson (University of Kansas, USA) and Professor Mario Mikulincer (Baruch Ivcher School of Psychology, Reichman University (IDC Herzliya), Israel) for the initial

discussion during the early stage development of this paper. We are also immensely grateful to the editor and anonymous reviewers for their valuable suggestions, which have resulted in a significantly improved manuscript. Finally, we wish to thank Editage for the English language editing service they provided.

Disclosure statement

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Clearance

This research protocol was approved by Ethical Commission of Universitas Gadjah Mada, Indonesia (Ethical clearance ref. KE/UGM/037/EC/2022).

Funding

This research was sponsored by the Universitas Gadjah Mada, Indonesia, funded by a grant from Rekognisi Tugas Akhir (English: Final Assignment Recognition) Direktorat Penelitian dan Pengabdian Masyarakat Universitas Gadjah Mada (Grant Number: 1525/UN1/DITLIT/Dit-Lit/PT.01.05/2022).

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