



## RESEARCH ARTICLE

## Using Community-Based Social Marketing in a Regular Class to Promote Secondhand Smoke Avoidance Behaviors among Youths

Nottakrit Vantamay\*

Department of Communication Arts and Information Science, Faculty of Humanities, Kasetsart University, Bangkok, Thailand

## ARTICLE INFO

## ABSTRACT

Received: Nov 28, 2024

Accepted: Jan 13, 2025

**Keywords**Community-based Social marketing  
Secondhand smoke  
Thai youths**\*Corresponding Author:**

aj.nottakrit@gmail.com

Exposure to secondhand smoke can be equally harmful as smoking itself. This smoke contains many of the same toxic chemicals as the smoke inhaled by smokers. However, previous social marketing campaigns have primarily concentrated on preventing smoking initiation among youths, rather than encouraging behaviors to avoid secondhand smoke. As a result, this research aimed to study the effectiveness of using community-based social marketing to promote secondhand smoke avoidance behaviors among youths in Thailand. A community-based social marketing campaign was created and piloted with a small class of Thai undergraduate students in Bangkok with purposive sampling. This campaign was evaluated using a one-group pretest-posttest design and paired-sample t-test was employed in the analysis. After intervention, the results showed that using community-based social marketing in regular class was effective. Analysis of the pretest and posttest data revealed significant improvements in all five indicators based on the theory of planned behaviors ( $p < .05$ ). The mean score of secondhand smoke avoidance behaviors increased from 4.391 to 4.692, the mean score of intention to perform the behaviors increased from 4.332 to 4.625, and the mean score of attitude towards the behaviors increased from 3.641 to 4.184. Additionally, the mean score of subjective norm increased from 3.491 to 3.728 and the mean score of perceived behavioral control increased from 3.587 to 4.351. These results were strongly beneficial for social marketing practitioners. Furthermore, educational institutions can apply community-based social marketing into a regular class to promote any other health behaviors in the group of youth population more effectively.

**INTRODUCTION**

Second hand smoke (SHS), also known as passive smoking or environmental tobacco smoke (ETS), is the mixture of smoke from a burning cigarette, cigar, or pipe and the smoke breathed by smokers. Over 7,000 compounds, including hundreds of hazardous ones and roughly 70 carcinogenic ones, are present in this smoke (Centers for Disease Control and Prevention, 2023, World Health Organization [WHO], 2023). Inhaling secondhand smoke exposes nonsmokers to many of the same harmful chemicals and carcinogens as smokers do (World Health Organization [WHO], 2024). Lung cancer, heart disease, stroke, and respiratory infections are just a few of the health problems that can result from this exposure. Additionally, a number of health issues, including as lung cancer, heart disease, stroke, asthma, and respiratory infections, have been connected to secondhand smoke exposure (Centers for Disease Control and Prevention, 2024a; 2024b). According to Lee, Ahn, and Lee (2018), children and newborns who are exposed to secondhand smoke are more likely to develop asthma, respiratory infections, and SIDS. Preterm birth and low birth weight are among the negative pregnancy outcomes that pregnant women who are exposed to secondhand smoke may experience (Bayrami, Ebrahimi, Rasouli, & Feizipour, 2022; Chansaeng, Boonchiengand, & Naksen, 2024; Lai,

Chou, Yang, Wang, & Lee, 2013; Wahabi, Massis, Fayed, & Esmaeil, 2020). Consequently, secondhand smoke is a significant public health concern and efforts to reduce exposure, such as smoke-free policies and education campaigns, are important for protecting the health of non-smokers.

Youth are more vulnerable to the negative effects of secondhand smoke exposure (Ding, Wahlgren, Liles, Jones, Hughes, & Hovell, 2010). According to Lee, Ahn, and Lee (2018), children who are exposed to secondhand smoking are more likely to develop asthma, respiratory infections, and other health issues. Numerous sites, including residences, automobiles, public areas, the presence of smoking family members or friends, and educational institutions like colleges and universities, can expose young people to secondhand smoke. It's crucial to reduce secondhand smoke exposure wherever possible because even brief exposure can have detrimental health impacts. Smoke-free settings must be established, particularly in educational institutions, to shield youth from passive smoking. By abstaining from smoking and supporting laws prohibiting smoking in public areas, educators and educational leaders may lead by example. According to Chansaeng, Boonchiengand, and Naksen (2024), Ding, Wahlgren, Liles, Jones, Hughes, & Hovell (2010); Gharaibeh, Haddad, Alzyoud, El-Shahawy, Baker, & Umlauf (2011); Nakanishi, Ishibashi, Ide, Yamamoto, Nishida, Nagatomo, Moriyama, & Yamauchi-Takahara (2023), children can also be educated about the risks of secondhand smoke and encouraged to protect themselves from exposure.

Thailand has taken significant steps to reduce exposure to secondhand smoke. The country implemented a comprehensive tobacco control law in 2017, which includes measures to protect people from secondhand smoke in public places. Under the law, smoking is banned in a wide range of public places, including government buildings, educational institutions, healthcare facilities, public transportation, and indoor areas of restaurants, bars, and shopping malls. Designated smoking areas are allowed but must be clearly marked and meet specific criteria. Thailand has also implemented graphic health warnings on tobacco packaging and has banned tobacco advertising, promotion, and sponsorship. These efforts align with the World Health Organization's Framework Convention on Tobacco Control (FCTC), which Thailand ratified in 2004. Overall, Thailand has made significant progress in reducing exposure to secondhand smoke, but continued efforts are still needed to protect the health of the population, especially for the group of young population. Promoting secondhand smoke avoidance behaviors among youths in Thailand can be a significant measure to protect health behaviors of younger population (Centers for Disease Control and Prevention, 2023; Ding, Wahlgren, Liles, Jones, Hughes, & Hovell, 2010; Lee, Ahn, & Lee, 2018; World Health Organization [WHO], 2023; 2024).

After examining the literature on behavior modification, the author encountered an intriguing approach called Community-Based Social Marketing (CBSM). This technique for altering behavior has been recognized as an effective and innovative strategy (Celik, 2016; Cole & Fieselman, 2013; Kennedy, 2010). Scholars and practitioners of social marketing globally have been increasingly focused on it. Unlike traditional social marketing methods, the Community-Based Social Marketing (CBSM) approach integrates elements of social psychology with social marketing. This strategy utilizes a variety of tools aimed at changing behavior, including communication, promptness, convenience, social dissemination, commitment, social norms, and incentives (Tabanico, 2007). Dr. Dough McKenzie-Mohr, an environmental psychologist at St. Thomas University in Canada's Department of Psychology, developed Community-Based Social Marketing (CBSM) in 1996. To assist readers in understanding the concept of Community-Based Social Marketing (CBSM) for promoting sustainable behavior, he authored a book titled "Promoting a sustainable future: An introduction to CBSM." After that, he released multiple articles in various international academic journals to share this concept (McKenzie-Mohr, 1996; 2000a; 2000b; 2008; 2011). As a result, this concept gained traction in several countries, especially in the United States, Canada, and Australia. Following this, research papers from scholars and social marketing practitioners who utilized this concept to effectively promote behaviors in their communities were published (Celik, 2016; Cole & Fieselman, 2013; Kennedy, 2010; Vantamay, 2015; 2017; 2019; 2021; 2023).

An intriguing aspect of this method was the development of a strategy that employed psychological techniques to modify behavior. According to McKenzie-Mohr (1996; 2000a; 2000b; 2011), the following were identified as key tools: 1) commitment; 2) social norm; 3) social diffusion; 4) prompt; 5) convenience; 6) incentives; and 7) communication. It was mentioned that using these tools together will increase their effectiveness. Seeking to engage others in a desirable action on a regular basis is the goal of commitment. As a result, a commitment might include details on a billboard, poster, pledge card, diploma, or even extracurricular activities implemented into the classroom. Utilizing the influence of one's peer group to foster behavioral change is a social norm. A normative reference group could include parents, friends, relatives, coworkers, couples, instructors, elderly people, or even former students. Commitment involves trying to make people had engagement with a desired behavior consistently. Therefore, commitment could be information on billboard, poster, pledge card, certificate, or even extra activities infused into classroom. Social norms encompass the use of influences from reference groups to facilitate behavioral change. The reference groups can be categorized as normative reference groups, which include parents, friends, family members, coworkers, partners, educators, elders, or even alumni from educational institutions, and comparative reference groups, which consist of actors, actresses, singers, or other celebrities. Social diffusion was about accelerating the acceptance of new behaviors through different forms of media. These could include informal or individual media such as events, guides, publications, stickers, wristbands, umbrellas, and T-shirts. Prompts acted as reminders for individuals to complete tasks they might have overlooked. There are many different kinds of prompts, including social media, cell phones, billboards, cutouts, posters, and banners with catchy slogans. The goal of convenience was to make actions as simple as possible. In order to reach the target audience, this method may also involve developing a CBSM campaign program. With incentives, people were given the drive to carry out actions more skillfully. When persons lacked desire to carry out actions or were unable to demonstrate activity as effectively as they could, incentives were helpful. For example, the use of classroom activity ratings as a significant incentive might be a successful strategy used by social marketers to encourage students to adopt more sustainable practices. Lastly, communication is the process of delivering the message to target audiences using a variety of media in order to encourage behavior change. For the greatest communication impact, social marketers might use offline and online media (McKenzie-Mohr, 1996; 2000a, 2000b; 2011; Vantamay, 2019; 2023).

Therefore, in order to encourage secondhand smoke avoidance behaviors among Thai university students, the author of this study implemented the CBSM approach into a regular class. Five factors from Ajzen's (1988) theory of planned behavior, 1) avoidance of secondhand smoke; 2) intention to engage in the behaviors; 3) attitude toward the behaviors; 4) the subjective norm; and 5) perceived behavioral control, were used as effectiveness indicators in this study because previous research had recommended them as suitable indicators for assessing the efficacy of social marketing campaigns (Vantamay, 2015; 2017; 2019; 2021; 2023; McKenzie-Mohr, 2000a; 2000b; 2008; Tabanico, 2007; Liu et al., 2018). Consequently, the research objective aimed to evaluate the effectiveness of using community-based social marketing in a regular class on promoting secondhand smoke avoidance behaviors among youths in Thailand.

## **MATERIALS AND METHODS**

To evaluate the effectiveness of a community-based social marketing in a regular class for promoting secondhand smoke avoidance behaviors among Thai youths, an experimental research method in the form of a one-group pretest-posttest design was used in this study, as shown in Figure 1. The community-based social marketing (CBSM) campaign to promote secondhand smoke avoidance behaviors was created and then piloted in a 15-week period with a small class of 62 university students in the Department of Communication Arts and Information Science, Faculty of Humanities, Kasetsart University (KU) in Bangkok in second semester of 2023 academic year. Purposive sampling was used by selecting a class that the author was a lecturer in this class because the author could give CBSM interventions to all students throughout a 15-week experimental period. A self-administered questionnaires both pre-intervention (O1) and post-intervention (O2) were used in this study to record the effectiveness evaluation. The effectiveness indicators were based on the theory of planned behavior (TPB). They consisted of five variables: 1) secondhand smoke avoidance behaviors; 2)

intention to perform the behaviors; 3) attitude towards the behaviors; 4) the subjective norm; and 5) the perceived behavioral control.

Group	Pre Intervention	Intervention	Post Intervention
One Group	O1	X	O2

Note: O = Observed Scores

X = Treatment (community-based social marketing in regular class)

For operational definition and measurement, 1) secondhand smoke avoidance behaviors were defined as the actions that young people take to protect themselves from secondhand smoke. It was assessed using a 5-point rating scale consisting of 10 items. Therefore, the ratings for secondhand smoke avoidance behaviors vary between 0 and 10 points. 2) Intention to perform the behaviors was defined as the perceived degree of intent to exhibit secondhand smoke avoidance actions. It was measured using the 5-point Likert scale containing 10 items. 3) The attitude towards the behavior was a person's feeling towards secondhand smoke avoidance behaviors. It was evaluated using the 5-point Likert scale comprising 5 items. 4) Subjective norm referred to the beliefs held by an individual's reference groups (friends, family members, and celebrity) about how the person should act, as well as the importance of these perspectives regarding the individual's effort to avoid secondhand smoke. This was assessed with the 5-point Likert scale containing 9 items. Lastly, 5) perceived behavioral control was characterized as the perceived self-efficacy to perform secondhand smoke avoidance behaviors. It was evaluated using a 5-point Likert scale consisting of 5 items. Most of the questions in these five variables were adapted from previous studies (Bayrami, Ebrahimi, Rasouli, & Feizipour, 2022; Centers for Disease Control and Prevention, 2024a; 2024b; Lai, Chou, Yang, Wang, & Lee, 2013; Lee, Ahn, & Lee, 2018; Liu et al., 2018; Vantamay, 2019; 2021; 2022; Wahabi, Massis, Fayed, & Esmaeil, 2020; World Health Organization [WHO], 2023; 2024). The author checked the validity of all questions by using the Item Objective Congruence (IOC) Index. The results found that IOC Index of all questions had more than 0.5. Scores within this range (more than 0.5) were considered as an adequate indication of validity (Cottrell & McKenzie, 2005). Furthermore, the author also checked the reliability analysis of the research instruments using Cronbach's alpha to evaluate the internal consistency of all variables. The results showed that their alpha levels ranged from 0.85 to 0.92 (secondhand smoke avoidance behaviors = 0.92; 2) intention to perform the behaviors = 0.90; 3) attitude towards the behaviors = 0.85; 4) the subjective norm = 0.88; and 5) the perceived behavioral control = 0.87). Scores within this range (more than 0.7) were considered as an adequate indication of internal consistency (Cottrell & McKenzie, 2005). After intervention, the author assumed that the mean scores of these five variables in post-intervention (O2) should be significantly higher than the mean scores of these five variables in pre-intervention (O1). Therefore, paired-sample *t*-test at the .05 statistically significant level was employed after intervention.

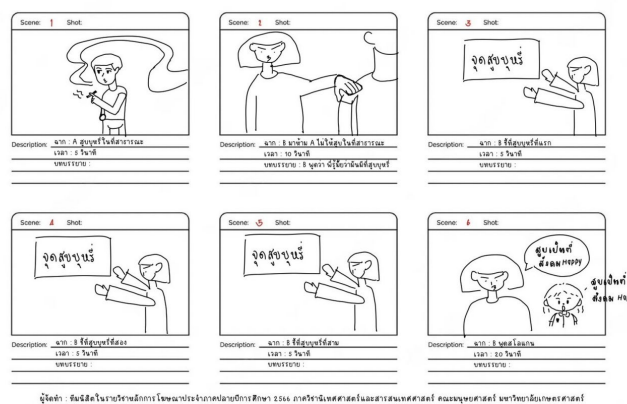
In this campaign, the author created seven tools for altering behavior which consist of commitment, social norms, social diffusion, prompt, convenience, incentives, and communication. It had been already observed that these tools will be more effective when utilized together. Behavior change tools were developed based on the CBSM approach and were briefly summarized in Table 1. They were integrated into a regular class of students. The final project of this class involved creating a social advertisement as an e-poster to encourage secondhand smoke avoidance practices among students in Kasetsart University. The examples of e-posters and storyboard from the final project created by students in this class in Thai language were displayed in Figure 2 and 3. Prior to collecting the data both O1 and O2, students would be informed the details of this campaign and encouraged to participate. They were instructed to fill out the questionnaires after being informed that their involvement was voluntary, that their responses remained anonymous and confidential, and that findings would be reported in aggregate form, not identifying any individual. The informed consent document would be given to students to freely decide whether to participate. The respondents can withdraw from the project or can cease answering questionnaires whenever they want. This procedure will ensure that the respondents willingly participate in this research and answer questionnaires voluntarily.

**Table 1: Tools of Behavior Change in this study**

Strategies	Tools of Behavior Change in this study
1) Commitment	Final Project
2) Social Norms	Personal Media
3) Social Diffusion	Personal Media Online Media such as Facebook, LINE, E-poster
4) Prompt	Online Media such as Facebook, LINE, E-poster
5) Convenience	Training Activity in Class
6) Incentives	Scores from the Final Project
7) Communication	Video Clip Training Activity in Class



**Figure 2: Examples of e-posters in the final project**



**Figure 3: Examples of storyboard in the final project**

**RESULTS**

In this part, the research findings were presented in two parts: 1) characteristics of the samples and 2) evaluating the effectiveness of using a community-based social marketing campaign in a regular class for promoting secondhand smoke avoidance behaviors among university students by comparing the mean scores of five effectiveness indicators between pre-intervention (O1) and post-intervention (O2).

1) The samples consisted of 62 university students enrolling in the class of Principles of Advertising at Department of Communication Arts and Information Science, Faculty of Humanities, Kasetsart University in Second Semester, 2023. Most subjects were female (71.85 %) and studying in the second year (95.44 %). The average age was 19.75 years, (S.D. = 0.781).

2) In evaluating the effectiveness of a community-based social marketing campaign in this study, paired-sample *t*-test at the .05 statistically significant level was computed in the analysis. This statistics was often suggested in the experimental research form of one-group pretest-posttest design for checking the effectiveness of the treatment (Cottrell & McKenzie, 2005; Hair, Anderson, Tatham, & Black, 1992). The findings showed that there were differences among the five effectiveness indicators between pretest (O1) and posttest (O2) at the .05 statistically significant level, as shown in Table 2.

**Table 2: Checking the differences of 5 effectiveness indicators between pre-intervention (O1) and post-intervention (O2)**

Indicators	Observation	Mean	S.D.	t	Sig.
1) SHSAB	O1	4.391	.953	-3.024	.003*
	O2	4.692	.745		
2) INT	O1	4.332	.892	-2.877	.004*
	O2	4.625	.615		
3) ATT	O1	3.641	.821	-5.315	.000*
	O2	4.184	.796		
4) SN	O1	3.491	.923	-3.547	.000*
	O2	3.728	.664		
5) PBC	O1	3.587	.689	-6.263	.000*
	O2	4.351	.749		

\*  $p < .05$

Note: SHSAB = secondhand smoke avoidance behaviors

INT = intention to perform secondhand smoke avoidance behaviors

ATT = attitude toward secondhand smoke avoidance behaviors

SN = subjective norm

PBC = perceived behavioral control

## CONCLUSION AND DISCUSSION

The purpose of this study was to assess a community-based social marketing initiative aimed at encouraging young people in Thailand to abstain from secondhand smoke. One group was used in a pretest-posttest process to evaluate this campaign. A Paired-Sample *t*-test was calculated as part of the results analysis to look at differences between the five effectiveness indicators between the pre-intervention (O1) and post-intervention (O2) at the .05 statistically significant level. After the intervention, the study demonstrated how successful a community-based social marketing campaign was in motivating youth to abstain from secondhand smoke. In all five effectiveness indicators—secondhand smoke avoidance behaviors, intention to perform the behaviors, attitude toward the behaviors, subjective norm, and perceived behavioral control—the post-intervention mean scores were significantly higher than the pre-intervention mean scores. Additionally, these findings aligned with those of a number of earlier studies (Bayrami, Ebrahimi, Rasouli, & Feizipour, 2022; Lai, Chou, Yang, Wang, & Lee, 2013; Lee, Ahn, & Lee, 2018; Liu et al., 2018; Vantamay, 2019; 2021; 2022; Wahabi, Massis, Fayed, & Esmaeil, 2020). Considering that each research project was specifically located within a university or campus environment, this method was obviously supported and used. Cole and Fieselman (2013), for instance, created a campus-wide behavior change program involving faculty and staff teams at Pacific University Oregon in the USA to change sustainable behavior in areas

including paper reduction, commingled recycling, and purchasing environmentally friendly items. The campaign was called "Greening Pacific!" The CBSM strategies used in their study included prompts, communication, rewards, commitment, ease of use, norms, and social diffusion. It was known as "Greening Pacific!" The quantity of paper with recycled and eco-friendly content that the campus as a whole bought increased noticeably after the intervention. According to the post-survey results, a community-based social marketing campaign had changed the behavior of 74% of the faculty and staff (Cole & Fieselman, 2013).

Furthermore, the findings of this investigation aligned with those of an additional intriguing study carried out by Vantamay (2019). It also supported behavior modification through community-based social marketing. In this study, a group of college students participated in the development and testing of the "3S Project," a community-based social marketing initiative designed to promote sustainable consumption practices in youth. Social norms, rewards, prompts, social dissemination, communication, convenience, and commitments were among the various behavior modification techniques made available. A non-equivalent control group was used in quasi-experimental study to assess the project. The method used was multivariate analysis of variance (MANOVA). It was discovered that the "3S Project" was successful following intervention. The experimental group's mean ratings were significantly higher than the control group's in each of the five effectiveness categories. Based on the results of this study and the other previous research that was covered above, the author was convinced that community-based social marketing was highly successful. The strengths of a community-based social marketing strategy were in its integration of social marketing and psychological knowledge to change behavior through a range of techniques, including commitment, social norms, social dissemination, promptness, convenience, incentives, and communication. The results of this study supported its applicability to health behavior modification as well, despite its origins in sustainable behavior modification.

There are a number of noteworthy recommendations from this study. First off, this pilot study's findings validated the use of social marketing that is rooted in the community as a means of changing behavior. Thus, this strategy may be used by professionals in social marketing, health promotion, or groups trying to encourage any type of social behavior. Second, young people should be encouraged to participate in social or healthful activities at schools and universities. Tools for behavior modification that could be used in a regular classroom include commitment, social norms, social diffusion, promptness, convenience, incentives, and communication. Therefore, in a university or college atmosphere, a social marketing effort aimed at young people was appropriate. Third, social marketing professionals, managers of health promotion programs, or even college or university instructors should receive training and information on community-based social marketing strategies to promote healthy behaviors among their target audience. However, it is crucial to recognize that this study has at least two flaws. The study's initial focus was on a pilot study in which only one group took part in the campaign. Therefore, the results could not be conclusive due to the small sample size. Therefore, in order to generalize our findings, it might be essential to apply this strategy to a larger sample of college students. Another significant disadvantage is the use of self-reported questionnaires to assess the campaign's effectiveness. Respondents may exaggerate their acts out of shame or guilt as a result of this restriction. Despite these limitations, the study's strength was its increased understanding of social marketing in general, particularly as it pertains to public health issues in Thailand.

For future research directions, the author suggested three possible paths for further investigation. First, in order to encourage people to refrain from secondhand smoke, it would be wise to test a community-based social marketing campaign with different demographic groups. Second, when developing strategies to encourage youth to avoid secondhand smoke, social marketing professionals would benefit much more from a long-term study examining the retention effect. Third, a community-based campaign that promotes other social behaviors should be given more importance in order to grow and increase awareness in Thailand's social marketing knowledge.

## Acknowledgements

The author would like to express sincere thanks to all undergraduate students for their enthusiastic participation in this study.

## REFERENCES

- Ajzen, I. (1988). *Attitudes, personality, and behavior*. Chicago, IL: Dorsey Press.
- Bayrami, R., Ebrahimi, S., Rasouli, J., and Feizipour, H. (2022). Knowledge, attitude, and behavior in avoiding environmental tobacco smoke exposure at home among pregnant women. *Current Women's Health Reviews*, 18, 80-86.
- Celik, S. (2016). A new method of social marketing: Community based social marketing. *Journal of Human Sciences*, 13(2), 3057-3072.
- Centers for Disease Control and Prevention. (2023). Trends and disparities in secondhand smoke. Retrieved from <https://www.cdc.gov/tobacco/secondhand-smoke/disparities.html>.
- Centers for Disease Control and Prevention. (2024a). *Secondhand Smoke*. Retrieved from <https://www.cdc.gov/tobacco/secondhand-smoke/index.html>.
- Centers for Disease Control and Prevention. (2024b). *General information about secondhand smoke*. Retrieved from <https://www.cdc.gov/tobacco/secondhand-smoke/about.html>.
- Chansaeng, S., Boonchiengand, W., and Naksen, W. (2024). Secondhand smoke prevention through the perceptions of pregnant women with smoking family members: a Thailand study. *International Journal of Qualitative Studies on Health and Well Being*, 19, <https://doi.org/10.1080/17482631.2024.2326109>.
- Cole, E. J. and Fieselman, L. (2013). A community-based social marketing campaign at Pacific University Oregon: Recycling, paper reduction, and environmentally preferable purchasing. *International Journal of Sustainability in Higher Education*, 14(2), 176-195.
- Cottrell, R. R. & McKenzie, J. F. (2005). *Health Promotion and Education Research Methods*. Sudbury, MA: Jones Bartlett.
- Ding, D., Wahlgren, D. R., Liles, S., Jones, J. A., Hughes, S. C., Hovell, M. F. (2010). Secondhand smoke avoidance by preteens living with smokers: To leave or stay? *Addictive Behaviors*, 11, 989-994.
- Gharaibeh, H., Haddad, L., Alzyoud, S., El-Shahawy, O., Baker, N. A., & Umlauf, M. (2011). Knowledge, attitudes, and behavior in avoiding secondhand smoke exposure among non-smoking employed women with higher education in Jordan. *International Journal of Environmental Research and Public Health*, 8(11), 4207-4219.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1992). *Multivariate Data Analysis*. New York, NY: McGraw-Hill.
- Kennedy, A. L. (2010). Using Community-Based Social Marketing Techniques to Enhance Environmental Regulation. *Sustainability*, 2(4), 1138-1160.
- Lai, M., Chou, F., Yang, Y., Wang, C., and Lee, M. (2013). Tobacco use and environmental smoke exposure among Taiwanese pregnant smokers and recent quitters: Risk perception, attitude, and avoidance behavior. *International Journal of Environmental Research and Public Health*, 10(9), 4104-4116.
- Lee, J., Ahn, H., & Lee, H. (2018). Factors affecting secondhand smoke avoidance behavior of Vietnamese adolescents. *International Journal of Environmental Research and Public Health*, 15(8), 1632; <https://doi.org/10.3390/ijerph15081632>.
- Liu, S. et al. (2018). The theory of planned behavior to predict protective behavioral intentions against PM2.5 in parents of young children from urban and rural Beijing, China. *International Journal of Environmental Research and Public Health*, 15, 1-17.
- McKenzie-Mohr, D. (1996). *Promoting a sustainable future: An introduction to community-based social marketing*; Ottawa, Ontario, Canada: National Round Table on the Environment and the Economy.
- McKenzie-Mohr, D. (2000a). Promoting sustainable behavior: An Introduction to community-based social marketing, *Journal of Social Issues*, 56, 543-554.



- McKenzie-Mohr, D. (2000b). Fostering sustainable behavior through community-based social marketing. *American Psychologist*, *55*, 531–537.
- McKenzie-Mohr, D. (2008). Fostering sustainable behavior: Beyond brochures. *International Journal of Sustainability Communication*, *3*, 108–118.
- McKenzie-Mohr, D. (2011). *Fostering sustainable behavior: An introduction to community-based social marketing* (3<sup>rd</sup> ed.). Gabriola Island, BC: New Society.
- Nakanishi, K., Ishibashi, C., Ide, S., Yamamoto, R., Nishida, M., Nagatomo, I., Moriyama, T., & Yamauchi-Takahara, K. (2023). Association of secondhand smoke exposure and health-related lifestyle behaviors among male university employees in Japan. *Scientific Reports*, *13*, 13848. <https://doi.org/10.1038/s41598-023-40873-4>.
- Tabanico, J. (2007). People aspect of recycling programs: Community-based social marketing. *BioCycle*, *48*(8), 41-44.
- Vantamay, N. (2015). Using the DELPHI TECHNIQUE to develop effectiveness indicators for social marketing communication to reduce health-risk behaviors among youth. *The Southeast Asian Journal of Tropical Medicine and Public Health*, *46*(5), 949-957.
- Vantamay, N. (2017). Validating the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviors among Youth in Thailand. *Jurnal Komunikasi Malaysian Journal of Communication*, *33*(1), 127-146.
- Vantamay, N. (2019). “3S project”: A community-based social marketing campaign for promoting sustainable consumption behavior among youth. *Jurnal Komunikasi Malaysian Journal of Communication*, *35*(4), 32-49.
- Vantamay N. (2021). The effectiveness of community-based social marketing on promoting self-protective behaviors from PM2.5 among Thai youths. *In the Proceeding of The 4th National and International Research Conference 2021 (NIRC IV) of Buriram Rajaphat University, Thailand*, 7 January 2021, 615-625.
- Vantamay N. (2023). Effect of community-based social marketing campaign on strengthening self-protective behaviors from COVID-19 among Thai youths. *In the Proceeding of The 3rd national and International Conference on Next Normal Readjustment for Future Sustainable Development, Graduate School, Bansomdejchaopraya Rajaphat University, Thailand*, 28 October 2023, 903-912.
- Wahabi, H. A., Massis, A., Fayed, A. A., and Esmaeil, S. A. (2020). Effectiveness of health education in reducing secondhand smoke exposure among Pregnant women visiting the antenatal clinic in Saudi Arabia: A randomized controlled trial. *Indian journal of Public Health*, *64*(2), 102-108.
- World Health Organization (WHO). (2023). Second-hand smoke impacts health. Retrieved from <https://www.emro.who.int/tfi/quit-now/secondhand-smoke-impacts-health.html>
- World Health Organization (WHO). (2024). Secondhand smoke: the invisible killer that continues to cause death and disease. Retrieved from <https://www.who.int/europe/news/item/04-05-2023-secondhand-smoke-the-invisible-killer-that-continues-to-cause-death-and-disease>.