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Validating the Effectiveness Indicators of Social Marketing Communication Campaigns for Reducing Health-Risk Behaviors Among Youth in Thailand

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ABSTRACT

This study aims to validate the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviors among Thai youth by using a quantitative research with 1,000 undergraduate students aged 18-24 years old in Thailand. A second-order confirmatory factor analysis was used to check compliance with empirical data at the .05 significance level. The findings showed that the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviors among Thai youth consist of forty-nine indicators from eight core components: 1) attitude toward health-risk behaviors reduction, 2) subjective norms, 3) perceived behavioral control, 4) intention to reduce health-risk behaviors, 5) practices for reducing health-risk behaviors, 6) knowledge in dangers and impacts of health-risk behaviors, 7) campaign brand equity, and 8) communication networks. These new developed effectiveness indicators should be taken into evaluating the effectiveness of social marketing communication campaigns for reducing health-risk behaviors among youtheffectively and efficiently for a sustained success both in Thailand and in international level.

Keywords: *Effectiveness indicators, social marketing communication, health-risk behaviors, youth, Thailand.*

INTRODUCTION

Health-risk behaviors among youth (15-24 years old) have become a major public health concern in Thailand over the past few decades. National studies (National Statistical Office, 2011, 2013) have indicated a significant increase in health-risk behaviors among the 15-24-year-old age group. These behaviors included unintentional injuries, tobacco use, alcohol use, drug use, sexual-risk behaviors, inappropriate dietary behaviors, and physical inactivity (Centers for Disease Control and Prevention [CDC], 2014). Consequently, several health promotion organizations in Thailand launched various approaches to reduce these health-risk behaviors on youth population. One of the major approaches is applying social marketing communication campaigns to reduce these undesirable health behaviors. Social marketing is an important process that was used in Thailand for social behaviors modification. It is application of marketing principles and techniques to create, communicate, and deliver value in order to influence target audience behaviors that benefit society (public health, safety, the environment, and communities) as well as the target audience (Martin et al., 1998; Gabbler & Kropp, 2000; Ludwig, Buchholz, & Clarke, 2005; McDermott, Stead, &Hastings, 2005).This approach was widely adopted in public health interventions in several countries (Grier & Bryant, 2005).In Thailand, there are many empirical-based evidences showing advantages of social marketing communication campaigns on health behaviors such as malaria prevention (Chaotanont et al., 2007),

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filariasis drug usage (Koyadun, Wiboolchak, & Bhumiratana, 2007; Ratmanee, Jiramonnimit, & Junsawang, 2006), prevention and control of the bird flu and Influenza diseases (Chantarasugree, 2010), dengue hemorrhagic fever prevention (Thavornwattanayong & Intharakul, 2011), stroke prevention (Tumakul & Sota, 2011), alcohol abuse (Vantamay, 2013), and health promotion among disc jockeys (Iftikhal & Sota, 2012).

However, despite this growth, many social marketing communication practitioners on public health still have an incomplete understanding of evaluation of social marketing plans, especially in the outcomes stage. Normally, social communication campaigns to promote behaviour changes will be evaluated in three categories: outputs, outcomes, and impacts (Kotler & Lee, 2008). The outputs stage, often called process evaluation, is the easiest and most straightforward measures. It measures effort and the direct outputs of campaigns—what and how much was accomplished. It examines the campaign's implementation and how the activities involved are working. Therefore, example questions in this stage are as follows: How many materials have been put out?, What has been the campaign's reach?, How many people have been reached or exposed the media of campaigns?. Differently, theoutcomes stage measures effect and changes that result from the campaign. It assesses outcomes in the target populations or communities that come about as a result of implementing programs and may also measures policy changes. Therefore, example questions in this stage are as follows: Has there been any affective change (beliefs, attitudes, social norms)?, Has there been any behavior change?, Have any policies changed?. Lastly, the impacts stage is the long- term outcomes of campaigns and is the most rigorous, costly, and controversial of all measurement types. Therefore, example questions in this stage are as follows: Has the behavior resulted in its intended outcomes (e.g., lower cancer rates, less violence in schools)?, Has there been any systems-level change? (Coffman, 2002; Feltracco & Gutierrez, 2007; Kotler & Lee, 2008).

Comparatively, the outputs stage is the most common among most social marketing communication campaigns on health behaviours while the outcomes stage and the impact stage are rather rare, especially in Thailand (Smitasiri et al., 1993). Higher budgets of measuring the outcomes stage and the impact stage may be a reason, especially in the impact stage that need the most resource-intensive of the evaluation types to design and implement. A trade off to impact evaluation is that it is expensive and resource-intensive to conduct. Costs needed include getting a large enough sample size to observe effects, being able to support data collection with a treatment and control or comparison group, and being able to support multiple waves of data collection (Coffman, 2002). Another important reason is the lack of the clear effectiveness indicators of social marketing communication campaigns to measure outcomes of health-risk behaviours changes (Svenkerud & Singhal, 1998). Therefore, to advance current knowledge in this field, developing the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviours among Thai youth will help social marketing communication practitioners plan and evaluate social marketing communication campaigns clearly and more effectively.

OBJECTIVE

This study aims to validate the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviours among Thai youth.

LITERATURE REVIEW

Social Marketing Approach

The field of social marketing was initiatively born in 1952 when Wiebe (1952) raised the question "Why can't you sell brotherhood like you sell soap?". He reviewed four examples of what would now be called health promotion campaigns and concluded that their effectiveness related to the extent that they were similar to commercial product marketing. However, the formal rise of social marketing concept was first appeared in the article of Kotler and Zaltman (1971). They defined social marketing as " the design, implementation, and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution, and marketing research" . After that, this concept was widely adopted and accepted among many scholars and social practitioners. For example, Andreasen (1995) defined social marketing as the application of commercial marketing technology to the analysis, planning, execution, and evaluation of programs designed to influence the voluntary behavior of target audiences in order to improve their personal welfare and that of their society. Smith (2002) defined that social marketing is a process for creating, communicating, and delivering benefits that a target audience wants in exchange for audience behavior that benefit society without financial profit to marketer. And lately, social marketing is defined by Kotler and Lee (2008) as a process that applies marketing principles and techniques to create, communicate, and deliver value in order to influence target behaviors that benefit society (public health, safety, the environment, and communities) as well as the target audience. Social marketing is so different from commercial marketing. That is, social marketing focus on selling behaviors but commercial marketing focus on selling products and services. Commercial marketers will position their products and services against those of other companies whereas social marketers compete with audiences' undesired current behaviors.

The primary benefit of a sale in social marketing is the welfare of an individual, a group, or society whereas the primary benefit of a sale in commercial marketing is shareholder wealth (Kotler, Roberto, & Lee, 2002). However, social marketing has the application of a concept of commercial marketing in many aspects such as using marketing mix (product, price, place, and promotion) as a strategy for behavior change, analyzing audience behaviors, selecting target audiences by using market segmentation technique, understanding competitors, and using integrated marketing communication tools (e.g. advertising, public relations, direct marketing, personal selling, sale promotion, and event marketing). As a result, social marketing approach is a distinctively strong approach for promoting social behaviors and it was widely used in many countries. Furthermore, it was also proved for its effectiveness in numerous societal problem areas, including family planning, safety behaviors, alcohol abuse, dental hygiene, forest fire prevention, cancer detection, fruit and vegetable intake, exercise, tobacco abuse, environmental preservation, and health promotion (Kotler and Lee, 2008). Especially, in the field of health promotion, social marketing is considered as an important approach for promoting desired health behaviors and reducing undesired health-risk behaviors among various target population.

In Thailand, there are many empirical-based evidences showing advantages of social marketing communication campaigns on health behaviors such as malaria prevention (Chaotanont et al., 2007), filariasis drug usage (Koyadun, Wiboolchak, & Bhumiratana, 2007; Ratmanee, Jiramonnimit, &Junsawang, 2006), prevention and control of the bird flu and Influenza diseases (Chantarasugree, 2010), dengue hemorrhagic fever prevention

(Thavornwattanayong & Intharakul, 2011), stroke prevention (Tumakul & Sota, 2011), alcohol abuse (Vantamay,2013),health promotion among disc jockeys (Iftikhal & Sota, 2012).Besides, many national health organizations in Thailand including Ministry of Public Health, Thai Health Promotion Foundation (SorSorSor), Don't Drive Drunk Foundation, and The Office of the Network to Stop Alcohol Consumption (SorKhorLor) have collaboratively supported several well recognized social marketing communication campaigns on health behaviors such as "MAO MAI KUB" (Don't Drive Drunk), "NGOD LAO KAO PUNSA" (No Drink in the period of Buddhist Lent Festival), and "RUBNONG PLAUD LAO" (No Drink in freshman initiation activities).These campaigns used social marketing approach and integrated marketing communication tools to communicate target audiences such as advertising, public relations, event marketing, direct marketing, personal media, sponsorship, and even media advocacy. Interestingly, most campaigns targeted to youths who tend to have more health-risk behaviors than other populations.

Despite this growth, many social marketing communication practitioners on public health still have an incomplete understanding in evaluation of social marketing plans in the outcomes stage (Valente, 2010; Kotler & Lee, 2008; Feltracco & Gutierrez, 2007; Tone & Green, 2004; Svenkerud & Singhal, 1998; Smitasiri et al., 1993). This is also true in Thailand because most social marketing communication campaigns on health behaviors were often evaluated only in the outputs stage or process measures such as numbers of target audiences exposing messages (reach), frequency of exposing messages, media coverage, numbers of materials distributed, total impression/cost per impression, or even an audit of major activities as planned budget and timing. Differently, the outcomes stage measures effect and changes that result from the campaign. It assesses outcomes in the target populations or communities that come about as a result of implementing programs and sometimes may also measures policy changes. The example measures in this stage are changes in knowledge, changes in attitude, changes in behavior intent, change in actual behavior, campaign awareness, campaign brand equity, audiences' satisfaction levels, or even communication network created (Adekunle & Adnan, 2016; Adnan & Mavi, 2015; Ismail, 2013; Mohd-Nor, Chapun, & Wah, 2013; Valente, 2010; Kotler& Lee, 2008; Feltracco & Gutierrez, 2007; Ajzen, 1985). This phenomenon may come from lack of the clear effectiveness indicators of social marketing communication campaigns to measure outcomes of health-risk behaviors changes. Therefore, to advance current knowledge in this field, developing the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviors among youth is still needed. It will help social marketing communication practitioners plan and evaluate social marketing communication campaigns clearly and more effectively.

Theory of Reasoned Action and Theory of Planned Behavior

In reviewing literatures about effectiveness indicators of social marketing communication campaigns, the author found that all related literatures suggested that the variables in theory of reasoned action and theory of planned behavior are interestingly able to be the good indicators for evaluating social marketing communication campaigns, especially in health promotion area. Theory of reasoned action and theory of planned behavior both present frameworks to explain and discover what factors affect actual behaviors. According to theory of reasoned action by Fishbein & Ajzen (1975), attitude toward the behavior along with the subjective norm (his or her beliefs about what significant others think the person

should do and how important their opinions are to him or her) form the individual's intention to engage in a certain behavior and then this intention tends to perform the behavior.

The merit of this theory is that it takes into account the influence other people have over someone's behavior. However, theory of planned behavior by Ajzen (1985) takes the theory of reasoned action one step further by adding the construct of perceived behavioral control as another factor affecting intention and actual behavior. According to theory of planned behavior, perceived behavioral control is considered to be the results of past experience and anticipated problems that determine the person's perceived ease or difficulty of performing behavior. As a result, this further model is very useful in explaining many behaviors or situations which the person often feels difficult to control the behavior voluntarily such as tobacco use, alcohol use, drug use, sexual-risk behaviors, inappropriate dietary behaviors, and physical inactivity.

Brand Equity in Public Health Campaign

Brand equity can be defined as the value that consumers associate with a brand, as reflected in the dimensions of brand loyalty, perceived quality, brand associations, brand awareness, and other proprietary brand assets (Aaker, 1996a). Products with high brand equity can confer positive consumer attitudes, willingness to pay premium prices, higher margins, brand extension opportunities, more powerful communication effectiveness, higher brand preferences, repeat purchases, and future profits. Consequently, brand equity has become a common way to evaluate the value of commercial brands. David A. Aaker developed a brand equity model with ten dimensions, *The Brand Equity Ten* (Aaker, 1996a). *The Brand Equity Ten* is the ten sets of measures grouped into five dimensions. The first four dimensions represent customer perceptions of the brand – loyalty, perceived quality, associations, and awareness. The fifth is market behaviour measures that represent information obtained from market based information rather than directly from customers. His model was originally designed with traditional consumer products (e.g. cars and toothpaste) in mind. However, brand equity's role for evaluating public health brands has rarely been established. Public health brands can be differentiated from commercial brands by only their purposes. Commercial branding is aimed to change buying behaviors but public health branding is intended to change health behaviors (Evans, Price, &Blahut, 2005)

However, branding can also apply to both business sectors and public health sectors. In public health sectors, branding can be used in communication campaign planning to reduce health-risk behaviors among populations such as tobacco use, physical inactivity, alcohol use, and sexual-risk behaviors. After reviewing comprehensive literatures, the researcher found that, in recent years, Evans and his colleagues have adapted the Aaker's brand equity model and used four dimensions or constructs from *The Brand Equity Ten* – loyalty, perceived quality, associations and awareness – to evaluate a public health brand aimed at smoking prevention in USA, The *Truth* campaign (Evans et al., 2005). The fifth dimension was not used because it was not applicable for public health campaigns. Later, Price and his colleagues have also adapted the Aaker's brand equity model by using these four dimensions to evaluate a public health brand aimed at promote physical activity among children aged 9-13 years (tweens) in USA, The *VERB* campaign (Price et al., 2009). These previous studies with both campaigns supported that campaign message exposures affected brand equity and brand equity also affected health behaviors significantly. In other words,

the construct of brand equity mediate the relationship between branded health message exposures and intended behavioral outcomes. Besides, they found that each brand equity subscale – loyalty, perceived quality, associations and awareness – affected health behaviors. That is, respondents with higher brand loyalty, perceived quality, etc. were less likely to perform health-risk behaviors (Evans et al., 2005; Price et al., 2009). These studies suggest the potential value of using a brand equity framework to evaluate public health campaigns. However, no studies to adapt the Aaker's brand equity framework as an effectiveness indicator for evaluating a public health brand among youth (15-24 years old) in Thailand. Consequently, studies in this issue are still more needed because they will help increase an understanding and extend the knowledge basis of brand management in public health more growing.

Summary from reviewing literatures to explore indicators

From reviewing three important concepts as mentioned above, the author found 8 distinctive components of the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviors among Thai youth as follows: 1) attitude toward health-risk behaviors reduction (Fishbein & Ajzen, 1975; Ajzen, 1985), 2) subjective norms (Fishbein & Ajzen, 1975; Ajzen, 1985), 3) perceived behavioral control (Ajzen, 1985), 4) intention to reduce health-risk behaviors (Fishbein & Ajzen, 1975; Ajzen, 1985), 5) practices for reducing health-risk behaviors (Fishbein & Ajzen, 1975; Ajzen, 1985), 6) knowledge in dangers and impacts of health-risk behaviors (Feltracco & Gutierrez, 2007;Kotler& Lee, 2008), 7) campaign brand equity(Evans et al., 2005; Price et al., 2009; Aaker, 1996a), and 8) communication networks (Valente, 2010; Kotler& Lee, 2008). Therefore, these variables can be considered as a based framework for this study.

METHODOLOGY

From the background and the importance of the study as stated above in the introduction part, as a result, the author initiated a research project in Thailand: *"Developing the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviours among Thai youth" ,* funded by Faculty of Humanities, Kasetsart University, Bangkok, Thailand. This research aims to develop the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviors among Thai youth. Research methodology in the research project was divided into 2 phases: the stage of generating indicators (Phase I) and the stage of validating those indicators (Phase II). The results from the stage of generating indicators (Phase I) were published in Vantamay (2015). This paper aims to show the stage of validating those indicators (Phase II). However, the research methodology and the final results from Phase I will be also shown in this following part to help readers understand background more clearly.

Phase I: The stage of generating indicators

Phase I is the stage of generating indicators by using documentary research and a three-round Delphi technique. The results from this phase were published in Vantamay (2015) as shown in Table 1 and 2. By initiating from reviewing three important concepts and related literatures as mentioned above, the author found 8 distinctive components of the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviors among Thai youth as follows: 1) attitude toward health-risk behaviors

reduction (Fishbein & Ajzen, 1975; Ajzen, 1985), 2) subjective norms (Fishbein & Ajzen, 1975; Ajzen, 1985), 3) perceived behavioral control (Ajzen, 1985), 4) intention to reduce health-risk behaviors (Fishbein & Ajzen, 1975; Ajzen, 1985), 5) practices for reducing health-risk behaviors (Fishbein & Ajzen, 1975; Ajzen, 1985), 6) knowledge in dangers and impacts of health-risk behaviors (Feltracco & Gutierrez, 2007;Kotler& Lee, 2008), 7) campaign brand equity(Evans et al., 2005; Price et al., 2009; Aaker, 1996a), and 8) communication networks (Valente, 2010; Kotler& Lee, 2008). After that, a three-round Delphi technique was conducted. 15 experts in the field of social marketing communication for public health campaigns in Thailand was consulted to ask for consensus among the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviours among youth. The inclusion criteria of accepting effectiveness indicators that reached consensus were 4 criteria: 1) the rating mean is higher than 3.51; 2) the rating median is higher than 3.50; 3) the absolute value of differences between median and mode is lower than 1.00; and 4) interquartile rank [IQR]is lower than 1.50 (Barzekar et al., 2011; Rowe & Wright, 1999; Dalkey & Helmer, 1963).The results at the end of a Delphi technique found that the accepted total number of indicators reached up 49 indicators from 8 components as shown in Table 1.

Table 1: Results at the end of a Delphi technique from Vantamay (2015)

8 Components and 49 Indicators	**Consensus**				
	Mean	Median	Inter Quartile Rank (Q3 -Q1)	Median - Mode	Status
1. Attitude toward health-risk behaviors reduction					
1.1attitude toward unintentional injuries reduction	4.60	5.00	1.00	0.00	✓
1.2attitude toward tobacco use reduction	4.87	5.00	0.00	0.00	✓
1.3attitude toward alcohol use reduction	4.67	5.00	0.00	0.00	✓
1.4attitude toward drug use reduction	4.67	5.00	1.00	0.00	✓
1.5attitude toward sexual-risk behaviors reduction	4.67	5.00	1.00	0.00	✓
1.6attitude toward inappropriate dietary behaviors reduction	4.67	5.00	1.00	0.00	✓
1.7attitude toward physical inactivity reduction	4.67	5.00	1.00	0.00	✓
2. Subjective norms					
2.1family norms	4.87	5.00	0.00	0.00	✓
2.2friend norms	4.87	5.00	0.00	0.00	✓
2.3senior norms	4.60	5.00	1.00	0.00	✓
2.4celebrity norms	4.73	5.00	1.00	0.00	✓
2.5lecturer norms	4.53	5.00	1.00	0.00	✓
2.6media norms	4.87	5.00	0.00	0.00	✓

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3. Perceived behavioral control					
3.1perceived behavioral control in unintentional injuries	4.73	5.00	1.00	0.00	✓
3.2perceived behavioral control in tobacco use	4.80	5.00	0.00	0.00	✓
3.3perceived behavioral control in alcohol use	4.87	5.00	0.00	0.00	✓
.34perceived behavioral control in drug use	4.67	5.00	1.00	0.00	✓
3.5perceived behavioral control in sexual-risk behaviors	4.67	5.00	1.00	0.00	✓
3.6perceived behavioral control in inappropriate dietary behaviors	4.67	5.00	1.00	0.00	✓
3.7perceived behavioral control in physical inactivity	4.60	5.00	1.00	0.00	✓
4. Intention to reduce health-risk behaviors					
4.1intention to reduce unintentional injuries	4.73	5.00	0.00	0.00	✓
4.2intention to reduce tobacco use	4.93	5.00	0.00	0.00	✓
4.3intention to reduce alcohol use	4.93	5.00	0.00	0.00	✓
4.4 intention to reduce drug use	4.73	5.00	0.00	0.00	✓
4. 5intention to reduce sexual-risk behaviors	4.73	5.00	0.00	0.00	✓
4.6intention to reduce inappropriate dietary behaviors	4.87	5.00	0.00	0.00	✓
4.7intention to reduce physical inactivity	4.87	5.00	0.00	0.00	✓
5. Practices for reducing health-risk behaviors					
5.1practices for reducing unintentional injuries	4.67	5.00	1.00	0.00	✓
5.2practices for reducing tobacco use	4.93	5.00	0.00	0.00	✓
5.3practices for reducing alcohol use	4.93	5.00	0.00	0.00	✓
.54practices for reducing drug use	4.73	5.00	0.00	0.00	✓
5.5practices for reducing sexual-risk behaviors	4.73	5.00	0.00	0.00	
5.6practices for reducing inappropriate dietary behaviors	4.80	5.00	0.00	0.00	✓
5.7practices for reducing physical inactivity	4.80	5.00	0.00	0.00	✓
6. Knowledge in dangers and impacts of health-risk behaviors					
6.1knowledge in dangers and impacts of unintentional injuries	4.67	5.00	1.00	0.00	✓
6.2knowledge in dangers and impacts of tobacco use	4.87	5.00	0.00	0.00	✓
6.3knowledge in dangers and impacts of alcohol use	4.87	5.00	0.00	0.00	✓

·64knowledge in dangers and impacts of drug use	4.67	5.00	1.00	0.00	✓
6.5knowledge in dangers and impacts of sexual-risk behaviors	4.67	5.00	1.00	0.00	✓
6.6knowledge in dangers and impacts of inappropriate dietary behaviors	4.73	5.00	1.00	0.00	✓
6.7knowledge in dangers and impacts of physical inactivity	4.73	5.00	1.00	0.00	✓
7. Campaign brand equity					
7.1campaign loyalty	4.40	4.00	1.00	0.00	✓
7.2perceived campaign quality	4.73	5.00	1.00	0.00	✓
7.3campaign associations	4.60	5.00	1.00	0.00	✓
7.4campaign awareness	4.80	5.00	0.00	0.00	✓
8. Communication networks					
8.1size of communication networks	4.53	5.00	1.00	0.00	✓
8.2frequency of communication	4.67	5.00	1.00	0.00	✓
8.3number of media used in communication	4.67	5.00	1.00	0.00	✓
8. 4intention to disseminate information in networks	4.40	5.00	1.00	0.00	✓

Note : ✓ = Accepted ✖ = Rejected

Source: Vantamay (2015)

In conclusion, the findings from phase I by using documentary research and a three-round Delphi technique showed that the effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviors among Thai youth consist of forty-nine indicators from eight core components: 1) attitude toward health-risk behaviors reduction, 2) subjective norms, 3) perceived behavioral control, 4) intention to reduce health-risk behaviors, 5) practices for reducing health-risk behaviors, 6) knowledge in dangers and impacts of health-risk behaviors, 7) campaign brand equity, and 8) communication networks, as shown in Table 2. Therefore, these variables can be considered as a based framework for validating in the next phase.

Table 2: Results of generating indicators by using documentary research and a three-round Delphi technique from Vantamay (2015)

8 Components	49 Indicators
1. attitude toward health-risk behaviors reduction (AH 1.1 – 1.7)	1.1attitude toward unintentional injuries reduction
	1.2attitude toward tobacco use reduction
	1.3attitude toward alcohol use reduction
	1.4attitude toward drug use reduction
	1.5attitude toward sexual-risk behaviors reduction
	1.6attitude toward inappropriate dietary behaviors reduction
	1.7attitude toward physical inactivity reduction
2. subjective norms	2.1family norms
	2.2friend norms

(SN 2.1 – 2.6)	2.3senior norms
	2.4celebrity norms
	2.5lecturer norms
	2.6media norms
3. perceived behavioral control (PB 3.1 – 3.7)	3.1perceived behavioral control in unintentional injuries
	3.2perceived behavioral control in tobacco use
	3.3perceived behavioral control in alcohol use
	.34perceived behavioral control in drug use
	3.5perceived behavioral control in sexual-risk behaviors
	3.6perceived behavioral control in inappropriate dietary behaviors
	3.7perceived behavioral control in physical inactivity
4. intention to reduce health-risk behaviors (IR 4.1 – 4.7)	4.1intention to reduce unintentional injuries
	4.2intention to reduce tobacco use
	4.3intention to reduce alcohol use
	4.4 intention to reduce drug use
	4. 5intention to reduce sexual-risk behaviors
	4.6intention to reduce inappropriate dietary behaviors
	4.7intention to reduce physical inactivity
5. practices for reducing health-risk behaviors (PR 5.1 – 5.7)	5.1practices for reducing unintentional injuries
	5.2practices for reducing tobacco use
	5.3practices for reducing alcohol use
	.54practices for reducing drug use
	5.5practices for reducing sexual-risk behaviors
	5.6practices for reducing inappropriate dietary behaviors
	5.7practices for reducing physical inactivity
6. knowledge in dangers and impacts of health-risk behaviors (KD 6.1 – 6.7)	6.1knowledge in dangers and impacts of unintentional injuries
	6.2knowledge in dangers and impacts of tobacco use
	6.3knowledge in dangers and impacts of alcohol use
	.64knowledge in dangers and impacts of drug use
	6.5knowledge in dangers and impacts of sexual-risk behaviors
	6.6knowledge in dangers and impacts of inappropriate dietary behaviors
	6.7knowledge in dangers and impacts of physical inactivity
7. campaign brand equity (CB 7.1 – 7.4)	7.1campaign loyalty
	7.2perceived campaign quality
	7.3campaign associations
	7.4campaign awareness
8. communication networks (CN 8.1 – 8.4)	8.1size of communication networks
	8.2frequency of communication
	8.3number of media used in communication
	8.4intention to disseminate information in networks

Source: Vantamay (2015)

Phase II: The stage of validating indicators

It is necessary to continue in phase II by validating those generated indicators to check compliance with empirical data. Therefore, this paper aims to show the stage of validating those generated indicators to make those indicators stronger and more effectively and to help social marketing communication practitioners plan and evaluate social marketing communication campaigns clearly and more accurately. In validating the generated

indicators from Table 2 to check compliance with empirical data, a quantitative research was needed. A survey research with 1,000 undergraduate students aged 18-24 years old in Thailand was conducted. Multistage random sampling was employed in this process. The self-reporting questionnaires were collected from10 universities located in 5 areas in Thailand including Bangkok metropolitan area, central area, northern area, southern area, and northeast area. These divisions were based on National Statistical Office in Thailand. The students were asked to complete the questionnaire after they were informed that their participation was voluntary, that their responses were anonymous and confidential, and that results would be reported only in a group format. All signed informed consent forms were separated from their questionnaires. For data analysis, a second-order confirmatory factor analysis was used in this study for validating indicators. There were 6 criteria to check compliance of the measurement model with empirical data: $\chi 2$= ns. (p> .05); $\chi 2$/ df< 3.00; Goodness of Fit Index: GFI> 0.90; Comparative Fit Index: CFI > 0.95; Standardized Root Mean Square Residual: RMR<0.08; Root Mean Square Error of Approximation: RMSEA<0.05 (Bollen, 1989; Diamantopolous &Siguaw, 2000; Bruhn, Georgi, &Hadwich, 2008, Hair et al., 1998; Shao & Webber, 2006).The research proposal was reviewed and approved by the institutional review board in the faculty of Humanities, Kasetsart University, (No. 0513.105032/154).

RESULTS

The results found that most of the samples were female (55.6%). The average age was 20.25 years old. The average income per month was THB 7,421.96 and 35.3% of the samples were studying in the first year. Descriptive statistics analysis including mean and standard deviation was performed as shown in Table 3.

Table 3: Mean and Standard deviation among variables

8 Components and 49 Indicators	Mean	Standard deviation (S.D)
1. Attitude toward health-risk behaviors reduction*		
1.1attitude toward unintentional injuries reduction	4.50	0.67
1.2attitude toward tobacco use reduction	4.14	1.22
1.3attitude toward alcohol use reduction	4.09	1.05
1.4attitude toward drug use reduction	4.33	1.14
1.5attitude toward sexual-risk behaviors reduction	4.09	1.00
1.6attitude toward inappropriate dietary behaviors reduction	4.50	0.72
1.7attitude toward physical inactivity reduction	4.49	0.74
2. Subjective norms*		
2.1family norms	3.27	0.89
2.2friend norms	3.54	0.80
2.3senior norms	3.11	0.99
2.4celebrity norms	3.37	0.85
2.5lecturer norms	3.51	0.92
2.6media norms	3.37	0.96
3. Perceived behavioral control*		

3.1perceived behavioral control in unintentional injuries	3.81	0.67
3.2perceived behavioral control in tobacco use	4.18	0.93
3.3perceived behavioral control in alcohol use	4.03	0.85
.34perceived behavioral control in drug use	4.34	0.89
3.5perceived behavioral control in sexual-risk behaviors	4.21	0.97
3.6perceived behavioral control in inappropriate dietary behaviors	4.11	0.80
3.7perceived behavioral control in physical inactivity	3.56	0.96
4. Intention to reduce health-risk behaviors*		
4.1intention to reduce unintentional injuries	4.32	0.71
4.2intention to reduce tobacco use	4.29	0.91
4.3intention to reduce alcohol use	3.99	0.89
4.4 intention to reduce drug use	4.47	0.86
4. 5intention to reduce sexual-risk behaviors	4.09	0.85
4.6intention to reduce inappropriate dietary behaviors	3.85	0.78
4.7intention to reduce physical inactivity	3.73	0.88
5. Practices for reducing health-risk behaviors*		
5.1practices for reducing unintentional injuries	3.88	0.77
5.2practices for reducing tobacco use	4.16	1.25
5.3practices for reducing alcohol use	3.63	1.22
.54practices for reducing drug use	4.40	1.17
5.5practices for reducing sexual-risk behaviors	3.75	0.74
5.6practices for reducing inappropriate dietary behaviors	3.05	0.47
5.7practices for reducing physical inactivity	2.94	0.67
6. Knowledge in dangers and impacts of health-risk behaviors**		
6.1knowledge in dangers and impacts of unintentional injuries	1.92	0.87
6.2knowledge in dangers and impacts of tobacco use	1.81	0.80
6.3knowledge in dangers and impacts of alcohol use	1.50	0.85
.64knowledge in dangers and impacts of drug use	1.53	1.03
6.5knowledge in dangers and impacts of sexual-risk behaviors	1.98	1.00
6.6knowledge in dangers and impacts of inappropriate dietary behaviors	2.21	1.11
6.7knowledge in dangers and impacts of physical inactivity	2.29	1.10
7. Campaign brand equity*		
7.1campaign loyalty	3.83	0.61
7.2perceived campaign quality	3.74	0.65
7.3campaign associations	3.91	0.62
7.4campaign awareness	3.68	0.62
8. Communication networks		
8.1size of communication networks***	7.56	15.07
8.2frequency of communication***	1.61	2.94

8.3number of media used in communication***	1.27	0.57
8. 4intention to disseminate information in networks*	3.65	0.83

*5-point Rating Scale (Strongly agree/Very much = 5 to Strongly disagree/Very little = 1)
**Max Score = 3, Min Score = 0 (3 items per aspect in the form of True or False Questions)
***True Score (Open-ended Questions)

And then, fit analysis of Composite indicators with empirical data by second order confirmatory factor analysis (CFA) was performed. After adjusting the parameters of the relationship between the measurement errors in model, the fit's statistics showed that the final model was fitted with the empirical data. All values were accordance with criteria: Chi-square statistics = 1,689.594 and no significance (p> .05), Chi-Square/df =2.674($\chi 2$/ df< 3.00), Goodness of Fit Index (GFI) = .955(GFI> 0.90), Comparative Fit Index (CFI) =.984(CFI > 0.95), Root Mean Square Residual (RMR) = .054 (RMR<0.08), and Root Mean Square Error of Approximation (RMSEA) = .039(RMSEA<0.05) These results indicated that these composite indicators model is not different from the empirical data as showed in Table 4.

Table 4: Results of Second-Order Confirmatory Factor Analysis (CFA)

Components	Factor Loading	Indicators	Factor Loading
1. AH R^2= 0.64	0.80***	(AH1.1)	0.49 (fixed)
		(AH1.2)	0.52***
		(AH1.3)	0.65***
		(AH1.4)	0.72***
		(AH1.5)	0.76***
		(AH1.6)	0.48***
		(AH1.7)	0.46***
2.SN R^2=0.53	0.71***	(SN2.1)	0.52(fixed)
		(SN2.2)	0.73***
		(SN2.3)	0.64***
		(SN2.4)	0.46***
		(SN2.5)	0.60***
		(SN2.6)	0.70***
		(SN2.7)	0.52(fixed)
3.PB R^2=0.78	0.88***	(PB3.1)	0.46(fixed)
		(PB3.2)	0.68***
		(PB3.3)	0.58***
		(PB3.4)	0.82***
		(PB3.5)	0.63***
		(PB3.6)	0.48***
		(PB3.7)	0.52***
4.IR R^2=0.80	0.90***	(IR4.1)	0.74 (fixed)
		(IR4.2)	0.77***
		(IR4.3)	0.71***
		(IR4.4)	0.62***
		(IR4.5)	0.83***
		(IR4.6)	0.73***
		(IR4.7)	0.60***

5.PR R^2=0.61	0.78***	(PR5.1)	0.57(fixed)
		(PR5.2)	0.66***
		(PR5.3)	0.63***
		(PR5.4)	0.78***
		(PR5.5)	0.65***
		(PR5.6)	0.45***
		(PR5.7)	0.52***
6.KD R^2=0.67	0.82***	(KD6.1)	0.51 (fixed)
		(KD6.2)	0.46***
		(KD6.3)	0.41***
		(KD6.4)	0.54***
		(KD6.5)	0.59***
		(KD6.6)	0.77***
		(KD6.7)	0.63***
7.CB R^2=0.58	0.76***	(CB7.1)	0.79 (fixed)
		(CB7.2)	0.74***
		(CB7.3)	0.81***
		(CB7.4)	0.72***
8.CN R^2=0.56	0.74***	(CN8.1)	0.65 (fixed)
		(CN8.2)	0.71***
		(CN8.3)	0.78***
		(CN8.3)	0.69***
6 Criteria to check compliance of the measurement model: *1. Chi-Square = 1689.594, p = .053* *2. Chi-Square/df =2.674* *3.Goodness of Fit Index (GFI) = .955* *4. Comparative Fit Index (CFI) = .984* *5. Root Mean Square Residual (RMR) = .054* *6. Root Mean Square Error of Approximation (RMSEA) = .039*			

*p < .05 **p < .01 ***p < .001

From table 4, the results of first order confirmatory factor analysis also indicate the weight of 49 indicators. The highest weighted indicator of the attitude toward health-risk behaviors reduction component was attitude toward sexual-risk behaviors reduction (AH1.5) (factor loading = 0.76). The highest weighted indicator of subjective norms component was friend norms (SN2.2) (factor loading = 0.73). The highest weighted indicator of perceived behavioral control component was perceived behavioral control in drug use(PB3.4) (factor loading = 0.82). The highest weighted indicator of intention to reduce health-risk behaviors component was intention to reduce sexual-risk behaviors (IR4.5)(factor loading = 0.83).The highest weighted indicator of practices for reducing health-risk behaviors component was practices for reducing drug use (PR5.4)(factor loading = 0.78).The highest weighted indicator of knowledge in dangers and impacts of health-risk behaviors component was knowledge in dangers and impacts of inappropriate dietary behaviors (KD6.6)(factor loading = 0.77).

The highest weighted indicator of campaign brand equity component was campaign associations (CB7.3) (factor loading = 0.81). Finally, the highest weighted indicator of communication networks was number of media used in communication (CN8.3) (factor loading = 0.78).At the same time, the results of second order confirmatory factor analysis also indicate 8 components confirming the composite indicators of effectiveness indicators

of social marketing communication for reducing health-risk behaviors among Thai youth. The highest weighted component was intention to reduce health-risk behaviors(IR) (factor loading = 0.90), followed by perceived behavioral control component was (PB) (factor loading = 0.88), knowledge in dangers and impacts of health-risk behaviors component (KD) (factor loading = 0.82), attitude toward health-risk behaviors reduction (AH) (factor loading = 0.80),practices for reducing health-risk behaviors component (PR) (factor loading = 0.78), campaign brand equity component (CB) (factor loading = 0.76), communication networks (CN) (factor loading = 0.74), and subjective norms component (SN) (factor loading = 0.71) respectively.

CONCLUSION AND DISCUSSION

This study aims to validate effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviours among Thai youth by using a quantitative research with 1,000 undergraduate students aged 18-24 years old in Thailand. A second-order confirmatory factor analysis was used to check compliance with empirical data. After processing validation had been completed, the results found that forty-nine effectiveness indicators from eight core components were appropriate in validity for evaluating social marketing communication campaigns for reducing health-risk behaviours among Thai youth. These components included 1) attitude toward health-risk behaviours reduction, 2) subjective norms, 3) perceived behavioural control, 4) intention to reduce health-risk behaviours, 5) practices for reducing health-risk behaviours, 6) knowledge in dangers and impacts of health-risk behaviours, 7) campaign brand equity, and 8) communication networks. This result was consistent with reviewed literatures in the past to support these components to be an effectiveness indicators to evaluate social marketing communication campaigns for reducing health-risk behaviours among Thai youth (Kotler & Lee, 2008; Grier & Bryant, 2005; Evans et al., 2002, 2008, 2011; Evans, 2014; Evans, Price, &Blahut, 2005; Evans & Hastings, 2008; Guttman, 2000; Hawkins & Mothersbaugh, 2010; Hersey et al., 2007; Johnson, Bellows, Beckstrom, & Anderson, 2007; Keller &Lehmann, 2008; Minjaet al., 2001; Moore et al., 2002; Nowak et al., 1998; Olshefskyet al., 2007; Price et al., 2009; Rossem & Meekers, 2000; Shive &Morris, 2006; Stead et al., 2007; Simons &Gaher, 2004; Svenkerud & Singhal, 1998; Thackery et al., 2002; Valente, 2010; Windsor et al., 2004).

Besides, this research results support many theories involved social marketing to behaviour changes. They included theory of reasoned action by Fishbein & Ajzen (1975) which emphasized influences of attitude toward behaviors and subjective norms on intent and practice, and theory of planned behaviours by Ajzen (1985) which emphasized influences of attitude toward behaviors, subjective norms, and perceived behavioural control on intention and practices. Furthermore, theory of brand equity on public health by Evans et al. (2005), Price et al. (2009), and Aaker (1996a) which is the application of concepts of brand equity in commercial branding into public health branding, was suitably used as the indicators effectively as cited above in part of literatures reviewed. Therefore, this study is also the harmonious integration of knowledge from various fields including public health, behavioral science, and branding. As a result, this study can be recognized as a cutting-edge new finding of knowledge in evaluating social marketing communication campaigns for reducing health-risk behaviours among youth which can take these indicators to evaluate social marketing communication campaigns for reducing health-risk behaviours among youth both in the national level and in the international level more effectively.

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However, it has at least one limitation to note. The limitation was because the measures in the survey research were self-reported; the respondents may have underreported their health-risk behaviours, possibly because of shame and guilt. However, the anonymous nature of responses in this study reduces the likelihood of such biased responses. Despite of the limitation, the main strength of the present study was trying to generate clear effectiveness indicators of social marketing communication campaigns for reducing health-risk behaviours among youth in the outcomes stage, which will give benefits for any health promotion organizations, academicians, and practitioners in field of social marketing, public health, health communication, or related fields both in Thailand and in international level for studying, planning, and evaluating the effectiveness of social marketing communication for reducing health-risk behaviours among youth effectively and efficiently for a sustained success.

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