IMPACT OF THE MARKETING MIX ON SELF-EFFICACY AND SMOKING CESSATION: A META-ANALYSIS

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Abstract

Purpose

Tobacco consumption, responsible for six million deaths each year, is a large concern for social marketers. Social cognitive theory suggests that self-efficacy is a key predictor of smoking behavioural change. According to this theory, enhancement of self-efficacy is an effective method for smoking cessation. Yet not much work has been done by social marketers to understand how different social marketing tools such as marketing mix affect self-efficacy and smoking behaviour. This research has systematically gathered and meta-analyzed intervention studies by finding elements of marketing in them and their effect on self-efficacy and smoking cessation. This study also looks at the relationship between self-efficacy enhancement and smoking cessation. By studying the nature of relationships between marketing mix and self-efficacy, self-efficacy and smoking cessation, and marketing mix and smoking cessation, we inspect the mediating influence of self-efficacy on the 4P's (product, price, place and promotion) of marketing mix and smoking cessation.

Method

We conducted a systematic search of five databases to find studies involving self-efficacy enhancement and smoking cessation through interventions. Studies published in journals ranked in Journal Citation Reports (JCR) and containing pre and post-intervention self-efficacy and smoking behaviour data were included. We used Comprehensive Meta-Analysis (CMA) software to find effect-sizes of interventions with different numbers of marketing mix P's.

Results

This research identified 13 articles comprising 23 interventions for meta-analysis. Random-effect model showed a medium effect-size of 0.574 *(p< 0.001)* for change in self-efficacy which shows the effectiveness of interventions. However, the results did not reveal effect-size to be bigger for interventions having a higher number of marketing mix P's. The

presence of actual product, augmented product and promotion elements of marketing mix were positively related with effect-sizes whereas the presence of price and place elements were not positively correlated with effect-sizes. We found self-efficacy enhancement to be positively associated with smoking cessation (R^2analog $=0.37$). Additionally, significant effect-sizes for smoking cessation interventions were bigger for groups having a higher number of marketing mix P's compared to groups having a lower number of marketing mix P's.

Conclusion

This meta-analysis identifies the four P's of marketing mix (product, price, place, and promotion) which are effective for increasing self-efficacy and smoking cessation. Although some elements of marketing mix are positively related with self-efficacy enhancement, self-efficacy enhancement is not positively related with the number of marketing mix elements in an intervention. Future researchers should focus on inspecting the quality of execution of such interventions to further explore the impact of marketing mix on self-efficacy. Moreover, these findings suggest a positive relationship between smoking cessation and presence of a number of marketing mix elements, which social marketers should consider while designing smoking behavioural change campaigns.

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1. Introduction

As one of the biggest public health threats, the tobacco epidemic is a major concern for social marketers as currently more than one billion people consume tobacco (World Health Organization report, 2013). According to the World Health Organization report, half of tobacco users lose their lives due to diseases caused by tobacco consumption. If tobacco use remains uncontrolled, the current death toll of six million per year might rise to eight million by 2030. Tobacco is mostly consumed through smoking which causes various diseases such as abdominal aortic aneurysm, acute myeloid leukemia, cataract, cervical cancer, kidney cancer, pancreatic cancer, pneumonia, periodontitis, stomach cancer, bladder, lung, oral, and throat cancers, chronic lung diseases, coronary heart and cardiovascular diseases (US Department of Health and Human Services, 2004). Like any other addictive behaviour, quitting smoking is very challenging and smoking cessation maintenance is even harder. Research shows that counselling, along with medication, double the success rate of smoking cessation (World Health Organization report, 2013). In smoking cessation counselling programs, among other psychological concepts, self-efficacy has been prominently employed to help smokers quit smoking (O'Leary, 1984).

Since Albert Bandura (1979) introduced the concept of self-efficacy, many researchers have explored its applications in changing different social behaviours. Numerous papers have been published that report self-efficacy as a significant predictor of positive behavioural change in dealing with various health issues such as pain tolerance, stress, eating disorders and smoking cessation (O'Leary, 1984). Particularly, a positive relationship between smoking cessation and self-efficacy has been found in many research studies (McIntyre, Lichtenstein, & Mermelstein, 1983; Prochaska, Crimi, Lapsanski, Martel,

& Reid, 1982). These findings have encouraged many researchers to successfully enhance self-efficacy through intervention to help people quit smoking (Condiotte & Lichtenstein, 1981). This line of research can provide insights to those intending to employ social marketing strategies aimed at assisting smokers to quit smoking.

Social marketing is a powerful means of changing behaviour (Kotler & Roberto, 1989). Social marketers are interested in providing effective smoking cessation programs by using traditional marketing tools to influence behaviours and bring about positive change in society. While a number of these social marketing studies have been conducted in the past, to the best of our knowledge, none of these aim to understand how different social marketing tools, particularly the marketing mix, help in increasing self-efficacy of smokers to quit smoking. Without filling this knowledge gap, social marketing managers cannot satisfactorily assess the issue of how self-efficacy predicts the success of smoking cessation. There is also a knowledge gap as to how the 4P's influence smoking cessation behaviour. Thus more examination is required to understand whether or not the inclusion of the 4P's in smoking cessation programs makes a positive impact. Filling these knowledge gaps will also help researchers understand whether or not self-efficacy mediates the relationship between marketing mix and smoking cessation.

This research will contribute to smoking cessation, social marketing and self-efficacy literature by integrating these concepts. We explore the mediating influence of self-efficacy on 4P's of the marketing mix and smoking cessation behaviour by conducting a meta-analysis of research studies which applied social marketing interventions and enhanced self-efficacy to quit smoking. The 4P's are marketing tools that are used by social marketers to pursue a desired influence on target audiences (Lee & Kotler, 2011). Presence of the 4P's of the marketing mix will be identified in each campaign and the mediating influence of self-

efficacy on behavioural change will be noted. Much has been done in understanding self-efficacy as a predictor of smoking cessation but no research has focused on how it interacts with social marketing tools. Moreover, this research will also study the influence of the 4P's of marketing on smoking cessation and help in bridging these knowledge gaps and effectively guiding future social marketing campaigns aimed at assisting smokers with quitting smoking.

This study begins with a literature review of self-efficacy, sources of self-efficacy and research done on self-efficacy as a predictor of behavioural change, particularly related to smoking cessation. It also sheds light on the origin of marketing mix, its different components, and how they play an important role for the success of any social marketing drive. This is followed by a description of research objectives which highlights the research question of whether self-efficacy mediates the relationship between marketing mix and smoking cessation. Next, we develop hypotheses based on the research problem and research questions. Following hypotheses development, we illustrate the method section which highlights inclusion criteria for articles, key words used for finding relevant articles, and the data extraction form and coding sheet adopted from Mah, Tam, & Deshpande (2008) and Ashford, Edmunds, & French (2010) studies. This data extraction form was used to extract data for meta-analysis of existing literature. Following the Methodology section, we present the results of meta-analysis of 13 articles containing 23 interventions. This section illustrates the rationale for using random-effect model to find effect-sizes of the interventions. We identify those elements of marketing whose presence was associated with bigger effect-sizes. In the end, we discuss the implementation of these results and future research suggestions. We suggest that future research should focus on inspecting the quality of the execution of such interventions and explore ways to include more studies in meta-analysis to have more robust results.

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2. Literature Review

2.1 Self-efficacy

Karl Bühler(1919) coined the term *funktionslust* which means pleasure of functioning. The concept of *funktionslust* is based on the assumption that infants as well as adults enjoy effects-based behaviour. Contingencies as a result of actions provide a sense of control over one's environment. To make their lives predictable, people make efforts to gain control over the events in their lives. This is not only helpful in achieving desired goals, but also alerts us regarding potential undesired events (Bandura, 1997). Many theories (Alders, 1956; Rotter 1966) address the issue of control in human lives. Albert Bandura's self-efficacy theory (1977), which explains the working of human agency, is one such theory. According to Bandura, self-efficacy has a great impact on the motivational and affective state of individuals and on their actions. A strong sense of self belief, therefore, is helpful in gaining fruitful results. Bandura defines self-efficacy as follows:

> "Perceived self-efficacy refers to beliefs in one's capability to organize and execute the course of action required to produce given attainments" (Bandura, 1997, p. 3).

Bandura enumerates the importance of self-efficacy in the achievement of individual and collective goals in several of his works (for e.g. Bandura, 1977, 1982, 1994). The concept originated in Bandura's discussion of Social Cognitive Theory (Bandura, 1977). This theory contains a triadic reciprocal causation structure which defines human functioning as an interplay of personal, behavioural, and environmental determinants. In other words, our actions are the result of interactions between interpersonal and external factors and our past actions. Perceived self-efficacy plays its role in affecting interpersonal determinants that operate mainly in the form of cognitive, affective, and biological events. It also exerts its

influence through cognitive, affective, motivational and selection processes (Bandura, 1993).

According to Bandura, bidirectional influence of these three determinants (personal determinants, behavioural determinants, and environmental determinants) is not always equal or simultaneous (Bandura, 1994). Different factors affect the functioning of human agency in different intensities. Each causal factor exerts its influence in its own timely manner. Therefore, self-efficacy will influence the overall functioning in its own timely fashion by affecting interpersonal factors.

2.2 Mediating Processes

According to Bandura (1994), self-efficacy facilitates its effects through four processes namely cognitive, motivational, affective, and selection processes. These processes are interrelated and influence human functioning jointly.

a. **Self-efficacy and cognitive process.** Different studies show that self-efficacy influences human functioning by affecting cognitive processes. According to Bandura (1993, 1994), human ability is not a fixed attribute. Rather, it varies and depends upon different personal skills. Bandura differentiates between possessing knowledge and skills and the ability to use them properly. Human ability is a combination of skills and the self-beliefs required to use those skills. Human functioning involves fore thinking of the results of human actions (Bandura, 1993). Self-efficacy influences human functioning by impacting the anticipatory scenarios. Those with higher self-efficacy foresee success as a result of their actions. This optimistic imagination supports their performance and influences them to set higher goals. On the other hand, people with lower self-efficacy struggle with self-doubts; therefore, they foresee negative results of their actions. According to Bandura (1993, p 120),

"It requires a strong sense of efficacy to remain task oriented in the face of pressing situational demands and failures that have social repercussions".

A study by Collins (1982) shows that children with higher self-beliefs perform better than children who have lower self-beliefs while solving mathematical problems. Numerous other studies show the influence of self-efficacy on the cognitive process by affecting the conception of ability (Wood & Bandura, 1989), social comparison influence (Bandura & Jourden, 1991), framing of feedback (Jourden, 1991), and perceived controllability (Wood & Bandura, 1989).

   b. Self-efficacy and motivational process. Human motivation is a cognitive process generated through the exercise of forethought and influenced by self-beliefs (Bandura, 1993). According to Bandura, there are three different forms of cognitive motivators based on three different theories. These are causal attributions, outcome expectancies, and cognized goals. Operation of self-efficacy can be found in all three forms of these cognitive motivators. Attribution theory of motivation (Weiner, 1985) suggests that reviewing causes of one's performance has motivational effects on future performances. Studies suggest (Collins, 1982) that people who are highly efficacious consider their failure a result of insufficient efforts, whereas inefficacious people attribute failure to their inability. Similarly, outcome expectancies are governed by the self-beliefs of an individual's capability to generate desired outcomes. According to the expectancy-value theory, desired outcomes motivate an individual and affect their actions (Vroom, 1964; Ajzen & Fishbein, 1980). People do not pursue even highly attractive outcomes unless they believe in their capability to generate those outcomes. According to the goal theory, cognized goals increase motivation (Locke & Latham, 1990). These cognized goals are generated through three kinds of self-influences, namely reactions to one's performance, perceived self-efficacy for

goal attainment, and readjustment of one's goal based on one's progress. Self-efficacy affects motivation by determining the level of goals and people's persistence in pursuing those goals.

c. Self-efficacy and affective process. Self-efficacy mediates the affective process of human functioning by influencing one's ability to cope with stress and depression (Bandura, 1993). Inefficacious thinking affects human ability not just by inducing distressing thoughts, but also by affecting stress-related hormones and immune function (Bandura, 1988). Perceived coping self-efficacy is a better predictor of avoidant behaviour than anxiety arousal (Williams, 1992). In a stressful situation, perceived self-efficacy of thought control regulates thoughts. It doesn't stop the occurrence of stress and depression; rather it affects thoughts by not letting them be overwhelmed by stress and depression. Depression can be produced by low efficacy in three different ways. These are unfulfilled aspirations, low sense of social efficacy and rumination of dejecting thoughts (Bandura, 1993; Kavanagh & Wilson, 1989). Self-efficacy addresses all three and can help individuals in overcoming depression.

d. Self-efficacy and selection process. Self-efficacy affects the selection process not just at the time of making a certain choice. It is also responsible for the development of various skills which a person will later experience because of selecting a particular choice (Bandura, 1993). According to Bandura, "people are partly the products of their environments"(p. 135). By selecting any particular environment, people shape their destinies. Career choice and development studies (Betz & Hackett, 1986) show that self-efficacy affects people's lives through selection processes. Another study by Betz & Hackett (1981) regards self-efficacy as a key mediator in career development. According to that study, cognitive and social competences are required for career development, which are developed over the course of a long time due to persistent self-beliefs.

2.3 Self-efficacy and Health

Several health-related studies show the importance of self-efficacy in adopting a healthy behaviour. According to O'Leary (1985), self–efficacy not only influences human behaviour while making healthy choices but it also helps people in changing addictive behaviour by encouraging persistence. People with higher self-efficacy are more persistent in overcoming problems. Studies conducted by Bandura, Reese, & Adams (1982) and Bandura, Taylor, Williams, Mefford, & Barchas, (1985) show the physiological effects of self-efficacy. These studies suggest that perceptions of coping efficacy in threatening situations affect heart rate, blood pressure, and serum levels.

The bio-psychosocial model of pain by Engel (1977) demonstrates the psychological importance of self-efficacy in pain management. Studies show that self-efficacy plays an important role in controlling pain. Bandura et al. (1982, 1985) found that people with higher self-efficacy experience lower heart rate and blood pressure during pain experience. Perceived self-efficacy can also explain the cognitive process of placebo effects. Subjects in control groups who experience lower pain are under the impression that medication will relieve them and increase their self-efficacy, which helps them in tolerating pain (O'Leary, 1984). In an experimental study conducted by Neufeld and Thomas (1977), subjects were given false feedback on their efficacy to control pain through relaxation. Subjects who were given positive feedback on their efficacy showed higher threshold levels of pain compared to those who were given negative feedback. Similarly, another study (Klepac, Dowling, & Hauge, 1982) found that dental phobic patients have lower tolerance scores for dental shock, whereas those dental patients with low levels of fear have higher tolerance scores for a similar shock. A study by Manning and Wright (1983) shows the importance of self-efficacy in controlling pain during child birth; self-efficacy was a better predictor of a

woman's threshold pain before requesting medication compared to ratings of importance of having un-medicated delivery. It also found that a higher sense of self-efficacy reduces the stress which causes recurring headache (Holroyd et al., 1984).

Anorexia nervosa and Bulimia eating disorders can be caused by failure to utilize self-regulatory measures for weight control. Hence, self-efficacy might be used to enable patients suffering from these eating disorders to embrace healthy food eating behaviours (O'Leary, 1984). Chambliss and Murray (1979) manipulated self-efficacy to increase weight loss. Subjects with an internal locus of control performed better than subjects with an external locus of control. Weinberg, Hughes, Critelli, England, and Jackson (1984) studied both pre-existing and manipulated self-efficacy effects on weight loss and found that subjects with higher pre-existing self-efficacy performed better than subjects with lower pre-existing self-efficacy. Similarly, subjects with higher manipulated self-efficacy also performed better than subjects with lower manipulated self-efficacy. Love (1983) used self-efficacy as a predictor of bulimic behaviour. Self-efficacy proved to be a better predictor compared to locus of control and enjoyment of bulimic behaviour. All these studies recognize importance of self-efficacy in overcoming addictive and other health problems.

2.4 Self-efficacy and Smoking Cessation

The World Health Organization (WHO) report (2013) on smoking shows that half of tobacco users lose their lives due to diseases caused by tobacco consumption. Each year six million people die due to tobacco consumption which is equivalent to approximately one death each second. About 80% of the world's one billion smokers are from low and middle level income countries. A premature death of a smoker affects the income source of the victim's family and increases health care costs. Globally tobacco consumption is increasing except for a few high income countries. According to the WHO report (2013), if urgent

measures are not taken, the current annual death toll of six million due to smoking might rise to eight million by 2030.

Smokers from different countries have different levels of awareness about diseases caused by smoking. A majority of those who are aware of health related consequences of smoking want to quit smoking. Various research studies show that medication and counselling double the chances of successful cessation of smoking (World Health Organization report, 2013).

Smoking is one of the most addictive behaviours which are hard to change. Even after quitting smoking many smokers relapse and cannot maintain cessation. People with higher self-efficacy are not only better at quitting smoking but they are also good at maintaining smoking cessation compared to those with lower self-efficacy. A study by McIntyre et al., (1983) shows a relationship between post treatment self-efficacy and smoking status of three months and six months follow-up studies. Similar results were found in a study by Colletti, Supnick, and Payne (1985). Prochaska et al., (1982) compared thirty eight successful smoking abstinence maintainers to twenty four relapsers. They found a difference of self-efficacy among these two groups as smoking abstinence maintainers experienced significantly higher self-efficacy levels. Condiotte and Lichtenstein (1981) found post-treatment self-efficacy to significantly predict the probability of maintaining abstinence and time period before first relapse. Similarly, Walker and Franzini (1983) show self-efficacy as a better predictor of relapse than locus of control and confidence in treatment.

2.5 Models or Sources of Self-efficacy

Bandura (1994) pointed out the following four sources of self-efficacy;

   a. **Personal accomplishment.** This source of self-efficacy is based on mastery experience. According to Bandura (1994), mastery experience is the most influential method

to enhance self-efficacy. Efficacy is enhanced by successful events of experience while failures faced during these events of experience may deter self-efficacy. Timing of failures and success of mastery experience also play an important role.

b. Vicarious experience. It is another source of self-efficacy which is based on the observation of models' behaviour. Successful performance of the model induces the observer to believe in their capability to achieve a similar performance. Since this source of self-efficacy is based on the performance of others, it is less influential compared to mastery experience. Outcome of the model's behaviour should be clear enough to enhance the observer's self-efficacy.

c. Verbal persuasion. Self-efficacy expectations can also be induced through verbal suggestions. It is a widely used method of influencing human behaviour which involves giving subjects suggestions to believe in their capabilities to achieve a particular behaviour. Verbal persuasion is also less influential as compared to mastery experience. Any failure that occurs during verbal persuasion can seriously affect the credibility of the source of verbal persuasion.

d. Emotional arousal. Emotional arousal caused by stressful situations can affect the self beliefs of individuals. Any change in the emotional arousal affects the self-efficacy as emotional arousal might have some information regarding a person's capability to face a stressful situation. Higher stress in a particular situation is interpreted by many as lower self-efficacy. Therefore, self-efficacy is generally higher while facing situations in which people are less affected by the stress.

2.6 Other Concepts Related to Self-efficacy

It is important to distinguish self-efficacy from some other psychological concepts which are sometimes mistaken as self-efficacy;

    a. Self-esteem. Self-esteem is an attitude and expression of worthiness (Coopersmith, 1967). Self-esteem is often misunderstood as self-efficacy. According to Bandura (1997), those are different concepts. Self-esteem is the evaluation of self-worth, whereas self-efficacy is the evaluation of one's capability. In other words, self-efficacy could be about a person's ability to swim, whereas self-esteem could be a person's value due to the fact that he/she can swim. A person might have higher self-efficacy and lower self-esteem for a particular behaviour (Bandura, 1997). Self-efficacy predicts the goals people set for themselves and their performance to attain them but self-esteem doesn't predict any of these (Mone, Bakers, & Jeffries, 1995).

    b. Locus of Control. According to Bandura (1997) and Smith (1989), self-efficacy and locus of control are completely different phenomena and not the same phenomenon measured at different levels of generality. Locus of control addresses the question of whether or not actions affect outcomes whereas self-efficacy is a person's belief in their capability to produce certain actions. According to some authors, locus of control can either be internal or external (Stajkovic and Luthans, 1998). Locus of control is internal when individuals believe that they can affect outcomes by taking certain actions and external when individuals believe that only external factors can affect the outcomes. Locus of control is a weak predictor of behaviour as compared to self-efficacy (Grossman, Brink, & Hauser, 1987; Manning & Wright, 1983; Taylor & Popma, 1990; Bandura, 1994).

    c. Outcome expectancy. Performance is an accomplishment and outcome is a result that follows (Bandura, 1994). Outcome expectancy is defined as a perceived likelihood of an outcome produced by a certain behaviour (Bandura, 1994). On the other hand, self-

efficacy is not related to the outcome rather it is defined as an individual's capability to perform a particular behaviour. Self-efficacy and outcome expectancy can be inconsistent. An individual might have higher self-efficacy to quit drinking but lower outcome expectancy that it will affect their longevity (Pintrich & Schunk, 1996).

Moving further we review the 4P's of the marketing mix and how they can influence the success of social marketing programs and how it interacts with self-efficacy to produce desired social outcomes.

2.7 Marketing Mix

James Culliton (1948) described a marketer as an artist who mixes different ingredients following a recipe prepared by him or other artists. Sometimes he trails old recipes and sometimes he comes up with his own new recipes. Neil Borden furthered this idea in his presidential address to American Marketing Association (AMA) in 1953. Borden (1964) came up with his own elements of the marketing mix in his paper titled "The concept of marketing mix". Borden termed the process of mixing different ingredients as "marketing mix". He supported this concept from the findings of his paper The Economic Effects of Advertising (Borden, 1942).

While integrating advertisement in the marketing concept, Borden described advertisement as one element of the marketing mix. According to him, an able management makes decisions about the usage of advertising by considering all other elements such as product form, selling methods and distribution methods. Advertising will get its due place depending upon the formula which the business executive as a "mixer of ingredients" considers the best to compete against other manufacturers. Borden (1964) portrayed this concept by talking about the list of ingredients and elements required for the marketing mix.

He also talks about the forces which affect the marketing mix and should be considered by a business executive while mixing different ingredients of marketing. According to him, these forces can be divided in to four categories i.e. behaviour of consumers, the trade, competitors, and the government. Borden attributed the classification of elements of the marketing list as subjective. According to him, classification of a list of marketing mix elements could be short or long depending upon how far one wishes to go.

Other authors have also made attempts to create more concise and effective categories of the marketing mix (Frey 1961; Howard 1957; Lazer & Kelly 1962; McCarthy 1960). Various authors (Hunt & Hunt, 1992) regarded classification of marketing activities as extremely important and challenging. Among different taxonomies, only McCarthy's (1960) classification survived decades of scrutiny and became the most popular proposed schemata of marketing activities.

In his book, *Basic Marketing: A Managerial Approach*, McCarthy (1960) said that there are various ways of satisfying consumers' needs. For example, a manager could launch different kinds of products, use different advertising media to approach their consumers, adjust prices and use different selling strategies. According to him, all these different approaches can be simplified into the following four variables to come up with a marketing mix.

    a. Product. According to McCarthy, "A product is the firm's offering which satisfies the needs of its target customers" (p. 45). This variable involves the development of the right product or product lines to satisfy the consumers' needs. Marketers will consider different factors including product line, branding, packaging and standardization while developing the right product.

Since McCarthy introduced this element, marketers have furthered the definition of product by providing tangibles such as physical entities to intangibles such as services (Lefebvre & Flora, 1988). The product P element of the marketing mix addresses the major obstacle of making "intangibles" such as a healthier life tangible for behavioural change such as eating more fibre. Marketers consider three product levels while developing a product: core product, actual product, and augmented product (Lee & Kotler, 2011). According to Lee and Kotler, "core product or innermost level" is the valuable benefit your audience will attain by performing the desired behaviour. The actual product is the desired behaviour and the augmented product comprises the additional services/products which a social marketer wants to provide.

b. Place. According to McCarthy (1960), even the best product will be of little use if the customer cannot access it when he wants it. McCarthy used the term place to refer to all those factors which affect the consumers' approach to the product when they need it. It includes time, place, and possession utility (McCarthy, 1960). A marketer might need complicated channels of distribution for selling one product but a simple channel of distribution for another. Decisions are made on various factors such as accessibility, quality of service, and affordability. Social marketers find ways to increase the accessibility and quality of service while keeping affordability reasonable for the target audience (Lefebvre & Flora, 1988). Organizing health screenings in conjunction with other "non-health" events is one example of how place can help in bringing a positive behavioural change.

c. Price. Price is the third variable of McCarthy's marketing mix. Different pricing strategies can be aligned with the other three variables namely product, place, and promotion. Marketers consider offering discounts to compete against competitors. Different

organizations pursue different pricing strategies such as profit-oriented, sales-oriented, and status quo-oriented objectives (McCarthy, 1960). A marketer will consider all these factors while finalizing their marketing strategy. Social marketers extend this element to non-monetary price as well. Understanding the influence of psychological, social, structural, geographic, and physical prices on consumer behaviour provides insight related to decision making (Lefebvre & Flora, 1988). In doing so, social marketers reduce the barriers/costs to/ of adopting a positive social behaviour.

d. Promotion. McCarthy defined promotion as communication between seller and buyer (1960). Contrary to common belief, promotion is one variable of marketing and not the whole pie. The role of promotion is to highlight the other three Ps of marketing strategy in a persuasive manner (Kotler & Armstrong, 2010). Promotion itself has four elements, sales promotion, advertising, public relations, and personal selling. Different products need different ways of promotion depending upon factors such as target audience and the desired effect (Lefebvre & Flora, 1988).

According to McCarthy, generally all these 4P's are equally important and should be considered at the same time while coming up with the suitable marketing mix. These 4P's of marketing mix act as independent variables which influence behaviour (Lee & Kotler, 2011). Marketers use numerous tools to elicit the desired responses from their target markets. Marketing mix elements can help to enhance self-efficacy and quit smoking. Product element, for example, can help to provide alternate products which can help in overcoming emotional stress. Similarly, price element can reduce cost barriers and provide access to services or products required to quit smoking and enhance self-efficacy through the process of mastery experience. Therefore, inclusion of each of these elements should help social marketers to change smoking behaviour.

3. Research Question and Objective of the Study

One of the objectives of this social marketing research is to find whether or not 4P's of marketing mix (price, product, place, and promotion) affect change in smoking behaviour. Social marketers emphasize the importance of 4P's in social marketing strategies (Kotler & Roberto, 1989) but there is not sufficient literature that elucidates whether marketing tools influence individuals' smoking behaviour. Analyzing smoking cessation interventions will provide those insights and guide future smoking cessation efforts.

Another objective of this study is to understand the relationship of marketing mix and self-efficacy. Various smoking cessation studies have explored the relationship between self-efficacy and smoking cessation (Prochaska et al., 1982; Colletti et al., 1985; McIntyre et al., 1983). Different interventions are being used in such programs to enhance self-efficacy, many of which can fall in the category of any of the 4P's of marketing mix. There is sufficient literature on how different interventions enhance self-efficacy but no efforts have been aimed at relating them with marketing practices. Without filling this knowledge gap, social marketing campaigns cannot address the issue of low self-efficacy which is a predictor of the success rate of smoking cessation. Similarly, understanding the relationship between self-efficacy enhancement (post-intervention self-efficacy minus pre-intervention self-efficacy) and smoking cessation will provide important insight for smoking cessation campaigns.

To address the above-mentioned knowledge gaps, we aim to study the following three relationships:

1. Impact of marketing mix on smoking cessation;

2. Impact of marketing mix on self-efficacy;

3. Pre-intervention and post-intervention self-efficacy as predictors of smoking cessation.

By exploring these questions, we can also look at a meditational model (Baron and Kenny, 1986) which will help to understand the extent to which self-efficacy accounts for the mechanism of relationship of 4P's of marketing mix and smoking cessation. If 4P's of marketing mix affect smoking cessation, this model will help to understand how or why it happens. The following model has been formulated to examine how self-efficacy mediates the relationship between 4P's of the marketing mix and smoking cessation.
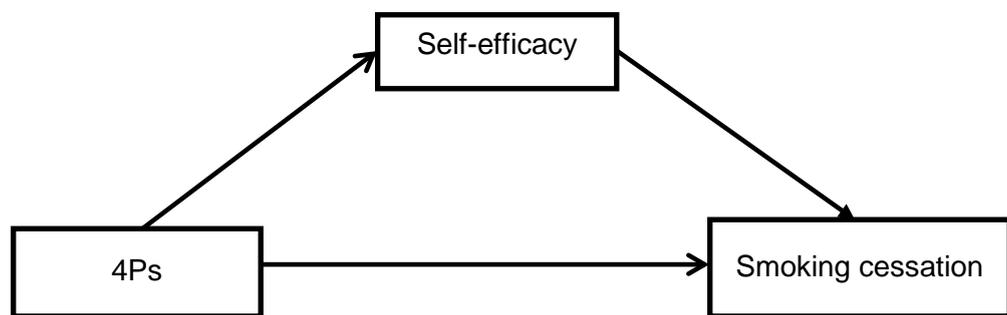
Figure1: Mediation model showing self-efficacy as mediator, 4Ps predictor and smoking cessation as outcome

As the above diagram shows, our research involves studying self-efficacy's partial mediation on the 4P's and smoking cessation with self-efficacy being assumed as the mediator, 4P's of marketing as the predictor (independent variable) and smoking cessation as the outcome (dependent variable). In order to confirm the mediation effect of self-efficacy on the 4P's of marketing mix and smoking cessation, this model must meet the following steps laid out by Baron and Kenny's (1986) mediation model:

1. Show that marketing mix of 4P's (causal variable) is significantly correlated with smoking cessation (outcome variable).

2. Show that marketing mix of 4P's (causal variable) is significantly correlated with self-efficacy enhancement (mediator).

3. Show that self-efficacy enhancement (mediator) significantly influences smoking cessation (outcome variable).

4. If self-efficacy completely mediates the 4P's and smoking cessation relationship, the effect of 4P's on smoking cessation should be zero while controlling self-efficacy enhancement. In case of partial mediation, the effect should not amount to zero.

If all these four conditions are met, then self-efficacy completely mediates the relationship between 4Ps and smoking cessation. If only the first three conditions are met, self-efficacy mediates partially. When the mediator is introduced in partial mediation the path from 4P's to smoking cessation will be reduced in absolute size but still would not be zero.

4. Hypotheses Development

We developed the following hypotheses to conduct our research:

Smoking cessation programs that offer alternate products to smokers enhance their self-efficacy. For example, usage of such products helps smokers in overcoming emotional stress and physical withdrawal caused by smoking cessation (Strong et al., 2009).

H1: Self-efficacy enhancement in a smoking cessation program will be positively associated with the presence of product P of the marketing mix.

According to Bandura (1997), self-efficacy can be enhanced through mastery experience. Reducing price barriers enhances the possibility of adoption of services and/or products whose usage helps in smoking cessation. Therefore, intervention programs in which the price factor was addressed facilitate the process of mastery experience, which is itself responsible for self-efficacy enhancement.

H2: Self-efficacy enhancement in a smoking cessation program will be positively associated with the presence of the price P of the marketing mix.

The place P of the marketing mix can help in enhancing self-efficacy by impacting, for instance, the verbal persuasion methodology of self-efficacy enhancement. Similar to the price P of the marketing mix, the place P also facilitates the mastery experience as it enhances convenience and reduces barriers to services and/or products. Therefore, those intervention programs which enhance the accessibility of smoking cessation services and/or products would be more successful in enhancing self-efficacy.

H3: Self-efficacy enhancement in a smoking cessation program will be positively associated with the presence of the place P of the marketing mix.

The promotion P of the marketing mix involves the communication of information. The communication of information can enhance self-efficacy through the verbal persuasion

source (Bandura, 1994). Therefore, the presence of the promotion P can aid the verbal persuasion method of self-efficacy enhancement.

> *H4: Self-efficacy enhancement in a smoking cessation program will be positively associated with the presence of the promotion P of the marketing mix.*

Different P's of the marketing mix directly impact different self-efficacy enhancement methods. All 4P's aid one or more of these self-efficacy enhancement strategies as discussed before each above mentioned hypothesis. Hence, the greater the use of marketing mix tools, the more self-efficacy enhancement strategies are addressed and consequently, this leads to a more successful intervention program.

> *H5a: The presence of all 4P's of the marketing mix in an intervention program will be positively associated with the enhancement of self-efficacy.*

> *H5b: The higher the number of P's applied in a smoking cessation program, the higher the enhancement of self-efficacy.*

Bandura's social cognitive theory (1997) suggests that self-efficacy should be correlated with behavioural change. Smokers who have higher self-efficacy to quit smoking will be more successful in achieving positive results (Walker & Franzini, 1983 ; Colletti et al., 1985). Particularly, post-intervention self-efficacy will be a good predictor of smoking cessation (Prochaska et al., 1982). As post-intervention self-efficacy is a better predictor, an actual increase in self-efficacy should be positively associated with smoking cessation (Strecher, DeVellis, Becker, & Rosenstock,1986). Therefore, we present the following hypothesis H6:

> *H6: Self-efficacy will be positively related with enhancement in smoking cessation.*

The marketing mix should facilitate the process of quitting smoking through its different elements such as product, price, promotion, and place. These elements should help

smokers through different means such as accessibility, alternate products, useful information and affordability. Therefore, we present hypotheses H7a and H7b:

> *H7a: The presence of the 4P's of the marketing mix in an intervention program will be positively associated with smoking cessation.*

> *H7b: The higher the number of P's of the marketing mix applied in a smoking cessation program, the higher is the likelihood of smoking cessation.*

The social marketing benchmarks (listed and defined in codebook on page 70) should also facilitate the process of quitting smoking by enhancing customer orientation, customization, accessibility, persuasion, and affordability of the intervention. The more the social marketing benchmarks are present, the more an intervention program should be successful. Therefore, we present hypotheses H8a and H8b:

> *H8a: The presence of social marketing benchmarks in an intervention program will be positively associated with smoking cessation.*

> *H8b: The higher the number of social marketing benchmarks applied in a smoking cessation program, the higher the likelihood of smoking cessation.*

Self-efficacy should partially mediate the relationship between the 4P's of the marketing mix and smoking cessation. Marketing mix should influence smoking cessation by enhancing self-efficacy which in turn will affect smoking behaviour. The reason for having partial mediation is that full or complete mediation is very rarely found (Baron and Kenny, 1986). There are always chances of presence of other potential mediators called "confounders". As no work has been done on the relationship of marketing mix and smoking cessation, it is difficult to name or identify any of those confounders but it is hard to assume that self-efficacy is fully mediating 4Ps. Hypothesis 9 will test the presence of partial mediation:

> *H9: In a smoking cessation intervention, self-efficacy will partially mediate the effect of 4P's of the marketing mix on smoking cessation such that the higher the number of marketing mix P's, the higher the self-efficacy enhancement and the higher the smoking cessation rate will be.*

<center>**5. Method**</center>

5.1 Literature Search

We conducted a literature search of studies which employed interventions to influence self-efficacy to quit smoking or to maintain smoking cessation. The following five electronic databases were searched:

a) ABI Inform

b) PubMed

c) Medline

d) Web of Science

e) PsycINFO

These databases were accessed through the digital library of University of Lethbridge. Google Scholar was also used to download full texts of the selected studies. Additionally, manual research was conducted by scanning reference lists of reviewed articles to identify any articles that were not reported by the search engines.

5.2 Inclusion Criteria

As Bandura developed self-efficacy theory in 1977, we restricted our review to articles published between 1979 and 2014. Two years gap between the development of theory and our inclusion criteria ensures that researchers had knowledge of self-efficacy theory. Other requirements for inclusion in this study were the following:

- Articles published in the English language,

- Studies which measured pre-intervention and post-intervention self-efficacies,

- Studies that reported statistical analyses of an outcome measure related to smoking cessation (self-reported or objectively measured), and

- Studies published in Journals listed in Journal Citation Report (JCR).

5.3 Key Words

We used the following combinations of key words to search databases;

- "Self-efficacy" AND "smoking"

- "Self-efficacy" AND "smokers"

- "Self-efficacy" AND "smoking cessation/abstinence/relapse"

- "Self-efficacy" AND "smoking" AND "intervention"

- "Self-efficacy" AND "marketing" AND "smoking"

- "Perceived self-efficacy" AND "smoking"

- "Smoking" AND "intervention/marketing"

5.4 Data Extraction

A modified version of Mah et al., (2008) and Ashford et al., (2010) data extraction forms and coding sheet was adopted to extract the required data. The data extraction form assisted in extracting data about the interventions which were executed to change social behaviour and self-efficacy. Extracted data were used to determine the presence of marketing tools in these studies. Pre-intervention self-efficacy and post-intervention self-efficacy were noted in the data extraction form.

The data extraction form also includes a section pertaining to subjects' demographics, sampling size, study design, variable measures, data analysis method, intervention techniques, social marketing elements and study results. Data extraction form is attached in Appendix A and coding sheet is attached in Appendix B.

To ensure inter-coder reliability, two coders separately did the coding for each study. Coders met after extracting data of every three studies. Any discrepancies were discussed between the coders during the meetings. In case of any unresolved discrepancy, thesis

supervisor was consulted. Authors were contacted through email in case of missing data and data received from authors was noted on data extraction forms.

5.5 Data Analysis

Data extracted from each group within a study was considered as a separate unit. Therefore, our unit of analysis was group of interventions. For example, if a study has one control group and one experimental group, each group was treated as a separate unit of analysis and data was extracted from both of them. Data extracted from these groups were analyzed using Statistical Package for the Social Sciences version 22 (SPSS) and Comprehensive Meta-Analysis (CMA) version 3.3 software. SPSS was used to measure Kappa's agreement rate between coders whereas, CMA was used to find the effect sizes of different interventions.

Authors of included studies used different scales to measure self-efficacy. Therefore, these scores were divided by their standard deviations to create standardized mean. Cohen (1988) and Borenstein, Hedges, Higgins, and Rothstein (2011) suggest using standardized mean difference statistic, d, as the effect size to standardized mean scores measured on different scales. Change in self-efficacy and smoking cessation logit event rate were measured as outcome measures using CMA. Interventions applied to increase self-efficacy were examined to find the presence of marketing mix P's which were considered input variables. Change in self-efficacy relative to smoking cessation was also analyzed. Effect-size of the change in self-efficacy and smoking cessation event rate were calculated for different groups of interventions which were based on the number of P's of marketing mix present in them. Forrest plots and scatter-plots were created to understand the variance in self-efficacy and smoking cessation due to marketing mix P's and variance in smoking cessation due to change in self-efficacy.

Borenstein et al., (2011) suggests random-effect model to use for meta-analysis based on studies where true effect sizes can vary from study to study due to age, education or other demographic factors. Random-effect model was used to find effect size as authors conducted interventions on diverse populations.

6. Results

The search on five data bases produced 2,728 relevant articles. Initial review of titles and abstracts narrowed down this number to 160 articles containing 107 articles published in journals ranked in Journal Citation Reports (JCR) and 53 articles published in journals not ranked in JCR. Only articles published in Journals ranked in Journal Citation Reports were further reviewed (N=107). Full text of 107 articles were downloaded and reviewed. Another sixty articles were rejected for reasons such as usage of secondary data, sample size consisting of only relapsed smokers, absence of measurement of behavioural change, and sample size consisting of only intermittent smokers. Among remaining 47 articles, only 11 articles reported complete and relevant information. Emails were sent to authors of 36 articles which met the inclusion criteria but did not report relevant information. Only two authors reported required information. Three of them reported loss of data. Others did not reply to the email. In total, 13 studies containing 23 interventions were finally included in the meta-analysis (see figure 2 below).

Figure 2: Flow chart describing the number of articles retrieved, and included and excluded at each stage of review process.

Potentially relevant publications identified from five databases searching through keywords (N=2728)

Irrelevant and duplicated publications identified and removed after title or abstract reading (N=2568)

Publications from non-JCR journals identified and removed (N=53)

Full text publications retrieved for detailed evaluation (N=107)

Publications excluded (N=60) after detailed evaluation due to one or more than one of the following reasons;

- Different publications using same intervention data were removed and only original publication was used along with secondary publications only for supplemental data
- Publications which did not measure behavioural change
- Studies which involved only relapsed smokers
- Publications which measured other concepts similar to self-efficacy
- Publications which involved only intermittent subjects.

Potentially appropriate publications selected (N=47)

Authors of publications which did not report required data but might have collected were contacted through email (N=36)

Publications containing required data were collected (N=11)

Publications for which authors provided addition required data (N=2)

Publications containing required data were reviewed and data extracted (N=13), Number of Interventions (N=23)

6.1 Study Characteristics

Total number of participants in the analysis was 2,556 and average number in each analysis was 111. Number of male participants was 1456. Number of quasi-experiment lab interventions was 10; another 8 units of analysis were from randomized control experiments whereas the remaining five were from studies which used other designs of studies. Number of analyses from self-funded studies was only three whereas fourteen analyses were from studies which were not self-funded and six were from studies which did not provide any information about funding. Number of interventions conducted in the United States of America was 10 out of 23. Figure 3 shows the percentage of interventions from different countries.

Figure 3: Percentage of interventions from different Countries
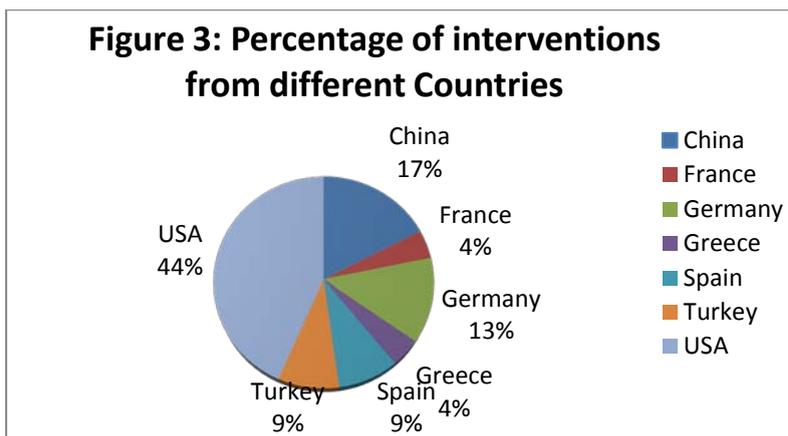
6.2 Intervention Characteristics

About thirteen interventions involved counselling. With its presence in nine interventions, nicotine therapy was the second largest intervention technique used. The following table shows the number and percentage of interventions with respect to their use of different intervention techniques.

Table 1: Number and percentage of different interventions techniques

Intervention technique	Number	Percentage
Auricular acupressure	2	8.7%

Cognitive/Motivational Counselling	8	34.8%
Counselling	13	56.5%
Education course	1	4.3%
Health feedback	4	17.4%
Interactive media	1	4.3%
Mass media	1	4.3%
Nicotine therapy	9	39.1%
Physical Activity	2	8.7%
Planning quitting schedule	2	8.7%
Postal	1	4.3%
Self-help manuals	9	39.1%
Web-based	1	4.3%

6.3 Use of Social Marketing Tools

Actual product element was present in eleven interventions and augmented product was present in twenty interventions whereas price, place, and promotion P's were present in six, four, and ten interventions respectively.

Table 2: Use of social marketing benchmarks in different interventions

Social Marketing Benchmarks used in Interventions	Number of Interventions	Percentage of Interventions
Actual Product	11	47.8%
Augmented Product	20	87%
Formative Research, Primary	2	8.7%
Formative Research, Secondary	23	100%
Intentional	20	87%

Price	6	26.1%
Place	4	17.4%
Promotion	10	43.5%
Segmentation and Targeting	14	60.9%

The following tables show the number of social marketing benchmarks used in different interventions:

Table 3: Number of social marketing benchmarks used in different interventions

No. of SM tools	Frequency	Percent
1	1	4.3
2	1	4.3
3	2	8.7
4	4	17.4
5	7	30.4
6	7	30.4
7	1	4.3

Similarly, the following table shows the total number of marketing mix P's used in different interventions.

Table 4: Number of marketing mix Ps used in different interventions

No. Of P's	Frequency	Percent
0	2	8.7
1	2	8.7

2	10	43.5
3	7	30.4
4	2	8.7

6.4 Inter-coder Reliability

Inter-coder reliability Cohen's Kappa test was conducted using SPSS. Kappa agreement rate for all the coding questions was 0 .91 which shows good inter-coder reliability (Neuendorf, 2002). All other Kappas were between 0.9 to 1. The lowest agreement rate for Kappa was for the demographic questions. Kappa's agreement rate for all other questions was 1. These values were above our cut-point ≥ 0.9.

6.5 Hypotheses Testing:

6.5.1 Marketing mix and self-efficacy enhancement. The following Forrest-plot shows the effect-sizes of change in self-efficacy in 23 interventions. We ran a random-effects model as studies include diverse populations. Results show overall medium effect-size "d" of 0.574 (Z=6.762 and p< 0.001) produced by these interventions. We found Q-value of 312.6 *(P< 0.001)* for heterogeneity test which shows variance within the studies. CMA was used to find effect-sizes of change in self-efficacy with the presence of marketing mix P's.

Study name	Std diff in means	Variance	Lower limit	Standard error	Upper limit	p-Value	Z-Value
Alessi, G1	0.434	0.042	0.034	0.204	0.834	0.034	2.125
Alessi, G2	1.080	0.053	0.630	0.230	1.530	0.000	4.701
Bernard, G1	-0.224	0.068	-0.737	0.261	0.288	0.391	-0.858
Chen, G2	0.115	0.021	-0.171	0.146	0.400	0.431	0.788
Chen, G1	1.386	0.040	0.993	0.201	1.779	0.000	6.911
Ergul, G1	0.763	0.029	0.431	0.169	1.095	0.000	4.506
Hassandra, G1	1.562	0.044	1.149	0.211	1.975	0.000	7.413
Hooten, G1	1.636	0.062	1.146	0.250	2.125	0.000	6.551
Hooten, G2	0.906	0.038	0.526	0.194	1.286	0.000	4.672
Huag, G3	-0.016	0.001	-0.087	0.036	0.055	0.657	-0.444
Huag, G2	0.040	0.002	-0.047	0.045	0.128	0.366	0.904
Huag, G1	0.034	0.002	-0.045	0.041	0.113	0.400	0.842
Karaty, G1	1.304	0.039	0.917	0.197	1.691	0.000	6.608
Mujika, G2	-0.077	0.053	-0.530	0.231	0.376	0.740	-0.332
Mujika, G1	0.000	0.053	-0.453	0.231	0.453	1.000	0.000
Okuyemi, G1	0.387	0.004	0.264	0.063	0.511	0.000	6.140
Okuyemi, G2	0.243	0.004	0.121	0.062	0.364	0.000	3.912
Wang, G2	1.006	0.038	0.626	0.194	1.386	0.000	5.184
Wang, G1	1.296	0.046	0.876	0.214	1.716	0.000	6.043
Wu, G1	0.435	0.014	0.202	0.119	0.668	0.000	3.659
Wu, G2	0.482	0.015	0.243	0.122	0.721	0.000	3.952
	0.574	0.007	0.408	0.085	0.740	0.000	6.762

Std diff in means and 95% CI

-1.00   -0.50   0.00   0.50   1.00

Favours A   Favours B

Figure 4: Forrest-plot showing the effect-sizes of change in self-efficacy.

We found the following results for our developed hypotheses:

H1: Self-efficacy enhancement in a smoking cessation program will be positively associated with the presence of product P of marketing mix.

Group by Actual Product	Study name	Std diff in means	Variance	Standard error	Lower limit	Upper limit	p-Value	Z-Value
No	Alessi, G1	0.434	0.042	0.204	0.034	0.834	0.034	2.125
No	Alessi, G2	1.080	0.053	0.230	0.630	1.530	0.000	4.701
No	Chen, G2	0.115	0.021	0.146	-0.171	0.400	0.431	0.788
No	Chen, G1	1.386	0.040	0.201	0.993	1.779	0.000	6.911
No	Ergul, G1	0.763	0.029	0.169	0.431	1.095	0.000	4.506
No	Huag, G3	-0.016	0.001	0.036	-0.087	0.055	0.657	-0.444
No	Huag, G2	0.040	0.002	0.045	-0.047	0.128	0.366	0.904
No	Huag, G1	0.034	0.002	0.041	-0.045	0.113	0.400	0.842
No	Karaty, G1	1.304	0.039	0.197	0.917	1.691	0.000	6.608
No	Mijika, G2	-0.077	0.053	0.231	-0.530	0.376	0.740	-0.332
No	Mijika, G1	0.000	0.053	0.231	-0.453	0.453	1.000	0.000
No		0.411	0.010	0.098	0.219	0.602	0.000	4.197
Yes	Bernard, G1	-0.224	0.068	0.261	-0.737	0.288	0.391	-0.858
Yes	Hassandra, G1	1.562	0.044	0.211	1.149	1.975	0.000	7.413
Yes	Hooten, G1	1.636	0.062	0.250	1.146	2.125	0.000	6.551
Yes	Hooten, G2	0.906	0.038	0.194	0.526	1.286	0.000	4.672
Yes	Okuyemi, G1	0.387	0.004	0.063	0.264	0.511	0.000	6.140
Yes	Okuyemi, G2	0.243	0.004	0.062	0.121	0.364	0.000	3.912
Yes	Wang, G2	1.006	0.038	0.194	0.626	1.386	0.000	5.184
Yes	Wang, G1	1.296	0.046	0.214	0.876	1.716	0.000	6.043
Yes	Wu, G1	0.435	0.014	0.119	0.202	0.668	0.000	3.659
Yes	Wu, G2	0.482	0.015	0.122	0.243	0.721	0.000	3.952
Yes		0.744	0.018	0.135	0.480	1.008	0.000	5.524
Overall		0.526	0.006	0.079	0.371	0.681	0.000	6.642

Std diff in means and 95% CI — scale: -1.00, -0.50, 0.00, 0.50, 1.00 — Favours A, Favours B

Figure 5: Forrest-plot showing the effect-sizes of change in self-efficacy in presence and absence of actual product.

Effect-sizes for interventions containing actual product was d= 0.744 (Z= 5.524, p< 0.001) which is bigger than the effect-size of interventions (d= 0.526, Z= 6.642, and p< 0.001) not containing actual product elements of the marketing mix.
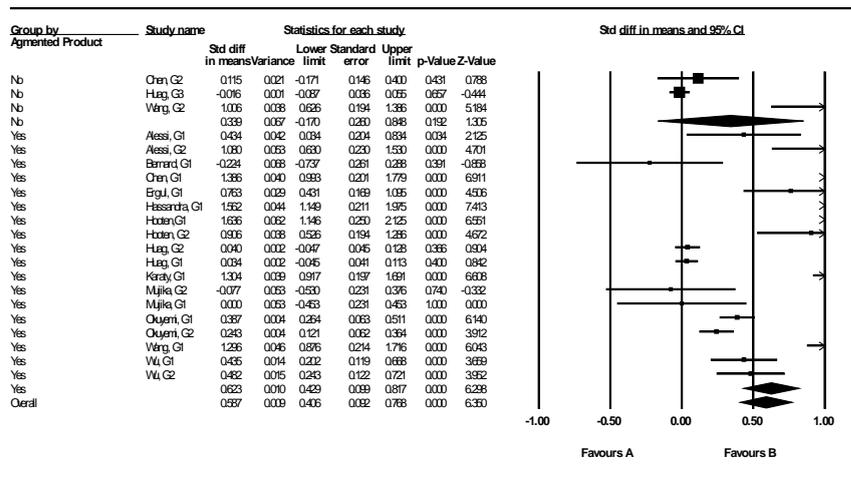
Figure 6: Forrest-plot showing the effect-sizes of change in self-efficacy in presence and absence of augmented product.

Similarly, interventions having augmented product P produced higher effect-size (d= 0.623, Z= 6.29, and p< 0.001) in comparison to interventions (d= 0.339, Z=1.305, and p= 0.192) which did not have elements of augment product P. The impact of core product P on effect-size of interventions couldn't be observed because of lack of sufficient data. These results show a positive relationship between actual and augmented product P on self-efficacy enhancement.

H2: Self-Efficacy enhancement in a smoking cessation program will be positively associated with the presence of price P of the marketing mix.

Group by Price	Study name	Statistics for each study							Std diff in means and 95% CI
		Std diff in means	Variance	Lower limit	Standard error	Upper limit	p-Value	Z-Value	
No	Alessi, G1	0.434	0.042	0.034	0.204	0.834	0.034	2.125	
No	Bernard, G1	-0.224	0.068	-0.737	0.261	0.288	0.391	-0.858	
No	Chen, G2	0.115	0.021	-0.171	0.146	0.400	0.431	0.788	
No	Chen, G1	1.386	0.040	0.993	0.201	1.779	0.000	6.911	
No	Ergul, G1	0.763	0.029	0.431	0.169	1.095	0.000	4.506	
No	Hassandra, G1	1.562	0.044	1.149	0.211	1.975	0.000	7.413	
No	Hooten, G1	1.636	0.062	1.146	0.250	2.125	0.000	6.551	
No	Hooten, G2	0.906	0.038	0.526	0.194	1.286	0.000	4.672	
No	Huag, G3	-0.016	0.001	-0.087	0.036	0.055	0.657	-0.444	
No	Huag, G2	0.040	0.002	-0.047	0.045	0.128	0.366	0.904	
No	Huag, G1	0.034	0.002	-0.045	0.041	0.113	0.400	0.842	
No	Karaty, G1	1.304	0.039	0.917	0.197	1.691	0.000	6.608	
No	Mujika, G2	-0.077	0.053	-0.530	0.231	0.376	0.740	-0.332	
No	Mujika, G1	0.000	0.053	-0.453	0.231	0.453	1.000	0.000	
No	Wang, G2	1.006	0.038	0.626	0.194	1.386	0.000	5.184	
No	Wang, G1	1.296	0.046	0.876	0.214	1.716	0.000	6.043	
No		0.609	0.012	0.396	0.108	0.821	0.000	5.616	
Yes	Alessi, G2	1.080	0.053	0.630	0.230	1.530	0.000	4.701	
Yes	Okuyemi, G1	0.387	0.004	0.264	0.063	0.511	0.000	6.140	
Yes	Okuyemi, G2	0.243	0.004	0.121	0.062	0.364	0.000	3.912	
Yes	Wu, G1	0.435	0.014	0.202	0.119	0.668	0.000	3.659	
Yes	Wu, G2	0.482	0.015	0.243	0.122	0.721	0.000	3.952	
Yes		0.442	0.007	0.275	0.086	0.610	0.000	5.172	
Overall		0.506	0.005	0.375	0.067	0.638	0.000	7.539	

-1.00   -0.50   0.00   0.50   1.00

Favours A   Favours B

Figure 7: Forrest-plot showing the effect-sizes of change in self-efficacy in presence and absence of price element.

Smaller effect-sizes were found (d=0.442, Z= 5.172, and p< 0.001) for interventions having price P of marketing mix whereas interventions lacking price P of marketing mix had bigger effect-size (d= 0.609, Z=7.539, and p<0.001). Therefore, we found a negative relationship between presence of marketing mix P price and change in self-efficacy. These results are not consistent to our hypothesis H2.

H3: Self-efficacy enhancement in a smoking cessation program will be positively associated with the presence of the place P of the marketing mix.

Group by Place	Study name	Statistics for each study							Std diff in means and 95% CI
		Std diff in means	Variance	Lower limit	Standard error	Upper limit	p-Value	Z-Value	
No	Alessi, G1	0.434	0.042	0.034	0.204	0.834	0.034	2.125	
No	Alessi, G2	1.080	0.053	0.630	0.230	1.530	0.000	4.701	
No	Bernard, G1	-0.224	0.068	-0.737	0.261	0.288	0.391	-0.858	
No	Chen, G2	0.115	0.021	-0.171	0.146	0.400	0.431	0.788	
No	Chen, G1	1.386	0.040	0.993	0.201	1.779	0.000	6.911	
No	Ergul, G1	0.763	0.029	0.431	0.169	1.095	0.000	4.506	
No	Hassandra, G1	1.562	0.044	1.149	0.211	1.975	0.000	7.413	
No	Hooten, G1	1.636	0.062	1.146	0.250	2.125	0.000	6.551	
No	Hooten, G2	0.906	0.038	0.526	0.194	1.286	0.000	4.672	
No	Huag, G3	-0.016	0.001	-0.087	0.036	0.055	0.657	-0.444	
No	Huag, G2	0.040	0.002	-0.047	0.045	0.128	0.366	0.904	
No	Okuyemi, G1	0.387	0.004	0.264	0.063	0.511	0.000	6.140	
No	Okuyemi, G2	0.243	0.004	0.121	0.062	0.364	0.000	3.912	
No	Wang, G2	1.006	0.038	0.626	0.194	1.386	0.000	5.184	
No	Wang, G1	1.296	0.046	0.876	0.214	1.716	0.000	6.043	
No	Wu, G1	0.435	0.014	0.202	0.119	0.668	0.000	3.659	
No	Wu, G2	0.482	0.015	0.243	0.122	0.721	0.000	3.952	
No		0.639	0.010	0.443	0.100	0.835	0.000	6.396	
Yes	Huag, G1	0.034	0.002	-0.045	0.041	0.113	0.400	0.842	
Yes	Karaty, G1	1.304	0.039	0.917	0.197	1.691	0.000	6.608	
Yes	Mujika, G2	-0.077	0.053	-0.530	0.231	0.376	0.740	-0.332	
Yes	Mujika, G1	0.000	0.053	-0.453	0.231	0.453	1.000	0.000	
Yes		0.314	0.088	-0.267	0.296	0.895	0.289	1.060	
Overall		0.606	0.009	0.420	0.095	0.792	0.000	6.399	

-1.00   -0.50   0.00   0.50   1.00

Favours A   Favours B

Figure 8: Forrest-plot showing the effect-sizes of change in self-efficacy in presence and absence of place element.

Smaller effect-sizes were found for interventions which have presence of place P of the marketing mix. These results were, however, not statistically significant (p=0.289). For groups which did not have Place P of marketing mix in their interventions, we found bigger effect-sizes (d=0.639, Z=6.396, and p<0.001). These results show that the presence of place P in interventions did not have any positive effect on the enhancement of self-efficacy. This result contradicts our hypothesis H3.

H4: Self-Efficacy enhancement in a smoking cessation program will be positively associated with the presence of the promotion P of the marketing mix.
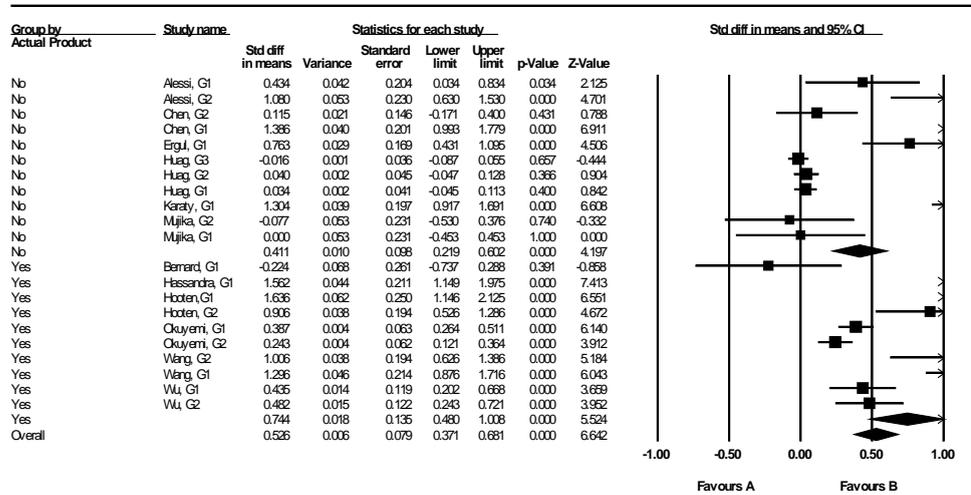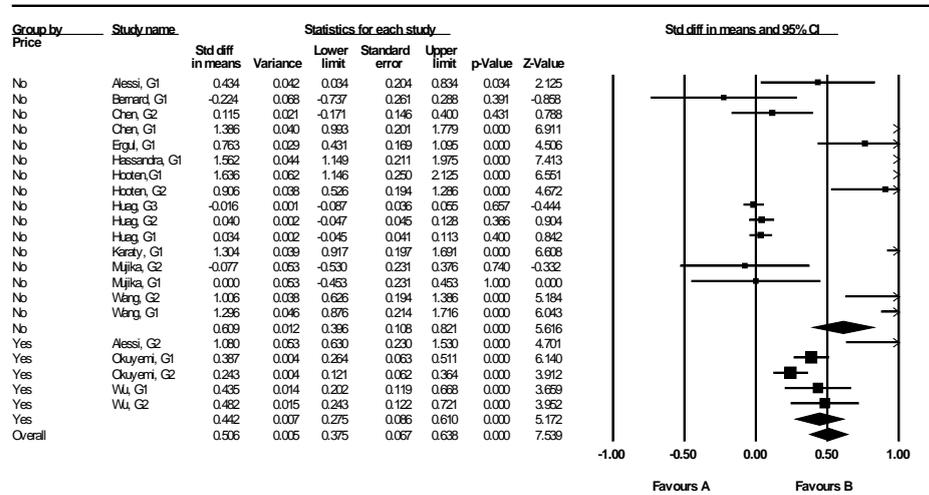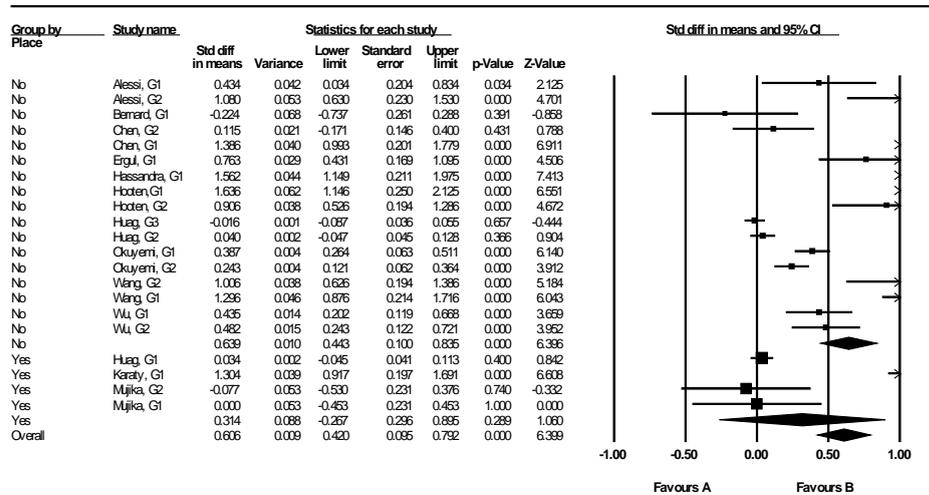
Group by Promotion	Study name	Statistics for each study							Std diff in means and 95% CI
		Std diff in means	Variance	Lower limit	Standard error	Upper limit	p-Value	Z-Value	
No	Alessi, G1	0.434	0.042	0.034	0.204	0.834	0.034	2.125	
No	Alessi, G2	1.080	0.053	0.630	0.230	1.530	0.000	4.701	
No	Bernard, G1	-0.224	0.068	-0.737	0.261	0.288	0.391	-0.858	
No	Chen, G2	0.115	0.021	-0.171	0.146	0.400	0.431	0.788	
No	Hassandra, G1	1.562	0.044	1.149	0.211	1.975	0.000	7.413	
No	Hooten, G1	1.636	0.062	1.146	0.250	2.125	0.000	6.551	
No	Hooten, G2	0.906	0.038	0.526	0.194	1.286	0.000	4.672	
No	Huag, G3	-0.016	0.001	-0.087	0.036	0.055	0.657	-0.444	
No	Mujika, G2	-0.077	0.053	-0.530	0.231	0.376	0.740	-0.332	
No	Okuyemi, G1	0.387	0.004	0.264	0.063	0.511	0.000	6.140	
No	Okuyemi, G2	0.243	0.004	0.121	0.062	0.364	0.000	3.912	
No	Wang, G2	1.006	0.038	0.626	0.194	1.386	0.000	5.184	
No		0.562	0.016	0.314	0.126	0.810	0.000	4.446	
Yes	Chen, G1	1.386	0.040	0.993	0.201	1.779	0.000	6.911	
Yes	Ergul, G1	0.763	0.029	0.431	0.169	1.095	0.000	4.506	
Yes	Huag, G2	0.040	0.002	-0.047	0.045	0.128	0.366	0.904	
Yes	Huag, G1	0.034	0.002	-0.045	0.041	0.113	0.400	0.842	
Yes	Karaty, G1	1.304	0.039	0.917	0.197	1.691	0.000	6.608	
Yes	Mujika, G1	0.000	0.053	-0.453	0.231	0.453	1.000	0.000	
Yes	Wang, G1	1.296	0.046	0.876	0.214	1.716	0.000	6.043	
Yes	Wu, G1	0.435	0.014	0.202	0.119	0.668	0.000	3.659	
Yes	Wu, G2	0.482	0.015	0.243	0.122	0.721	0.000	3.952	
Yes		0.604	0.019	0.334	0.138	0.874	0.000	4.383	
Overall		0.581	0.009	0.398	0.093	0.764	0.000	6.239	

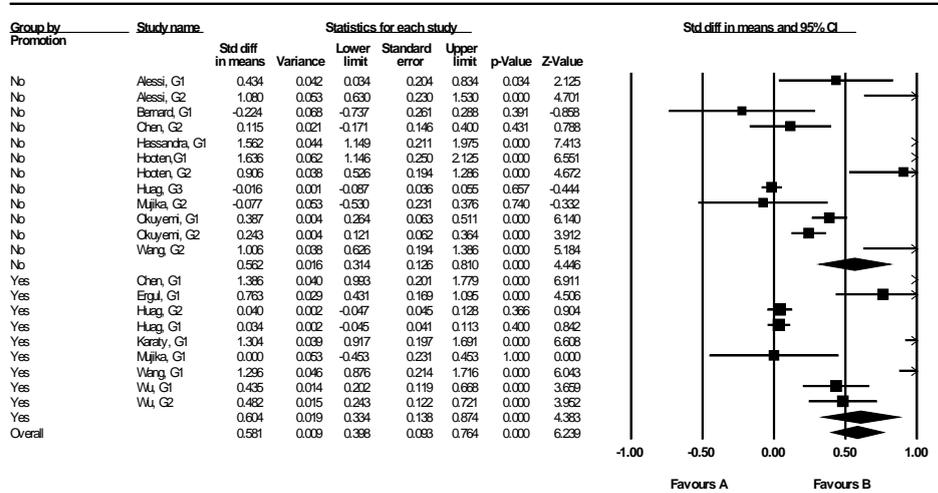-1.00   -0.50   0.00   0.50   1.00

Favours A   Favours B

Figure 9: Forrest-plot showing the effect-sizes of change in self-efficacy in presence and absence of promotion element.

Interventions which included promotion P of marketing mix produced slightly bigger effect sizes (d= 0.604, Z= 4.383, and p< 0.001) compared to effect-sizes (d= 0.562, Z=6.239, and p<0.001) produced by interventions which did not have promotion P of marketing mix. This result shows a small but significant positive relationship between promotion P of marketing mix and enhancement of self-efficacy.

H5a: The presence of all 4P's of the marketing mix in an intervention program will be positively associated with the enhancement of self-efficacy.

H5b: The higher the number of P's applied in a smoking cessation program, the higher the enhancement of self-efficacy.

Group by #Ps	Study name	Std diff in means	Variance	Lower limit	Standard error	Upper limit	p-Value	Z-Value
0.00	Chen, G2	0.115	0.021	-0.171	0.146	0.400	0.431	0.788
0.00	Huag, G3	-0.016	0.001	-0.087	0.036	0.055	0.657	-0.444
0.00		-0.008	0.001	-0.077	0.035	0.060	0.810	-0.241
1.00	Alessi, G1	0.434	0.042	0.034	0.204	0.834	0.034	2.125
1.00	Wang, G2	1.006	0.038	0.626	0.194	1.386	0.000	5.184
1.00		0.723	0.082	0.163	0.286	1.284	0.011	2.530
2.00	Alessi, G2	1.080	0.053	0.630	0.230	1.530	0.000	4.701
2.00	Bernard, G1	-0.224	0.068	-0.737	0.261	0.288	0.391	-0.858
2.00	Chen, G1	1.386	0.040	0.993	0.201	1.779	0.000	6.911
2.00	Ergul, G1	0.763	0.029	0.431	0.169	1.095	0.000	4.506
2.00	Hassandra, G1	1.562	0.044	1.149	0.211	1.975	0.000	7.413
2.00	Hooten,G1	1.636	0.062	1.146	0.250	2.125	0.000	6.551
2.00	Hooten, G2	0.906	0.038	0.526	0.194	1.286	0.000	4.672
2.00	Huag, G2	0.040	0.002	-0.047	0.045	0.128	0.366	0.904
2.00	Mijika, G2	-0.077	0.053	-0.530	0.231	0.376	0.740	-0.332
2.00		0.782	0.062	0.296	0.248	1.269	0.002	3.152
3.00	Huag, G1	0.034	0.002	-0.045	0.041	0.113	0.400	0.842
3.00	Karaty, G1	1.304	0.039	0.917	0.197	1.691	0.000	6.608
3.00	Mijika, G1	0.000	0.053	-0.453	0.231	0.453	1.000	0.000
3.00	Okuyemi, G1	0.387	0.004	0.264	0.063	0.511	0.000	6.140
3.00	Okuyemi, G2	0.243	0.004	0.121	0.062	0.364	0.000	3.912
3.00	Wang, G1	1.296	0.046	0.876	0.214	1.716	0.000	6.043
3.00		0.498	0.021	0.215	0.144	0.781	0.001	3.454
4.00	Wu, G1	0.435	0.014	0.202	0.119	0.668	0.000	3.659
4.00	Wu, G2	0.482	0.015	0.243	0.122	0.721	0.000	3.952
4.00		0.458	0.007	0.291	0.085	0.625	0.000	5.378
Overall		0.100	0.001	0.038	0.031	0.161	0.001	3.183

Std diff in means and 95% CI: -1.00 | -0.50 | 0.00 | 0.50 | 1.00 — Favours A | Favours B
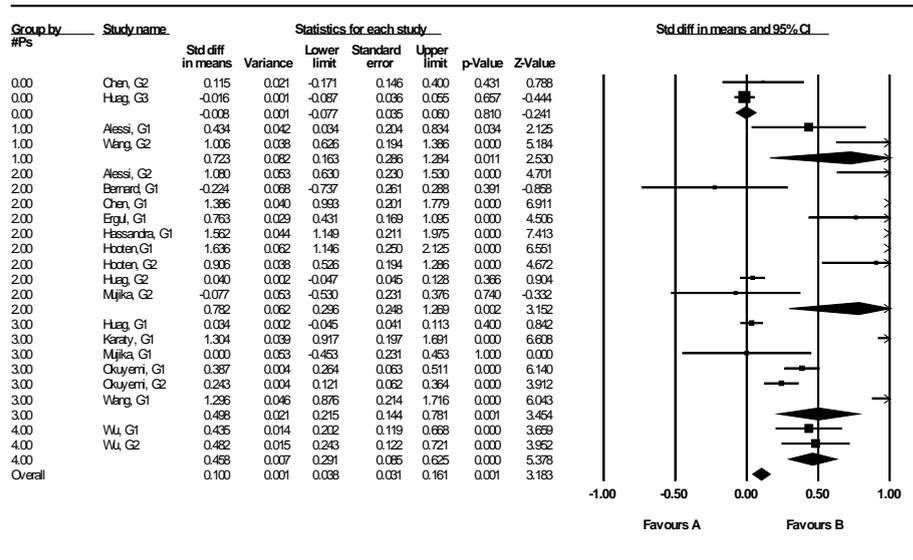
Figure 10: Forrest-plot showing the effect-sizes of change in self-efficacy grouped by number of Ps.

The results do not show a directly proportional relationship between number of P's and self-efficacy enhancement. The biggest effect-size (d=0.782, Z=3.152, and p=0.002) was produced by the interventions having two Ps. Contradictory to our hypothesis, interventions having only one P produced effect-sizes (d= 0.723, Z= 2.530, and p= 0.011) bigger than the effect-sizes produced by interventions having three P's (d=0.498, Z=3.454, and p< 0.001) and interventions having four P's (d=0.458, Z=5.378, and p< 0.001). These results show different effect-sizes but they do not support our hypotheses H5a and H5b.

6.5.2 Self-efficacy and smoking cessation.

H6: Smoking cessation will be positively related with self-efficacy enhancement.

Main results for Model 1, Random effects (MM), Z-Distribution, Logit event rate

Covariate	Coefficient	Standard Error	95% Lower	95% Upper	Z-value	2-sided P-value
Intercept	-1.9504	0.4024	-2.7391	-1.1617	-4.85	0.0000
Stand. SE	0.7797	0.5089	-0.2177	1.7771	1.53	0.1255

Statistics for Model 1

Test of the model: Simultaneous test that all coefficients (excluding intercept) are zero
$Q = 2.35$, $df = 1$, $p = 0.1255$
Goodness of fit: Test that unexplained variance is zero
$Tau^2 = 1.1967$, $Tau = 1.0940$, $I^2 = 91.77\%$, $Q = 182.35$, $df = 15$, $p = 0.0000$

Comparison of Model 1 with the null model

Total between-study variance (intercept only)
$Tau^2 = 1.8954$, $Tau = 1.3767$, $I^2 = 94.73\%$, $Q = 303.50$, $df = 16$, $p = 0.0000$
Proportion of total between-study variance explained by Model 1
R^2 analog $= 0.37$

Number of studies in the analysis   17

Figure 11: Model 1 showing the results of smoking cessation variance explained by self-efficacy enhancement

The results revealed between-study smoking cessation variance on self-efficacy enhancement (standardized self-efficacy means difference). R^2 analog value was 0.37 which supports the hypothesis of positive relationship between self-efficacy enhancement and smoking cessation. The following scatter plot shows that the logit event rate value increases as standardized self-efficacy means difference increases. These results support our hypothesis H6.
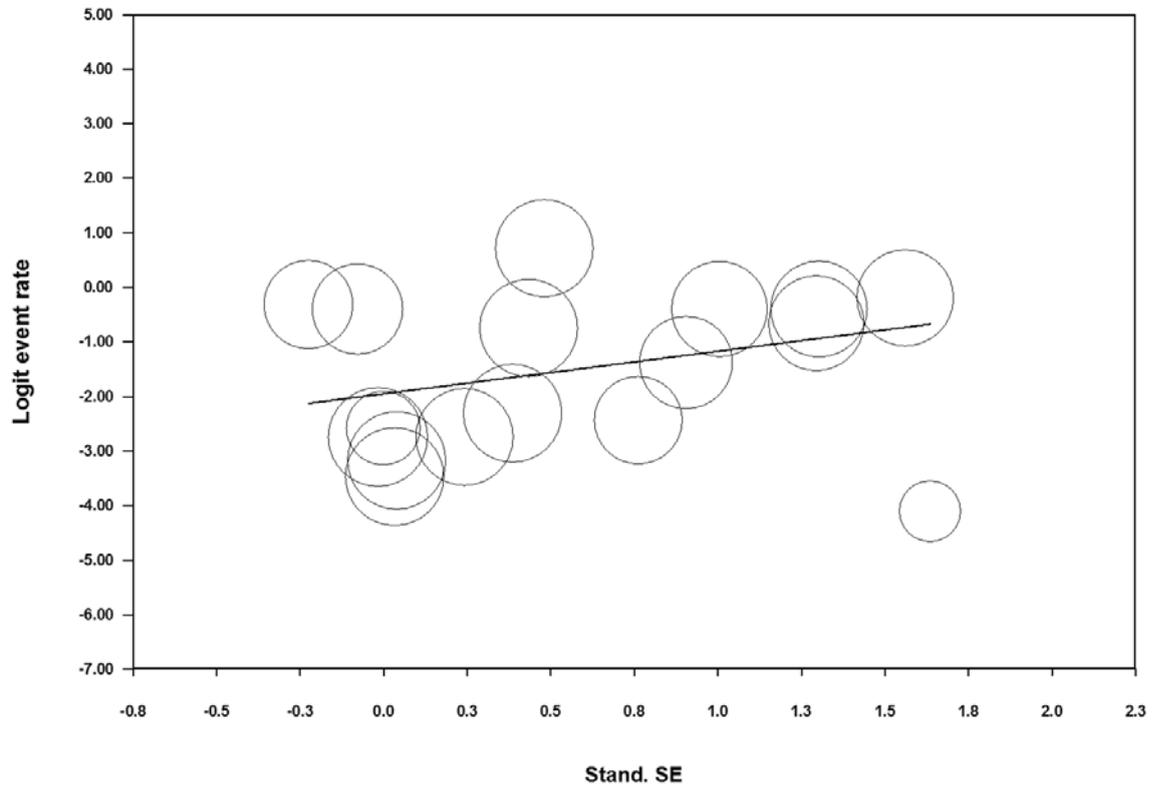
Figure 12: Scatter plot showing the variance in smoking cessation logit event rate against self-efficacy enhancement

6.5.3 Marketing mix and smoking cessation

H7a: The presence of the 4P's of the marketing mix in an intervention program will be positively associated with smoking cessation.

H7b: The higher the number of P's of the marketing mix applied in a smoking cessation program, the higher the likelihood of smoking cessation.
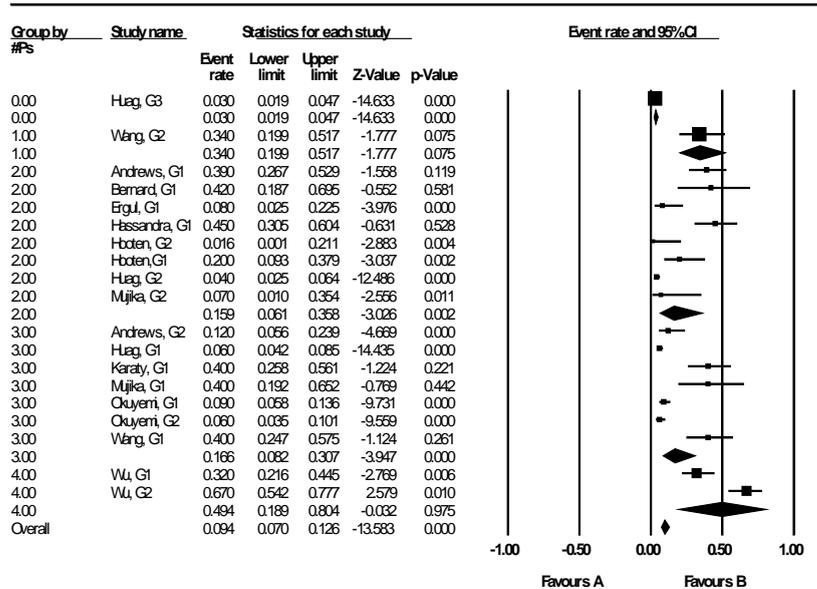
Group by #Ps	Study name	Event rate	Lower limit	Upper limit	Z-Value	p-Value	Event rate and 95%CI
0.00	Huag, G3	0.030	0.019	0.047	-14.633	0.000	
0.00		0.030	0.019	0.047	-14.633	0.000	
1.00	Wang, G2	0.340	0.199	0.517	-1.777	0.075	
1.00		0.340	0.199	0.517	-1.777	0.075	
2.00	Andrews, G1	0.390	0.267	0.529	-1.558	0.119	
2.00	Bernard, G1	0.420	0.187	0.695	-0.552	0.581	
2.00	Ergul, G1	0.080	0.025	0.225	-3.976	0.000	
2.00	Hassandra, G1	0.450	0.305	0.604	-0.631	0.528	
2.00	Hooten, G2	0.016	0.001	0.211	-2.883	0.004	
2.00	Hooten,G1	0.200	0.093	0.379	-3.037	0.002	
2.00	Huag, G2	0.040	0.025	0.064	-12.486	0.000	
2.00	Mujika, G2	0.070	0.010	0.354	-2.556	0.011	
2.00		0.159	0.061	0.358	-3.026	0.002	
3.00	Andrews, G2	0.120	0.056	0.239	-4.669	0.000	
3.00	Huag, G1	0.060	0.042	0.085	-14.435	0.000	
3.00	Karaty, G1	0.400	0.258	0.561	-1.224	0.221	
3.00	Mujika, G1	0.400	0.192	0.652	-0.769	0.442	
3.00	Okuyemi, G1	0.090	0.058	0.136	-9.731	0.000	
3.00	Okuyemi, G2	0.060	0.035	0.101	-9.559	0.000	
3.00	Wang, G1	0.400	0.247	0.575	-1.124	0.261	
3.00		0.166	0.082	0.307	-3.947	0.000	
4.00	Wu, G1	0.320	0.216	0.445	-2.769	0.006	
4.00	Wu, G2	0.670	0.542	0.777	2.579	0.010	
4.00		0.494	0.189	0.804	-0.032	0.975	
Overall		0.094	0.070	0.126	-13.583	0.000	

Favours A — Favours B

Figure 13: Forrest-plot showing the smoking cessation rate grouped by number of Ps.

Interventions having one or more P's of the marketing mix produced smoking cessation effect-sizes bigger than interventions (Event rate= 0.03, Z= -14.633, and p< 0.001) which did not have any P's of the marketing mix. This supports our hypothesis H7a. We found smoking cessation higher for interventions (Event rate= 0.34, Z= -1.777, and p= .075) which have only one P of the marketing mix compared to interventions having two Ps (Event rate= 0.159, Z= -3.06, and p= 0.002) or three P's (Event rate= 0.166, Z= -3.947, and p< 0.001). However, results for interventions having one P were not significant. Similarly, results for interventions (Event rate= 0.494, Z= -0.032, and p= 0.975) having four P's were not significant either.

H8a: The presence of social marketing benchmarks in an intervention program will be positively associated with smoking cessation.

H8b: The higher the number of social marketing benchmarks applied in a smoking cessation program, the higher the likelihood of smoking cessation.

The following Forrest-plot shows the smoking cessation effect-sizes produced by interventions containing different numbers of social marketing benchmarks. The biggest effect-size (Event rate= .340, Z= -1.777, and p =0.075) was observed for interventions having only two social marketing benchmarks however this result wasn't significant. Effect-size of interventions having five social marketing benchmarks (Event-rate = .295, Z= -2.350, and p = 0.019) were higher than interventions having six social marketing benchmarks (event-rate= .193, Z= 2.609, and p< 0.01). Interventions (event rate = 0.320, Z= -2.769, and p =0.006) having seven social marketing benchmarks had bigger smoking cessation rates than five or six social marketing benchmarks interventions.

Group by #SM	Study name	Event rate	Lower limit	Upper limit	Z-Value	p-Value
1.00	Huag, G3	0.030	0.019	0.047	-14.633	0.000
1.00		0.030	0.019	0.047	-14.633	0.000
2.00	Wang, G2	0.340	0.199	0.517	-1.777	0.075
2.00		0.340	0.199	0.517	-1.777	0.075
3.00	Hooten, G2	0.016	0.001	0.211	-2.883	0.004
3.00		0.016	0.001	0.211	-2.883	0.004
4.00	Andrews, G1	0.390	0.267	0.529	-1.558	0.119
4.00	Huag, G2	0.040	0.025	0.064	-12.486	0.000
4.00	Mujika, G2	0.070	0.010	0.354	-2.556	0.011
4.00		0.116	0.015	0.529	-1.854	0.064
5.00	Bernard, G1	0.420	0.187	0.695	-0.552	0.581
5.00	Ergul, G1	0.080	0.025	0.225	-3.976	0.000
5.00	Hassandra, G1	0.450	0.305	0.604	-0.631	0.528
5.00	Hooten,G1	0.200	0.093	0.379	-3.037	0.002
5.00	Wang, G1	0.400	0.247	0.575	-1.124	0.261
5.00		0.295	0.169	0.464	-2.350	0.019
6.00	Andrews, G2	0.120	0.056	0.239	-4.669	0.000
6.00	Huag, G1	0.060	0.042	0.085	-14.435	0.000
6.00	Karaty, G1	0.400	0.258	0.561	-1.224	0.221
6.00	Mujika, G1	0.400	0.192	0.652	-0.769	0.442
6.00	Okuyemi, G1	0.090	0.058	0.136	-9.731	0.000
6.00	Okuyemi, G2	0.060	0.035	0.101	-9.559	0.000
6.00	Wu, G2	0.670	0.542	0.777	2.579	0.010
6.00		0.193	0.075	0.412	-2.609	0.009
7.00	Wu, G1	0.320	0.216	0.445	-2.769	0.006
7.00		0.320	0.216	0.445	-2.769	0.006
Overall		0.140	0.110	0.177	-12.875	0.000

Event rate and 95% CI: -1.00, -0.50, 0.00, 0.50, 1.00; Favours A / Favours B

Figure 14: Forrest-plot showing the smoking cessation rate grouped by number of SM tools.

6.5.4 Mediating model.

H9: In a smoking cessation intervention, self-efficacy will partially mediate the effect of 4P's of the marketing mix on smoking cessation.

Data analysis results do not support Hypothesis H9. These results support hypotheses H6, H7a and H7b but they do not support hypotheses H5a and H5b. Therefore, we found a correlation between self-efficacy enhancement and smoking cessation (H6), and marketing mix and smoking cessation (H7a and H7b) but did not find a correlation between marketing mix P's and self-efficacy (H5a and H5b). To support a meditational model between marketing mix, self-efficacy and smoking cessation, a correlation between a) self-efficacy enhancement and marketing mix, b) self-efficacy enhancement and smoking cessation, and c) marketing mix and smoking cessation was required to be found.

7. Conclusion and Implications

This meta-analysis analyzed 13 studies and 23 interventions to look at the mediating influence of self-efficacy enhancement on marketing mix and smoking cessation. Interventions enhanced self-efficacy as our results show an overall medium effect-size of 0.574. We also found that actual product, augmented product, and promotion elements of the marketing mix are positively related with self-efficacy enhancement. However, price and place elements were not positively related with self-efficacy. Similarly, we did not find a positive relationship between self-efficacy enhancement and number of marketing mix elements in an intervention; however, self-efficacy enhancement and smoking cessation were positively correlated. Moreover, we also found a positive relationship between smoking cessation and the presence of a number of marketing mix elements. We discuss each of these results individually and derive conclusions and implications.

7.1 Marketing Mix and Self-efficacy Enhancement

7.1.1 Product and self-efficacy. The results of this meta-analysis suggest that the actual product and augmented product elements' presence increased the effect-size of standardized self-efficacy means. Hence, these marketing mix elements are positively associated with self-efficacy enhancement. Lerman et al. (2002) and Strong et al. (2009) also showed that availability of bupropion (actual product) can help overcome emotional stress which is one of the sources of self-efficacy enhancement (Bandura, 1994). These results are consistent with our hypothesis and provide an important insight for future smoking cessation interventions. Therefore, social marketers should include actual and augmented product elements in smoking cessation campaigns to increase self-efficacy. We did not find sufficient data to see the impact of core product P on effect-size of interventions.

7.1.2 Promotion and self-efficacy. The presence of promotion P of the marketing mix produced slightly bigger effect-sizes compared to interventions which did not have

promotion P element. These results are consistent with the belief that promotion P highlights the role of the other three Ps in a persuasive manner (Kotler & Armstrong, 2010); therefore, it addresses the verbal persuasion source of self-efficacy (Bandura, 1994). Meyerowitz and Chaiken (1987) found higher breast self-examination self-efficacy for groups who were given pamphlets (promotion P) compared to the control group. These results suggest that social marketers should include promotion P element in their interventions to ensure that self-efficacy is enhanced during these interventions. Similarly, findings of this meta-analysis about actual product, augmented product and promotion Ps might also be used while designing other behavioural change interventions to enhance respective behavioural self-efficacies.

7.1.3 Price and self-efficacy. These findings suggest that the presence of price P is not positively associated with self-efficacy enhancement which is contradictory to our hypothesis. One possible explanation could be the limited information about subjects' social class status which might have affected coders' ability to effectively interpret the presence of price P element in an intervention. In various interventions, we interpreted the presence of price P element when free nicotine patches were provided. Nicotine patches could not have been effective in situations where subjects belonged to a high social class and nicotine patches were not significant to their purchasing power. Such subjects might have incurred other costs due to quitting smoking which were not discussed in meta-analysis studies, for example, time cost incurred while attending counselling service sessions. These findings are consistent to the findings of Xia (2013). Xia found that free access to facilities (interpreted as price P's presence) did not significantly contribute to change physical activity behaviour in adults potentially due to lack of audience research. Rothschild (1979) and Bloom & Novelli (1981) argued that measuring the accurate cost of changing behavior is more difficult than measuring the cost of any commercial service or product. Therefore, social

marketers should consider various factors including social class status of subjects while adding price P element in social marketing campaigns. Inclusion of comprehensive information can help social marketers understand the impact of price P element on self-efficacy enhancement.

7.1.4 Place and self-efficacy. We also found smaller effect-sizes for interventions which have presence of place P of marketing mix; however, these results were not significant ($p=0.289$). In total we had only four interventions in our meta-analysis using the element place P of marketing mix. These interventions did not produce a significant result. The absence of sufficient data could be a possible explanation for smaller effect-sizes in these interventions. Another possible explanation could be convenience causing a decline in the quality of interventions. For example, counselling in-person could be more effective which is not as convenient compared to counselling on the phone. The former can be interpreted as having place P of the marketing mix but it might not be equally convenient compared to the latter. Reviewing more studies might help us better understand the impact of place P element which will help social marketers to decide whether or not they should include place P of the marketing mix. In case of inclusion, quality of execution of interventions should be cautiously evaluated and any compromise on quality over convenience should be avoided.

7.1.5 Number of marketing mix P's and self-efficacy. The results of this meta-analysis suggest the absence of a directly proportional relationship between number of Ps and self-efficacy enhancement which could be due to various reasons. As mentioned above, these results suggest that price and place P's of marketing mix are negatively associated with self-efficacy enhancement. Therefore, the presence of these elements might increase the number of P's but it might also be affecting the impact of marketing mix on self-efficacy negatively. It might be possible that an intervention having only actual product P element produces a higher effect-size compared to interventions which have both price and place Ps of the

marketing mix. Social marketers should consider the impact of different combinations of marketing mix elements and should not solely rely on the quantity of these elements.

Another factor to consider is insufficient data for running the test on interventions having different number of P's from zero to six. We did not find sufficient interventions having zero Ps, five Ps or six Ps. Absence of such interventions certainly limits our ability to look over the actual impact of marketing mix on self-efficacy enhancement.

7.2 Self-efficacy and Smoking Cessation

These results suggest that the smoking cessation rate increases with an increase in self-efficacy enhancement. Prochaska et al. (1982) and Gwaltney, Metrik, Kahler, & Shiffman (2009) found post-intervention self-efficacy a better predictor of smoking cessation compare to pre-intervention self-efficacy. These studies are consistent with our results as actual increase in self-efficacy should also be positively correlated with smoking cessation. Similarly, Strecher et al. (1986) reviewed smoking cessation studies and found that self-efficacy enhancement is related to subsequent smoking cessation. This positive relationship calls for inclusion of the concept of self-efficacy in smoking cessation campaigns. Social marketers should attempt to find ways to positively impact self-efficacy during smoking cessation interventions. Perhaps, a better understanding of sources of self-efficacy enhancement (i.-e. mastery experience, verbal persuasion, vicarious experience and emotional arousal) will help to achieve these goals. Tools should be developed which can incorporate the above-mentioned sources of self-efficacy enhancement to assist smokers for positive behavioural change. Moreover, social marketers should attempt to understand the relationship between self-efficacy enhancement and other behavioural change campaigns. A better understanding of the impact of self-efficacy enhancement on other behaviours might help social marketers to achieve other behavioural change goals.

7.3 Marketing Mix and Smoking Cessation

These results show that interventions having one or more P's of the marketing mix produced smoking cessation effect-sizes bigger than interventions not having any P's of the marketing mix. Similarly, we found smoking cessation rates higher for interventions having more P's of the marketing mix compared to interventions having fewer P's. These results are consistent with our hypotheses and suggest that smoking cessation campaigns should contain a higher number of marketing mix P's. Nevertheless, we did not have sufficient interventions to produce significant effect-size results for interventions having one P or four P's. Although we need to analyze interventions which have one or four Ps of intervention to further explore this concept, these results suggest that having more P's of the marketing mix in smoking cessation interventions will be helpful in increasing smoking cessation rates.

Contrary to marketing mix P's, we found that number of social marketing benchmarks did not have a positive relationship with smoking cessation rate as smoking cessation rate did not increase proportionally with increase in number of social marketing benchmarks. Similar to our results, Gordon, McDermott, Stead , & Angus (2006) reviewed effectiveness of social marketing for different behavioral changes and found that studies having social marketing benchmarks produced weaker effects for smoking cessation behavioral change. Social marketers need to better understand the results and look over individual social marketing elements to see how they contribute to smoking cessation interventions. It might be possible that a few combinations of social marketing elements might work better for smoking cessation interventions and a higher number of benchmarks might not be as important as the right combination and quality of execution of these social marketing benchmarks.

7.4 Mediation Model

As these results do not support hypotheses H5a and H5b, there is no substantiation for the mediating influence of self-efficacy on marketing mix and smoking cessation. We found a positive relationship between a) self-efficacy enhancement and smoking cessation, and b) marketing mix and smoking cessation. It might be possible that self-efficacy and marketing mix influence smoking cessation directly without influencing each other. Presence of other confounders between marketing mix and smoking cessation is also a possibility. Moreover, if price and place P's of marketing mix are not positively related with self-efficacy, such a mediation model cannot be explained unless we attempt to find the right combinations of marketing mix rather than the right number of marketing mix elements. Finding the right combination, for example, one with actual product, augmented product and promotion, might provide support to this mediation model. Similarly, a better understanding of smokers' social class and income status will help social marketers in knowing the effectiveness of price P element to deal with monetary and non-monetary costs incurred to adopt desired behaviour. As for now, this meta-analysis does not support a mediating influence of self-efficacy on marketing mix and smoking cessation.

8. Limitations and Future Research

We studied the relationship between marketing mix, self-efficacy and smoking behaviour in this meta-analysis. There were a few limitations of this research which could be addressed in future studies. This research only considered the presence of a number of marketing mix P's and social marketing benchmarks. By limiting our research to the number of marketing mix Ps, we did not inspect the quality of execution of these interventions. Future research can also encompass qualitative research on the implementation of marketing mix P's and other social marketing benchmarks.

Limited reported data about social status of subjects does not provide us much insight to help inspect the element of price identification. When subjects received free nicotine patches, we interpreted this as presence of price P of marketing mix. Without knowing more about social status of smokers, it will be hard to determine if free nicotine patches can be effective to address the issues of other monetary and non-monetary costs incurred by subjects while changing behaviour. Future research should consider other cost barriers associated with the changing smoking behaviour.

We were able to find 13 articles and 23 interventions for data analysis. Although these interventions were sufficient to conduct most of the tests, future research attempts should still strive to find more articles and interventions from other databases to have more robust results for different social marketing benchmarks. Future research can also consider the inclusion of grey literature (unpublished articles) and non JCR publications to increase the number of interventions. Moreover, published articles tend to overestimate intervention effect (McAuley, 2000) which can be balanced by inclusion of grey literature. It will not only help to have more robust results but also provide unbiased results.

This research was focused on smoking behaviour only. Results of this research might not be applicable to other social behaviours. Future researches can focus on impact of social

marketing benchmarks on other social behaviours to better understand the relationship between marketing mix elements, self-efficacy, and behavioural change. Social marketing might be more or less useful in changing other social behaviours. We might also find more relevant studies and interventions conducted to change other social behaviours which will enable us to conduct more rigorous tests.

Another limitation of our meta-analysis was the inclusion of only lab experiment interventions. These results might not be similar to the impact of social marketing interventions in other settings. Social marketing tools might influence subjects differently in public campaign settings compared to lab experiments. Future research can focus on using public campaigns as the unit of analysis and research methodology can be developed to understand the impact of social marketing on self-efficacy and smoking behaviour on a bigger scale.

In the current study, we included only those articles which reported pre-intervention and post-intervention data. As a result we had to ignore a large number of studies which reported only pre-intervention or post intervention data. This inclusion criterion limited the number of studies to 13. Future research can consider inclusion of those studies which only report pre-intervention or post-intervention data.

Lastly, social marketers have not yet fully explored the impact of marketing tools on self-efficacy. If resources can be arranged, researchers can design interventions purely based on marketing mix P's literature. Interventions can be developed with different combinations of the 4 P's of the marketing mix. Such lab experiments will not only provide desired data but also help to avoid coder's bias which can influence the data collection process. For example, product seems to be many things at a conceptual level. Researchers can have diverse opinions. It is an important limitation which can creates problems with scientific

predictability. Designing interventions purely based on marketing mix P's literature will address this limitation.

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Appendix A:

Data extraction form

Name of reviewer:	
Full citation:	
Paper ID#	
Did author attempt to change smoking behaviour through intervention?	___Yes ___No
Did author measure pre and post intervention smoking cessation self-efficacy?	___Pre intervention smoking cessation self-efficacy
	___Post intervention smoking cessation self-efficacy
Participant group(e.g. college students)	
Design of Study:	___Lab Experiment(Randomized) ___Lab Experiment(Non-randomized)(Groups decided by experimenter) ___Lab Quasi-experimental(Already have naturally distinctgroups) ___Other (e.g. Field experiment. Please state)…………………………
Was the experiment self-funded? If no, list the funding agencies:	___Yes ___No
Partners other than the funding agencies (e.g. government agencies and foundations)	
Measures	
Incentive to participants (Please mention if any):	
Comments:	

Participants	Group 1	Group 2	Group 3
No. of included participants(number receiving intervention)	62		
Mean age(SD)			
No. of males(No.)			
No. of females(No.)			
Ethnicity (mention each group & percentage)			
Education(mention category & percentage):			
Country			
Marital status(mention each category & percentage):			
Income/social status (mention each group & percentage):			
Other Characteristic (if important to note)			

Techniques included in intervention (please tick all those applied and state	Which source of S.E does intervention address (if any)	Which marketing strategy does intervention address (if any e.g. Price, Promotion)	Group 1	Group 2	Group 3
1. Counselling					
2. Nicotine Therapy					
3. Physical Activity					
4. Health Feedback					
5. Web-based					
6. Telephone					
7. Self-help manuals					
8. Mass media					
9. Postal					
10. Not stated					
11. Cognitive/Motivational counselling					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					

Social marketing elements applied:			
Social Marketing element	Group 1	Group 2	Group 3
1. Primary formative research			
2. Secondary formative research			
3. Pre-test research			
4. Monitoring research			
5. Segmentation			
6. Intentional			
7. Product	(__actual __augmented __ core)	(__actual __augmented __ core)	(__actual __augmented __ core)
8. Price			
9. Place			
10. Promotion			
11. Total number of P's			
12. Behavioural competition			
13. Other social marketing elements applied (please state)			
Total number of social marketing elements applied			

Results for change in smoking cessation self-efficacy and Smoking cessation behaviour:				
Data analysis statistical techniques used				
Self-efficacy scale and anchors:				
Timepoint1(Pre-intervention):				
	Group 1 (Mean and SD)	Group2 (Mean and SD)	Group3 (Mean and SD)	Group4 (Mean and SD)
Self-efficacy				
Timepoint2 (Immediate post-intervention):				
	Group 1 (Mean and SD)	Group2 (Mean and SD)	Group 3 (Mean and SD)	Group4 (Mean and SD)
Self-efficacy				
Timepoint3 (6-month post-intervention):				
	Group 1 (Mean and SD)	Group 2 (Mean and SD)	Group3 (Mean and SD)	Group4 (Mean and SD)
Self-efficacy				
Timepoint1 (Pre-intervention):				
Smoking behaviour	Group 1 (Mean and SD)	Group2 (Mean and SD)	Group3 (Mean and SD)	Group4 (Mean and SD)
Cigarettes per day				
Abstinence rate				
Timepoint2 (Immediate post-intervention):				
Smoking behaviour	Group 1 (Mean and SD)	Group2 (Mean and SD)	Group3 (Mean and SD)	Group4 (Mean and SD)

Cigarettes per day				
Abstinence rate				
Timepoint3 (6-month post-intervention):				
Smoking behaviour	Group 1 (Mean and SD)	Group2 (Mean and SD)	Group3 (Mean and SD)	Group4 (Mean and SD)
Cigarettes per day				
Abstinence rate				

Appendix B:

Data Extraction Codebook

Name of reviewer: Put this on every form-Fahid/another coder's name

Full Citation: Follow APA style

Example: Borrelli, B., & Mermelstein, R. (1994). Goal setting and behavior change in a smoking cessation program. *Cognitive Therapy and Research, 18,*69–83.

Paper ID#: number every identified paper by writing the last name of first author and year of publication for example, Borrelli, 1994.

Did the author(s) attempt to change smoking behaviour?

Did the intervention was aimed to change smoking behaviour?

Did the author(s) measure self-efficacy before and after Intervention?

Did the author measure self-reported self-efficacy of subjects prior to and after changing their social behaviour through intervention?

Participant group: Information about the occupation or any other specific characteristic of the participants e.g. college students.

Design of study: e.g. randomized, before/after, after-only, RCT, Solomon, between-subject, basic/factorial, etc.

Was the experiment self-funded? If no, list the funding agencies:

Provide information about the

Partners other than the funding agencies (e.g. government agencies and foundations):

Measures: Please note all the outcome measures which author measured in this study.

Comments: Anything that did not fit above, e.g. media exposure levels.

Number of participants included: N=: Subject who received intervention in each experimental group.

Mean age (SD): Mean age of each experimental group participants.

No. of male participants:

No. of female participants:

Ethnicity:

Education:

City, Country: In which city (cities) and country (countries) was (were) the intervention conducted?

Marital status:

Cigarettes per day: Average number of cigarettes consumed by each experimental group

Income/Social status of Participants:

Other Characteristics: target audience profile and inclusion and exclusion criteria (e.g. educated adults)

Techniques included in intervention: Enlist all the intervention techniques used in each experimental group and how they affect different sources of self-efficacy. Bandura (1994) pointed out the following four sources of self-efficacy;

a.   Personal Accomplishment: This source of Self Efficacy is based on mastery experience. According to Bandura (1994), mastery experience is the most influential method to enhance self-efficacy. Efficacy is enhanced by successful events of experience. Nevertheless, failures faced during these events of experience might also deter the self-efficacy. Timing of failures and success of mastery experience is also very important.

b.   Vicarious Experience: It is another source of self-efficacy which is based on the observation of models' behaviour. Successful performance of the model induces the observer to believe in their capability to achieve similar performance. Since this source of self-efficacy is based on the performance of others, it is less influential compared to mastery experience. Outcome of the model's behaviour should be clear to enhance the observer's self-efficacy.

c.   Verbal Persuasion: Self-efficacy expectations can also be induced through verbal suggestions. It is a widely used method of influencing human behaviour. Subjects are given suggestions to believe in their capabilities to achieve a particular behaviour. Verbal Persuasion is also less influential compared to mastery experience. Any failure that occurs during verbal persuasion can seriously affect the credibility of the source of verbal persuasion.

d.   Emotional arousal: Emotional arousal caused by stressful situations can affect the self-beliefs of individuals. Any change in the emotional arousal affects the self-efficacy as emotional arousal might have some information regarding a person's capability to face a stressful situation. Higher stress in a particular situation is interpreted by many as lower self-efficacy. Therefore, in situations when people are less affected by the stress, self-efficacy is higher while facing that situation.

Please also mention which marketing technique each intervention addresses to if any.

Social marketing benchmarks applied:

Check those social marketing elements which are present in the study.

Primary formative research: Collecting primary data specifically for the research at hand through different instruments such as focus groups.

Secondary formative research: Reviewing already existing relevant data before conducting research.

Pretesting research: Evaluating strategies and tactics to ensure that interventions are fault free and effective to approach target audience.

Monitoring research: Ongoing evaluation of outcomes of the intervention to assess need of change in course.

Check all that apply.

Segmentation: Did the intervention tailor to fit a segment? Was the attempt of segmenting intentional? If it was, what was the target audience? (e.g. seniors, healthy adults, etc.)

Marketing mix: If the intervention used a 4P strategy. If it did, which P/Ps was used? Find the presence of any P of marketing mix in intervention. The author(s) will not necessarily explicitly refer to the use of marketing mix. For example, if nicotine patches were used in enhancing self-efficacy during an intervention to quit smoking, it shows the use the use of Product P of marketing mix.

If yes, please mark those P's which the author used in intervention. Check all those P's which were used in the intervention. For example if product and price of marketing mix were used in the intervention, please check them on the data extraction form.

Behavioural Competition: Did the article acknowledge competing behaviour (e.g. watching TV at home) and competitors (groups and organizations, e.g. commercial companies or media promoting competing behaviour)?

Results for change in smoking cessation self-efficacy and smoking behaviour:

Please provide information about the scale and anchors used by authors to measure self-efficacy. For example, self-efficacy could be measured on a scale of 1 to 5 where 1

is not confident at all and 5 is strongly confident.

Please provide details related to Mean and SD of self-efficacy and smoking behaviour before and after intervention at different time points for different experimental groups of the study. Moreover, which statistical method (e.g. t-test, ANCOVA, regression, factor analysis, SEM, etc.) was used.