Explicating Health Behavior for Effective Marketing Management of Health Intervention Services

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Abstract

The current study, proposing a framework that integrates relevant theoretical conceptualizations and empirical verifications to explicate health behavior, helps to enhance the effectiveness of marketing management for health intervention services. Validation of the proposed framework with a field experiment yields several noteworthy discoveries. The consumers of health intervention services must be categorized into two distinct segments with high and low levels of regularity in past health behavior. Instrumental attitude, affective attitude, perceived behavioral control, perceived self-efficacy, subjective norm, intrinsic motivation and extrinsic motivation exercise differentiated effects on the high-regularity and low-regularity consumer segments. These findings, alongside theoretical and strategic implications that facilitate the formulation of effective marketing strategies for health intervention services, are analyzed and discussed.

Key Words: health intervention services; determinants of health behavior; past behavior; planned behavior; effectiveness of marketing management

Shu-pei Tsai  Department of Public Relations &Advertising, Shih Hsin University
Introduction

Health intervention services, referring to the services such as those provided by fitness centers or alcoholism treatment clinics that enable consumers to increase control over and improve their health conditions, have been in growing need in recent years (e.g., Lederman, 2010). Effective marketing management, conducive to inducement of favorable responses from the target consumers, is essential for pursuing the best possible outcome of health intervention services (e.g., Servaes & Malikhao, 2010). In order to explicate the determinants of health behavior to enhance health marketing effectiveness, researchers have developed a variety of theories, among which the Theory of Planned Behavior (TPB) is frequently applied (e.g. Brijs et al., 2011; Chisholm et al., 2008; Hales et al., 2010; Schwarzer et al., 2008; Wang, 2009). However, numerous TPB-related studies in one way or another revise and modify the compositional dimensionalities and causal path pattern of the original TPB model, trying to arrive at more valid and reliable modeling of health behavior.

Quite a few newly emerged conceptualizations and operational frameworks about how to extend the original TPB model are reported in fragments. Piecing these fragments together from here and there makes it difficult to put research findings to good practice in the context of health intervention services.

In view of the aforesaid issue, the current study attempts to establish a framework integrating conceptualizations and empirical verifications in the line of extended TPB research with other relevant theories. In so doing, the determinants of health behavior can be thoroughly explicated to enhance the effectiveness of marketing management for health intervention services. To achieve this objective, the current study is based on reconfiguration of the revisions and modifications that have been reported on the original TPB. Besides, the researcher incorporates the Theory of Habit Development, the Goal-Planning-Action Theory as well as the Self-Efficacy Theory into the process of elucidating TPB-related studies. Hence, a more comprehensive theoretical framework is proposed, guiding the conceptual development and validation of three integrative TPB models predicting the behavior of health intervention services consumers.

The structural equation modeling of the current study’s proposed framework results in several important discoveries, from which theoretical and strategic implications are derivable. First and foremost, support is provided to the premise that past health behavior is a crucial factor that moderates effects exercised by the determinants of health behavior. Besides, attitude is found sub-dividable into instrumental and affective dimensions to represent the entirety of attitude toward health behavior in distinct
segments of health intervention services consumers. Moreover, perceived self-efficacy is evidenced distinguishable from perceived behavioral control as an additional construct to predict health behavior. Another noteworthy discovery is the illustration about how intrinsic and extrinsic motivations generate impact on the health behavior of distinct consumer segments. Effective marketing strategies, corresponding to the characteristics of different consumers, are recommended. Overall, the current study contributes to deepening understanding of health behavior and, more importantly, assisting providers of health intervention services to optimize their marketing effectiveness.

In the following sections, the theoretical background of the current study is described, alongside three research hypotheses that are put to test by data obtained from a field experiment in the context of health intervention services.

**Theoretical background & Hypotheses**

The Theory of Planned Behavior (TPB), proposed as an explanatory model for human behavior research, has proven beneficial for identifying the key factors of volitional behavior (Ajzen, 2002). It is adapted from the Reasoned Action Theory, which primarily deals with the connection between attitude and behavioral intention (Fishbein & Ajzen, 1975). Over the years, the TPB has been applied in broad range of settings including health promotion, new technology acceptance and social networking (e.g., French et al., 2005; Hales et al., 2010; Pelling & White, 2009; Truong, 2009; Van der Heijden, 2003). Basically, the TPB posits that volitional behavior is immediately preceded by behavioral intention with three main antecedents: attitude toward behavior, subjective norm, and perceived behavioral control (Ajzen, 1985, 1987, 1988, 1991, 2002). Attitude toward behavior (AB) refers to the extent to which the individual views a particular behavior positively, and subjective norm (SN) denotes the individual’s belief that significant others want him/her to engage in the behavior. As for perceived behavioral control (PBC), it is conceptualized to be the individual’s perception that he/she is capable of performing the target behavior with total control over the target behavior.

Though extensively employed, the TPB has received much criticism in recent years. As exhibited by a meta-analysis of 185 research projects across diverse domains, the TPB predicts no more than 38% of the variance in behavioral intention, while leaving 73% of the variance unexplainable in the outcome of actual behavior (Armitage & Conner, 2001). In some other cases, neither behavioral intention nor actual behavior is adequately predicted by the TPB. For example, Smith & McSweeney (2007) discovered the AB, SN and PBC constructs of the TPB model are rather limited in predictive power, explaining only 14% and 11% of the variances respectively in the behavioral intention
and actual behavior. In a bid to improve the predictive power of the TPB, psychologists and behavior researchers have been trying to extend this theory.

In the context of health behavior and health promotion research, there emerge three most noticeable avenues as shown in Figure I for making revisions and modifications to the original TPB model: (1) Subsume past behavior into the model as a crucial moderator of the factors for predicting health behavior; (2) Subdivide AB in the model into instrumental and affective dimensions as two independent constructs; (3) Segregate perceived self-efficacy from PBC to be a new construct in the model. These revisions and modifications are depicted in the next three subsections.

**Figure I**

Integrative TPB Framework for Predicting Health Behavior

Past Behavior as a Crucial Moderator

The most obvious weakness of the original TPB model, as Norman et al. (2000) pointed out, lies in its failure to subsume past behavior as crucial moderator of the factors for predicting behavior. An earlier discovery reported by Conner & Armitage (1998)
supplied preliminary evidence that past behavior exerts significant moderation effect on the formation of behavior intention and elicitation of actual behavior. Judging by the postulation of the Theory of Habit Development (THD), inclusion of past behavior in the TPB model is necessary to increase its capability for explaining the variance in behavioral intention and actual behavior.

According to the THD, the two behavioral determinants—decision cues and action cues—are separable from each other in the process of decision making and engagement in actual behavior (Neal & Wood, 2009; Ouelette & Wood, 1998; Wood et al., 2002). Decision cues refer to the cognition that may cause behavioral intention but does not automatically prompt actual behavior. Engagement in actual behavior hinges heavily on the presence of action cues, which are the immediate activation force to bring about actual behavior. Behavioral intention leads to actual behavior on the condition that it first converts decision cues into action cues. In some situations, actual behavior is repeated frequently to turn into a past behavior pattern, and decision cues may become action cues without going through the step of behavioral intention formation. Past behavior elicits the outcome of actual behavior via the causal paths from past behavior to behavioral intention, and then to actual behavior via the planned response mechanism. In the meantime, it elicits the outcome of actual behavior via the automatic response mechanism to supersede the step-by-step decision making of planned behavior. Thus, past behavior may lead directly to behavioral outcome. With or without the mediation of behavioral intention, actual behavior may appear due to the impact of the past behavior pattern.

Simply put, the planned response mechanism forms behavioral intention as the preceding step to elicit behavioral outcome, while the automatic response mechanism elicits behavioral outcome passing over the step of forming behavioral intention. Past behavior exerts influence on both the planned response mechanism and the automatic response mechanism (Ouelette & Wood, 1998; Wood et al., 2002; Neal & Wood, 2009).

Considerable amount of empirical findings (e.g., Iversen et al., 2004; Palmer et al., 2005; Jackson et al., 2003; Limayem et al., 2007; Pelling & White, 2009; Rivis & Sheeran, 2003) point to the necessity to deem past behavior as a crucial moderator in the original TPB model. Health behavior scholars, including Levy et al. (2009), Rhodes & Courneya (2003) and Rothman et al. (2009), supplied more empirical proof to the appropriateness to subsume the notion of past behavior into the original TPB. They verified the causal paths from past behavior to behavioral intention and then to actual behavior (decision cues are converted into action cues via the planned response mechanism). It was also found that past behavior is in part directly related to actual behavior, passing over the
mediation of behavioral intention (action cues pop up via the automatic response mechanism).

Past behavior, when taking shape of habitual tendency, generates impact on health behavior in either planned or automatic response. Besides, the empirical findings reported by such health behavior researchers as Brijs et al. (2011), Scholz et al. (2008), Schwarzer (2008), Wiedemann et al. (2009) and Wong & Mullan (2009) all emphasize that past behavioral patterns that contain several similar attributes of the target behavior moderate the determinants of this behavior.

H1-1: Health intervention services consumers should be categorized into distinct segments with high and low levels of regularity in past health behavior

H1-2: Past health behavior exercises significant moderation effect on the determinants of health behavior including attitude toward behavior, subjective norm as well as perceived behavioral control

Subdivision of Attitude

Doubts have long been cast on the conceptual and operational appropriateness of AB (attitude toward behavior) in the original TPB model by a number of psychologists and behavior researchers, who argue the model stresses the instrumental aspect of attitude but does not adequately reflect the affective components for attitude to take shape (Sutton, 2002). Judging by the theoretical expositions and empirical discoveries in relevant studies, AB should not be deemed a one-dimensional construct as the TPB assumes; instrumental and affective components of attitude generate impact on the target behavior through separate paths (Trafimow et al., 2004).

Across different contexts, instrumental attitude and affective attitude are found exercising separate effects on behavioral intention and actual behavior. In other words, attitude is sub-dividable into instrumental and affective dimensions for the conceptualization and operation of AB. French et al. (2005) conducted a series of confirmatory factor analyses and structural equation modeling on two sets of measures to assess instrumental and affective attitudes, establishing the causal paths from instrumental and affective AB to behavioral intention and actual behavior. They compared the TPB’s one-factor solution of AB with an alternative two-factor solution of AB reflecting the distinction between instrumental and affective attitudes. The result validates the TPB’s one-factor solution inferior to the two-factor solution for predicting
behavioral intention and actual behavior. Van der Heijden (2003), investigating the relationship between attitude and volitional behavior, also confirmed the distinction between the dimensions of affective evaluation and instrumental evaluation of AB in the original TPB model.

More recently, health behavior researchers including Blanchard & Matheson (2006), Fen & Sabaruddin (2009) and Hagger & Chatzisarantis (2005, 2007) supplied further support to the discriminant validity of the instrumental and affective components in reflecting two independent dimensions of attitude toward the target behavior. In addition, Wilson & Lu (2008) and Wilson & Tulu (2010) incorporated the goal-planning-action theory (Austin & Vancouver, 1996) into the TPB, verifying the premise that instrumental attitude toward health behavior is formed by chronic or situational goals and needs. Specifically, instrumental goal and need form utilitarian components of instrumental attitude toward health behavior, but emotional components of affective attitude toward health behavior is formed by affective goal and need. Therefore, fulfillment of instrumental goal and need induces positive instrumental attitude toward the target behavior, while fulfillment of affective goal and need induces positive affective attitude toward the target behavior. The two types of attitude are evidenced exerting influence on health behavior through separate paths, so attitude toward health behavior is a two-dimensional construct.

H2-1: Attitude toward behavior is sub-dividable into instrumental attitude toward behavior and affective attitude toward behavior for predicting health behavior; the two types of attitude exercise differentiated effects on the behavior of health intervention services consumers with high and low levels of regularity in past health behavior

H2-2: Instrumental attitude toward behavior and affective attitude toward behavior exercise differentiated effects on the behavior of health intervention services consumers with high and low levels of regularity in past health behavior

Self-Efficacy vs. Behavioral Control

Perceived behavioral control (PBC) in the original TPB model, defined as the individual’s estimate of how easy it will be for him/her to carry out the target behavior, comes from the self-efficacy theory developed by Bandura (1977, 1982, 1986, 1992) who posits expectations of people are an essential determinant of their behavioral reactions. Expectations consist of self-efficacy and outcome expectancy. Self-efficacy is
the conviction that one can successfully execute the behavior required to produce the outcomes. **Outcome expectancy** refers to a person’s estimation that a given behavior will lead to the expected outcome. According to Ajzen (1986, 2002), PBC subsumes self-efficacy, so the two concepts are combined to constitute a single factor.

However, numerous health behavior researchers challenge this assumption. For example, Terry, & Hogg (1994) distinguished PBC and self-efficacy, contending the former rests with the perception of the individual that he/she can overcome the external constraints on a certain behavior, while the latter is the belief and confidence in one’s ability to perform this behavior. Such scholars as Manstead & Van-Eekelen (1998), Armitage & Conner (1999), McClanahan et al. (2007), Tavousi et al. (2009), and Ali Hussein (2011) investigated different kinds of health behavior and also pointed to the necessity to segregate self-efficacy from PBC. They found self-efficacy seems to be a better predictor of behavior than PBC, because PBC only reflects the estimate of controllability over the external environment while self-efficacy is representative of the individual’s internal motivation to engage in the target behavior.

Perceived self-efficacy is assigned the definition in accordance with the concept put forth by Bandura (1977, 1982, 1986, 1992), referring to the belief and confidence of people about their capabilities to produce the performances that may influence the important events in their lives. This definition modifies the conceptualization of PBC, which concerns the perception of the individual that he/she has control over the external constraints. In other words, external controllability and intrinsic motivation are two distinct determinants of behavior. Supposing people are in total control of the external environment (for example: Avoiding substance use is within my total control), it does not necessarily mean they will not carry out the target behavior in absence of intrinsic motivation (for example: I am confident that I will be able to avoid substance use when I am home alone and depressed, even if substance is available to me).

In a recently conducted examination, Tavousi et al. (2009) provided additional evidence that self-efficacy should be segregated from PBC for predicting health behavior and enhancing the effectiveness of health promotion. They surveyed a group of substance users and discovered that perceived self-efficacy is illustrative of intrinsic motivation, distinguishable from perceived controllability over the external condition. Ali Hussein (2011), through a series of investigations, also verified that perceived self-efficacy and perceived behavioral control are two constructs respectively representing more intrinsic motivation and more extrinsic motivation toward the target behavior.

**H3-1:** *Perceived self-efficacy* is distinguishable from *perceived*
behavioral control for predicting health behavior

H3-2: Perceived self-efficacy and perceived behavioral control exercise differentiated effects on the behavior of health intervention services consumers with high and low levels of regularity in past health behavior

Method

The current study, applying an integrative version of the TPB to explicating the determinants of the behavioral intention and behavioral outcome, is focused on the behavior of consumers who received a health intervention program for increasing control over their health problem caused by obesity. The researcher conducted a field experiment on these consumers in two stages, owing to the assistance of a professional provider of health intervention services. Data was obtained from 687 respondents (331 males, 356 females), who took part in an obesity-reduction program that was planned and executed to motivate the obese consumers to engage in intensive physical exercise for at least half an hour every day.

The respondents, aged between 30 and 45 with college-level education or above and annual disposable income no less than US$25,000, were very aware of the need to take appropriate actions to deal with the problem of obesity. Nevertheless, they had never received any health intervention services that resort to intensive physical exercise to lose weight and improve health condition. Among them, 307 did mild physical exercise more regularly (averaging 12 hours a month), while 380 had lower tendency to do mild physical exercise (averaging 5 hours a month). Such distribution categorized the respondents into the two distinct groups of regular mild exercisers and irregular mild exercisers, rendering it possible to investigate the moderation effect of past health behavior on the model structure and causal path pattern delineated in the framework proposed by the current study.
Table I
Confirmatory Factor Analysis of Measurement Model

<table>
<thead>
<tr>
<th>Constructs/Items</th>
<th>Construct reliability/</th>
<th>Standardized Loadings</th>
<th>Items</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Variance extracted/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Squared correlation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INTRUMENTAL ATTITUDE TOWRD BEHAVIOR</strong></td>
<td>0.86/0.74/0.63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Doing intensive physical exercise is a practical behavior</td>
<td>0.85</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Doing intensive physical exercise is valuable to me</td>
<td>0.82</td>
<td>0.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Doing intensive physical exercise brings me instrumental benefits</td>
<td>0.81</td>
<td>0.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>AFFECTIVE ATTITUDE TOWRD BEHAVIOR</strong></td>
<td>0.81/0.72/0.61</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Doing intensive physical exercise is an enjoyable behavior</td>
<td>0.82</td>
<td>0.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Doing intensive physical exercise is exciting to me</td>
<td>0.79</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Doing intensive physical exercise brings me emotional pleasures</td>
<td>0.85</td>
<td>0.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SUBJECTIVE NORM</strong></td>
<td>0.77/0.62/0.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ People important to me approve of my doing intensive physical exercise</td>
<td>0.82</td>
<td>0.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ People important to me expect me to do intensive physical exercise</td>
<td>0.81</td>
<td>0.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ I am prompted by people important to me to do intensive physical exercise</td>
<td>0.78</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PERCEIVED BEHAVIORAL CONTROL</strong></td>
<td>0.87/0.78/0.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Nothing in my surroundings constrains my doing intensive physical exercise</td>
<td>0.85</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ I am totally free to do intensive physical exercise</td>
<td>0.91</td>
<td>0.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ I have sufficient resources to do intensive physical exercise</td>
<td>0.79</td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PERCEIVED SELF-EFFICACY</strong></td>
<td>0.91/0.87/0.69</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ I have confidence in my capability to do intensive physical exercise</td>
<td>0.92</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ I am competent in doing intensive physical exercise</td>
<td>0.87</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Doing intensive physical exercise is not difficult to me</td>
<td>0.84</td>
<td>0.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BEHAVIORAL INTENTION</strong></td>
<td>0.92/0.81/0.69</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ I intend to do intensive physical exercise more than 30 minutes per day</td>
<td>0.93</td>
<td>0.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ It is my plan that I spend more than 30 minutes to do intensive physical exercise per day</td>
<td>0.87</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BEHAVIORAL OUTCOME</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>➢ Please indicate the frequency you spent more than 30 minutes (parameter is fixed in model estimation) per day to do intensive physical exercise in the previous 30 days (from 0 to 30 days)</td>
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</tbody>
</table>

Various types of intensive physical exercises were instructed and demonstrated, inviting the participating members to learn during the program. Most importantly, they were urged to engage in these exercises as frequently as possible in the future. Communication messages, including audio/visual/verbal materials and interpersonal instructions, were designed and delivered in a way that all the participating members could fully comprehend. Relaxing and comfortable atmosphere was tactfully created, so the program would not become a boring occasion. The respondents participated in the program with total volition, none of monetary and non-monetary incentives were offered. They understood that their participation aimed at formation of their behavioral intention of doing regular physical exercise and elicitation of their actual behavior to do physical exercise at least half an hour on a daily basis. Upon the completion of the program, the
respondents filled out the first survey questionnaire, investigating their instrumental and affective attitude toward the target behavior, subjective norm, perceived behavioral control, perceived self-efficacy, past behavior, and behavioral intention. After one month, the researcher sent another questionnaire to them to fill out, finding out the outcome of their behavioral outcome.

The survey questionnaire shown in Table I, developed on the integrative reconfiguration of the conceptualizations and measuring instrumentations derived from the TPB-based studies depicted in the previous section, had been put to Confirmatory factor analysis (CFA) of LISREL. As the estimates of CFA illustrate, all fit statistics of the measurement model containing twenty manifest indicators for eight latent constructs are quite acceptable by coming up with the indices of: $\chi^2 (627) = 612, p<0.05$, GFI= 0.981, AGFI= 0.972, CFI=0.967, NFI= 0.939, as well as RMSEA=0.025. In addition, the lambdas ($\lambda$) are all above 0.35, the composite reliabilities are greater than 0.7, and the average variance extracted are above 0.5 on the whole. Furthermore, the average variance extracted for each construct is greater than the squared correlation between a particular construct and any other construct. Both the convergent and discriminant validity of the measurement scale were confirmed.

To further confirm measurement invariance across the sample groups categorized into consumer segments with high-regularity and low-regularity of past health behavior, the researcher assessed three models. **Model 1** assumed an invariant factor pattern across the two sample groups including all the latent factors, with only one non-zero loading for each item (simple structure); this model served as the null model in the model comparison sequence. **Model 2** assumed that the factor loadings to be variant across the sample groups. **Model 3** assumed that the item intercepts varied across the sample groups. All models were estimated by maximum likelihood technique, and only **Model 1** was found yielding satisfactory Goodness-of-fit statistic (0.969), thus confirming measurement invariance across the respondents who were categorized into consumer segments with high-regularity and low-regularity of past health behavior. Thus, different levels of regularity in past health behavior did not pose as a cause of variance in the measurement.

**Findings**

Structural equation modeling (SEM) was first run on the collected data to establish a principal model. It estimated the full-mediation structural model (*behavioral intention* fully mediating the effects of five exogenous constructs on *behavioral outcome*), the partial-mediation model (relaxing the direct effects of five exogenous constructs) and the
non-mediation model (constraining the mediation effect of behavioral intention). Both fit index statistics and path parameters were compared in detail, thereby determining which the best-fit model was. As illustrated by the statistical analyses of Figure II, the partial-mediation structural model provides the best fit of the data ($\chi^2 [613] = 602$ $p<0.05$, GFI=0.948, AGFI=0.937, CFI=0.926, NFI= 0.909, RMSEA=0.068). Besides, in terms of explaining the variance in the outcome construct, the partial-mediation structural model also demonstrates greater predictive power ($R^2 = 0.373$) than the full-mediation model ($R^2 = 0.186$) and the non-mediation model ($R^2 = 0.274$).

The next step of structural equation modeling was to investigate the moderation effect of past health behavior on the principal structural equation model. Two moderated structural equation models, as shown in Figure III and IV, yield more satisfactory statistical indices and predictive power than the principal model. The moderated integrative model for predicting the health behavior of the regular exercisers ($\chi^2 [613] = 538$ $p<0.05$, GFI=0.979, AGFI=0.968, CFI=0.957, NFI= 0.947, RMSEA=0.021) explains 53% of the variance in the outcome construct; the moderated model for predicting the health behavior of the irregular exercisers ($\chi^2 [613] = 619$ $p<0.05$, GFI=0.965, AGFI=0.943, CFI=0.932, NFI= 0.926, RMSEA=0.039) explains 42% of the variance in the outcome construct. Both models provide best fit of the two data sets split within the data pool according to the high and low levels of regularity in past health behavior.

In general, the current study indicates that the five exogenous constructs generate impact on behavioral outcome partially through the mediation of behavioral intention. The principal integrative TPB model explicates the determinants of health behavior as: (1) instrumental attitude toward behavior, affective attitude toward behavior, subjective norm, perceived behavioral control, and perceived self-efficacy are the exogenous constructs; (2) behavioral intention is the partial mediator of the effects exercised by the five exogenous constructs on behavioral outcome; (3) behavioral intention precedes behavioral outcome; (4) amid the five exogenous constructs, perceived behavioral control and perceived self-efficacy are also directly in part related to behavioral outcome, meaning partial effects of these three exogenous constructs on behavioral outcome pass over the mediation of behavioral intention.
Taking into account of the moderation effect exercised by past health behavior, the model structure remains the feature of partial-mediation, but their casual path patterns alter in several aspects. In the case of the moderated integrative TPB model for predicting the health behavior of the consumer segment with high level of regularity in past behavior of mild physical exercise, the direct casual path from instrumental attitude toward behavior to behavioral outcome is added, and the direct path from perceived behavioral control to behavioral outcome is removed. As for the moderated integrative TPB model for predicting the health behavior of the consumer segment with low level of regularity in past behavior of mild physical exercise, the direct causal path from affective attitude toward behavior to behavioral outcome is added, and the direct causal path from...
perceived self-efficacy to behavioral outcome is removed.

**Figure III**  
Moderated Integrative TPB Model for Predicting Health Behavior  
(The consumer segment with high level of regularity in past health behavior)

![Diagram of the integrated TPB model](image)

Judging by the model structure and causal path pattern among the constructs of the two moderated integrative TPB models in comparison to the principal integrative TPB model, full support is supplied to Hypothesis 1-1 and 1-2 stating that past health behavior is a crucial factor that moderates the effects generated by the determinants of health behavior. Besides, Hypothesis 2-1, 2-1 and 3-1, 3-2 also receive full support. More specifically, attitude is sub-dividable into instrumental and affective dimensions that exercise differentiated effects on the health behavior of consumers with high and low levels of
regularity in past health behavior; Perceived self-efficacy and perceived behavioral control are distinguishable from each other, exercising differentiated effects on the health behavior of distinct consumer segments.

Figure IV
Moderated Integrative TPB Model for Predicting Health Behavior
(The consumer segment with low level of regularity in past health behavior)

Overall, several important findings are reported by the current study. First, the consumers of health intervention services must be categorized into two distinct segments with high and low levels of regularity in past health behavior. Second, for the high-regularity segment instrumental attitude generates greater impact, while the low-regularity segment is more influence by affective attitude. Third, for the
high-regularity segment perceived behavioral control exercises minor effect and perceived self-efficacy exercises main effect, but the reverse is true for the low-regularity segment. Fourth, subjective norm generates marginal impact on the high-regularity segment, while it best predicts health behavior of the low-regularity segment. Fifth, intrinsic motivation is essential to eliciting behavioral outcome in the high-regularity segment, but extrinsic motivation is indispensable in inducing behavioral outcome in low-regularity segment. These findings, alongside theoretical and strategic implications that facilitate the formulation of effective marketing strategies for health intervention services, are analyzed and discussed in the following section.

**Discussion**

**Theoretical Implications**

Most noteworthy, the current study verifies the behavioral outcome of health behavior is attributable not only to health behavioral intention but also to *past health behavior*. The moderation effect of past behavior evidenced by the current study corresponds to the Theory of Habit Development (THD), depicted in the second section of the current study (Ouelette & Wood, 1998; Wood et al., 2002; Levy et al., 2009; Neal & Wood, 2009). As the THD postulates, it depends on the planned response mechanism that converts decision cues into action cues for behavioral intention in mediating the effect of past behavior on behavioral outcome. However, in some situations action cues may pop up via the automatic response mechanism, rendering past behavior to exercise effect on behavioral outcome passing over the mediation of behavioral intention. Past behavior, taking shape of a strong habitual tendency, generates impact on health behavior in either planned response mechanism or automatic response mechanism of health intervention services consumers.

Scholars in the field of health intervention services may have to be wary of the significant influence exerted by past behavior. The negligence of past behavior has been evidenced a cause to render the original TPB model’s predictive power decline to a large extent across diverse settings. The impact of past behavior is not omissible for academic research and practical application in various domains (e.g. Levy et al., 2009; Rothman et al., 2009), and health intervention services are no exception. Subsuming past behavior into the integrative version of the TPB serves to enhance the effectiveness of marketing management for health intervention services. Thus, it is necessary to categorize the consumers into segments according to their levels of regularity in past health behavior. Hence, avenues to develop effective marketing strategies can be more easily identified.
A further significant contribution of the current study is the elucidation on the relationship between attitude and health behavior in distinct consumer segments with high and low levels of regularity in past health behavior. Instrumental attitude toward behavior generates more impact on the behavior of the high-regularity segment. In contrast, for low-regularity segment affective attitude toward behavior exercises more pronounced effect on their behavior. According to the Goal-Planning-Action Theory mentioned previously, attitudes are formed by different goals and needs chronically or contextually. Instrumental goal and need form instrumental attitude, while affective goal and need form affective attitude. The two types of attitude usually exercise differentiated effects on behavioral intention and actual behavior through separate paths, depending on the goal prominence perceived by the consumer (e.g. Austin & Vancouver, 1996; Wilson & Lu, 2008; Wilson & Tulu, 2010). Therefore, the weights of instrumental and affective attitudes toward the target behavior designed by the health intervention services should vary in different consumer groups.

Another noteworthy discovery bearing much on the effectiveness of marketing management for health intervention services lies in the causal path delineations of perceived behavioral control and perceived self-efficacy. For the high-regularity segment, perceived behavioral control is comparatively a minor factor. However, perceived self-efficacy is a main factor that predicts both health behavioral intention and health behavioral outcome among the consumers in this segment. On the contrary, perceived behavioral control instead of perceived self-efficacy is a main factor in the low-regularity segment, exerting significant influence on intention as well as outcome of the target behavior. Such discovery demonstrates a non-negligible phenomenon: In the context of health intervention services, consumers in the high-regularity segment are manifest in intrinsic motivation, while consumers in the low-regularity segment are characteristic of extrinsic motivation. As analyzed previously in the current study, many scholars such as Ali Hussein (2011), Armitage & Conner (1999), Manstead & Van-Eekelen (1998), McClenahan et al. (2007) and Tavousi et al. (2009) emphasized that perceived self-efficacy rests with the belief and self-confidence about the capabilities to produce the performances to change the course of important life events. Hence, perceived self-efficacy is distinguishable from perceived behavioral control. Theoretically, perceived behavioral control refers to the perception that the external constraints are within control, so it differs from perceived self-efficacy in that it only reflects the estimate of controllability over the external environment. Representing the individual’s assertion about controllability over the environment, perceived behavioral control does not necessarily guarantee his/her intrinsically motivated propensity to take real actions to improve health. In contrast, perceived self-efficacy reflects the
individual’s self-confidence in his/her capability, illustrating more of his/her intrinsically motivated determination to initiate necessary changes for better health.

The difference in motivational orientations between the two consumer segments is further demonstrated by the effect of subjective norm, a construct referring to the pressure from a person’s significant others and thus reflecting extrinsic motivation (e.g., Ali Hussein, 2011; Tavousi et al., 2009). Subjective norm generates merely marginal impact on behavioral intention (explaining 3.7% in its variance) among the group with regular past health behavior, but it turns out to be one of the most influential predictor of health behavioral intention (explaining 13.9% in its variance) among the group with irregular past health behavior.

**Strategic Implications**

Instrumental attitude and affective attitude toward health behavior vary in their magnitude of impact on the health behavioral intention and health behavioral outcome of different consumers. In order to induce favorable response from the consumer segment with high level of regularity in past health behavior, the health marketing manager may try to construct marketing messages in a way that strengthens the sense of instrumental-goal fulfillment congruent with their instrumental attitude, for example: (1) You will become more valuable as a job candidate because of obesity-reduction; (2) Fitness increases your agility as well as your chances to climb higher in the career ladder. On the other hand, the health marketing manager may have to make an effort to instill pronounced affective elements into the messages in inducing favorable response from the segment with low level of regularity in past health behavior, centering on the fulfillment of affective goal congruent with their affective attitude, for example: (1) You will become more attractive as a romantic partner due to obesity-reduction; (2) Fitness increases your personal magnetism as well as your chances to pursue an exciting social life.

Effectiveness of marketing strategies based on goal-fulfillment for health intervention services is also correlated with the perceived involvement of different consumers. Highly involved (lowly involved) consumers usually tend to concentrate on the instrumental goal (affective goal) pertinent to health products and services (e.g. Tsai, 2007; Xiao, & Kim, 2009). As the findings reported by Tsai (2007) indicate, message framing of prevention focus (avoiding pains) is proven more acceptable for highly involved consumers, but message framing of promotion focus (seeking pleasures) is evidenced preferable for lowly involved consumers. In other words, pains-avoiding and pleasures-seeking are two types of message framing methods that the health marketing manager may take into account. To the high-regularity consumer segment, health
intervention services are advisable to be framed toward prevention focus, such as: Obesity and its resultant awkwardness is a main cause of misery suffered by many people. To the low-regularity consumer segment, health intervention services will be more favorably evaluated if the framing technique gears toward promotion focus, such as: Weight-control and its resultant agility is a primary source of happiness enjoyed by many people.

Divergence in the motivational orientations of different consumers is another strategic tool for enhancing marketing effectiveness of health intervention services. To the high-regularity consumer segment, intrinsic motivation is the key to eliciting the outcome of actual behavior. Marketing strategies are more effective if the consumer’s self-confidence in his/her capability to carry out the target health behavior comes into front in the media communication and interpersonal contacts. In addition, it is of great importance that the services are so designed that encourage and boost intrinsically motivated determination. In this manner, the health marketing manager is capable of triggering the consumer’s harbored desire to take immediate action in order for the positive consequence of the target health behavior to materialize. Since subjective norm is found as the least influential behavioral determinant of the consumers in the high-regularity segment, social pressure is not their main concern. Caution is advised against placing too much emphasis on social pressure, lest the marketing messages becomes a source of agitation and produces unnecessary counter-effect.

In the case of planning marketing strategies to the low-regularity consumer segment, extrinsic motivation plays the facilitator role in bringing about behavioral outcome. Chances are the marketing effectiveness of health intervention services will be elevated to greater extent if the health marketing manager arouses the consumer’s expectations that the target health behavior is not susceptible to external constraints. Efforts need to revolve basically around giving help to the consumer for reducing or removing perceived barriers in the environment, which the consumer deems as the cause to constrain easy and convenient practice of the target health behavior. In the meantime, the health marketing manager is supposed to pay particular attention to the effect of subjective norm on the low-regularity consumer segment. Social approval and applause, as previously discussed, is evidenced one of the most influential factors pushing the intention of this consumer segment to take action for better health. Therefore, atmosphere that reflects the cheering from the consumer’s significant others constitutes an essential building block in the marketing messages aimed at consumers in this segment, serving to elicit their compliance to the aspirations expressed by their family members, peers, respected authorities, romantic partners or idolized role models.
Conclusion

The current study develops and validates three integrative TPB models for explicating the determinants of health behavior, conducive to enhancing the effectiveness of marketing management for health intervention services. The principal integrative TPB model, with revised compositional dimensionalities and causal path pattern, explains 54% and 37% of the variances respectively in behavioral intention and behavioral outcome. When the moderation effect of past behavior is taken into account, more predictive power is produced. The moderated integrative TPB model for predicting the health behavior of the group with regular past health behavior explains 69% and 53% of the variances respectively in behavioral intention and behavioral outcome, while the moderated integrative TPB model for predicting the health behavior of the group with irregular past health behavior explains 58% and 42% of the variances respectively in behavioral intention and behavioral outcome.

Hence, the moderated integrative TPB models prove to be superior in predicting health behavior. Obviously, the research efforts of the current study to incorporate the Theory of Habit Development, the Goal-Planning-Action Theory as well as the Self-Efficacy Theory into the original TPB are valid in explicating behavioral determinants in the context of health intervention services. The health marketing manager may take into consideration the implications derived from the two moderated integrative TPB models for assisting providers of health intervention services, so their marketing strategies can be properly tailored to the characteristics of different consumers.
References


