International Forum Vol. 17, No. 2 October 2014 pp. 58-74

FEATURE

# The Seven-Step Model (7SM): An Alternative Health Behavior Change Model for the General Public

## Cesar A. Galvez

Abstract. The major causes of death in the world are heart attack, stroke, and cancer. The main contributing factors for chronic diseases complications are unhealthy behaviors; so, health behavior change has become imperative in the world today. There are several models and theories for health behavior change. They are, however, far from public reach because they are not easy for people to understand and apply in their daily lives. The seven-step model (7SM) is the result of integrating key constructs from different theories and models and putting them in a way that the public may understand and apply. The model has seven steps that individuals, families, and small groups can use to change behavior, and three more tools for maintenance. An exploratory study done in the Philippines and Peru with graduate students from 30 different countries shows the potential of the 7SM in changing different unhealthy behaviors and installing new healthy behaviors.

Keywords: Peer review, self-efficacy, graduate learning strategy, survey research

#### Introduction

The major causes of death in the world are heart attack, stroke, and cancer. According to the World Health Organization (WHO, 2012b), cardio-vascular diseases (CVDs) and complications is the major cause of death globally. An estimated 17.3 million people died from CVDs in 2008, representing 30% of all global deaths. By 2030, almost 25 million people will die yearly from CVDs, mainly from heart disease and stroke. WHO (2012a) also reports that cancer is the second leading cause of death worldwide, accounting in 2008 for 7.6 million deaths (around 13% of all deaths). Deaths from cancer worldwide are projected to continue rising, with an estimated 13.1 million deaths by 2030. More than 80% of CVD deaths (WHO 2012b) and 70% of cancer deaths (WHO 2012a) happen in low and middle-income countries.

People are dying because of preventable non-communicable diseases. Up to 80% of heart disease, stroke, and Type 2 diabetes (related to daily food habits) can be prevented. More than one third of cancers can be prevented. How? By eliminating the risk factors that are common to heart disease, stroke, and cancer that is, tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol (WHO, 2008). In simple words, up to 80% of people who died of CVDs and 30% of people who died of cancer could have survived and they could still be enjoying life. So, heart attack, cancer, stroke, and diabetes are related to our everyday simple habits such as physical inactivity, and smoking; high consumption of animal fat, refined foods, cooked foods, and salt; low consumption of raw vegetables, fruit, and nuts; excessive alcohol consumption; and uncontrolled stress. The WHO (2012b) classifies stress as one of the underlying determinants in the same category as poverty and heredity factors.

Since the main contributing factors for mortal chronic diseases complications are unhealthy behaviors, health behavior change has become imperative in the world today. There are several models and theories for health behavior change that are understood and used by health professionals to promote change. Most of the models are out of reach of the common public; however, they are not easy to be understood and applied by average people in their daily lives.

## A New Conceptual Framework for Change

This section presents the seven-step model (7SM) of change and tools for maintaining change. Additionally, it discusses the 7SM basis from psychological, health behavior change theories, self-directed behavior, and spiritual perspectives.

According to Montanho and Kasprzyk (2008), in addition to the intention of changing a behavior, four components directly affect the practicing of a new healthy behavior. First, the person needs knowledge and skills to carry out the new behavior. Second, there should be no or few environmental constraints. Third, the behavior should be very important to the person. Last, the person should have experience practicing the behavior previously. The second component is fostered by health promotion; while the rest of the components knowledge, skill, salience, and experience— are facilitated by health education.

Health promotion and health education use theories and models that come from social and behavioral sciences. They are aimed at facilitating change individually, interpersonally, in groups, or in big groups. The list of those theories and models, and combinations, aimed to change behaviors effectively, can be long

and it is not necessary to list all of them here, but some of the most known are theory of planned behavior, the five-stage theory of change, health belief model, social cognitive theory, stimulus response, cognitive theory, self-regulation, and PRECEDE PROCEED, among others.

Much about each theory/model of behavior change targeting the community of scholars and researchers and reporting change in groups and individuals has been published (Prestwich, et al., 2014; Jiang, Lu, Hou, & Yue, 2013); however, there are some current challenges and limitations when health behavior change techniques are applied. For instance, it was found that techniques used rarely were most effective in health behavior change than those commonly used (Williams & French, 2011). Participants should be provided with specific instructions on how, where and when practicing the desirable behavior or there will be reduction in efficacy (Williams & French, 2011).

One theory does not work for every behavior. There are some behaviors that need a motivational theory in the beginning of the change, while other behaviors need more motivation to maintain the behavior (Johnson, Scott-Sheldon, & Carey, 2010; Williams & French, 2011). So, there is place for new theories and models as well as for a theory/model that is the result of combination of theories/models, capable to initiate change and help maintain change. Innovative techniques can be developed to help participants maintain change (Krebs, Prochaska, & Rossi, 2010). A meta-analysis showed that interventions to manage thought and emotions are more effective than intervention focused on change in behaviors (Johnson, Scott-Sheldon, & Carey, 2010).

In addition, telecommunications and social media have transformed the delivery of health message. "More than two-thirds of the world's population owns a mobile phone, which can be used to deliver health messages to people anywhere and anytime" (Edwards et al., 2013, p. 2). This is why research on persuasive information through mobile gadgets and applications designed to change health behaviors is showing the potential to improve healthy living, to lower health care costs (Chatterjee & Price, 2009), and to feel ownership and/or control of the intervention (Ainsworth et al., 2012). Finally, despite many models, theories, and techniques for health behavior change, the general audience needs those that are easy to understand and is easy to apply to change any behavior.

So, there is a need and there is room for a model, a theory, or a technique for health behavior change that begins with guiding the participant to choose a specific and measurable goal for a specific program. It is important to consider not only change but also practical ways of sustaining that change, and provide innovative techniques to deal with related stress. It should easily be used through telecommunications and social media, it should give people ownership of the intervention, and it should be easy to understand and apply in daily life.

### The 7-Step Model

The 7SM, which I originally named individual project for behavioral modification (Galvez, 2002), can be applied to plan the change of any health habit or behavior, not only at the individual and household levels, but also in small groups such as classroom settings. The steps of the model are the following: setting of a goal behavior (the negative behavior to change, and the positive behavior to adopt), antecedents of the negative behavior, consequences of the negative behavior, reinforcement plan, and commitment and motto. In addition, the model presents three tools for the maintenance plan in order to prevent relapsing and to deepen the change: weekly evaluation, daily self-instruction, and daily prayer or meditation.

# The 7SM Basis

The 7SM is the result of integrating key constructs from different theories and models and putting them within reach of the public in a way that is easy for people to understand and apply. The 7SM constructs are based on current behavior change theories, health behavior change theories/models, models for program planning, and on behavioral spiritual elements from a Christian perspective. "[The] combination of theories is becoming the norm in health behavior change interventions" (Rimer, 2008, p. 42). That is how Prochaska and his colleagues, among the most renowned contemporary scientists in behavior change, came out with the transtheoretical model, a major theory on health behavior change, after finding that "no single theory can account for all complexities of behavior change. A more comprehensive model is most likely to emerge from integration across major theories" (Prochaska, Johnson, & Lee, 2009, p. 64).

## **Psychological Foundations**

The 7SM takes some assumptions and concepts from well-known schools of psychology. From the behaviorist psychology, it takes the assumption that any behavior can be changed and learned through reinforcement, which is material and social rewards we give ourselves every time we perform the desirable behavior. From psychoanalyst psychology, the 7SM takes the concept of how the unconsciousness influences our actions and behaviors and in order to change, we need to identify those forces and become conscious of them. From the cognitivist psychology, it takes the concept of how our thoughts determine our actions through instructions installed in our minds, whether given by others or by ourselves; and that by changing those instructions, we can change our actions. From the humanist school of psychology, it takes the assumption that our actions are a result of our choices; so we can choose to abandon

a behavior and to install a new behavior and also the concept of perceived control. From the social cognitive theory, it takes the concepts of self-efficacy and learning by reinforcement.

#### **Basis From Health Behavior Change Theories**

In addition, the 7SM borrows concepts of several health behavior change models and theories. From the theory of planned behavior, it borrows the concept of attitude as a determinant of change by evaluating the beliefs of the benefits of the desirable behavior, and the concept of subjective norm as the role of important referents in our lives to practice a desirable behavior and our disposition to comply with them. From the health belief model, it uses the concepts of perceived susceptibility to diseases and perceived threat of getting those diseases, as possible consequences of our unhealthy behaviors in order to be motivated to change.

From the transtheoretical model, it takes the idea of an action stage and a maintenance stage to prevent relapsing, and it borrows the concept of decisional balance by contrasting the pros or benefits of the new health behavior, and the cost of changing the old behavior and installing the new one, as powerful motivators of real change. The 7SM also coincides with several constructs of the transtheoretical model such as dramatic relief, self-reevaluation, self-liberation, environmental reevaluation, helping relationships, counter conditioning, and reinforcement management, but of course with different construct names.

From the PRECEDE-PROCEED model, it borrows the prioritization matrix to target the most changeable and the most important behavior that needs to be changed, and the educational-ecological assessment to search the determinants of the behavior to change by identifying the predisposing, enabling and reinforcing factors, which will become the main targets to change through a plan.

#### **Basis From Self-Regulation**

The 7SM follows a self-regulation design and it takes key components of the self-modification for personal adjustment model of Watson and Tharp (2014). The principles of self-modification theories are antecedents, behaviors, consequences, development of a plan, problem solving, relapse prevention skills, and ability to stay in control (Watson, & Tharp, 2014). Self-regulation is a capability that people can use to monitor their motivations, emotions, and behaviors (Han, as cited in Sang-Hee & Yun-Jung, 2012).

There is a difference between willpower and self-regulation. Brute selfcontrol or willpower is as a muscle that gets tired and then becomes weak. Meanwhile, there is a way to develop self-control based on skill: planning ahead to avoid temptation beforehand. "A skill is an ability to do something well,

developed through knowledge and practice" (Watson & Tharp, 2014, p.6). Self-regulation is not just *muscular* willpower. It is "a skill involving anticipation and cleverness" (Fisher, Levenkron, Lowe, Loro, & Green, as cited in Watson & Tharp, 2014, p. 6).

There are multiple benefits of self-regulation in the fields of education and health. Students who develop self-regulation skills monitor and evaluate their learning process, observe their progress, think critically, and tend to be higher in efficacy (Zuntiryaki-Kondakçi & Çapa-Aydin, 2013). Adolescent girls with Type 1 Diabetes and eating disorders have deficits in self-regulation skills (Grylli et al., 2010); severe obesity treatment is more effective by adding a nutrition treatment component emphasizing self-regulatory skills development for controlled eating (Annesi, 2011); and self-regulation prolongs the survival of breast and colon cancer patients (Kröz et al., 2011). Finally, in a recent study, patients who received regular self-regulation counseling by cell phone improved adherence to pill intake from 87% to 94%, in comparison with a group who did not receive any phone counseling (Kalichman et al., 2011).

The sooner in life we begin with self-regulation development, the better the results seen in youth and adulthood. Those younger than 25 are more susceptible to self-control depletion than those between 40 and 65 years of age (Dahm, Neshat-Doost, Golden, Horn, Hagger, & Dalgleish, 2011).

## **Spiritual Foundations**

Finally, the 7SM also integrates two components from Christian psychology, which explain comprehensively both human behavior determinants and the process of transforming them. Bad and unhealthy behaviors come out of the mind or human heart, "from the heart come evil thoughts, murder, adultery, all sexual immorality, theft, lying, and slander" (Matt 15:19, NLT). Then, for change, "Let God transform you into a new person by changing the way you think" (Rom 12:2). To do so, people need to pray for an external and superior power that enables them to change any behavior. As a result, people may experience a new life with new behaviors, since "I can do everything through Christ who gives me strength" (Phi 4:13). So, the change of mind should come first for making possible the change of external behaviors, and prayer is a key resource for permanent change.

For Muslims this spiritual component can be fully applicable through prayer to Allah; that is through Du'a for the world category. The Quran, the sacred book for Muslims, states, "And your Lord says: 'Call on Me, I will answer your prayer'" (Quran 40:60, as cited in Dua, 2014). For Buddhists or Hindus, this component can be replaced by meditation.

#### Explanation of Constructs Used by the 7SM

**Goal behavior.** Goal behavior is the new behavior an individual chooses to practice. It has two components: the identification of the negative behavior to abandon and the setting of the positive behavior to install (Galvez, 2014). The positive one is the goal behavior and should be SMART, that is, it should be specific (S), measurable (M), achievable (A), realistic (A), and time-bound (T), (Chen, Sheu, & Chen, 2010). The 7SM's first step, similarly to the integrated behavioral model, is to specify the behavior in terms of action, target, context, and time (Montanho & Kasprzyk, 2008), and it is the main and first step to controlling oneself (McAlister, Perry, & Parcel, 2008). The second and third constructs are related to the negative behavior the individual wants to change, while the fourth to seventh steps are related to the positive and new behavior that the individual selects to practice.

Antecedents of the negative behavior. It is important to identify the precursors of the negative behavior, which can be conscious and unconscious reasons and mechanisms (Galvez, 2014). Antecedents can be previous experiences, even traumas produced at home, school, or community. Personal decisions made at some point in life could have determined the beginning of such behavior. Sometimes, an individual did nothing to practice such behavior, simply no one taught him/her any different way of life. Undesirable behaviors could be from the influence of parents, relatives, teachers, or peers. Questions that might help the person to identify those reasons are *Why am I what I am? Why do I do this? Why did I engage in this negative or risky practice?* The answers to such questions are antecedents that facilitated the installation of the negative behavior that the individual wants to change.

Antecedents in the PRECEDE-PROCEED model are the factors that influence behavior and are identified as predisposing, enabling, and reinforcing factors (McKenzie, Neiger, & Thackeray, 2013). Predisposing factors in a person are knowledge, attitude, values, beliefs, and perceptions, which facilitate or hinder the motivation for a person to change. Enabling factors are barriers or facilitators that are present in a community or a system. Reinforcing factors are the feedback and rewards a person receives from family, friends, teachers, and the society that reinforce health practices.

One important requirement in the application of the 7SM is to write a step-bystep plan to change. The written plan should include the negative and goal behaviors, the antecedents that were found, and the answers of the remaining steps. In addition, the maintenance plan should also be written.

**Consequences of the negative behavior.** Consequences of the negative behavior consists in listing the perceived results if the negative behavior continues. Consequences are the natural results of what already came to the individual, and/or will come to him/her because of keeping practicing

the behavior he or she wants to change (Galvez, 2014). The list of possible consequences is done according to the person's perception and knowledge; the list might not be exact or scientifically proven. This is a process of change not a test of knowledge. The key questions to answer in this step are *what happened* so far because of this behavior? What might/will happen if I don't change?

Identifying and making a list of the possible consequences of an unhealthy behavior will help a person perceive his or her susceptibility and severity (Champion & Skinner, 2008). When Consequences are identified, an individual experiences fear and anxiety that go along with the risks of the negative behavior (Prochaska et al., 2008).

**Benefits of the positive behavior.** Benefits of the positive behavior are the actual and perceived benefits in every area of life as a gain of the practice of the positive behavior to adopt. This may motivate and prepare the brain for change (Galvez, 2014). Perceived benefits are the beliefs regarding the effectiveness of the goal behavior to reduce threats of disease (Champion & Skinner, 2008; Clark & Houle, 2009). The discovery of the benefits of the goal behavior turns on self-reevaluation, which, in the transtheoretical model, is realizing that change is an important part of one's identity as a person (Prochaska et al., 2008).

The list of benefits should be important in order to increase a positive attitude toward the goal behavior. "A person who holds strong beliefs that positively valued outcomes will result from performing the behavior will have a positive attitude toward the behavior" (Montanho & Kasprzyk, 2008, p. 71). Finally, enlisting both consequences and benefits light up another process of change entitled environmental reevaluation in the transtheoretical model, or outcome expectations in the social cognitive theory. It helps in realizing the negative impact of the unhealthy behavior and the positive impact of the healthy behavior on the immediate social and/or physical environment (McAlister et al., 2008; Prochaska et al., 2008).

**Programming.** Programming is placing the positive behavior in a specific context of time and place by responding to the questions *what* will be practiced, *how* it will be practiced, *when* it will be practiced, *where* it will be practiced, and *with whom* will it be practiced (Galvez, 2014). It describes what the individual will specifically do for practicing or applying his or her goal behavior. The new behavior is situated in a timeline with a specific time of beginning and ending. The desirable behavior is situated in a context of a specific place. The individual who is changing mentions the person who will accompany him/her in performing the desirable behavior.

As a result, an individual's brain will be more likely to carry out the new behavior when that behavior is situated in a specific time and space. When an individual defines exactly what he or she will do, where, when, and with whom

that individual is able to develop self-efficacy, which is the belief about personal ability to perform a behavior that brings desired outcomes (McAlister et al., 2008). Finally, programming includes planning the social support the individual will use to support change. For instance, family support increases behavioral/emotional self-control and helps develop competencies and optimism control among cancer survivors (Wills & Bantum, 2012).

**Reinforcement plan.** The reinforcement plan consists of a written plan to manage a systematic reinforcement for the new behavior, with the purpose of consolidating its adoption (Galvez, 2014). Reinforcement is the rewards given to someone or to oneself for having practiced the desirable behavior. The person who receives the reinforcement feels comfortable and is more likely to perform the desirable behavior again until the new behavior becomes a natural part of the lifestyle. There are two kinds of reinforcers (Green & Kreuter, 2005): *material reinforcers* such as gifts, money, dining out at a favorite restaurant, or a token, and *social reininforcers*, such as words of appreciation, hugs, warmth expressions, commends, or a written card. To install a new behavior, it is necessary to use both material and social reinforcers. After a time of practicing the desirable behavior, it is important to extinguish the material reward progressively but to keep receiving the social one.

Self-regulation names reinforcement as self-reward (McAlister et al., 2008). For the stimulus response theory, learning is based on the association of stimulus, response, and reinforcement (McDade-Montez, Cvengros, & Christensen, 2005; McKenzie et al., 2012). Additionally, in the incentive motivation theory, rewards and punishment are used to modify behavior (McAlister et al., 2008).

**Commitment and motto.** Commitment and motto consist of writing a contract with one-self, choosing an inspirational motto, printing both in an attractive flyer, and placing them in visible and familiar places (Galvez, 2014). The purpose of this seventh step is to strengthen self-confidence and to help the individual live a deep experience of self-regulation. Although the goal behavior has been selected and a detailed plan of action has been written, it is necessary to verbalize the commitment to change. According to Morrone (2011), the two important steps in health change are to verbalize a commitment to change and to develop a detailed plan of action. In the transtheoretical model for behavior change, making a firm commitment to change is known as self-liberation (Prochaska et al., 2008).

Maintenance plan to prevent relapse and to deepen change. A personal project of change based on the 7SM should cover a period of at least 3 months. Ideally it should cover a period of 6 months. The maintenance stage in the 7SM takes place in two phases. First, it may begin very early with one's program of change, during the 2nd or 3rd month, according to one's need. Second, it should continue after the individual has implemented the plan in order to deepen the

change and to prevent relapse (Galvez, 2014). Maintenance stage has three components: evaluation, self-instruction, and prayer or meditation, which is the spiritual component of the model (Galvez, 2014). According to the self-regulation theory, the individual can have control through self-monitoring, feedback, and self-instruction (McAlister et al., 2008).

*Weekly evaluation*. Weekly evaluation helps analyze *what has (or has not)* been accomplished, finding explain the reasons behind both alternatives, and make adjustments to continue with the process of installing the positive behavior. Evaluation can begin once the change plan begins to operate. It may continue for several months until the new behavior becomes natural and relapsing is almost impossible. To carry out an evaluation, the individual needs to use his or her brief written plan, in order to compare his or her performance with the written plan, particularly with the fifth step—programming. It can be done once a week at the same time. By analyzing why programming accomplishment or non-accomplishment took place, a person can adjust plans, and design strategies to overcome temptations.

The self-regulation model points to the need of monitoring how one's coping reactions affect the environment and oneself (Clark & Houle, 2009). Dealing with temptations to go back to the old behavior is important. Three experimental studies showed that it is easier to fall into weak temptations than strong temptations. Participants who were confronted with a weakly attractive chocolate cake consumed a larger portion than did those participants who were tempted by a strongly attractive chocolate cake (Kroese, Evers, & De Ridder, 2011).

**Daily self-instruction**. It is the selection, writing, and repetition of new instructions with regard to the new behavior an individual is practicing. It must be self-repeated when waking up in the morning, during the day, in front of a mirror, or in bed. Words and instructions from others or from the individual have power over that individual's thoughts and behaviors. By slow repetition of new instructions, by listening to one's own voice, and by deepening them in the mind, the person is able to replace the old instructions that automatically guided the practice of the old behavior.

One of the best ways to build a strong self-efficacy is verbal persuasion by telling a person that he or she can do it in order to achieve the change they have been seeking (Bandura, as cited in Green & Tones, 2010). Even in the religious field, verbal persuasion from the individual or from others plays an important role and it has a positive effect. "Many a man cries in despair, 'I cannot resist evil.' Tell him that he can, that he must resist." (White, 1990, p. 66). "But day by day say, 'I am Christ's; I have given myself to Him'" (White, 2010, p. 51).

For instance, if an individual is adopting the behavior to exercise 4 times a week, he or she can choose and write a set of three new instructions regarding

the benefits of exercising, and then he or she can instruct himself/herself several times a day. One of those self-instructions could be "(State your name)... exercise relaxes you and gives you mental energy. You can walk briskly 4 times per week; go ahead and be strong!"

**Daily prayer or meditation**. Prayer or meditation is the spiritual component of the 7SM, and a very important component of the maintenance stage. For Christians and Muslims, prayer to God and to Allah respectively is powerful and brings change. Tips for effective prayer to sustain change and to prevent relapse can be, but are not limited to the following: tell God or Allah about your plan to change and your actual change process, ask Him to change you, pray loud enough to hear your own voice, and rest assured change has come. For Hindus or Buddhists, the systematic practice of meditation may reinforce and assure the change.

Important factors related to an individual's self-behavior change are belief systems and values, and faith is one of them (Park, Lee, Chae, & Yang, 2006). In a study, faith was found to be strongly connected to high school students' self-regulation behaviors (Park & Han, as cited in Sang-Hee & Yun-Jung, 2012). Contrarily, it was found that when belief systems include materialism, compulsive buying is strengthened; however when compulsive buyers practice a religious activity joint with other techniques, they increase their self-regulation skills (Sang-Hee & Yun-Jung, 2012). Finally, a recent study among 7,000 British people found that people who have a spiritual understanding of life, without a religious framework, were vulnerable to mental disorders, more likely to be drug-dependent (77%), suffer from phobias (72%) or anxiety (50%), and more likely than the religious ones to be treated with psychotropic drugs (40%), (Drescher, 2013).

# An Exploratory Study: Experiences of the 7 SM in Two Continents

The 7SM has been applied to several small populations, particularly with graduate and undergraduate students, and faculty in university settings in South America for 10 years, and lately in Asia, particularly in the Philippines. With the purpose of testing perceptions of the effectiveness of the model, the 7SM was applied in 2012 and 2013 to promote individual self-directed behavior change aimed to install healthy behaviors such as doing aerobics, brisk walking, having a big breakfast and a small supper, going to bed early, including raw food five to nine portions in meals every day, developing the habit of reading a book everyday, drinking eight cups of water a day, healthy snacking or no snacking, stopping depending on coffee drinking, controlling anger, and controlling negative thoughts, among several others.

The targeted populations were graduate students of two international universities coming from 20 countries and representing the five continents.

They were located in the two opposite faces of the world, from a geographical perspective: Peru and the Philippines. They were asked to answer a set of questions regarding their perceptions of the effectiveness of the model in helping them to achieve their behavior change goals six months after the start of the implementation of the 7SM.

The total number of graduate students who voluntarily began the plan to change at least one health behavior using the 7SM was 45. After 6 months, 35 (77.8%) reported that the model had helped them to change, and 40 (88.9%) would recommend this model to others when they want to change. Last, 34 of them wrote positive comments about the model after 6 months.

The following are some of their comments. "This 7-step model serves as a guide not only for me, but for others to become more healthy"; "the model is very effective in our family, especially the reinforcement and motto; I have the motto in my mind"; "it's good to set an example; I can influence the behavior of several people at the same time; this is a positive co-factor, thanks"; "it is a practical model"; "...is very simple that everyone can understand and can be easily followed"; "it should be published, so more people may experience this opportunity"; "this model is a very good starting point if you want to change the negative behavior in your life"; "... has changed my lifestyle ... I can influence my family as well"; "simple, efficient, and effective"; "it is a motivator and easy to apply"; "the model is serving not only me, but also my wife and my children; in addition it is serving 30 more people to whom we shared it with and they are involved in an exercise plan..."; "... contributed to change my physical condition, I feel more flexible, with stamina to do my tasks in my family and work... several people noticed the change and they asked me how I made it, and I told them in detail"; "I found this model helps me a lot in how to keep my promises and to honor the commitment; it is not easy to always keep on track, there will be the time when you get tired of doing such a thing and just want to end it there, yet the last step in the 7-step model is making it a lot easier to do what I have committed to before"; "within this 7-step model, I decreased the amount of dinner by half; so that, anyone could use it for any other lifestyle modification"; and "I have followed the model, and it helped me day by day, month by month in my health; I changed my diet style". Finally, around 50% of the married graduate students of Peru and Philippines involved their families in the change; and 6 months later they felt the model helped the family members to achieve their goal.

#### **Conclusions and Recommendations**

Due to the pandemics of chronic disease, whose complications are the leading causes of death in the world, such as heart attack, stroke, and cancer; it is imperative to change public unhealthy behaviors and to practice healthy behaviors. Evaluation of current health behavior change interventions shows that there is room for new models, theories, techniques, and for innovative techniques to change and to maintain change. There is a need for models and techniques that give people the feeling they own and control their change process, and that provide for stress control and for deep change of thoughts and feelings. There are several models and techniques for health behavior change; however, they are far away from the public reach for they are not easy to be understood and be applied in people's daily lifestyle.

This article proposes a new conceptual framework for a new model. The 7SM is the result of integrating key constructs from different theories and models. It is presented in a way that people may understand and apply it easily. It has seven steps that individuals, families, and small groups can use to change any behavior. It also provides three maintenance strategies for a new behavior.

Results of the exploratory study done at Peru and Philippines show the potential of the 7SM in changing different unhealthy behaviors and installing new healthy behaviors through self-regulation. Further research is suggested for the exploration of cases where the model does not work, controlled tests of effectiveness of the model, and the application of the model in other settings.

## References

- Ainsworth, J., Boyd, A., Buchan, I., Kennedy, C.M., Payne, T.H., & Powell, J. (2011). Active assistance technology for health-related behavior change: An interdisciplinary review. *JMIR Publications*, 14(3), e80.
- Annesi, J. J. (2011). Relationship of initial self-regulatory ability with changes in self-regulation and associated fruit and vegetable consumption in severely obese women initiating an exercise and nutrition treatment: Moderation of mood and self-efficacy. *Journal of Sports Science & Medicine*, 10(4), 643-648.

Bandura, A. (2004). Health promotion by social cognitive means. *Health Education and Behavior, 31*, 143-164.

- Champion, V.L., & Skinner, C.S. (2008). The health belief model. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4<sup>th</sup> ed.). San Francisco, CA: Jossey-Bass.
- Chatterjee, S., & Price, A. (2009). Healthy living with persuasive technologies: Framework, issues, and challenges. *Journal of the American Medical Informatics Association, 16*(2), 171-178.
- Chen, W. W., Sheu J. J., & Chen, H. S. (2010). Making decisions to create and support a program. In C. I. Fertman, & D. D. Allensworth (Eds.), *Health promotion programs: From theory to practice*. San Francisco, CA: Jossy-Bass.
- Clark, M., & Houle, C.R. (2009). Theoretical models and strategies for improving disease management by patients. In S. A. Shumaker, J. K. Ockene, & K. A. Riekert (Eds.), *The handbook of health behavior change* (3<sup>rd</sup> ed.). New York, NY: Springer.
- Cohen, M. T. (2012). The importance of self-regulation for college student learning. *College Student Journal*, 46(4), 892-902.
- Dahm, T., Neshat-Doost, H., Golden, A., Horn, E., Hagger, M., & Dalgleish, T. (2011). Age shall not weary us: Deleterious effects of self-regulation depletion are specific to younger adults. *PLOS ONE*, 6(10), 1-4. doi:10.1371/journal.pone.0026351
- Edwards, P., Felix, L., Galli, L., Haines, A., Phillips, G., & Watson, L. (2013). The effectiveness of mobile-health technology-based health behaviour change or disease management interventions for health care consumers: A systematic review. *PLOS Medicine*, *10*(1), 1-45.
- Fein, E. C., & Klein, H. J. (2011). Personality predictors of behavioral selfregulation: Linking behavioral self-regulation to five-factor model factors, facets, and a compound trait. *International Journal of Selection* & Assessment, 19(2), 132-144. doi:10.1111/j.1468-2389.2011.00541.x
- Galvez, C. A. (2014). *The 7 secrets to change: For your total health and wellness*. Manila, Philippines: Philippine Publishing House.
- Galvez, C. A. (2002). Poder para cambiar: Los habitos de salud de manera feliz y para siempre [Power to change: Health habits happily and for ever]. Lima, Peru: Editorial Imprenta Union.
- Green, J., & Tones, K. (2010). *Health promotion: Planning and strategies* (2<sup>nd</sup> ed.). London, United Kingdom: SAGE.
- Grylli, V., Wagner, G., Berger, G., Sinnreich, U., Schober, E., & Karwautz, A. (2010). Characteristics of self-regulation in adolescent girls with Type 1 diabetes with and without eating disorders: A cross-sectional study.

*Psychology & Psychotherapy: Theory, Research & Practice, 83*(3), 289-301. doi:10.1348/147608309X481180

Jiang, F., Lu, S., Hou, Y., & Yue, X. (2013). Dialectical thinking and health behaviors: The effects of theory of planned behavior. *International Journal of Psychology*. 48 (3), 206-214. doi:10.1080/00207594 .2012.656130

Johnson, B. T., Scott-Sheldon, L. A. J., & Carey, M. P. (2010). Metasynthesis of health behavior change: Meta-analyses. *American Journal of Public Health*, 100(11), 2193-2198.

Kalichman, S. C., Kalichman, M. O., Cherry, C., Swetzes, C., Amaral, C. M., White, D., & Eaton, L. (2011). Brief behavioral self-regulation counseling for HIV treatment adherence delivered by cell phone: An initial test of concept trial. *AIDS Patient Care & STDs*, 25(5), 303-310. doi:10.1089/apc.2010.0367

Krebs, P., Prochaska, J. O., & Rossi, J. S. (2010). Defining what works in tailoring: A meta-analysis of computer tailored interventions for health behavior change. *Preventive Medicine*, 51(3-4), 214-221.

Kroese, F. M., Evers, C., & De Ridder, D. D. (2011). Tricky treats: Paradoxical effects of temptation strength on self-regulation processes. *European Journal of Social Psychology*, 41(3), 281-288. doi:10.1002 /ejsp.771

Kröz, M., Reif, M., Büssing, A., Zerm, R., Feder, G., Bockelbrink, A.,... Girke, M. (2011). Does self-regulation and autonomic regulation have an influence on survival in breast and colon carcinoma patients? Results of a prospective outcome study. *Health & Quality of Life Outcomes*, 9 (1), 85-95. doi:10.1186/1477-7525-9-85

Lightsey, J., Maxwell, D., Nash, T., Rarey, E., & McKinney, V. (2011). Self-control and self-efficacy for affect regulation as moderators of the negative affect-life satisfaction relationship. *Journal of Cognitive Psychotherapy*, 25(2), 142-154. doi:10.1891/0889-8391.25.2.142

McAlister, A. L., Perry, C. L., & Parcel, G. S. (2008). How individuals, environments, and health behaviors interact. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4<sup>th</sup> ed.). San Francisco, CA: Jossey-Bass.

McDade-Montez, E., Cvengros, J., & Christensen, A. (2005). Personality and individual differences. In J. Kerr, R. Weitkunat, & M. Moretti (Eds.), *The ABC of behaviour change: A guide to successful disease prevention and health promotion*. Elsevier Science: San Diego, CA

- McKenzie, J. F, Neiger, B. L., & Thackeray, R. (2013). *Planning, implementing and evaluating health promotion programs: A primer* (6<sup>th</sup> ed.). San Francisco, CA: Pearson Benjamin Cummings.
- Montanho, D. E., & Kasprzyk, D. (2008). Theory of reasoned action, theory of planned behavior, and the integrated behavioral model. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4<sup>th</sup> ed.). San Francisco, CA: Jossey-Bass.
- Mount, D. L. (2009). Does cognition influence Type 2 diabetes-related adherence? In S. A. Shumaker, J. K. Ockene, & K. A. Riekert (Eds.), *The handbook of health behavior change* (3<sup>rd</sup> ed.). New York, NY: Springer.
- Morrone, L. (2011). *Get healthy for heaven's sake*. Eugene, OR: Harvest House Publishers.
- Park, B. G., Lee, J. U., Chae, S. Y., & Yang, H. J. (2006). Effects of an intelligence change–belief system on learning motivation, self-regulated learning abilities, and creativity. *The Journal of Yeolin Education*, 14, 41-56.
- Prestwich, A., Kellar, I., Parker, R., MacRae, S., Learmonth, M., Sykes, B., Taylor, N., & Casttle, H. (2014). How can self-efficacy be increased? Meta-analysis of dietary interventions. *Health Psychology Review*, 8 (3), 270-285. doi:10.1080/17437199.2013.813729
- Prochaska, J. O., Johnson, S., & Lee, P. (2009). The transtheoretical model of behavior change. In S. A. Shumaker, J. K. Ockene, & K. A. Riekert (Eds.), *The handbook of health behavior change* (3<sup>rd</sup> ed.). New York, NY: Springer.
- Prochaska, J.O., Redding, C.A., & Evers, K.E. (2008). The transtheoretical model and stages of change. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4<sup>th</sup> ed.). San Francisco, CA: Jossey-Bass.
- Rimer, B. (Ed.). (2008). *Models of individual health behaviors* (4<sup>th</sup> ed.). San Francisco, CA: Jossey-Bass.
- Sang-Hee, S., & Yun-Jung, C. (2012). A model of compulsive buying: Dysfunctional beliefs and self-regulation of compulsive buyers. *Social Behavior & Personality: An International Journal*, 40(10), 1611-1624.
- Uzuntiryaki-Kondakçi, E., & Çapa-Aydin, Y. (2013). Predicting critical thinking skills of university students through metacognitive self-regulation skills and chemistry of self-efficacy. *Educational Sciences: Theory & Practice*, *13*(1), 666-670.

- Watson, D. L., & Tharp, R. G. (2014). *Self-directed behavior: Self-modification for personal adjustment* (10<sup>th</sup> ed). Belmont, CA: Wadsworth Cengage Learning.
- White, E. (1990). *The Ministry of Healing*. Retrieved from http://www .whiteestate.org/books/mh/mh.asp
- White, E. (2010). *Steps to Christ*. Retrieved from http://www.whiteestate .org/books/sc/sc.asp
- World Health Organization (2008). 2008-2013 Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases: Working in partnership to prevent and control the 4 noncommunicable diseases — cardiovascular diseases, diabetes, cancers and chronic respiratory diseases and the 4 shared risk factors — tobacco use, physical inactivity, unhealthy diets and the harmful use of alcohol. Geneva, Switzerland: WHO Document Production Services.
- World Health Organization (2012a). *Cancer: Fact sheet:* N°297, *Updated February 2012*. Retrieved from http://www.who.int/mediacentre /factsheets/fs297/en/index.html
- World Health Organization (2012b). *Cardiovascular diseases (CVDs): Fact sheet N°317, Updated September 2012.* Retrieved from http://www.who.int/mediacentre/factsheets/fs317/en/
- Williams, S. L., & French, D. P. (2011). What are the most effective intervention techniques for changing physical activity self-efficacy and physical activity behavior-and are they the same? *Health Education Research*, 26(2), 308-322. doi:10.1093/her/cyr005
- Wills, T. A., & Bantum, E. (2012). Social support, self-regulation, and resilience in two populations: General-population adolescents and adult cancer survivors. *Journal of Social & Clinical Psychology*, 31(6), 568-592. doi:10.1521/jscp.2012.31.6.568

Cesar A. Galvez, DrPH Professor, Public Health Department Adventist International Institute of Advanced Studies Silang, Cavite, Philippines cgalvez@aiias.edu