



Multi-theory model (MTM) for health behavior change

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Abstract

In health education and health promotion an ideal theory is one that is exclusive to health behaviors, predicts health behavior change, is based on empirical evidence with health behavior changes, provides enough predictive power, is parsimonious, has constructs that are malleable, caters to both one-time and long-term health behavior change, works at individual, group and community levels, and is applicable across cultures. This commentary discusses the limitations of commonly used theories such as health belief model, transtheoretical model, PRECEDE-PROCEED and ecological models and proposes a framework for a new theory exclusive for health behavior change. Such a new theory will address both initiation and sustenance of health behavior change, will incorporate cognitive, conative, and environmental empirically tested components from existing theories, will be parsimonious, applicable at individual, group and community levels, will be culturally robust and useful for resource-scarce settings.

Review

In health education and health promotion we are interested in theories that are exclusive to health behaviors, can predict health behavior *change*, are based on empirical evidence with health behavior change, provide adequate predictive power, are parsimonious, have constructs that are malleable, induce immediate and long-term health behavior change, can be applied at individual, group, and community levels and are applicable across cultures.¹ Of all the theories that have been applied in health education and health promotion since the 1950s, there is only one theory that is exclusive to health behaviors and that is the health belief model (HBM).² The HBM is particularly useful for programs for disease and injury avoidance, but it does not lend itself very well to long-term behavior change.¹ A classic meta-analysis of the relationships among four HBM dimensions (perceived susceptibility, perceived severity, perceived benefits, and perceived costs) and health behaviors across 16 studies found weak effect sizes and lack of

homogeneity in a majority of the studies.³ A more recent meta-analysis of 18 studies also confirmed that perceived severity was a weak predictor of behavior, and perceived susceptibility was almost always unrelated to predicting health behaviors.⁴ Cultural factors, socioeconomic status, and previous experiences also shape health behaviors, and those factors are not accounted for in the model. Another problem has been that the constructs of the HBM do not all carry equal value.⁵ For example, perceived barriers are the most important predictors of behaviors and it is not possible to easily influence the barriers, and in the absence of addressing the barriers the model does not work. Further, Ogden has criticized the conceptual basis of HBM.⁶ On the whole, HBM does not have good consistent predictive power, is not culturally versatile, and is not about *changing* health behavior but only explaining it.

Of all the theories, in use in health promotion and health education there is only one theory that is about behavior *change* and that is the transtheoretical model.⁷ Many critics have argued that the stages in the model are purely arbitrary and after classifying a population into different stages it offers no benefit.⁸⁻¹⁵ They see change being a continuous process with no discrete categories. Further, there is little empirical evidence regarding sequential transition between the stages and that no single study has documented movement through the entire spectrum of stages.¹² Another limitation of the TTM that has been pointed out in the literature is its lack of predictive potential.¹⁴ Application of the TTM to substance abuse behaviors¹⁶ and dietary and physical activity interventions¹⁷ has yielded weak results. Another limitation of the model is that TTM is not parsimonious.¹⁸ Having ten processes of change and several other constructs make this model rather cumbersome. On the whole, TTM uses arbitrary stages, is not parsimonious, some of its constructs are not malleable, and the terminology and context it uses is that of psychotherapy and not of health education.

A criticism of HBM, TTM and some other similar models is that they address only individual level change in behavior.⁶ However, there is a framework in health promotion for the past 30 some years that is called the PRECEDE-PROCEED model.¹⁹ I like to call it a health promotion planning model. It is among the most popular and most researched model in our field.

Over 1,000 published and numerous unpublished studies have used this model and the model is still widely used. This model incorporates theories of sociology, anthropology, economics and psychology. A limitation of the PRECEDE-PROCEED model like other similar ecological models²⁰ is that these models are very comprehensive making them somewhat impractical.¹ No doubt so many studies have used the PRECEDE-PROCEED model but none have operationalized it adequately or fully.¹ The model poses special problems in resource-scarce contexts as it requires heavy outlay of resources both human and financial.¹ Furthermore, it does not allow the practitioners and researchers to decipher to what extent which construct is working.¹ Clubbing different constructs into three categories is also not sound from a research perspective though it may have practical advantages.¹ On the whole, ecological models are very comprehensive, do not identify distinct measurable constructs, and are impractical.

Similarly, we can discuss the merits and shortcomings of classic health education and promotion theories which is not what I intend to do in this commentary. In this commentary, I intend to present a model for empirical testing that is exclusive for health education; has empirically tested “constructs” for health behavior *change*; is parsimonious; affects cognitive, conative and environmental domains; has constructs that are malleable; caters to both one-time and long-term behavior *change*; works at individual, group and community levels; and is applicable across cultures. I call it the multi-theory model (MTM) for health behavior change. While the constructs that make up this model have been tested, this model altogether has not been tested.

I wish to dissect health behavior *change* into two components: initiation of the behavior change and sustenance or continuation of the health behavior change. Initiation of the behavior change is the same as adoption of one-time behavior such as receiving a one-time vaccination. It is the process of moving from one behavior to another. And sustenance or continuation of the health behavior change is the same as long-term performance of the health behavior change such as performing physical activity behavior over a course of life-time. Why this differentiation is needed is because the constructs that influence initiation of change are different than the constructs that sustain the behavior change. This differentiation has not been made by the existing theories that explain behavior and as a result when you operationalize them you get low predictive power.

There are three main constructs that influence the

initiation of behavior change. The first one is the “participatory dialogue” derived from the Freire’s model of adult education.²¹ For behavior *change* this participatory dialogue can be initiated by the health educator. The important part is that the content of this dialogue must focus on advantages and disadvantages of the health behavior *change*. This is similar to the pros and cons of the transtheoretical model,⁷ or perceived benefits and perceived barriers in the health belief model² but is somewhat different in the *process* because this is participatory which means it has to be a two-way communication or mutual exploration which is emphasized by Freire but ignored by the transtheoretical model and health belief model. The construct of participatory dialogue is a very robust construct that has been tested across cultures in all six continents.²²

The second construct is “behavioral confidence” derived from Bandura’s self-efficacy²³ and Ajzen’s perceived behavioral control.²⁴ There are three reasons for calling it behavioral confidence and not the latter two terms. First one is simplicity. I have conducted workshops in several parts of the world, and few are able to appreciate what these jargons mean if they heard it the first time. Most of my students get self-efficacy confused with program efficacy. The second reason is that this construct has perhaps greater predictive power in the United States because of cultural closeness of this construct but when it comes to my work in China,²⁵ India,²⁶ and Iran²⁷ it has either shown very modest predictive power or no predictive power which may be due to obvious cultural differences. The construct of behavioral confidence is more culturally-specific than self-efficacy. The source of behavioral confidence is not confined to self or is not totally internal but it also can come from external sources such as influential people in life, health educator, God etc. The final reason is that behavioral confidence is slightly different from Bandura’s “self-efficacy” and Ajzen’s “perceived behavioral control” which are about learning a behavior and my conceptualization pertains to *changing* a health behavior so it is not about “here and now” but about “future.” This construct is a projection of your sureness to perform a health behavior change in the *future* not in the present. This line of reasoning is supported by work on prefactual and counterfactual conditionals.²⁸

The third and final construct for initiation of a behavior is the “changes in physical environment” derived from Bandura’s construct of environment,²³ Prochaska’s construct of environmental re-evaluation,⁷ environmental factors in Fishbein’s integrative model²⁹

etc. This conceptualization pertains only to the “physical” and not the social environment and entails making changes to obtainability, availability, accessibility, convenience, and readiness of resources. This model is depicted in Figure 1.

< Insert Figure 1 here >

Let us now look at the sustenance or continuation of the health behavior change or modification for long term health behavior change. There are three main constructs that influence the sustenance of health behavior change. The first construct is derived from self-motivation construct of emotional intelligence theory³⁰ which means “gathering up” one’s feelings and directing oneself toward a goal, despite self-doubt, inertia and impulsiveness. I call it “emotional transformation” because it is converting or transforming emotions toward the health behavior change. In simple terms, it means taking one’s emotions and directing them toward changing the behavior.

The second construct is derived from Freire’s adult education model’s¹⁹ praxis and is called “practice for change.” Praxis refers to active reflection and reflective action. Practice for change entails constantly thinking about the health behavior change and making mid-term rectifications to one’s strategy, overcoming barriers, and remaining focused on health behavior change. This can be done by keeping a diary or a journal that records progress toward behavior change or taking action during natural times that prepare for the health behavior action, such as putting your workout clothes out in the evening for a morning activity. This work is supported by research on mindfulness meditation.³¹

The third and final construct is derived from the construct of environment,²¹ helping relationships,⁷ social support³² and so on. It is called “change in social environment” and entails creating social support from the environment. This change in social environment can be natural or artificial. The health educator can provide help with change in the social environment. This model is depicted in Figure 2.

< Insert Figure 2 here >

I have presented this model based on my research and empirical experience in the field with the various behavioral theories since 1981 using the Knowledge-Attitudes-Practices (KAP) model,³³ health belief model,³⁴ social cognitive theory,³⁵ transtheoretical model,³⁶ theory of planned behavior,³⁷ emotional intelligence theory,³⁸ social support theory,³⁹ PRECEDE-PROCEED model,⁴⁰ capability theory,⁴¹ and Freire’s adult education model.⁴² I believe the

constructs chosen in this model are independent, not related to each other, and hold a track record toward making behavior change thereby making it a useful theory. The multi-theory model (MTM) for health behavior change has not been empirically tested though I am in the process of doing so. I believe this model can be applied to behavior change at individual, group, and community levels and is particularly well suited for resource-scarce settings. I would request the readers of this commentary to also test this model and improve it further. I am not providing a critique of this model and leave it to the readers to do so.

Note. In the Figures, the arrows connecting the constructs to initiation and sustenance of behavior change are not showing up on pdf despite several attempts.

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Illustrations

Illustration 1

Figure 1. Constructs in initiation of health behavior change in multi-theory model of health behavior change

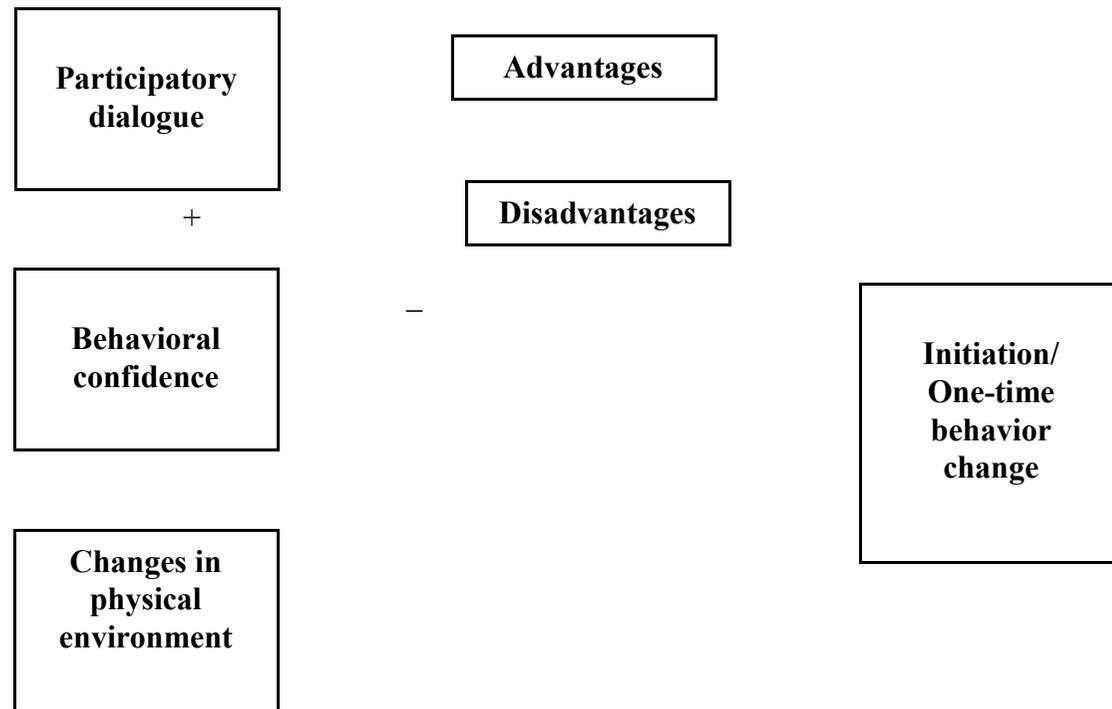


Illustration 2

Figure 2: Constructs in sustenance of health behavior change in multi-theory model of health behavior change

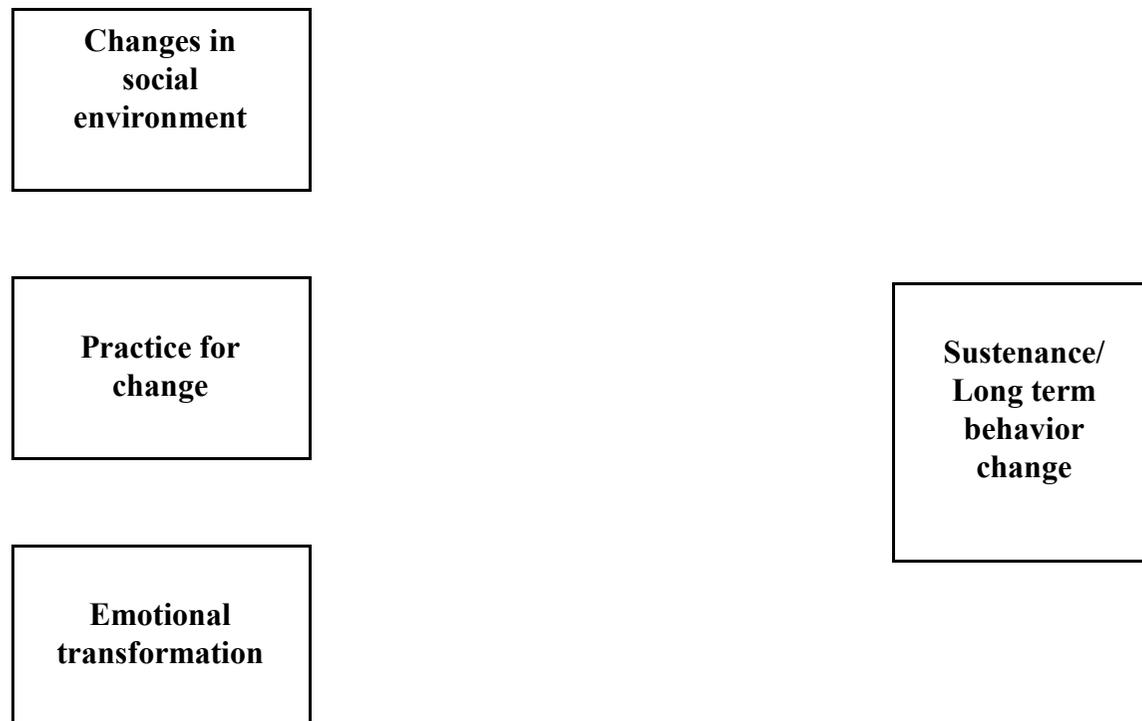


Figure 2. Constructs in sustenance of health behavior change in multi-theory model of health behavior change