

## BEHAVIORAL CHANGE MODELS – A NICHE TO CREATE POSITIVE HEALTH OUTCOME

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### ABSTRACT

Treating theories of change as distinct from behavioral models emphasizes the different uses of the two types of evidence when planning behavior change interventions. Most behavioral models assert that an individual's use of health services is a function of the perceived threat of disease, past use of medical services, and perceived value of action. Early approaches to patient education tended to focus on health care provider to patient communication. During that time, the main message from health care providers to patients was to comply with a prescribed self-care regime. Theories most often associated with oral health are the Health Belief Model, Locus of Control, Self-Efficacy, Stages of Change, and Theory of Reasoned Action. Sense of Coherence, a theory introduced in the 1970's, has recently been applied to oral health. Other health theories have proven useful with health conditions such as patient self-management for HIV infection, emotional well-being for obesity, and family Coherence and conflict resolution for diabetes management. As frameworks such as social marketing show, underpinning the intervention process should be a thorough understanding of the target behavior, and the variation in that behavior among the audience groups in question. Behavioral models are essential to developing this understanding; however, both bodies of theory agree that these models should not be adopted and imposed uncritically through interventions.

**KEYWORDS:** Health theories; behavioral change models; health outcome

### BEHAVIORAL CHANGE: A SKETCH

Theories of change are based on social psychological understandings of behavior, and there is a clear overlap between these two bodies of evidence. However thinking on change can also be found in other theoretical disciplines, as well as arising from diverse areas of practice. Indeed central to many conceptions of change is the merging of theory and practice.<sup>[1]</sup> Treating theories of change as distinct from behavioral models emphasizes the different uses of the two types of evidence when planning behavior change interventions.<sup>[2-3]</sup> Most behavioral models assert that an individual's use of health services is a function of the perceived threat of disease, past use of medical services, and perceived value of action.<sup>[4-6]</sup>

### HEALTH THEORIES

The overall goal of patient education is to provide patients the information they need to make informed life style choices and options for professional services. Early approaches to patient education tended to focus on health care provider to patient communication.<sup>[7]</sup> During that time, the main message from health care providers to patients was to comply with a prescribed self-care regime. The medical community paid less attention to an individual's perception of health and disease only a few decades ago. An early breakthrough in health education came in the 1950's with the introduction of the Health Belief Model. Other theories have since followed and applied to both acute and chronic health

conditions. Theories most often associated with oral health are the Health Belief Model, Locus of Control, Self-Efficacy, Stages of Change, and Theory of Reasoned Action. Sense of Coherence, a theory introduced in the 1970's, has recently been applied to oral health. Other health theories have proven useful with health conditions such as patient self-management for HIV infection, emotional well-being for obesity, and family Coherence and conflict resolution for diabetes management.<sup>[8]</sup>

### **HEALTH BELIEF MODEL**

First proposed in the 1950's by Hockbaum, and adopted in the 1970's by the United States Public Health Service, the Health Belief Model (HBM) was one of the first attempts to view health within a social context.<sup>[9]</sup> The underlying principle of the HBM is that individuals with better information make better health decisions. According to Hockbaum, people will find it worthwhile when making health related decisions to keep an open mind. Applying this theory to an oral health condition such as early childhood caries, the primary caregiver must believe that the child is susceptible to dental caries; that primary teeth are important and dental caries is a serious threat to them; that dental caries can be prevented; and must be willing to limit the child's exposure to fermentable carbohydrates, and must assist the child in practicing good oral hygiene. A limitation of the HBM is that supplying information alone is usually not enough to change health behaviors. Behavior changes rarely follow a logical, stepwise progression. Cross sectional studies have found strong associations between good oral health and HBM stages. However, longitudinal studies have not shown good predictive value in following HBM principles. It is possible that measuring health beliefs cross sectionally reveals that, after a behavior is adopted, the individual believes the condition is serious and that interventions have value.<sup>[10,11]</sup>

### **TRANSTHEORETICAL MODEL AND STAGES OF CHANGE**

The Transtheoretical Model and Stages of Change developed by Prochaska, Norcross, and DiClemente is another staged theory that measures an individual's readiness to adopt a new health behavior. Like HBM, Stages of Change is a staged model with each step contingent on the previous step. This theory states that individuals

move along a predictable continuum of change; and that each step has distinct characteristics. Accurately assessing where an individual is along this continuum allows health care workers and educators to tailor interventions appropriate to the person's stage of readiness. The six stages of change are: precontemplation, contemplation, preparation, action, maintenance, and termination. In the precontemplation stage, an individual has no intention of changing a behavior. At this stage, providing information regarding risks may be appropriate to initiate a person's thought for change. In the contemplation stage, the individual is considering making a change within the next six months. The individual will examine the pros and cons of making a change, carefully weighing the benefits of changing versus the costs of changing. To help evaluate the pros and cons of changing, the individual may explore options such as community support programs like smoking cessation programs that assist behavior changes. If the available options seem appropriate and beneficial, the individual may advance to the next stage of preparation. In the preparation stage, the individual is ready to make the change and actively makes plans to enact the change, for example enrolling in a tobacco cessation class. In the action stage, the change has been adopted, and in the maintenance stage, the change has been continuous for at least six months. The termination stage, often not attained, represents a state in which the individual feels as if the prior behavior never existed and is, therefore, highly unlikely to return to the previous behavior. Regarding oral health behaviors, Stage of Change theory is most often used with tobacco cessation programs. Prochaska, Redding, and Evers tested a staged intervention against a standard self-help cessation program, following participants for 18 months. Results were similar at 12 months but at 18 months the staged group moved ahead. Behaviors and attitudes about smoking and cessation readiness often match the appropriate stage in cross sectional studies. Evaluation of the effectiveness of smoking cessation programs based on stages of change theory have been less definitive than reported by the theory's proponents. Longitudinal analysis of smoking cessation programs based on stages of change theory found that using interventions based on the theory added little or borderline improvements

over other cessation strategies.<sup>[12,13]</sup>

### **THEORY OF REASONED ACTION**

Theory of Reasoned Action stresses the importance of attitudes and intentions in changing a behavior. According to this theory, the most important determinant of behavior is intention. Very few actions that produce a healthy outcome happen without ample knowledge and full intention to practice the healthy behavior. Two cognitive processes are at work to develop healthy behaviors: 1) belief about what significant others think, and 2) personal motivation to comply with those significant people. Other external variables that will influence attitudes and thus behaviors are internally processed within the context of significance. According to the Theory of Reasoned Action, people make rational decisions based on their knowledge, personal values and attitudes. Therefore, a person's intent to perform a certain action is the most immediate and relevant predictor of carrying out that action. Behavioral beliefs and normative beliefs are two kinds of beliefs that shape intentions.<sup>[14]</sup> Behavioral beliefs are the attitudes held by the individual alone. A person forms attitudes based on relative risks, benefits, and possible outcomes. Therefore, personal knowledge and perception of personal health importance influence behavioral beliefs. Normative beliefs are those held by other people who influence the individual. If a certain behavior is expected or is the social norm, or is expected by someone of importance to the individual, those expectations will have a bearing on an individual's intentions and, therefore, affect his or her behavior. Intentions will only predict behavior if they are stable and consistent. When faced with an unexpected obstacle, an individual might change his or her intentions and neglect to carry out the originally intended behavior. Another limitation of this theory is that intentions must be matched very closely to the behavior to have predictive power. Social norms and community expectations are powerful predictors of individual behavior, according to the Theory of Reasoned Action. When using this theory in a community intervention, the behavior of the collective community may be more easily predicted than that of the individual.<sup>[15]</sup> Social norms do not change as readily as individual choices; therefore, social norms are more stable and provide strong normative beliefs to those in a

close community. The Theory of Reasoned Action helps explain an individual's perceptions of normal and expected behavior. The theory seems to be most successful in predicting behaviors that are completely within the individual's control and in which intentions remain stable, such as daily oral hygiene practices. Extraneous factors outside of the individual's control, such as fatigue or change of environment, may quickly change intentions and therefore change behavior and outcome. This theory has proven to be effective in influencing oral hygiene in young adults. The social expectations of the group had a strong influence on their oral hygiene behavior.

### **SELF-EFFICACY**

Self-efficacy is a construct of the Social Cognitive Theory proposed by Bandura. Social Cognitive Theory, a revision of Social Learning Theory, states that individuals do not learn or change behavior in a linear fashion. Rather, changes take place bidirectionally; environment, information, and behavior all affect one another. As an individual learns more, behaviors and environment may change, causing more knowledge to be gained, which, in turn, reinforces behavior and healthy environments.<sup>[16,17]</sup> Lapses are a part of the learning process as the individual employs personal choices to develop behaviors consistent with individual choice and lifestyle. Individuals with high self-efficacy believe their actions will affect outcome. As a healthy behavior produces results, success reinforces success. Individuals may have no intention of changing a behavior but after experiencing a success, behaviors, knowledge and environments change. Self-efficacy has been an accurate predictor of oral health in both cross sectional and longitudinal studies. Qualitative analysis of dental attitudes indicated that cognitive experiences, supportive and emotional dimensions, and childhood experiences influence dental attitudes and behaviors. Dental self-efficacy was found to be a determinant in oral health and oral hygiene among diabetes patients and for general oral health in elderly patients. Self-efficacy has shown to be consistent with improvements in oral hygiene over time, but the benefit may be short term only. Periodontal patients showed improvements in oral hygiene and dental self-efficacy six months after the initial intervention

but differences were lost over time. Self-efficacy was found to be protective against early childhood caries (ECC). Researchers have proposed that self-efficacy may be a useful part of a multidimensional model to predict ECC. Self-efficacy is perceiving control over actions that will have an affect on outcome.<sup>[18-20]</sup> The theory differs from other theories addressing personal agency or control, in that self-efficacy is domain specific. That is, an individual can have high expectations that oral health is attainable through personal oral hygiene and professional care. The same individual may have low self efficacy in other areas of health.

### LOCUS OF CONTROL

This theory, developed by Wallston, & Kaplan in the mid 1970's, deals with perception of personal control over health issues. Internal locus of control (LOC) occurs when individuals think their personal actions determine their health status.<sup>[21]</sup> Those with external locus of control means individuals perceive others in control of health decisions and health status. External sources may be fate, chance, luck, God, or powerful others. Development of the Multidimensional Locus of Control scale helped address this issue and make the scale appropriate for specific conditions. LOC has been found to be predictive for children's dental health. Researchers found children whose mothers had more external LOC were at higher risk for developing dental caries. In contrast, other research has found little association between mothers LOC, children's health status, and use of preventive health services.<sup>[22-23]</sup> This theory continues to be refined for use in various populations and conditions.

### SENSE OF COHERENCE

Antonovsky took a very different tact in health promotion and disease prevention. The central premise is that it is more useful to study health than to study disease. He referred to this method of study as salutogenesis, the beginnings of health. It defines health in terms of a continuum of ease to disease and with the conditions surrounding the individual providing coping resources. Antonovsky's objection to the study of pathogenesis is that it tends to dichotomize people into either a "healthy" or "ill" state. He contends there is a continuum of "ease to disease" state for most people. The salutogenesis model closely examines the role of stressors and tension as

contributing factors for health and disease. A stressor is defined as a source of disturbance that upsets a sense of equilibrium. This may come from external or internal sources such as illness, heredity, job stress, or lack of personal control. Many sources of stimuli are handled routinely as individual and are not stressors. Stressors produce tension and it is the perception of stress and the tension response that has an affect on the individual. To cope with, and possibly to use, stressors to enhance life experience, people build a network of generalized resistance resources (GRRs). A GRR is more than a specific coping skill for a particular event. GRRs include all available resources at an individual level, a community and a cosmic level that enable people to manage daily crises and cataclysmic events<sup>24</sup>. A network of GRRs may contain a person's heredity, education, finances, physical resources, values, attitudes, or faith. GRRs can help an individual avoid stressors as in prevention, practicing good health habits, or avoiding dangerous situations. They may also enable a person to effectively manage a stressor and avoid psychological, emotional, or physical impairment. An examination of the list of GRRs shows that they encompass a broad range of elements. Included are biological elements such as the immune system, cognitive elements such as knowledge, and material resources such as personal income or medical insurance, social factors such as support and social norms, and macrosocial support such as a belief in divine purpose. A GRR has an element of farsightedness. This quality allows an individual to envision coping strategies and anticipate the response of the environment. The coping strategy is not the actual behavior but the planned behavior.<sup>[25]</sup> This may give an individual a measure of personal control, but the actual response or behavior may be limited by circumstances such as physical ability or material resources.

### CONCLUSION

Behavioral models can help in the task of identifying which factors are the most significant in determining behaviors. The two bodies of theory should be seen as working together, with behavioral models embedded within intervention processes shaped by theories of change. As frameworks such as social marketing show,

underpinning the intervention process should be a thorough understanding of the target behavior, and the variation in that behavior among the audience groups in question. Behavioral models are essential to developing this understanding; however, both bodies of theory agree that these models should not be adopted and imposed uncritically through interventions. Behavioral models work best when applied in the context in which they were developed; even the most flexible models work better for some behaviors than others. Models should not be regarded as solutions to policy problems, but as tools to be used in the process of developing interventions with the audience groups in question.

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