Indian Journal of Dental Sciences.
December 2013
Issue:5, Vol.:5

www.ijds.in

Review Article

Indian Journal
of Dental Sciences

E ISSN NO. 2231-2293 P ISSN NO. 0976-4003

Behavioral Change Theories In Health - A Review Article

[1] Satpreet Singh
[2] Shipra Sharma
[3] Sukhjinder Singh
[4] Shameena Singh

[1] Reader and HOD, Dept. of Public Health Dentistry, National Dental College and Hospital, Dera Bassi
[2] Dental Surgeon
[3] Dental Surgeon
[4] Intern
National Dental College and Hospital, Dera Bassi

Address For Correspondence:
Dr. Satpreet Singh
Dept. of Public Health Dentistry,
National Dental College and Hospital,
Dera Bassi, Punjab
E-mail: docsatpreet@gmail.com

Submission : 24th August 2012
Accepted : 18th October 2013

Quick Response Code

Abstract
India as a developing country has many health problems – both communicable as well as non-communicable. India is short of doctors (all types) and prevention as a habit is missing from our society. The emphasis on treatment puts even more pressure on our health care infrastructure which is woefully short on all parameters. Many health conditions are caused by risk behaviours, such as drinking, substance abuse, smoking, reckless driving, overeating, or unprotected sexual intercourse. The key question in health behaviour research is how to predict and modify the adoption and maintenance of health behaviours. Fortunately, human beings have, in principle, control over their conduct. Health-compromising behaviours can be eliminated by self-regulatory efforts, and health-enhancing behaviours can be adopted, such as physical exercise, weight control, preventive nutrition, dental hygiene, or accident prevention. Health behaviour change refers to the motivational, volitional, and actional processes of abandoning such health-compromising behaviours in favour of adopting and maintaining health-enhancing behaviours. Behavioural change theories that have potential applications in Health Care are a) Health Action Process Approach; B) Health Belief/Health Action Model; c) I-Change Model, d) Relapse Prevention Model.
The curriculum of Bachelor of Dental Surgery (BDS) is of five years with one year of internship. The subject 'Public Health Dentistry' being taught to BDS students in fourth year does include 'Health Education', but the students are still not taught about the scientific rationale of Behaviour change and how this part of health
education can bring change in attitudes and behaviour of an individual, which has the power to make a real difference to everyday health care practitioner.
An addition of chapter on "Behavior Change Theory" is highly recommended to understand the psychology and the actions needed to bring about positive changes in our society.

Key Words
Health Education; Health Belief Model; Behavioral Change Theories; Health Action Process Approach

Introduction

Behaviour change has become a central objective of public health interventions over the last decade, as the influence of prevention within the health services has increased. Behaviour change programs, which have evolved over time, encompass a broad range of activities and approaches, which focus on the individual, community, and environmental influences on behaviour. The term Behaviour Change Communication (BCC) specifically refers to community health seeking behaviour, and was first employed in HIV and TB prevention projects. Recently, its ambit has grown to encompass any communication activity whose goal is to help individuals and communities select and practice behaviour that will positively impact their health, such as immunization, dental check up, employing single-use syringes, etc[1].

Behaviour change should not be confused with behaviour modification, a term with specific meaning in a clinical psychiatry setting. These theories share a major commonality in defining individual actions as the locus of change. Behaviour change programs that are usually focused on activities that help a person or a community to reflect upon their risk behaviours and change them to reduce their risk and vulnerability are known as interventions[1].

BCC is neither a discipline, nor a science or an art. It encompasses conflicting approaches, too little measurement of impact, a variety of theories, and approaches. Theories emerging from the West reflect change ideologies rooted in rational choice, individual transformations, and the role of reason and knowledge. BCC practices emerging in developing countries illustrate the role of the community, social acceptance, emotion, and emulation in personal change.

Behavioural change theories and models are attempts to explain the reasons behind alterations in individuals' behavioural patterns[2]. These theories cite environmental, personal, and behavioural characteristics as the major factors in behavioural determination. Each behavioural change theory or model focuses on different factors in attempting to explain behavioural change. Of the many that exist, the most prevalent are the learning theories, Social Cognitive Theory, Theories of Reasoned Action and Planned Behaviour, Transtheoretical Model and the Health Action Process Approach. Research has also been conducted regarding specific elements of these theories, especially elements like self-efficacy that are common to several of the theories.

Self-efficacy:

Self-efficacy is an individual's impression of their own ability to perform a demanding or challenging task such as facing an exam or undergoing surgery[5]. This impression is based upon factors like the individual's prior success

in the task or in related tasks, the individual's physiological state, and outside sources of persuasion. Self-efficacy is thought to be predictive of the amount of effort an individual will expend in initiating and maintaining a behavioural change, so although self-efficacy is not a behavioural change theory per se, it is an important element of many of the theories, including the Health Belief Model, the Theory of Planned Behaviour and the Health Action Process Approach[8].

The learning theories state that complex behaviour is learned gradually through the modification of simpler behaviours. Imitation and reinforcement play important roles in these theories, which state that individuals learn by duplicating behaviours they observe in others and that rewards are essential to ensuring the repetition of desirable behaviour[4]. As each simple behaviour is established through imitation and subsequent reinforcement, the complex behaviour develops. When verbal behaviour is established the organism can learn through rule-governed behaviour and thus not all action needs to be contingency shaped. Skinner (1957) was one of the first psychologists to recognise the critical role of imitation ("echoic behaviour") in the learning of language. Behaviour analytic theories of change have been quite effective in improving the human condition[3].

Theories In Behaviour Changes:

A. Social Learning/Social Cognitive Theory:

According to the social learning theory, which is also known as the social cognitive theory, behavioural change is determined by environmental, personal, and behavioural elements. Each factor affects each of the others. For example, in congruence with the principles of self-efficacy, an individual's thoughts affect their behaviour and an individual's characteristics elicit certain responses from the social environment. Likewise, an individual's environment affects the development of personal characteristics as well as the person's behaviour, and an individual's behaviour may change their environment as well as the way the individual thinks or feels. Social learning theory focuses on the reciprocal interactions between these factors, which are hypothesised to determine behavioural change.

B. Theory of Reasoned Action:

This theory assumes that individuals consider behaviour's consequences before performing the particular behaviour. As a result, intention is an important factor in determining behaviour and behavioural change. According to Icek Ajzen, intentions develop from an individual's perception of behaviour as positive or negative together with the individual's impression of the way their society perceives the same behaviour. Thus, personal attitude and social pressure shape intention, which is essential to performance of a behaviour and consequently behavioural change.

C. Theory of Planned Behaviour:

In 1985, Ajzen expanded upon the theory of reasoned action, formulating the Theory of Planned Behaviour, which also emphasises the role of intention in behaviour performance but is intended to cover cases in which a person is not in control of all factors affecting the actual performance of behaviour. As a result, the new theory states that the incidence of actual behaviour performance is proportional to the amount of control an individual possesses over the behaviour and the strength of the individual's intention in performing the behaviour. Ajzen further hypothesised that self-efficacy is important in determining the strength of the individual's intention to perform behaviour.

D. Transtheoretical/Stages of Change Model:

According to the Transtheoretical Model, which is also known as the Stages of Change Model, behavioural change is a five-step process. The five stages, between which individuals may oscillate before achieving complete change, are precontemplation, contemplation, preparation, action, and maintenance. At the precontemplation stage, an individual may or may not be aware of a problem but has no thought of changing their behaviour. From precontemplation to contemplation, the individual develops a desire to change behaviour. During preparation, the individual intends to change the behaviour within the next month, and during the action stage, the individual begins to exhibit new behaviour consistently. An individual finally enters the maintenance stage once they exhibit the new behaviour consistently for over six months.

E. Health Action Process Approach:

The Health Action Process Approach (HAPA) is designed as a sequence of two continuous self-regulatory processes, a goal-setting phase (motivation) and a goal-pursuit phase (volition). The second phase is subdivided into a pre-action phase and an action phase. Motivational self-efficacy, outcome-expectancies and risk perceptions are assumed to be predictors of intentions[6]. This is the motivational phase of the model. The predictive effect of motivational self-efficacy on behaviour is assumed to be mediated by recovery self-efficacy, and the effects of intentions are assumed to be mediated by planning. The latter processes refer to the volitional phase of the model.

Behavioral Change Theories As Applicable In Health Care[10]:

A. Health Action Process Approach
B. Health Belief/Health Action Model
C. I-Change Model
D. Relapse Prevention Model

The Health Belief Model, also known as the Health Action Model, states that individuals will alter health-related behaviour according to the perceived severity of the threat to their health. The Relapse Prevention Model concentrates on promoting prolonged healthy behaviour by making distinctions between lapses and relapses in an attempt to encourage individuals to maintain healthy lifestyles. The I-Change Model, the Integrated Model for explaining motivational and behavioural change is derived from the Attitude - Social influence - Self-Efficacy Model.

Health behaviour change refers to a replacement of health-compromising behaviours (such as tobacco chewing) by health-enhancing behaviours (such as tobacco cessation)[10]. To describe, predict, and explain such processes, theories or models are being developed. Health behavioural change theories are designed to examine a set of psychological constructs that jointly aim at explaining what motivates people to change and how they take preventive action.

A. The Health Action Process Approach (HAPA) is a psychological theory of health

behaviour change. It has been developed by Ralf Schwarzer, Professor of Psychology at the Freie University of Berlin, Germany. It is an open framework of motivational and volitional constructs that are assumed to explain and predict individual changes in health behaviours such as quitting smoking or drinking, and improving physical activity levels, oral hygiene, seat belt use, or dietary behaviours. HAPA suggests that the adoption, initiation, and maintenance of health behaviours should be conceived of as a structured process including a motivation phase and a volition phase. The former describes the intention formation while the latter refers to planning, and action (initiative, maintenance, recovery). The model emphasizes the particular role of perceived self-efficacy at different stages of health behaviour change. Health Action Process Approach (HAPA) is designed as a sequence of two continuous self-regulatory processes, a goal-setting phase (motivation) and a goal-pursuit phase (volition). The second phase is subdivided into a pre-action phase and an action phase. Motivational self-efficacy, outcome-expectancies and risk perceptions are assumed to be predictors of intentions. This is the motivational phase of the model. The predictive effect of motivational self-efficacy on behaviour is assumed to be mediated by recovery self-efficacy, and the effects of intentions are assumed to be mediated by planning. The latter processes refer to the volitional phase of the model.

HAPA has five major principles that make it distinct from other models:

Principle 1: Motivation and volition. The first principle suggests that one should divide the health behaviour change process into two phases. There is a switch of mindsets when people move from deliberation to action. First comes the motivation phase in which people develop their intentions. Afterwards, they enter the volition phase.

Principle 2: Two volitional phases. In the volition phase there are two groups of individuals: those who have not yet translated their intentions into action, and those who have. There are inactive as well as active persons in this phase. In other words, in the volitional phase one finds intenders as well as actors who are characterized by different psychological states. Thus, in addition to health behaviour change as a continuous process, one can also create three categories of people with different mindsets depending on their current point of residence within the course of health behaviour change: preintenders, intenders, and actors. The assessment of stages is done by behaviour-specific stage algorithms.

Principle 3: Postintentional planning. Intenders who are in the volitional preactional stage are motivated to change, but do not act because they might lack the right skills to translate their intention into action. Planning is a key strategy at this point. Planning serves as an operative mediator between intentions and behaviour.

Principle 4: Two kinds of mental simulation. Planning can be divided into action planning and coping planning. Action planning pertains to the when, where, and how of intended action. Coping planning includes the anticipation of barriers and the design of alternative actions that help to attain one's goals in spite of the impediments. The separation of the planning construct into two constructs, action planning and coping planning, has been found useful as studies have confirmed the discriminant validity of such a distinction. Action planning seems to be more important for the initiation of health behaviours, whereas coping planning is required for the initiation and maintenance of actions as well.

Principle 5: Phase-specific self-efficacy. Perceived self-efficacy is required throughout the entire process. However, the nature of self-efficacy differs from phase to phase. This is because there are different challenges as people progress from one phase to the next one. Goal setting, planning, initiation, action, and maintenance pose challenges that are not of the same nature. Therefore, one should distinguish between preactional self-efficacy, coping self-efficacy, and recovery self-efficacy. Sometimes the terms task self-efficacy instead of preaction self-efficacy, and maintenance self-efficacy instead of coping and recovery self-efficacy are preferred.

Psychological interventions based on the Health Action Process Approach:

When it comes to the design of interventions, one can consider identifying individuals who reside either at the motivational stage or the volitional stage[7]. Then, each group becomes the target of a specific treatment that is tailored to this group. Moreover, it is theoretically meaningful and has been found useful to subdivide further the volitional group into those who perform and those who only intend to perform. In the postintentional preactional stage, individuals are labeled "intenders", whereas in the actional stage they are labeled "actors". Thus, a suitable subdivision within the health behaviour change process yields three groups: nonintenders, intenders, and actors. The basic idea is that individuals pass through different mindsets on their way to behaviour change. Thus, interventions may be most efficient when tailored to these particular mindsets. For example, nonintenders are supposed to benefit from confrontation with outcome expectancies and some level of risk communication. They need to learn that the new behaviour (e.g., tobacco cessation) has positive outcomes (e.g., well-being, less chance of oral cancer) as opposed to the negative outcomes that accompany the current behaviour. In contrast, intenders should not benefit from such a treatment because, after setting a goal, they have already moved beyond this mindset. Rather, they should benefit from planning to translate their intentions into action. Finally, actors do not need any treatment at all unless one wants to improve their relapse prevention skills. Then, they should be prepared for particular high-risk situations in which lapses are imminent. This can be done by teaching them to anticipate such situations and by acquiring the necessary levels of perceived recovery self-efficacy. There are quite a few randomized controlled trials that have examined the notion of stage-matched interventions based on HAPA, for example in the context of dietary behaviours, physical activity, and oral hygiene.

B. The Health Belief Model is a health behaviour change and psychological model developed by Irwin M. Rosenstock in 1966 for studying and promoting the uptake of health services[11]. The model was furthered

by Becker and colleagues in the 1970s and 1980s. Subsequent amendments to the model were made as late as 1988, to accommodate evolving evidence generated within the health community about the role that knowledge and perceptions play in personal responsibility. Originally, the model was designed to predict behavioural response to the treatment received by acutely or chronically ill patients, but in more recent years the model has been used to predict more general health behaviours.

The original model included four constructs:

- Perceived susceptibility (an individual's assessment of their risk of getting the condition)
- Perceived severity (an individual's assessment of the seriousness of the condition, and its potential consequences)
- Perceived barriers (an individual's assessment of the influences that facilitate or discourage adoption of the promoted behaviour)
- Perceived benefits (an individual's assessment of the positive consequences of adopting the behaviour).

A variant of the model include the perceived costs of adhering to prescribed intervention as one of the core beliefs. Constructs of mediating factors were later added to connect the various types of perceptions with the predicted health behaviour:

- Demographic variables (such as age, gender, ethnicity, occupation)
- Socio-psychological variables (such as social economic status, personality, coping strategies)
- Perceived efficacy (an individual's self-assessment of ability to successfully adopt the desired behaviour)
- Cues to action (external influences promoting the desired behaviour, may include information provided or sought, reminders by powerful others, persuasive communications, and personal experiences)
- Health motivation (whether an individual is driven to stick to a given health goal)
- Perceived control (a measure of level of self-efficacy)
- Perceived threat (whether the danger imposed by not undertaking a certain health action recommended is great)

The prediction of the model is the likelihood of the individual concerned to undertake recommended health action (such as preventive and curative health actions).

C. The I-Change Model or the Integrated Model for explaining motivational and behavioural change is derived from the Attitude – Social Influence – Self-Efficacy Model, that can be considered as an integration of ideas of Ajzen's Theory of Planned Behaviour, Bandura's Social Cognitive Theory, Prochaska's Transtheoretical Model, the Health Belief Model, and Goal setting theories[9].

The I-Change Model is a phase model and assumes that at least three phases in the behavioural change process can be distinguished:

1. Awareness; 2. Motivation ; 3. Action

For each phase particular determinants are more relevant:

1. Awareness

Awareness of a particular problem in a person is the result of accurate knowledge and risk perceptions of the person about his own behaviour (not all persons are aware of the level of their own behaviour, for instance, many persons overestimate the amount of their physical activity. Cues in their environment (e.g. a person with cancer) may also prompt a person to become more aware of a particular risk and the need to adopt particular health behaviour.

2. Motivation

Motivation to change a behaviour is regarded to be dependent on a person's attitude (the results of perceived advantages and disadvantages of the behaviour), social influence beliefs (norms of others, behaviour of others, and support of others) and self-efficacy expectations (the perceived ability to perform a particular health behaviour). The ultimate result in level of motivation to adopt a health behaviour can be measured by intentions, a concept derived from Fishbein & Ajzen's Theory of Reasoned Action or related concepts such as the stage of change concept of the Transtheoretical Model of Prochaska.

3. Action

Intentions do not necessarily lead to behaviour. Factors determining action, besides a positive intention, are again self-efficacy, action planning and goal setting. With regard to action planning we distinguish preparation planning (planning actions required to change), initiation planning (planning the actions needed to perform the new behaviour for the first time) and coping or maintenance planning (planning the actions to cope with barriers and relapse in order to maintain the realized changes). Additionally, the development of skills required for the new health behaviour is needed as well.

Predisposing Factors: The I-Change Model assumes that these motivational processes are determined by various predisposing factors such as behavioural factors (e.g. life styles), psychological factors (e.g. personality), biological factors (e.g. gender, genetic predisposition), social and cultural factors (e.g. the price of toothpastes/dental treatment, policies), and information factors (the quality of messages, channels and sources used).

Conclusion:

Behavioural change theories have gained prominence in applications in healthcare, education, criminal and energy consumption behaviour. These issues are important to societal functionality and policy-making. Much is known about human perception, learning, motivation, and responsiveness to environmental opportunities and contingencies. Health behaviour intervention lies at the interface between people and their environment. Interventionists change aspects of the environment with the intention of producing changes in how people behave and therein lies the biggest challenge.

Behavioural change theories are not universally accepted. Criticisms include the theories' emphases on individual behaviour and a general disregard for the influence of environmental factors on behaviour. Some theories were formulated as guides to understanding behaviour while others were designed as frameworks for behavioural interventions, the theories' purposes are not consistent. Such criticism illuminates the strengths and weaknesses of the theories, showing that there is room for

further research into behavioural change theories.

Nevertheless, many studies have proven the benefit of alteration of behaviour to be a much effective method and in our opinion; dental students need an introduction to these theories for overall betterment of the society.

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Source of Support : Nill, Conflict of Interest : None declared