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The transtheoretical model: A basis for changing dental behaviour to improve oral health

Dini Setyowati
Department of Dental Public Health
Faculty of Dentistry, Airlangga University

Correspondence: Dini Setyowati, Department of Dental Public Health, Faculty of Dentistry, Airlangga University, Surabaya – Indonesia. e-mail: pinnochio_pipin@yahoo.com

ABSTRACT

Background: *In the recent oral health literature, behaviour is considered as a determinant of oral health. However, dental health practitioners often experience difficulties to encourage their patients to acquire and maintain action to preserve their dental health.* ***Purpose:*** *This review aims to present The Transtheoretical Model as a model of intentional behaviour change that can provides a basis for changing dental behaviour.* ***Reviews:*** *The transtheoretical model describes behaviour change as a process. It occurs stepwise in several stages of change. Each stage has a specific process of change that can effectively promote behaviour change. The progress from one stage to another stage can be also predicted through individual perception about pros and cons of behaviour change and self-efficacy. The transtheoretical model can provide a guidance to understand dental behaviour change. The findings of The transtheoretical model may assist dental health practitioner to develop specific intervention programs of dental behaviour changes based on the stage of change of the patients. The efforts of oral health promotion to change dental behaviours of individuals should consider The transtheoretical model as a basis of intervention.* ***Conclusion:*** *The transtheoretical model is one of the models of behaviour change that can be applied to measure dental behaviour change and inform the design of the intervention program.*

Key words: *The transtheoretical model, dental behaviour*

INTRODUCTION

Dental and oral health still remains a salient issue in Indonesia. In 2007, the national prevalence of dental and oral health problems was 23.5%. However there were still 19 provinces, which had higher prevalence of dental and oral health problems than the national prevalence. Similarly, for caries-active, the national prevalence was 43.4 % but there were 14 provinces, which had the prevalence of caries-active still higher than the national prevalence.[1]

Many oral health literatures, over recent year, have highlighted behavioral factors as the most major contributor to dental and oral health problems.[2] Most efforts to prevent dental and oral health problems require the involvement of the patient through dental behavior, for example regular tooth-brushing, flossing, rinsing and dental attendance. Dental behavior is the key determinant of the success of the intervention programs in preventive dentistry.[2] Furthermore, several oral health literatures underline the importance of measuring dental behavior to control dental and oral health problems.[3-5]

In contrast, although dental behavior has been promoted through many activities in dental health promotion, attention towards dental behavior in Indonesia remains poor. For example, according to the report of the basic health survey in Indonesia in 2007, among individuals who brush their teeth on a daily basis, only 7.3% brush their teeth in the right manner. Furthermore, among individuals who suffer dental

and oral health problems, only 29.6% visit and do dental treatment in dental clinic.[1] To address these issues, behavior change is required to assist individuals in maintaining and controlling their dental and oral health.

There are many theoretical models of behavior change. A model of behavior change is "a heuristic representation of multiple constructs that may be relevant to a target behavior, and the possible relationships between constructs and that behavior".[6] The models of behavior change can fundamentally guide our understanding about the most influential determinants of health behavior and provide direction for designing and developing intervention programs aiming at improving health behaviour.[7,8] Furthermore, Glanz and Bishop[7] suggest that intervention programs will be more effective if they are based on an explicit theoretical foundation.

In the context of dental behavior, one of the models of behavior change that seems to be relevant is the Transtheoretical Model. This model assumes that behavior change is a process. The progress of behavior change can be predicted through stages of change, processes of change, pros and cons of change self-efficacy in the behavior change and situational temptation to relapse. These constructs can be related each other.[8] Although the trans-theoretical model of behavior change has been widely applied to a wide range of problem behaviors, there is not a great deal oral health literatures, particularly in Indonesia, which discuss the trans-theoretical model of behavior change as a framework to design and develop interventions for changing dental behavior. Therefore, this paper aims to propose the trans-theoretical model of behavior change as a basis for designing and developing interventions programs to change dental behavior.

THE TRANS-THEORETICAL MODEL

The trans-theoretical model is 'a model of intentional behavior change'.[8] The trans-theoretical model of behavior change comprises four constructs, including stages of change, processes of change, decisional balance and situational confidence and temptations.[8] These constructs will be discussed in turn.

Stages of change

Behavior change occurs stepwise depending on the readiness to change that is different among Individuals.[7-9] There is a sequence of steps in the readiness to adopt health behavior. The first stage is pre-contemplation. Individuals in this stage do not have intention to or interest in behavior change within the next six months for many reasons. Some of them may want to change but just not within the next six months, whereas others may not recognize the need for change and, therefore, they do not want to change at all. The second stage is contemplation. Individuals in this stage have begun thinking about changing their behavior within 6 months. The third stage is preparation. In this stage, individuals intend to change their behavior within the next 30 days. Some of them even have attempted to change in the past. They are usually more ready for changing their behavior than their counterparts in the pre-contemplation and contemplation stages. The next stage is action. Individuals in this stage have changed their behavior within the past six months. However, the risk for relapse is still high. The last stage is maintenance. In this stage, individuals have changed their behavior for at least six months. They have also done ongoing practice of their new behavior and adopted it as a new habit. The risk for relapse is lower than those in the action stage.[7,8,10-12]

The movement from one stage to another stage does not always occur in a linear manner. Certain stages may be repeated. For example, individuals who have attempted to behavioral change may relapse and go back to an earlier stage.[7,8,10-12] Individuals in certain stage of change have different strategy to behavioral change.[7] For instance, individuals in the contemplation stage require more information and feedback in order to be able to change their behavior, whereas individuals in maintenance stage require relapse prevention strategy to sustain their recently changed behavior, such as improving self-efficacy.[7,8]

Processes of change

The processes of change are closely related to the stages of change. The processes of change affect the progress from one stage to the different stage. Each stage of change has specific process that can predict the success of behavior change.[8,11,13,14] Processes of change refer to 'the activities and experiences that individuals engage in to progress through the stages to maintenance'.[14] There are two major processes of change : experimental processes and behavioral processes. Experimental processes (cognitive-affective processes) include activities, such as consciousness raising, dramatic relief, self-reevaluation, environmental re-evaluation and social liberation. These activities are more common

in the pre-contemplation, contemplation and preparation stages than in the later stages. These processes focus on increasing intention and motivation to change. For the preparation, action and maintenance stages, the behavioral processes, such as helping relationship, counter-conditioning, reinforcement management, stimulus control and self-liberation, are often recognized. These processes aims to maintain new behavior as there has been efforts to change among individuals in these stages.[8,13,14]

Decisional balance

The stages of change have also a close relationship with decisional balance. Decisional balance involves the process of decision making whether or not to change behavior. The decision for changing or not changing behavior is often determined after weighing the pros and cons of changing behavior and adopting new behavior.[8,14-16] The pros refer to the benefits of change and usually relate to the reasons for changing, whereas the cons refer to the barriers to change and generally relate to the reasons for not changing.[8,14,15]

In addition, decisional balance can predict the progress from one stage of change to another stage. In the early stages of change, the pros of change are low and increase along with the progress of the stages of change. On the other hand, the cons of change are low in the early stages and decrease along with the progress of the stages of change.[8,11,14,17] Furthermore, the extent to which the pros and cons change across the stages of change can be also measured. When individuals move from the pre-contemplation to action stage, the pros of change increase by approximately one standard deviation and the cons of change decrease by approximately one-half of a standard deviation.[8,11,14]

Situational confidence and temptations

Similar to the other constructs, situational confidence and temptation can also predict the stages of change.[8,11,15,16] Self-efficacy is a term which is often used to refer to 'the confidence that one can engage in health behavior across different challenging situations'.[14] On the other hand, situational temptation is defined as 'the temptation to engage in unhealthy behavior across different challenging situations'.[14] Self-efficacy usually increases and temptation usually decreases along with the progress of the stages of change.[8,14,15] In the pre-contemplation stage, self-efficacy is low as individuals in this stage have little or no interest to change. Furthermore, in the maintenance stage, the degree of temptation can predict relapse. Thus, situational confidence and temptation can inform the appropriate design of intervention at different stages of change.[8, 15]

DISCUSSION

In the context of dental behavior, the trans-theoretical model of behavior change can explain why some individuals may not be ready to attempt changes, whereas others may have already implemented changes in dental behavior, such as regular tooth-brushing, flossing, rinsing and regular dental attendance, to improve their dental and oral health.[2,18] Readiness for change can be defined as individuals' current thoughts, feelings and attitudes regarding their intention to change in dental behavior.[18] Furthermore, despite its ability to assess individual's readiness to change, the trans-theoretical model can inform the appropriate design for specific intervention programs to change dental behavior based on readiness for change.[2,19]

In the trans-theoretical model, the design and development of behavioral intervention programs is specifically based on the stages of change. Each stage of change can be associated with the process of change, the pros and cons of change, self-efficacy and temptation in behavior change. For example, individuals who do not have intention to change their dental behavior should be provided information, so based on available information they can make informed decision or contemplate about whether or not they change their dental behavior, such as regular tooth brushing. In the process of deliberation, they commonly weigh the pros and cons of change that are one of the constructs of the trans-theoretical model of behavior change. If the pros of change greatly outweigh the cons of change, an intention to change dental behavior will be formed.[2]

Once individuals have intentions to change, the focus of behavioral programs is translating the intention into action. The strategies used to promote behavior initiation and maintenance are commonly different from the strategies used to raise behavioral intention because the factors influencing behavioral intention differ from the factors influencing the initiation and maintenance of behavior.[2] This may the reason of why the majority of oral health promotions in Indonesia that solely focus on dental health education often fail to achieve their goals to

change dental behavior of the targeted community. Although motivation and intention to behavior change can be raised through dental health education, it is still not sufficient to change dental behavior.[2,20,21]

Individual's intention to change is the best predictor to the success of behavior change. However, unfortunately, people may not always translate their intention to change into the actual change. Unforeseen barriers may emerge and they may also give in to temptation. So, their intentions to change need to be supported in order to be able to perform the actual action to change.[21] Detailed action planning about when, where and how to perform behavior has been proven effective to facilitate the translation of intention to change into the actual action, including in the context of dental behavior. [4,14,22,23] This is because according to Gollwitzer [24] behavior enactment is more likely to occur if individuals face the specified situation. For example, a person who plans to brush teeth regularly at least after having breakfast and before sleeping at night will be more likely to remember to act accordingly whenever the specified situations are encountered. [2,25,26]

Planning is effective when the intention to change behavior has been formed because it cannot substitute motivation to perform certain behavior rather it only serve the purpose of behavior intention and facilitate the intention to change into the actual action to change.[2,25,26] The success of the implementation of action planning also depends on the level of self-efficacy. People who have low level of self-efficacy may fail to change their behavior due to self-doubt to act upon their action plans. However, people who have high level of self-efficacy will be able to overcome temptations and achieve the success of behavior change through the action plans.[27]

It can be concluded that dental behaviors are the key factors in the success of preventive dentistry. The trans-theoretical model is one of the models of behavior change that can assist dental health practitioners to understand the factors influencing dental behavior of the individual and change it based on the readiness to perform behavior change. Therefore by applying the trans-theoretical model as a framework in the efforts to change dental behavior, dental health practitioners can specifically design and develop behavioral intervention programs and achieve the success of dental behavior change.

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