Review

Transtheoretic model in smoking cessation

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ABSTRACT

Smoking is one of the major public health problems and a major cause of preventable diseases. Today there are many ways to combat with tobacco use which is the chief risk factor for avoidable diseases. Pharmacotherapy and other supportive therapies based on motivation and cognitive-behavioral approaches are used in treatment. Among those, concentrating on behavioral changes are gaining more popularity as number of people who stop smoking using behavioral therapies are increasing, so is the interest on psychological models. Transtheoretic model is known as behavioral changes model which is widely used in smoking cessation and developed for the first time by Prochaska and DiClemente. It uses appropriate intervention according to the stage of the individual. According to Transtheoretic model, five stages are to be passed for behavior change. Motivational techniques are important for successful passing of a stage and should be structured for preparation to the next stage. Each stage should be evaluated for the transition to the next stage. Transtheoretic model is a significant tool for smoking cessation with its ability to use different models of behavior changes. This flexibility of Transtheoretic model makes the model treatment of choice in different addictions. In this review we focus on the features of Transtheoretic model.

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1. Introduction

Smoking is a major public health problem and a major cause of preventable diseases. Smoking kills more than five million people every year which will exceed eight million in 2030 if current trend continues. According to the Global Adult Tobacco Survey 2012 results, prevalence of smoking among men is 41.4% and among women is 13.1% in Turkey (Turkey Statistical Institute, 2012). In contrast to previous years, smoking is increasing among women causing significant problems. Therefore, various preventive and therapeutic measures are taken to curb the dangers of smoking. Pharmacotherapy and other supportive therapies based on motivation and cognitive-behavioral approaches are used in treatment (Manfredi et al., 1999; Bilir, 2005; Le Foll et al., 2005; Karlıkaya et al., 2006; Koyun, 2013).

Behavior modification is a difficult and complex procedure. One of the reasons that behavior change attempts fail is that the person is not ready for change (Prochaska and DiClemente, 1982; Beck Institute, 2012).

One theory or combination of different theories can be applied for behavior change (Arkin et al., 2002). However explanation of health behavior does not seem possible with a single theory. Existing theories are used for understanding of a behavior and planning to change it. Commonly used models are: Health Beliefs Model, Health Focus of Control, Diffusion of Innovation, Pender’s Health Promotion Model, Transtheoretical,

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Many factors from the amount of cigarettes to previous thought of quitting reach to the maintenance stage. Studies indicate that only 5% of those who thought of quitting reach to the maintenance stage. In those who started smoking again, 15% reverts to precontemplation, 85% to Contemplation and preperation stages. In TTM each stage has different properties therefore; completing each stage is important (Anczak and Nogler, 2003). Future stage informations create resistance. In various studies smokers are shown to be in the stages of precontemplation (50-60%), contemplation (30-40%) and preparation (%10-15) (Rodgers et al., 2001). These and other studies suggest that identification of stages is as important as the treatment. Inappropriate treatment for the stages cause failure and creates bad tales before next attempts.

Step 1: Precontemplation (not ready)
In the mind of the person at this stage, there is no thought about changing behavior within six months (Woodruff et al., 2006). The person either does not know the harms of unwanted behavior or does not care. Usually he/she does not like to receive information that will help to change the behavior and escapes. Friends and family pressure may reinforce the behavior rather than avoid it. Because of the previous failed change attempt, the morale and motivation is lacking. That leads resistance to change behavior and a serious drop in confidence (Velicer et al., 1998).
Table 1. Structure of The Transtheoretical Model

<table>
<thead>
<tr>
<th>Structures</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage of change</td>
<td></td>
</tr>
<tr>
<td>Precontemplation</td>
<td>Not thinking of quitting tobacco in the next 6 months.</td>
</tr>
<tr>
<td>Contemplation</td>
<td>Thinking of quitting tobacco in the next 6 months.</td>
</tr>
<tr>
<td>Preparation</td>
<td>Thinking of taking action within 30 days</td>
</tr>
<tr>
<td>Action</td>
<td>Changed the behavior within the past 6 months</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Behavior change more than 6 months</td>
</tr>
<tr>
<td>Decisional Balance</td>
<td></td>
</tr>
<tr>
<td>Gains</td>
<td>Benefits of change</td>
</tr>
<tr>
<td>Costs</td>
<td>Costs of change</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>Self confidence to maintain healthy behavior when face temptation in trying situations</td>
</tr>
</tbody>
</table>

Process of change

Experiential

1. Consciousness Raising [Increasing awareness] Get the Facts “I recall information people had given me on how to stop smoking”
2. Dramatic Relief [Emotional arousal] Pay Attention to Feelings “I react emotionally to warnings about smoking cigarettes”
3. Environmental Reevaluation [Social reappraisal] Notice Your Effect on Others “I consider the view that smoking can be harmful to the environment”
4. Social Liberation [Environmental opportunities] Notice Public Support “I find society changing in ways that make it easier for the nonsmoker”
5. Self Reevaluation [Self reappraisal] Create a New Self-Image “My dependency on cigarettes makes me feel disappointed in myself”

Behavioral

1. Stimulus Control [Re-engineering] “I remove things from my home that remind me of smoking”
2. Helping Relationship [Supporting] “I have someone who listens when I need to talk about my smoking”
3. Counter Conditioning [Substituting] “I find that doing other things with my hands is a good substitute for smoking”
4. Reinforcement Management [Rewarding] “I reward myself when I don’t smoke”
5. Self Liberation [Committing] “I make commitments not to smoke”

Fidanci et al.

Step 2: Contemplation (Getting ready)
The person is aware of the problem and wants to start the behavioral changes within six months. He/she tries to gather information and calculates gains and costs. Unable to take action he searches methods of change. Person can remain in this stage for a long time (Prochaska and Velicer, 1997; Koyun, 2013).

Step 3: Preparation (Ready)
In this stage the person is ready to take action soon (within the next month). There are usually unsuccessful small attempts. In their head they prepare an action (starting a gym, getting professional help or making individual change plan). In this period they fear failure and need support from friends (Prochaska and Velicer 1997; Woodruff et al., 2006).

Step 4: Action
Unwanted problematic behaviors have changed in the last six months and even began to obtain healthy behaviors. In this stage care should be taken to prevent return of the unwanted behavior and get used to the new behavior. People are generally proud of sharing their success hence increase motivation (Prochaska and Velicer, 1997; Koyun, 2013).

Step 5: Maintenance
The person on this stage is free of unwanted behavior more than six months. The aim is make the beaviour change permenant. He/she is now more resistant to the unwanted behavior. Therefore, motivation and confidence is increasing. The possibility of a return to the previous steps or changed behavior gets smaller by the time but caution is necessary at all times (Woodruff et al., 2006).

Decisional balance (DB)
One of the key elements in TTM is DB which is evaluation according to costs and benefits, proposed for the first time in 1977 by Janis and Mann (Miller et al., 2001). It is based on comparisons between pros and cons. In the initial stages losses or cons might outweigh the benefits or pros, i.e precontemplation stage. As the stages progress the balance should shift in favor of gains if the intended behavior change be permenant. In the contemplating stage balance should be equal between gains and losses so when the balance tipped towards gains than he/she can move into preparation or action stage. In the maintenance stage gains should outweigh costs in order to prevent relapse.

Self-efficacy
TTM uses self-efficacy theory of Bandura, 1982. The relation between behavior change and self-efficacy is defined clearly. Prochaska et al. (1997) described two components in self-efficacy:
1- **Self-confidence** is the main component that prevents a return to the previous step or unwanted behavior in relapse triggering situations (Bandura, 1982).

2- **Temptation** is defined as the degree of desire for relapse.

   The balance between these should be tipped in favor of confidence to prevent relapse. In the precontemplation and contemplation stages temptation is greater than self confidence. But in action stage these are almost equal and behavior change occurs (Plummer et al., 2001). Self-efficacy is important in all stages. Lack of motivation results in returning previous stages (Miller and Rollnick, 2002).

**Processes of change**

The methods and techniques used have compatible structures with behavior change stages. The application of methods and techniques is significantly less in the precontemplation stage. Their use increases in contemplation and preparation stages and peaks in action stage. There is a decrease again in maintenance stage. In the early stages cognitive methods are recommended. In later phases (preparation, action, maintenance) behavioral methods are recommended (Cancer Prevention Research Center, 2012). Behavior change is realized using 10 methods; 5 cognitive and 5 behavioral (Tablo 1) (Prochaska et al., 1993; Prochaska and Velicer, 1997; Cancer Prevention Research Center, 2012; Koyun, 2013).

In smoking addiction TTM measurement tools can be considered for evaluation. According to the stages of change, smoking cessation should be planned. Behavior change models should be taught to all health workers and included in the curriculum. By training primary care staff more of the smokers can be reached.

TTM is a significant tool for smoking cessation with its ability to use different models of behavior changes. This flexibiltility of TTM makes the model treatment of choice in different addictions.

**REFERENCES**


