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Using the Transtheoretical Model to Enhance Self-management Activities in Type 2 Diabetic Patients: A Systematic Review

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Background

Many health organizations are always highlighting the importance of health promotion, and disease prevention, due to the high incidence of chronic diseases that are spread worldwide and increasing continuously. One of the most prevalent chronic diseases is diabetes mellitus (DM). Many studies conducted in developed countries proved that lifestyle changes in patients resulted in a reduction in the prevalence of diabetes, and that there's a link between DM, and behavioral, clinical, and economical outcomes. Furthermore there was an affiliation between knowledge, attitude, and practice (KAP), and DM. Even though self-management of type 2 diabetes is necessary in order to improve quality of life, many patients still have a problem with being able to self-manage diabetes. Many models and interventions were tested to enhance self-management but none were successful so far. Self-management is a socio-behavioral problem, and the use of a model such as the transtheoretical model (TTM) could improve it. TTM is one of the most commonly used behavioral models. It was first introduced in the 1980s by Prochaska and DiClemente to explain how people change their behavior, but not why they change. It is a model of choice that focuses on the decision making capabilities of individuals. This model is different to alternative approaches to health promotion in that its primarily focus is not on social and biological behavioural influences. It is a psychological health promotion model about the intention of change. It is a model of choice that focuses on the decision making capabilities of individuals. It first uses the baseline information, with an aim to alter self-efficacy, cues, or other psychosocial factors using five TTM principles: Precontemplation, Contemplation, Preparation, Action, and Maintenance.

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Objective

The objective of this study is to collect enough evidence using a systematic review in order to assess the use of TTM in improving self-management activities in type 2 diabetic patients. Self-management activities include following a healthier diet, exercising more regularly, and an enhanced medication adherence.

Methods

The systematic review was conducted between February and May 2015. PubMed (n=83), Medline (n=126), Science direct (n=985), and Cochrane (n=62) were the databases searched with predefined terms relating to TTM interventions for type 2 diabetic patients. A second extensive search was conducted using google, and google scholar (n=2) to retrieve articles relevant to the research. The search strategy aimed to identify articles in which the Transtheoretical model had been applied and which had been published in English between 2000 and March 2015. In order to ensure that all potentially relevant articles had been identified, the search terms included "Transtheoretical model", "Sociobehavioral", "social changes", "diabetes", and "self-management". All study designs were included and no limits were set to articles comparing the behavioral model to other approaches. The methods used for this review followed the PRISMA statement (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). The systematic search was conducted in March 2015. The initial search of the above strategy yielded 1,153 articles. These articles were reviewed by the primary author for relevance to the aims of the review. Retained articles were then assessed for relevance to the aims based on the title and the abstract using the inclusion criteria. Articles identified as potential for inclusion were then retrieved. Each step during the selection process was conducted by two researchers, and in case of disagreement, consensus would be reached with the aid of a third researcher.

Results

There was consensus in the review team that the 10 papers met the inclusion criteria. The 10 studies included were published between 2003 and 2011, and were conducted in the US (n=6), Canada (n=1), Trinidad and Tobago (n=1), Scotland (n=1), and one was unspecified. In all 10 studies, the majority of participants at baseline were at the Precontemplation/Contemplation or Preparation stage, and after the TTM intervention the majority of patients were at the Action or Maintenance stage. Four studies did not specify which stage had the highest number of participants at baseline and post TTM intervention. In one study, the highest number of participants was at the preparation stage (39.1%) at baseline, and after the TTM intervention the highest number of patients was in the action phase (45.7%) indicating an advancement through the stages of change. Moreover, in 4 studies most of the patients at baseline were in the pre-action stage, but at follow-up after the TTM interventions most of the participants moved to the action or maintenance stage. In one study, the greatest number of participants was at the action/maintenance stage pre- and post- the TTM intervention. All studies demonstrated some positive outcomes self-management due to implementing TTM. Four studies reported a significant reduction in glycosylated hemoglobin (HbA1c), 5 studies reported improvements in diet after TTM, and Participants exercised more in 2 studies. In one study there was progress towards reaching participants' goals whether it's better adherence, diet, or more exercise. However, using the TTM had no change on medication use in any of the studies included. Moreover, Different study designs were used in all studies. 2 studies were pre-test/post-test. In addition, there were 3 Randomized controlled trials (1 was an RCT, 1 was a randomized split plot design where there was a group receiving the usual care and another receiving the intervention, and another study was a cohort randomized controlled prospective trial). One study was a quasi-experimental study. Three studies were reviews; one was a preliminary study which is an economic evaluation of a theoretical cohort of patients. The other one was a study describing how resources and supports for self-management (RSSM) and strategies of the transtheoretical model intersect to produce a comprehensive approach resulting in cutting-edge diabetes Program, and the last review was determining the impact of TTM in changing the unhealthy dietary habits of type 2 diabetic patients. Moreover, one article followed a cross sectional study design which consisted of questionnaires.

Conclusion

Ten articles using TTM to self-manage type 2 diabetes were identified and critically reviewed. The narrative findings from this systematic review provide evidence that TTM interventions are effective in promoting exercise, and encouraging participants to pursue a healthier diet. However, the effect of TTM on medication adherence has not been clearly identified yet, and it should be studied in future research.