Regulation Of Blood Sugar Through Psychological Control To Type-2 DM: A Systematic Review

Elfa Lailatul Izza1, Supriyono1, Zaenal Abidin1, and Inda Rian Patma Putri1
1Faculty of Nursing, University of Airlangga, Mulyorejo, Surabaya, Indonesia

{ elfa.lailatul.izza-2017@fkp.unair.ac.id, supriyonorsuhaji70@gmail.com, zaenal.abidin-2017@fkp.unair.ac.id, inda.rian.patma-2017@fkp.unair.ac.id }

Keywords: mind body therapy, type-2 diabetes mellitus, mind body intervention

Abstract: Background: Diabetes mellitus (DM) is a metabolic disease with characteristic hyperglycemia resulting from impaired insulin secretion, insulin action or both. Based on the etiology of diabetes mellitus can be classified into four types, namely types 1, 2, other types and gestational diabetes (American Diabetes Association (ADA), 2012). Type 2 diabetes mellitus (type 2 DM) has characteristic insulin resistance with decreased insulin secretion which varies from relative to dominant deficiency, (Grace Puspasari, 2010).

Cases of diabetes mellitus worldwide in 2011 based on The International Community reached 366 million people. Indonesia in 2013 there are about 12 million people who have diabetes mellitus. In East Java, the prevalence of diabetes mellitus was 9.1 million, (Riskesdas Kemenkes RI, 2013).

Attacks the hyperglycemic crisis of society especially among diabetes mellitus patients, which can certainly increase the burden of health financing and the economic burden of society. Therefore, it is necessary to make every patient with diabetes mellitus get the right diagnosis and treatment and able to manage its blood glucose level.

Treatment for diabetes mellitus is divided into two kinds, namely pharmacological and non-pharmacological treatment. There are two pharmacological medication classes, namely long-term treatment and rapid relief as symptomatic relief combined as needed (Smeltzer, Suzanne C. O'Connell., Bare, 2008). Nonpharmacologic forms of treatment are complementary treatments that include acupuncture, mind body therapy including exercise therapy, yoga, qi gong, psychological therapies, manual therapies (Council, 2006).

One of the complementary therapies that can be administered to patients with diabetes mellitus is mind body therapy or mind body developed in India. This complementary therapy aims to improve the functioning of the immune system and the defense of the body, especially the immune system and the body's defense so that the body can heal itself

The purpose of this study is to conduct a systematic review to determine the effectiveness of mind body therapy method as one form of additional therapy that includes non-pharmacological
management in patients with diabetes mellitus. This study is expected to give the idea of further research in the provision of interventions to increase the control of attacks on patients with diabetes mellitus so that quality of life diabetes mellitus patients increased.

2 METHODS

Using electronic databases, such as Scopus, Proquest, PubMed and ScienceDirect, the search was carried out with “mind body therapy,” “mind body intervention” and “type-2 diabetes mellitus” as the main keywords. From this search, only papers including an human model and published in English language were considered. In a second step, “exercise therapy” and “mindfullness therapy” were added to the same previous keywords. Randomized controlled trials (RCT) designs were included.

Following PRISMA

1. Literature search strategy
2. Inclusion and exclusion criteria
   a. Study design
3. Population
4. Intervention
5. Clinical outcomes
6. Study selection

![Flowchart of the process of paper selection](image)

Figure 1. The process of paper selection

3 RESULTS

3.1 Literature Search And Study Selection
A total of 14,487 articles were found by using selected keywords.

3.2 Study Characteristic

3.2.1 Intervention Characteristic
The results showed PICOT characteristics and interventions carried out in the research.

Two articles about Mindfullness based cognitive therapy Ebrahimi, ([Guilan-Nejad and Pordanjani, 2017], (Toyote et al., 2014)). Four articles about yoga ([Sreedevi et al., 2017],(Ebrahimi, Guilan-Nejad and Pordanjani, 2017)). Three articles on Tai Chi ([Alsibheen et al., 2015], (Hung et al., 2009), (Ahn and Song, 2012)). Two articles on qi gong ([Gainey et al., 2016], (Ebrahimi, Guilan-Nejad and Pordanjani, 2017)). Three research on mindfulness based stress reduction ([Van, 2013], (Type and Juric, 2012), (Haenen et al., 2016)). Total articles used in this review is 15 articles.

3.3 Results of Study
Mindy-body therapy provides interventions with various techniques to facilitate thinking capacity that affect physical symptoms and body functions such as tai chi, qi-gong, yoga, MBSR, MBCT and meditation. How to give Mind Body Therapy. The provision of mind-body therapy in each study varies. Mind-body therapy is administered through breathing, confidence and mind-conditioning. The provision of these interventions was greatest and was significantly successful in providing therapy to clients with type 2 diabetes mellitus.

Health generally affects the quality of life of clients with type 2 diabetes mellitus. In one study found a significant influence on the use of Mindfulness-Based Cognitive Therapy intervention conducted for 6 months, (Van, 2013).

On the research of Complementary and alternative medicine in Diabetes in the get the number of people with diabetes in the U.S. and around the world are using complementary and alternative medicine (CAM) while receiving conventional medical therapy as a means of managing disease and improve quality of life. Although herbal and natural products are the most commonly used form of CAM, mind body Approach is the most commonly used form of CAM, mind body therapy is the most commonly used form of CAM. The current findings suggest that CAM can help to promote participatory model of integrative treatment of diabetes that rely on providers of...
knowledge about evidence-based therapies and disclosure of patient use of CAM. Emerging evidence of positive findings with some natural products and mind body therapy have been reported can help nenjadi Glycemic parameters, in individuals with type 2 diabetes. However, further investigation in well-designed, adequate studies supported needed before the use of CAM modalities can be recommended as part of clinical care (Dinardo, 2012).

Other studies such as qi gong with the approach of mind body therapies to control diabetes, HbA1c, covering the control of weight and circumference of the foot. The results in this study seen from linear regression analysis showed significant differences (p = 0.01), ring pinggang (p = 0.01), the strength of the legs (p = 0.01), and HbA1c (p = 0.05). These results demonstrate the therapeutic approach to mind body mind body therapy is effective in controlling diabetes mellitus. (Liu, Xin, et al, 2011).

The results of the research on the comparison of the effectiveness of interventions with interventions MBCT self management of adult patients with type 2 diabetes mellitus, obtained as a result of significant research namely blood Glycemic levels decrease (p = 0.0001) in patients with a given therapy mind body therapy with Randomized control trial research method. The target of this research is aimed at adult patients aged between 35 to 65 years old, because at that age is early someone get diabetes mellitus, so diabetes mellitus can be addressed early on, (Carla, et al., 2013).

On the research of Mindfulness based stress reduction (MBSR) is associated with improved glycemic control in type 2 diabetes mellitus there is a controlling type-2 diabetes mellitus. Researchers suggested that the negative effects of physiological and emotional stress on blood glucose control has been described can be overcome by mind-body therapies, such as meditation, yoga, qi-gong, and other relaxation techniques, which had previously been studied on diabetes therapy as a means of reducing the stress associated with hyperglycemia. The purpose of the mind-body therapy is to facilitate the achievement of a State of physiological response against stress, (Type, S. I. and Juric, Z. D. D., 2012). The physiological and emotional stress activates the neuro-endocrine and sympathetic pathways through the hypothalamus-pituitary-adrenal and adrenal medulla sympathetic dystrophy. Circulating Catecholamines and glucocorticoids affect the structure and function of various tissues and induces inflammatory cytokines that cause increased production of glucagon and decrease the absorption and elimination of glucose in peripheral muscles. Cytokines, particularly interleukin 6, has been heavily involved in oxidative stress and inflammatory processes that cause insulin resistance and vascular complications. The relaxation response can give effect to regulation of cortisol and other stress hormones. Structured program of meditation, such as transcendental meditation and Mindfulness-based stress reduction or Mindfulness-Based Stress Reduction (MBSR) using focus and diaphragmatic breathing in relaxation therapy which involves progressive relaxation muscle, biofeedback, stress management, and behavior. Statistic analysis of results obtained (p = 0.009 d = 0.48) which means there is a significance between administering therapy MBSR in controlling blood sugar levels (Hba1c), blood pressure and weight are also more stable measurement results obtained with the method research a Prospective observational study used, (Type, S. I. and Juric, Z. D. D., 2012).

Research with approach of mind body therapies in the article on yoga and mindfulness: clinical aspect an ancient mind/body practice as research-based mind body therapy effective in lowering HbA1c levels. Yoga is a traditional practice of India that includes breathing diafragmatic and asana (posture that promote physical and mental calmness comfort). Experts believe that some yoga asana gives positive effect on the endocrine glands. This research supported other studies that approach mind body therapy can control Analysis of advanced glycation end products in patients with diabetes mellitus research methods type of purposive sampling experiments Quasy with treatment at 702 sample. The results of this research are significant, i.e. p = 0.0054 d = 0.1, (Adams, Jeremy N, 2016).

4 DISCUSSION

Mind body therapy is a form of complementary alternative medicine using body mind as well as balance and confidence that aims to regulate the physiological functions of the body and psychological. Mind body therapy consists of various exercises including tai chi exercises, yoga. Mindfulness based cognitive therapy, mindfulness based stress reduction and qi-gong therapy, (Andreassen, L. M, et al, 2014).

There are many ways to use mind body therapy that has its own benefits. In patients with type 2 diabetes mellitus therapy is required one of them ie activity therapy. Therapy of refractive activity is done by mind body therapy approach. Solid activity
is often the reason for people not exercising. And automatically it is difficult to get health holistically, physically and psychically. But it's good we take the time to exercise though not every day. Maybe one of them with alternatives that can be selected such as yoga, tai chi and qi gong. For workers and especially nurses this can be done. Yoga, tai chi and qi-gong is an artwork that originated in India and is well known throughout the world that not only can cure illness, it also can provide peace in the soul due to stress or psychic imbalances (Sreedevi et al., 2017). However, excessive use accompanied without mentoring also gives some concerns of side effects, because it can lead to fatigue can sometimes trigger the drastic reduction of blood sugar levels and increase blood pressure (Liu, Xin, et al, 2011). Another literature reports that mind body therapy can reverse the molecular reactions in DNA responsible for deteriorating health conditions and conditions of the mind (depression).

Chemical imbalances and energy disturbances in the human body play a role in the emergence of various emotional disorders, including depression. Intervention in mind body therapy can change the chemical conditions in the brain (neurotransmitter) which can further change the emotional condition of a person including depression conditions, (Haenen, S. et al., 2016).

Every atom in an object including humans as living beings has electromagnetic energy that flows throughout its body. One of the energy that plays a role in human body health is energy "Chi”. Energy Chi flows along 12 lines called energy meridians, and if this energy flow is disrupted it will cause emotional problems (including depression) or physical problems, (Alsubiheen et al., 2015). When viewed from the aspect of physiological reactions to mind body therapy, then by way of body mind balance, the body can stimulate the gland pituitary to release hormone endorphins, where the hormone endorphins can provide a calming effect as well as causing a sense of happiness, so as to reduce the level of depression in the sufferers and improve physiological status such as controlled levels of control under normal circumstances and blood pressure tends to be stable. Prolonged depression without treatment can create an imbalance of serotonin, an important chemical substance in the brain responsible for making people happy and social, so mind body therapy is very effective to overcome these problems, (Van, 2013).

5 CONCLUSIONS

A systematic review aims to find evidence of influence or effect of using mind body therapy. Mind-body therapy proves it can deliver a significant influence. Such influence occurred in controlling type-2 diabetes mellitus include controlling stress, controlling blood sugar levels, control of BMI, blood pressure control and increased physical activity, quality of life, increase and decrease of the number of visit sufferers of diabetes mellitus type 2 to the emergency room. Exercise with the approach of the mind body therapy is the best intervention compared to the others. But the need for further research concerning the adverse effects of its use was in a long period so that the duration of the right acquired and useful.

REFERENCES


‘Pengaruh pemberian..., Grace Puspasari, FK UI, 2010’ (2010)


