

Research Paper

Impact of Jacobson Muscle Relaxation Technique on the Stress Levels of Diabetic Patients

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ABSTRACT

Background: Due to industrialization, there are a lot of changes in the lifestyle, due to which a lot of people suffer, with the modernization in work and in living standard it has increased the amount of stress and lifestyle diseases like diabetes in the modern people. A lot of people suffer from chronic stress which gets converted into something big if isn't treated on time. Diabetes comes with a number of stressors. The paper seeks to answer the question that does JPMR impact on the stress levels of diabetic patients (type I and II). This type of study is comparatively less as compare to other researches. **Methodology:** Pre-and Post- Experimental Design was used and data is collected by using, Perceived Stress Scale developed by Cohen, Kamarck and Mermelstein. **Result:** The result shows positive effect of JPMR on the stress levels of diabetic patients. **Discussion:** In our study conducted, it was found that there is a significant difference observed in the diabetic patients who were given JPMR. The positive significant difference was observed in the group of individuals who were introduced with medication and therapy (experimental group). **Conclusion:** The study concludes that there is positive difference in the stress levels of patients receiving medications and therapy which indicates reduction in the amount of stress in the diabetic patients.

Keywords: Stress, Diabetes, Jacobson Muscle Relaxation Technique

Are you stressed? If the answer is yes, then try to change your company. Across the world, without exception, people admit to having an increasing sense of anxiety, frustration, uncomfortable feeling, and discontent in nearly every aspect of their lives. Humorously, in a country where the standard of living is considered to be one of the highest anywhere in the world, the centres for disease control and prevention estimate that nearly one-quarter of the Indian population is anxious or depressed.

These people are reported to be on antidepressants and anxiolytics, and current estimates suggest that one in three people suffers from a chronic disease, which ranges from cancer and coronary heart disease to rheumatoid arthritis, diabetes, hypertension, dementia, asthma, cancer, and cystic fibrosis.

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Lifestyle problems seem to magnify personal problems to an extent. It would not make any difference if you are a college student or a boss of multinational cooperation, where you live, how you live, what you eat, what you wear, how much money is checking into your account: stress is equal to the opportunity destroyer and it gives birth to many other physical as well as mental problems if not treated on time.

People are suffering from more mental health problems as they grow up and get mature, this can also be associated with the stress of day-to-day living in our modern society.

Stress could be due to social, occupational problems, financial, relationship, significant life change, job insecurity, dissatisfaction with career, unemployment, or health issues, another reason for stress could be changes in the economy, communications between relatives, colleagues, and friends, and dramatic changes in the weather, lifestyle or the environment. The change could also involve the death of loved ones, loss of job, relationship issues, poor academics, not achieving their goals, etc. (Seaward 2017).

Stress can be defined as any type of change that causes physical, emotional or psychological strain. Stress is the body's response to anything that requires attention or action. Everyone experience stress to some degree. The way we respond to stress, however, make a big difference to the overall well-being.

Stress and change in life are closely associated with each other which costs a healthy lifestyle. BMI can measure an unhealthy lifestyle. Different people have different coping strategies, some have healthy coping and some indulge in unhealthy coping styles which include endless hours of screen time, withdrawing from social life, overeating or under eating, consumption of alcohol and smoking cigarettes, taking illegal drugs, etc.

Prolonged stress can have significant effects on various physiological systems, which include the autonomic nervous system, the hypothalamic-pituitary-adrenal axis (HPA), and the immune system. For example, immune cell products can act on the brain, altering mood and cognition, which can contribute to depression. Due to high levels of stress more amount of cortisol is released in our body, which causes physiological changes like palpitation, sweating, indigestion, tremors, shaking, etc. Although acute physiological alterations could be adaptive and, ignored in the short term and could be cured immediately whereas chronic or pro-longed physiological alterations can result in damage to health and is less curable. (Kemeny 2003)

It has been found that the physiological stress reaction is our body's response to any change, threat, or pressure put upon it, from outside forces or from within, these conditions can elicit distinct emotional and physiological responses. Many of the changes that occur in emotion are produced by the activity of a part of the nervous system which is called the autonomic nervous system.

Diabetes is a lifestyle disease and a chronic health condition that occurs when the blood glucose, also called blood sugar, is high than the normal level. Most of the food in our body is broken down into sugar (glucose). Blood glucose is the main source of energy produced from food. Insulin acts like a key to let glucose into the body's cells to use it as energy. Glucose makes up the muscles and tissues. It's also the brain's main source of fuel to work effectively Management of blood sugar levels can be conducted in pharmacologic and non-

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pharmacologic. One non-pharmacologic therapy is a complementary therapy. Progressive muscle relaxation is part of complementary therapy which is mind-body therapy.

In times of stress, the body will release hormones that increase blood sugar levels and the amount of energy a lot more.

Relaxation training is helpful to lower blood sugar levels or suppress the secretion of cortisol, controlling negative emotions. The progressive muscle relaxation mechanism can lower blood sugar levels in patients and is closely related to the stress experienced by the patient, either physical or psychological stress. Diabetes is a lifestyle disease and a chronic health condition that occurs when the blood glucose, also called blood sugar, is high than the normal level.

MATERIALS AND METHODS

The sample

The type of present research is experimental group design (cross-sectional group design). Their testing was done and the effectiveness of the therapy was seen. The total number of the subjects included in the study will be 60 and the age group between 25 to 60. The samples were distributed into two parts: one is the control group in includes 30 subjects and another is an experimental group in which the next 30 subjects were given the therapy. Samples were taken from Geetanjali Medical College, Udaipur and hospital and consecutive patients attending OPD of endocrinology and medicine department were taken. Only those patients were included who had only diabetes and gave consent. Participants were especially excluded from the study who were suffering from any serious mental and physical illness.

Study Design

This study is an institutional-based survey research and has basically a experimental group design.

Tool

As per the requirement of the study an appropriate test was identified to use for the data collection. The participants were given a questionnaire which included the questions of stress.

The perceived stress scale was formed by Cohen and Williamson 1988 reported that scores on the PSS-10 demonstrated adequate internal consistency reliability ($\alpha=.78$); moderate concurrent criterion validity with the amount of stress experienced during an average week ($r=.39$, $p<.001$). PSS scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8) and then summing across all scale items. A short 4 item scale can be made from questions 2, 4, 5, and 10 of the PSS 10 item scales.

THERAPEUTIC SESSIONS: (8 Sessions)

Session 1- Rapport building, pre- test and intake

Session 2-7: Relaxation therapy initiation and continuation of therapy

Session 8: Post-test, Modification of lifestyle after pharmacotherapy and psychotherapy and therefore reduction of the sessions with the patient's consent.

RESULTS

The purpose of the present research was to study the impact of Jacobson's muscle relaxation technique on the stress levels of diabetic patients. Stress is a feeling of emotional tension, comes from any event or thought, creates changes in the behavior and triggers biological responses. Stress and change in life are closely associated with each other which costs a healthy lifestyle. Prolonged stress can have significant effects on various physiological systems, which include the autonomic nervous system. Relaxation training is helpful to lower blood sugar levels or suppress the secretion of cortisol, controlling negative emotions. The progressive muscle relaxation mechanism can lower blood sugar levels in patients and is closely related to the stress experienced by the patient, either physical or psychological stress.

Table 1 Shows values of Mean, SD, T score and P-Value of the stress level of diabetic patients who were undergoing Pharmacotherapy

	N	Mean	SD	T-value	P-value
Pre-test	30	12.23	5.12	1.3033	0.1976
Post-test	30	10.57	4.78		

*By conventional criteria, this difference is considered not to be statistically significant.

The table shows that pharmacotherapy has shown no significant difference which means that emotional stress can cause blood sugar levels to increase or decrease severely. Hence, medication is provided to maintain the blood sugar levels but this has no significant effect on the emotional stress.

Table 2 Values of Mean, SD, T score and P-Value of the stress level of diabetic patients undergoing pharmacotherapy and psychotherapy

	N	Mean	SD	T value	P value
Pre	30	22.23	5.61	5.1734	0.0001
Post	30	15.10	5.06		

*By conventional criteria, this difference is considered to be extremely statistically significant.

The table shows that emotional stress is a key component in the elevation or deprivation of blood sugar levels. Hence, when psychotherapy is provided for emotional stress along with medication for blood sugar levels it shows a positive effect and a significant difference in the overall mental and physical wellbeing of the patient.

DISCUSSION

Diabetes is prevalent around the world. A high fat diet, inactivity and heredity are often responsible for this chronic ailment. However, it is suspected that a high level of stress can also exacerbate diabetes. High stress levels can result in the release of sympathetic hormones that can elevate both cortisol and glucose levels, decrease insulin release, or affect the sensitivity and resistance of the insulin hormone (M. A. 2019). People with type 1 diabetes are born to have a mutation where they are not able to produce adequate amounts of insulin (KimJH 2015).

Type II diabetes or non-insulin-dependent diabetes, on the other hand, is where the individual has absorbed a massive amount of calories daily without any proper exercising or dieting regime. This constant high glucose levels can damage the insulin sensory system.

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Diabetic treatment is helpful in lowering blood sugar levels. A drug may work by stimulating the pancreas to produce and release more insulin. Inhibiting the production and release of glucose from the liver. Blocking the action of stomach enzymes that break down carbohydrates. But the diabetic medication shows less effects on controlling the stress levels of diabetic patients.

Relaxation therapy is needed to lower the patient's blood sugar level, namely Jacobson's muscle relaxation therapy that can help patients to relax and calm down so that they can lower blood sugar levels of diabetic patients (Purnama, A. ,2021). The relaxation response is what happens when the parasympathetic nervous system takes charge of the body, it frees mind and body from tension and anxiety. Relaxation is the emotional state of low tension and absence of arousal from the external stimuli, especially from the negative sources like anger, anxiety or fear.

With the help of relaxation technique used to the diabetic patients it has been seen that the amount of stress was significantly reduced when they continued the therapy along with the pharmacological treatment of diabetes.

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Conflict of Interest

The author(s) declared no conflict of interest.

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