



“Comparative Study of Mitchell’s Physiological Relaxation Technique Versus Jacobson’s Progressive Relaxation Technique in Controlling Stress Among Diabetics”

^{1*}Dr. Ankita Saxena, ²Riya Jain, ²Diksha Gangwar, ²Subiya Ather, ²Rini Sharma, ³Satyam Jaiswal

^{1*} Assistant Professor, Department of Physiotherapy, Teerthanker Mahaveer University, Moradabad, U.P.

² BPT Final Year, Department of Physiotherapy, Teerthanker Mahaveer University, Moradabad, U.P.

³PG MPT Musculoskeletal, Department of Physiotherapy, Sanskriti University, Mathura, U.P.

Corresponding Author: Dr Ankita Saxena, Assistant Professor, Department of Physiotherapy, Teerthanker Mahaveer University, Moradabad

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KEYWORDS

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ABSTRACT:

Objectives:To compare the effects of Mitchell’s physiological relaxation technique versus Jacobson’s progressive muscle relaxation technique in controlling stress among Diabetics.

Methods:A total of 120 subjects were chosen as per inclusion and exclusion criteria via convenient sampling method. Subjects who were diagnosed with Diabetes were recruited in the study between the age group of 40-50 years. 120 subjects were divided into two groups, 60 subjects each. Subjects of both the groups were assessed and asked to fill in Diabetes distress scale questionnaire. Group ‘A’ received Jacobson progressive muscle relaxation technique while group ‘B’ received Mitchell’s physiological relaxation technique on alternate days of 45 days protocol. Then subjects were reassessed following 45 days protocol and were asked to fill in the Diabetes distress scale questionnaire again then its score was calculated.

Result:The result was calculated by using the independent T – test. Significant and non-significant result came out as per variables.

Conclusion:The study concluded that: Comparison between Jacobson’s progressive relaxation technique and Mitchell’s physiological relaxation techniques on Diabetes distress scale day 1 and day 45 was significant. Both the techniques had a positive impact on patient’s quality of life and relaxation aspect.

Introduction

Diabetes mellitus also called as diabetes is a persistent disease which occurs due to decreased production of insulin (blood glucose regulating hormone), or when the insulin cannot be effectively used by the body.¹ On a global scale, it is estimated that there is 451 million population suffering from type 2 diabetes mellitus and India is ranked 2nd most with 42 million suffering from T2DM according to the international diabetes federation (IDF) 2017 thus calling India as the capital of

diabetes in the world.² The most common form being type 2 diabetes mellitus. In rural population, it is found in about 2.4% of population and in urban population it is about 11.6%.³

Co-morbidities associated with diabetes mellitus include physiological disorder, cardiovascular problem, nervous system related, retinopathies, nephropathies etc.^{4,5} Damage to the nerve, as in peripheral neuropathy, can cause symptoms such as muscle weakness, numbness, tingling in feet along with leg pain.⁶



According to the previous studies among the large population, it has been found that major depression is a common finding among patients having T2DM.⁷ Irrespective of the medical condition that the patient is going through it is seen that diabetes has deteriorating effect on all aspects of patient's health.⁸

Distress due to diabetes and depression can be seen simultaneously causing serious complications for person with diabetes because in that case person feels demotivated to follow their management routine like healthy eating and blood glucose testing. Various evidence has shown that diabetes-related stress and other stressors has greater effect on person's self-care behavior.⁹ Complementary therapies like Relaxation can reduce stress and anxiety level by improving the function of brain, blood circulation, increasing endorphins and inhibiting adrenal gland thus controlling blood pressure and blood glucose level.¹⁰

People with T2DM are more likely to be affected by reducing stress compared to people with type 1 diabetes, since stress blocks the release of insulin and in type1diabetes, insulin is not produced so cutting out stress does not cause any difference in type1 diabetes.¹¹ Therefore in managing type 2 diabetes mellitus, relaxation therapy can play a major role as they are affordable, easier to apply and can be performed by patients themselves. One of the relaxation techniques is Edmund Jacobson's Progressive muscle relaxation which relaxes the tense muscles thus calming the mind. One of the greatest outcomes of progressive muscle relaxation is the self-awareness of the relaxed sensation.¹² By relaxing the person, progressive muscle relaxation technique has shown decreased HBA1C in diabetic patients.¹³ Another effective intervention that can be effectively used to decrease depression, and improving function is Mitchell's physiological relaxation. Follow up of relaxation therapy have long term effects on quality of life of the person.^{14,15}

Considering the above issues, our study compares the effects of "**Mitchell's physiological relaxation and Jacobson's progressive muscle relaxation among diabetics**" which will be assessed by comparing the blood sugar level and diabetes distress scale reading before and at the end of the intervention.

Materials and Methods

Experimental study design was used for this study and the selection criteria were convenient sampling, which was conducted in Moradabad, Uttar Pradesh.

Inclusion criteria for the study were age group between 40-50 yrs. Patients diagnosed with diabetes of both the genders and also the subjects who had never undergone relaxation therapy.

Exclusion criteria for the study were- Patients suffering from any severe cardiovascular, neurological and musculoskeletal condition due to which their normal daily activity is affected. Type I diabetes mellitus and patients having history of performing exercise past 3 months. Subjects having any psychological disorders like schizophrenia, maniac disorders etc.

Procedure

The randomized study was performed on 120 subjects with Type 2 diabetes mellitus along with stress. Samples were taken through convenience sampling method. The subjects were assessed and then divided into 2 groups, 60 subjects in each. The purpose of study was explained and a written informed consent was obtained from all the subjects. Then all the subjects were assessed pre-intervention and post-intervention using DDS score for the severity of condition. Group A subjects were given Jacobson's progressive relaxation technique. Group B were given Laura Mitchell relaxation technique. Before starting the intervention, height in centimeters and weight in kilograms was measured to calculate the BMI with the standard formula. Their DDS score was also recorded.

❖ **Jacobson's Progressive Muscle Relaxation Technique–**

In Jacobson's muscle relaxation technique all the muscles of hands, arms, facial muscles, neck and shoulder, chest, stomach, back will be contracted & feels tension for 5 sec, then relax and feel the relaxation for 10 seconds.

After Exercise: -

- Relax whole body completely.
- Keep your eyes closed and let yourself remain in the relaxed position.
- Open your eyes and enjoy renewed energy, feel



relaxed and refreshed. Sit-up, stretch, and stand up slowly.

❖ Mitchell's Physiological Relaxation-

After ensuring there is a quiet room or space, three main instructions were given to each area of the body, they all were positive, easy to recall and constant in every position, they were-

- Move away from the position of stress.
- Stop.
- Be aware of and feel this new position.

The posture of stress will be replaced by the posture of comfort and will be more pleasurable to the patient. And as progression continues, advanced phase recovery will be achieved rapidly and with ease.

After the end of the 45 days' protocol, DDS score was re-assessed, and statistics was applied to compare the effectiveness of both the techniques.

Results

120 subjects participated in the study out of which 47 were females and 73 were males. The subjects were categorized into two groups randomly. Out of 120 subjects, 60 subjects received Jacobson's Progressive Muscle Relaxation Therapy and 60 subjects received Mitchell's Physiological Relaxation.

There were 4 variables used in the study. Those were:

DDS Score, On-Off Medication, Mitchell's Physiological Relaxation and Jacobson's Progressive muscle relaxation.

Among 60 subjects receiving Jacobson's Progressive muscle relaxation, 26 were females and 34 were males, while there were 21 females and 39 males who received Mitchell's Physiological Relaxation. Majority of subjects were ON medication, out of which 55 received Jacobson's Progressive Muscle Relaxation while 53 received Mitchell's Physiological Relaxation. Diabetes Distress Scale questionnaire was filled in by each subject participated in the study pre and post exercise on day 1 and day 45 of exercise protocol. Two techniques

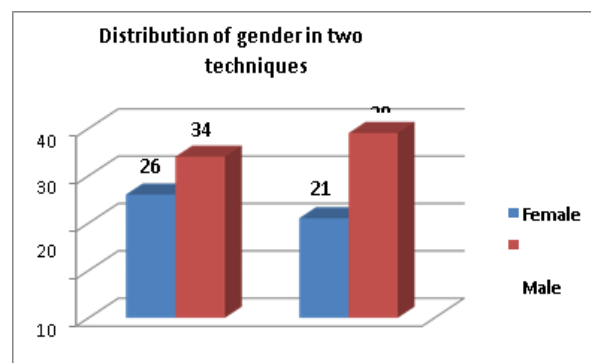
were compared in which pre and post treatment Diabetes Distress Scales Score was calculated on Day1 and Day45 (protocol followed for every alternate day). Independent t test was used for comparison between females and males on Day 1 and Day 45 which is pre and post exercise protocol.

The result came out as:

Table 1 shows that there was majority of 56.7% male in Jacobson's and 65% male in Mitchell's techniques. 43.3% female belonged to Jacobson's technique and 35% female belonged to Mitchell's techniques in this study

Variables	Categories	Techniques (N=120)	
		Jacobson's(n=60)(%)	Mitchell's(n=60)(%)
Gender	Female	26(43.3%)	21(35%)
	Male	34(56.7%)	39(65%)

“Table 1: Distribution of gender in two techniques”



“Figure 1: Distribution of gender in two techniques”

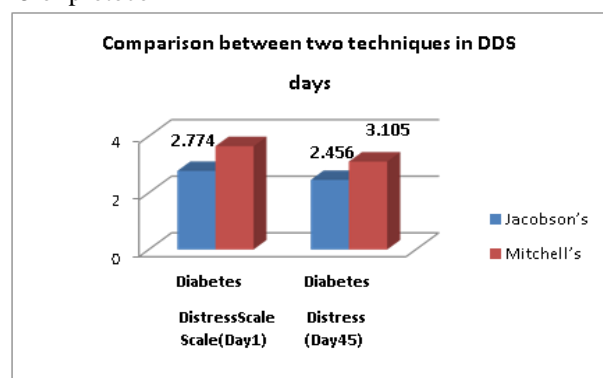
Table2 shows that comparison between two techniques in 2 different DDS days. There was statistical significance comparison between Jacobson's and Mitchell's techniques in DDS Day1with P=0.001and DDS Day 45with P=0.001.Mitchell's techniques had higher mean score than Jacobson's techniques in this study.



S. No.	Variables	Techniques		P-value*
		Jacobson's (n=60)	Mitchell's (n=60)	
1	Age	53.38 ± 8.499	53.85 ± 9.861	0.782
2	Diabetes Distress Scale (Day1)	2.774 ± 0.826	3.649 ± 0.909	0.001
3	Diabetes Distress Scale (Day45)	2.456 ± 0.743	3.105 ± 0.813	0.001

“Table 2: Comparison between two techniques in two different DDS days”

Figure 2 shows the comparison between two different techniques in Diabetes Distress Scale at Day 1 and Day 45 of protocol



“Figure 2: Comparison between two techniques in DDS days”

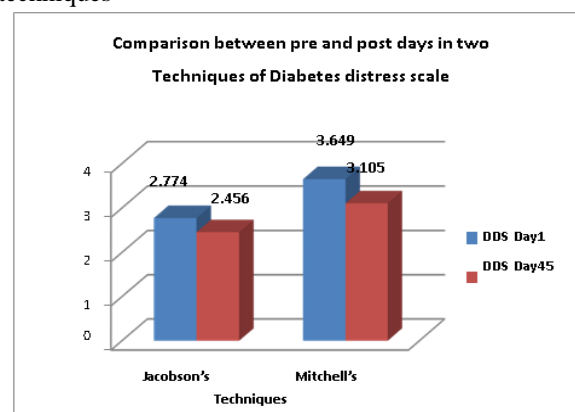
Table 3 shows that comparison between pre and post days of diabetes distress scales in two different techniques. There was statistical significance comparison between pre and post days in Jacobson's technique with $P=0.034$ and Mitchell's techniques with $P=0.001$. Day 1 had higher mean score than Day 45 in Jacobson's techniques and Mitchell's techniques in this study.

Scale	Techniques	Day1	Day45	P-value*
Diabetes Distress	Jacobson's	2.774 ± 0.826	2.456 ± 0.743	0.034
	Mitchell's	3.649 ± 0.909	3.105 ± 0.813	0.001

“Table 3: Comparison between pre and post days in two techniques of Diabetes Distress scale”

Figure3 shows the comparison between pre and post

days of diabetes distress scales in two different techniques



“Figure 3: Comparison between pre and post days in two techniques of Diabetes Distress scale”

Discussion

The present study proves that emotional distress and diabetes are co-related. Eren et al in Jan 2003, showed in his research that diabetic people have higher level of stress and anxiety as compared to non-diabetic people.¹⁶

Albright et al in their study in 2001 found that stress has affected diabetic patients in various aspects. Some people with diabetes had regimen related burden, some showed therapist related stress, some faced interpersonal distress while most people had all three categories of stress and these reversible effects have shown to affect diabetic patient's quality of life and standard of living.⁹ Researcher Ghazavi et al in their study has proved that inducing relaxed state in a diabetic person has direct effect on HbA1c levels.¹⁷

The current research was performed to compare the effects of Jacobson's progressive muscle relaxation



technique and Mitchell's physiological relaxation technique on stress among Diabetic patients. It was proved in previous studies by Albright et al that prevalence of diabetes has a strong correlation with distress which compromises person's self-care behavior thus leading to progression of complications.⁹

Although complementary therapies like 'Relaxation therapy' plays an important role in reduction of stress and anxiety levels also it controls blood pressure and blood glucose levels among Diabetic patients.¹⁰

The result of the current study is based on the sample of 120 subjects (both females and males) of Diabetes divided into two groups randomly. Both groups were given two different relaxation techniques on alternate days of 45 days' treatment protocol.

Result of this study was statistically significant for comparison between Jacobson's progressive muscle relaxation technique and Mitchell's physiological relaxation technique on Diabetes Distress Scale score Day 1 and Day 45. Mitchell's Physiological Relaxation technique had higher mean score than Jacobson's Progressive Muscle Relaxation Technique. It means that current study promotes use of Mitchell's Physiological Relaxation Technique to lower down stress levels and enhancing quality of life among diabetic patients. More advanced clinical trials were required to explain the reason why Mitchell's Physiological Relaxation showed higher mean score than Jacobson's Progressive Muscle Relaxation.

Various controlled studies were conducted to examine the effects of Jacobson's Progressive Muscle Relaxation. One among them was performed by Perakam et al, they examined the effects of Jacobson's Progressive Muscle Relaxation along with structured exercise program and results have shown reduction in HbA1c level among type 2 Diabetes mellitus patients.¹⁸ Loren Toussaint et al explained in their study that Jacobson's Progressive Muscle Relaxation Technique revealed an enhanced state of physiological relaxation.¹⁹ Dunning et al in 2013, based on their study on diabetic patients with stress explained that Jacobson's Progressive Muscle Relaxation Technique can reward patients with diabetes mellitus by cutting down stress levels and lowering depression. It also helps in making better coping strategies for the prevention of stress.²⁰

A study conducted by Febu Elizabeth Joy et al to see the effects of single session of Jacobson's Progressive Muscle Relaxation combined with meditation on reduction of social anxiety among high school adolescents has shown significant outcome, that is why we used Jacobson's progressive muscle relaxation technique in the current study to see the effect on stress and anxiety among diabetic patients.²¹

The current study uses Mitchell's technique which has never been applied in any of previous researches excluding few conditions like Dysmenorrhea where it showed highly significant reductions in pain, pulse rate, respiratory rate hence proved a beneficial treatment technique in primary dysmenorrhea.²² Mitchell's technique has also shown effects on pain, anxiety and depression in the first 4 weeks of post-partum period, this reduction could be accredited to slowing down of neuromuscular activity while relaxing which leads to decreased stimulation of sympathetic nervous system as recorded by Smith et al.²³

It has also been proved beneficial in tapering down pain, tension, anxiety, and confusion in medical students as stated by Rosenzweig et al.²⁴

Although Mitchell's technique has never been used among diabetic patients thus current study aims to apply Mitchell's technique to see its effect on stress.

The Diabetes Distress Scale is one of the most widely used scales for assessing stress. It is a validated 17-item self-report tool that checks for diabetes related emotional distress. It assesses stress in 6 points categories ranging from 'not a problem' (1) to 'a very serious problem' (6). In the current study, Diabetes Distress Scale has been used to assess pre and post exercise stress on Day 1 and Day 45 of exercise protocol and it has demonstrated significant reductions in emotional distress on Day 45 for both the techniques.

The validity and reliability of Diabetes Distress Scale has previously been assessed by Polonsky et al in their studies that proved Diabetes Distress Scale as a valuable measure.²⁵

Conclusion

In this current study, we compared the effects of two relaxation techniques on stress among diabetic patients.



Subjects were divided into two groups randomly, one group received Jacobson's progressive muscle relaxation and the other group received Mitchell's physiological relaxation technique as an adjunct to lower down stress levels among diabetic patients in alternate days for 45 days. For the determination of stress before and after the interventions, subjects were asked to fill Diabetic Distress Scale questionnaire (DDS) pre and post exercise on day1 and day45.

Comparison between Jacobson's and Mitchell's techniques on DDS day1 and day 45 was significant (Day1; $P=0.001$) (Day45; $P=0.001$)

Comparison between pre and post days in Mitchell's technique was significant with $P=0.001$ while Jacobson's technique was non-significant with $P=0.034$.

Comparison between females and males on two different days of diabetes distress scale was non-significant with $P>0.001$

Comparison between ON and OFF medication of day 1 and day 45 diabetes distress scale score in two different techniques was non-significant with $P>0.001$.

Clinical Relevance

Clinical relevance says that it is very important to check stress among diabetic patients as it has an impact on quality of life of the patients.

Both the techniques that are used in this study have caused significant improvement in stress variable and are responsible for improved quality of life among diabetics.

Advantages of our Study

One of the main advantages of our study is that it has proved that stress is a common finding among diabetic patients which further impacts patient's quality of life. This helps in advancing diabetes treatment that involves addition of complementary therapy such as relaxation therapy to the regular diabetes treatment.

Limitations of our Study

One of the limitations of our study is that there is no explanation regarding Mitchell's physiological relaxation that why it shows higher relaxation effect on stress in comparison to Jacobson's progressive muscle relaxation.

Future Scope

Future studies should focus on designing the treatment

protocol in a way that relaxation will play a major role in increasing Quality of life. Also, more focus is required on Jacobson's relaxation technique as there is less evidence of this technique on relaxation aspect of patients.

Conflict of Interest

There was no conflict of interest reported among all the authors of this clinical research.

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