

Effect of Music Therapy Intervention on Diabetes

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Abstract: *Diabetes is a metabolic disorder characterised by elevated blood sugar levels. Treatment includes oral medications and injections, diet changes, regular exercise, lifestyle changes and weight management. Another booming method these days is alternative therapy, such as music therapy. The purpose of music therapy in this study was to change negative attitudes in subjects and bring about positive changes. Music therapy can also help build positive attitudes, reduce stress, and change moods. It also helps regulate blood flow, promote an effective metabolism, and control blood sugar levels. Divided the human subjects into control and music therapy groups. The subjects of this study was given a link consisting of a collection of eight non-lyrical Indian classical instruments. The collection was 60–80 beats per minute, which is known to have a relaxing effect. The subjects got supervised daily, and every 15 days they were called for compliance for 3 months. At the end of 3 months, all outcome measures were repeated. In the present study, all possible factors were taken into account. Music group subjects listened to their selected music through headphones via a portable audio player for approximately 30 to 45 minutes in two sessions (morning and evening) on each day. From the results, it was observed that group wise, there was a significant positive difference in all the mean values of the biochemical parameters. There was a statistically significant ($p \leq 0.00$ $p \leq 0.05$) decrease in the means of FBG, PPBG, and HbA1C in the experimental groups after intervention when compared to the control group. Music therapy boosts mood overall, relieves stress, regulates blood circulation to help with glucose absorption, stabilises blood pressure, and promotes efficient digestion and metabolism to help the pancreas produce more insulin. Positive feelings are known to take the place of negative emotions such as fear, anger, depression, hate, jealousy, and hopelessness when using this technique. Music therapy is very effective because it also fosters a positive outlook on life. Music therapy helps manage diabetes by maintaining blood sugar levels by reducing stress and negative emotions, which have been linked to the development of diabetes.*

Keywords: Music therapy, Diabetes management, control of blood sugar levels, stress reduction, lifestyle intervention

1. Introduction

Diabetes is a chronic metabolic disorder, which occurs when the pancreas does not produce enough insulin, or when the body cannot effectively use the insulin it produces. It leads to hyperglycaemia. If left untreated, can cause many complications include macro and micro vascular which leads to high mortality and morbidity rates. Now a days, due to their stress and sedentary lifestyle, which are prone to suffering with non-communicable diseases especially Diabetes mellitus of the population. The average age at onset of diabetes seen in middle or elderly people. But according to WHO, 8.7 percent of population in the age group of 20 and 70 years suffering with diabetes. Currently, one in every four people are suffering with adult-onset of diabetes (type-2) under the age group of 25 years and 2.5 percent in the urban and 1.8 percent in the rural population above the age of 15 years, according to ICMR. India currently represents 49 percent of the world is diabetes burden, with an estimated 72 million cases in 2017, and almost double to 134 million by 2025. Keeping this in view, the researcher had taken Music therapy is one of the scientific method of using music and sounds for bringing positive changes in subjects to helps in physical, mental and spiritual wellbeing and helps in replacing negative effects like depression, fear, anger and etc. and also improves to reduce stress levels, which is one of the predisposing factor of diabetes. Decreased stress levels helps regulation of blood circulation and effective metabolism, which improves the secretion of insulin from pancreas to maintain normal blood glucose levels and also decreased secondary complications of diabetes. (Pramod, 2022).

2. Materials and Methods

Collection of Material

In this study, the goal of music therapy was to help subjects change their negative attitudes and adopt positive ones. Additionally, music therapy can improve moods, lessen

stress, and foster positive attitudes. Additionally, it aids in regulating blood flow, efficient metabolism, and blood sugar levels. An online link containing a group of eight non-lyrical Indian classical instruments was given to the study's participants. The beats per minute ranged from 60 to 80, which is known to have a calming effect.

- https://youtu.be/BRU7E6H_Qmw
- <https://youtu.be/LciGC3WLMFI>

Experiment

- A sample of 240 subjects aged between 40 – 60yrs of both gender were selected as per inclusion and exclusion criteria. Divided into eight groups, such as control and seven experimental groups with a minimum of 30 subjects in each.
- For this study standardized questionnaire was developed. Demographic data, disease profiles, anthropometry data, clinical data, dietary history, and laboratory results are all included in this questionnaire. For this study, close-ended questions were used. Before and after supplementation collected the ABCD for all groups.
- Informed consent was obtained from the eligible subjects
- Obtained approval from the human ethical committees before beginning the study

Music therapy intervention:

The impact of personal musical preferences on a subject's reactions to music is greater. The participants underwent 15 days of supervised training before being asked to practice for three months. Every month, subjects were contacted for oversight and compliance. All outcome measures were repeated after three months. All potential factors were considered in this study. In two sessions (morning and evening) per day, the participants in the music group listened to their chosen music using headphones and a portable audio player for roughly 30 to 45 minutes each time.

Statistical analysis:

After intervention it was observed that the mean FBG and PPG statistically significant ($p \leq 0.00$) the overall mean difference in HbA1c was statistically significant ($p \leq 0.05$).

3. Result

- The base-line results showed that the mean readings of fasting blood glucose (FBG) level and postprandial glucose (PPG) were 150.612 ± 18.3 and 200.97 ± 54.835 mg/dl respectively which were above the normal values. After supplementation it was observed that the mean FBG and PPG were 144.07 ± 17.67 mg/dl and 187.4 ± 54.851 mg/dl respectively. There was statistically significant ($p = 0.005$) decrease in the means of FBG (7%, $p = 0.005$) and PPG (13.6%, $p = 0.001$) respectively.
- The initial mean HbA1c was 7.21 ± 0.98 percent and post intervention it was 6.87 ± 0.37 percent, the overall mean difference in HbA1c was 0.01 percent point which was statistically significant ($p = 0.001$).
- Music therapy is very effective because it also fosters a positive outlook on life. Music therapy helps manage diabetes by maintaining blood sugar levels by reducing stress and negative emotions, which have been linked to the development of diabetes.
- Significant drops in blood glucose levels were seen in groups during an intervention study supported by Pillai and Dev (2018) to examine the impact of Indian classical music on blood glucose levels in subjects with type 2 diabetes mellitus for two months. Deshkar et al., (2022), also supported by study-related stress, have been linked to the development of non-communicable diseases like diabetes, which music therapy helps manage by maintaining blood sugar levels within reasonable ranges. While Witusik et al., (2023) reviewed how music therapy can aid in focusing attention and regulating a subject's thoughts and behaviour, this can also help maintain a sufficient caloric intake.

4. Discussion and Conclusion

The present study reveals, **Music therapy** plays a major role to treat diabetes and complications. The study was conducted by following all rules and regulations.

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