https://doi.org/10.46389/rjd-2024-1728
www.rjdnmd.org

Rom J Diabetes Nutr Metab Dis
2024; volume 31, issue 4, pages 399–403

Original Article

The effectiveness of an integrated program in controlling sexual dysfunction in patients with diabetes aged 45–50 years

Ata Emad Ata Ali [1]*, Nader Ahmad Jaradat [2]

[1] Department of Medical Laboratory Sciences, Faculty of Allied Medical Sciences, Zarqa University, Zarqa, Jordan
[2] Department of Class Teacher, Faculty of Educational Sciences, Zarqa University, Zarqa, Jordan

* Correspondence to: Ata Emad Ata Ali, Department of Medical Laboratory Sciences, Faculty of Allied Medical Sciences, Zarqa University, Zarqa, Jordan. E-mail: ataali@zu.edu.jo; aeaali75@gmail.com

Received: 7 August 2024 / Accepted: 21 November 2024

Abstract

Diabetes mellitus is a serious health condition that, if poorly managed, can lead to various complications, including sexual dysfunction, particularly in men. This study examined the effects of a comprehensive intervention program on 10 men aged 45–50 with type II diabetes over three years. Monthly follow-ups assessed changes in sexual activity frequency, body weight, and HbA1c levels. Results showed a consistent frequency of sexual activity and improvements in body weight and HbA1c across all participants, suggesting that the program supported better diabetes management and reduced the risk of sexual dysfunction. Based on these promising results, we recommend implementing this intervention with a larger group to further evaluate its effectiveness and potential benefits for diabetes management and related complications.

Keywords: erectile dysfunction, diet, exercise, psychodrama.

Introduction

Diabetes mellitus is one of the widely spread chronic diseases all over the world [1]. It is mainly characterized by high blood sugar (blood glucose). This disease leads progressively to many adverse effects, such as blindness, kidney failure, heart attacks, stroke, and lower limb amputation [1].

One of the adverse effects that diabetes often causes is sexual dysfunction in males and females; this problem may cause other social and psychological effects on the patient and his/her partner [2]. Furthermore, sexual dysfunction often happens gradually and might be controlled if it is interfered with during early stages [3].

In Jordan, limited studies were conducted in this field of research that is related to diabetes and its relation to sexual dysfunction. One of these studies was conducted on diabetic patients to test the effectiveness of injecting stem cells into the penis of each patient to repair vascular damage and restore erectile function [4]. Another study was conducted to evaluate the causes of erectile dysfunction in diabetic patients and it was concluded that neurogenic factors are the reason for this case [5]. On the other hand, our study was conducted to investigate the effectiveness of an integrated, non-invasive program to restore and prevent sexual dysfunction in type II diabetic patients. This integrated program includes a special diet customized to each patient, medical prescription as advised by the physician, physical exercise (light exercise, *e.g.*, walking for a total of 40 minutes), and group psycho-drama therapy.

Many studies were conducted to explore all possible approaches to prevent sexual dysfunction in diabetic patients. In some of these studies, the improvement of sexual performance was approached by following certain diets [6]. On others, the availability of certain food elements, such as vitamin D, and their relation to sexual performance in diabetic patients were investigated [7]. Physical activity and exercise were the areas of focus in another group of studies [8]. In other studies, the interference of certain drugs, which are used frequently to enhance sexual performance, was tested

on diabetic patients [9]. In the vast majority of these studies, the effect on sexual performance in diabetic patients was limited or with no improvement. On the other hand, in this study, we hypothesized that including many interferences, such as physical and psychological factors, in the integrated program will accumulatively improve the sexual functions of diabetic patients.

Patients (n=10) were exposed to the above-mentioned integrated program to evaluate its effects on their sexual performance, glycemic control, and body weight which were followed up during the course of the program.

Material and methods

Study participants

Ten diabetic patients volunteered for the study (aged 45–50). They were diagnosed with type II diabetes three years before their participation. They have undergone the study integrated program to avoid sexual dysfunction during the later stages of diabetes.

The integrated program

All participants of the study followed an integrated program including the following:

- A prescribed medicine and therapy plan according to their physician's advice;
- A dietitian designed a dietary program for each individual and followed up fortnightly for the whole period of the study;
- A daily exercise includes pace walking during the early morning and evening for at least 20 minutes each;
- A psychological program included a fortnightly group discussion for all participants; during these meetings, all participants were exposed to psychodrama and were encouraged to face imaginary scenarios that were designed to enable each one of them to develop durability skills and emotional control.

Following up on participants

All subjects were followed up during 3 years (4 times each year, once each quarter), and the following measures were taken and recorded in the form assigned for each participant:

- Body weight: Body weight was taken using electronic patient weighing scale (MPB 300K100P, KERN & SOHN, Germany);
- HbA1c: This parameter was taken from each participant and was performed in governmental Jordanian hospitals as an indication of

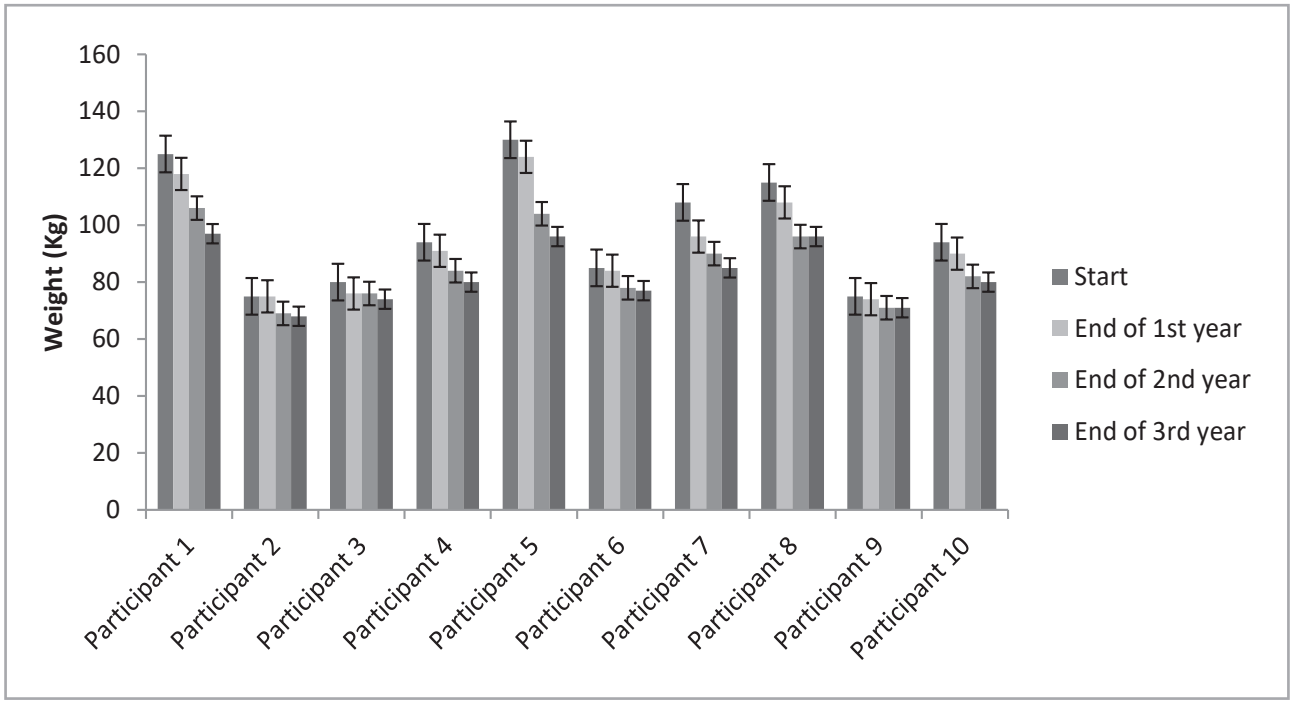

Figure 1: Body weight of all participants during different time intervals of the study; the body weight of all participants declined progressively to the end of the third year of the study ($p<0.001$).

https://doi.org/10.46389/rjd-2024-1728

the average blood glucose levels for the last two to three months before the visit;

- Frequency of intercourse each month: Each participant obtained this parameter through verbal communication.

Statistical analysis

The Jamovi project (2022). *jamovi* (Version 2.3) [Computer Software]. Retrieved from https://www.jamovi.org was used to analyze the data obtained from the subjects. Student t-tests were used to compare the results of each participant during the study.

Results

Body weight

The body weight results for each individual have shown a significant decline during the three years of the study for all participants (Figure 1).

HbA1c

The glycemic control indicator (HbA1c) was declining in all participants during the course of the study (Figure 2).

Frequency of intercourse per month

The frequency of intercourse was continued at the same level in most of the participants increased in some of them and decreased in two participants only (Figure 3).

Discussion

Diabetes is one of the main causes of progressive sexual dysfunction in males. Many studies were conducted to search for a cure or a preventive measure for sexual dysfunction in diabetic patients. The vast majority of these studies have focused only on one of the sexual activity factors in each of these studies. On the other hand, this study was conducted by taking into consideration many of the factors that may interfere with the physical and psychological status of the participants simultaneously and improve, or at least prevent the deterioration, of the sexual function in diabetic patients.

One of the primary ways affecting sexual function in diabetic patients is by helping control blood glucose levels. High blood glucose levels can lead to nerve damage and blood vessel problems, which can contribute to sexual dysfunction. Previously, it was shown that maintaining stable blood glucose levels through diet

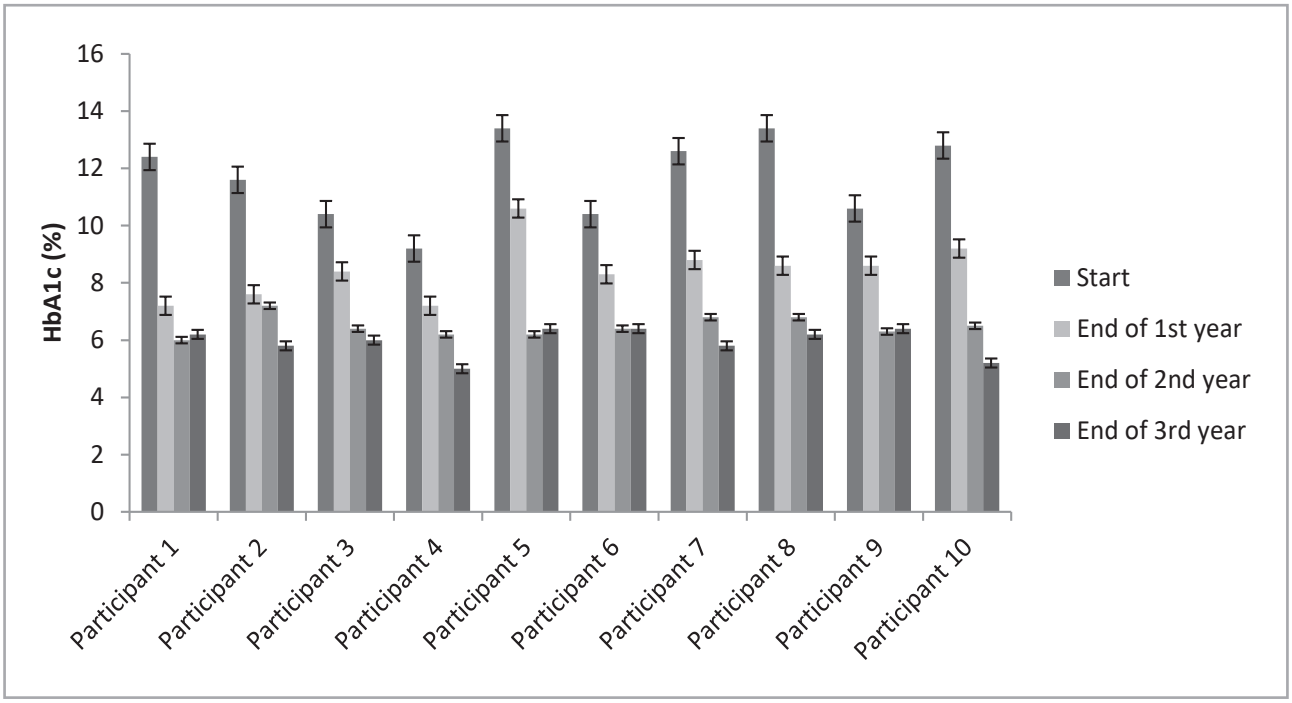

Figure 2: HbA1c of all participants during different time intervals of the study; the HbA1c of all participants declined progressively to the end of the third year of the study ($p<0.001$).

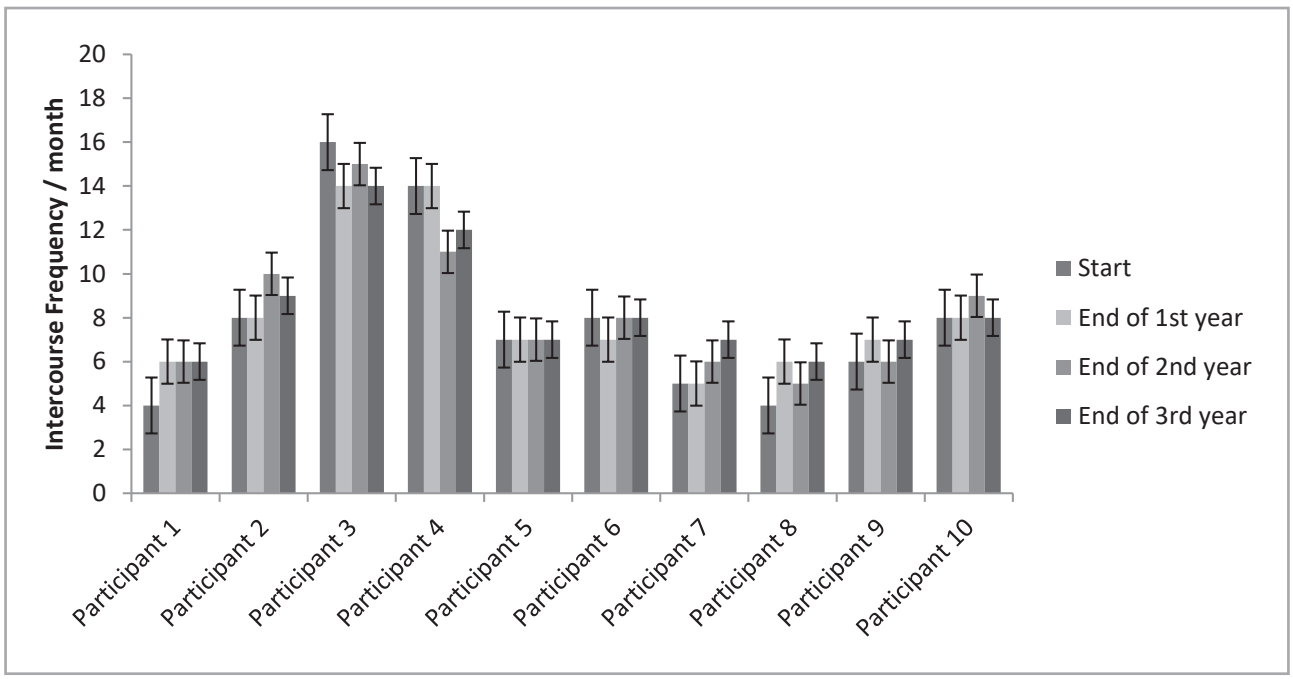

Figure 3: Frequency of intercourse per month of all participants during different time intervals of the study; the frequency of intercourse per month had improved in 5 of the participants (1, 2, 7, 8, and 9) and stayed the same in 3 (5, 6 and 10) of them and decreased in two of the participants (3 and 4).

and medication can help improve sexual function [10]. This factor was monitored during the whole period of the study by measuring hemoglobin A1c (HbA1c) quarterly. HbA1c is a major biomarker for glycemic control over a period of two to three months [11]. To maintain a normal level of glucose in all participants, each one of them was following a personalized medical plan assigned by his physician. The above results have shown an improvement in glycemic control for all participants. This in turn is expected to improve all health aspects including sexual functions in all participants [12].

Body weight in general gives an indication of general well-being and must be controlled and reduced to an accepted value to prevent any adverse effect of diabetes [13]. This kept all participants in shape, all of them were following a restricted diet assigned by a dietitian, along with light exercise including daily walking for a total of 40 minutes, to keep their bodies in shape and to stabilize their blood glucose within the normal range [14]. These diet regimes were followed side by side with the medical prescription assigned by a physician for each participant. Diet plays a crucial role in managing diabetes, and it can also have an impact on sexual function in diabetic patients [13]. While there is no single "restricted diet" that universally enhances sexual function in diabetic patients, maintaining stable blood sugar levels, managing weight, and consuming a nutrient-rich diet can collectively contribute to better sexual health in individuals with diabetes [13]. Research in this field continues to evolve, and consulting with healthcare professionals is critical for tailored advice and guidance.

Psychological aspects play a significant role in improving sexual functions. A person's mental and emotional state can have a profound impact on their sexual well-being [15]. Performance anxiety can hinder sexual performance and satisfaction. By addressing and reducing anxiety through relaxation techniques, mindfulness, and communication with a partner, individuals can experience improved sexual function [16].

A positive body image can lead to increased self-confidence in the bedroom. Learning to accept and love one's body can result in improved sexual satisfaction [17]. This effect was at least partially achieved in this study by combining body weight loss and psychotherapy.

What is unique about the integrated interfering program in this study is that all of the used components are 100% natural except for the prescription of diabetes, which is used for all diabetic patients.

Conclusion

The integrated program was successful in improving sexual functions or at least preventing the deterioration of these functions in diabetic participants. Furthermore, this program is recommended to be applied

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to a larger cohort of participants from different ethnicities and backgrounds to ensure its effectiveness.

Conflict of interest

The authors declare no conflict of interest.

Ethics approval

All methods were performed in accordance with the Declaration of Helsinki. The approval for this study was obtained from the Ethics Committee of the Zarqa University (approval ID: 2/3/2024).

Consent to participate

Written informed consent was obtained from all the participants.

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