Stallion Journal for Multidisciplinary Associated Research Studies
ISSN (Online): 2583-3340
Volume-4 Issue-5 || October 2025 || PP. 16-24 https://doi.org/10.55544/sjmars.4.5.3

Investigation of the Relationship Between Chronic Insomnia and the Onset of Type 2 Diabetes Mellitus and Its Effects on Sexual Performance Quality in Patients Visiting the Kader Hospital and Examination Center in Mazar-I-Sharif, Afghanistan

Abdul Hakim Hekmati[1] and Dr. Sayed Aminulla Nasrat[2]
[1]Pohand Doctor, Lecturer, Department of Medical Faculty, Balkh University, AFGHANISTAN
[2]Pohandoy Doctor, Lecturer, Department of Medical Faculty, Balkh University, AFGHANISTAN

[1]Corresponding Author: hakim.hekmati456@gmail.com

www.sjmars.com || Vol. 4 No. 5 (2025): October Issue

Date of Submission: 22-09-2025	**Date of Acceptance:** 25-09-2025	**Date of Publication:** 05-10-2025

ABSTRACT

Introduction: Type 2 Diabetes Mellitus is one of the most significant public health issues, characterized by insulin resistance and impaired insulin secretion. Risk factors such as overweight, physical inactivity, and poor nutrition play a crucial role in its development. Alongside these factors, sleep disturbances, particularly chronic insomnia and sleep apnea, can exacerbate the onset and control of blood glucose levels.
There exists a strong correlation between chronic insomnia, chronic diabetes, and sexual dysfunction. Blood glucose control and vascular/neurogenic factors act as mediators or modulators between sleep and sexual performance.
Literature Review: Approximately 90% of individuals with diabetes have Type 2 Diabetes Mellitus. Behavioral and environmental factors such as weight gain, obesity, and lack of exercise are primary contributors to Type 2 Diabetes. The risk of sexual dysfunction in diabetic patients is heightened due to the onset of neuropathic, vascular, hormonal issues, and chronic diseases such as kidney disease, hypertension, and hyperlipidemia. Sexual dysfunction is the most common complication of diabetes affecting both genders.
Diabetes is recognized as a major non-communicable disease and is the eighth leading cause of death worldwide. According to the Ministry of Public Health of Afghanistan, there are 422 million individuals globally affected by diabetes, of which 199 million are women. Estimates suggest this figure may rise to 600 million by 2035.
The number of individuals affected by diabetes, or hyperglycemia, worldwide exceeded 450 million in 2017. Engaging in a healthy lifestyle can reduce the risk of developing Type 2 Diabetes Mellitus.
Researchers at a university in Japan have recently found that even sleeping less than six hours a night increases the risk of developing diabetes.
The tools used in the study included:

1. **Demographic questionnaire**
2. **Sleep quality questionnaire**
3. **Self-efficacy scale in diabetes management**
4. **Female sexual function index**

Research Findings: Among 200 diabetic patients, 101 were female with an average age of 52.8 ± 3.3 years, and 99 were male with an average age of 54.9 ± 7.5 years. Of these, 23.5% had a university education, while 76.5% were below diploma level. The average duration of illness was 9.4 ± 5.7 years, with over half of the patients (56.5%) having had diabetes for less than 10 years. The average number of children was 3.2 ± 1.5. A majority of patients (38%) had high blood lipids, and 32.5% had no other diseases aside from diabetes.
Discussion and Results: The results indicated a positive correlation between sexual dysfunction and sleep disturbances, which can be predicted based on self-efficacy.
In other studies, although this finding has not always been consistently observed, having positive experiences (such as positive thoughts, pleasant feelings, and enjoyment) plays a significant role in diabetes management and improved sleep quality.

Stallion Journal for Multidisciplinary Associated Research Studies
ISSN (Online): 2583-3340
Volume-4 Issue-5 || October 2025 || PP. 16-24 https://doi.org/10.55544/sjmars.4.5.3

Keywords- type 2 diabetes sleep disorders, diabetes and sexual dysfunction, obstructive sleep apnea diabetes, erectile dysfunction diabetes randomized trial, female sexual dysfunction diabetes.

I. INTRODUCTION

Type 2 Diabetes Mellitus is one of the most significant public health challenges, characterized by insulin resistance and impaired insulin secretion. Risk factors such as overweight, physical inactivity, and poor nutrition play a crucial role in its development. Alongside these factors, sleep disorders, particularly chronic insomnia and sleep apnea, can exacerbate the onset and control of blood glucose levels.

Potential mechanisms include activation of the sympathetic nervous system, increased cortisol levels, and changes in appetite-regulating hormones and circadian rhythms, which may reduce insulin sensitivity and complicate glucose control.5) (The relationship between sleep and diabetes is bidirectional: inadequate sleep can increase the risk of developing or advancing diabetes, while diabetes can lead to insomnia or poor sleep quality. This article examines this link from biological, psychological, and social perspectives to propose effective intervention approaches for improving both issues.

The chronic nature of diabetes significantly impacts the physical, psychological, and social functioning of patients. Therefore, examining various dimensions of health and quality of life in these patients is of particular importance. Diabetes is one of the most common chronic diseases, affecting approximately 285 million people worldwide, with projections suggesting this number could rise to 439 million by 2030. It is considered one of the most prevalent non-communicable diseases of the century. This condition is not only a major contributor to cardiovascular disorders and blindness but also plays a role in sexual dysfunction and sleep quality(4) .

Research Objective:

The primary aim of the present study was to provide empirical evidence regarding the correlation between self-efficacy, sexual dysfunction, and sleep quality in individuals with Type 2 Diabetes Mellitus.

Establishing the relationship between chronic insomnia, chronic diabetes, and sexual dysfunction is one of our research objectives.

Research Questions:

- Is long-term insomnia or chronic sleep disturbance associated with an increased risk of developing Type 2 Diabetes Mellitus?
- Does sleep quality and the presence of sleep disorders affect sexual function (in both men and women) in individuals with Type 2 Diabetes Mellitus?
- What is the mediating or moderating role of factors such as diabetic neuropathy, blood glucose control, blood pressure, weight, and psychosomatic stress in this relationship?

II. LITERATURE REVIEW

Approximately 90% of individuals with diabetes have Type 2 Diabetes Mellitus. (6) Behavioral and environmental factors such as weight gain, obesity, and physical inactivity are considered primary contributors to the development of Type 2 Diabetes Mellitus. (7) The risk of sexual dysfunction in diabetic patients is increased due to the occurrence of neurological, vascular, and hormonal issues, as well as the presence of other chronic conditions such as kidney disease, hypertension, and obesity(8).

Sexual dysfunction is the most common complication of diabetes affecting both genders.(9) Sexual dysfunction in diabetic men manifests as decreased libido, ejaculatory dysfunction, erectile dysfunction, and ultimately, sexual dysfunction. In diabetic women, this dysfunction includes sexual dissatisfaction, orgasmic dysfunction, and lubrication issues. These disturbances arise due to psychological, hormonal, neurological, and vascular problems. (10)

Studies have shown that factors such as diet, sleep, and pharmacotherapy influence erectile dysfunction. According to the research conducted, the lowest prevalence of erectile dysfunction is reported in the UK and Italy at 35%, while the highest prevalence is observed in Japan at 90%.(11)

Sleep is a fundamental human necessity essential for maintaining energy, physical appearance, and overall well-being. (13) Insomnia leads to hormonal, behavioral, and physical disturbances, and it also diminishes an individual's quality of life. (13) Illness can affect both the quality and quantity of sleep, and poor sleep quality leads to a diminished quality of life. Poor sleep quality is particularly pronounced in type 2 diabetes, where disrupted sleep is more frequently observed. (14) On the other hand, sleep disturbances lead to increased sympathetic nervous system activity, elevated cortisol levels in the evening, and heightened growth hormone levels, resulting in increased insulin resistance and reduced glucose tolerance. (15) Research by American scientists indicates that individuals who sleep less than 6 hours per day are at a higher risk for abnormal blood glucose levels and developing type 2 diabetes. The results show that those with

insufficient sleep are more likely to experience elevated fasting blood glucose and an increased risk of type 2 diabetes. (14) Diabetes is a self-management disease, as 99% of the care is the responsibility of the patient themselves. (16) Self-efficacy can enable individuals to adopt health-promoting behaviors and discontinue health-damaging habits. (18) Self-efficacy is essentially an individual's belief and expectation regarding their capacity to influence desired outcomes through personal efforts. By utilizing self-efficacy tools related to nutrition and physical activity, individuals can monitor blood sugar levels and prevent complications associated with these conditions (18, 19).

Healthy sexual activity plays a crucial role in the mental health of both men and women, family formation and stability, as well as in preventing conflicts, misunderstandings, and the breakdown of marital relationships, along with their adverse consequences.(20) Officials from the Ministry of Health in Afghanistan state that 5.8% of the population is at risk of developing diabetes. Diabetes is classified as a non-communicable disease and is the eighth leading cause of death globally. According to statistics from the Ministry of Public Health in Afghanistan, there are 422 million people worldwide living with diabetes, of which 199 million are women. It is estimated that this number will rise to 600 million by 2035.

Dr. Syed Habib Arool, head of the Non-Communicable Diseases Control Department at the Ministry of Public Health in Afghanistan, told Deutsche Welle that a survey conducted in 2010 indicated that 2.3% of the Afghan population had diabetes, but recent surveys show that this figure has increased. Mr. Arool stated, "Unofficial figures indicate that 5.8% of the Afghan population is at risk of diabetes."

The Ministry of Public Health has reported that nearly 20,000 people in the country die each year as a result of diabetes. According to a press release from the ministry, Dr. Mamusi Ziyoor, deputy minister of public health, mentioned that over 849,000 individuals in Afghanistan suffer from this disease, with 19,773 individuals dying annually due to diabetes.

The number of people with diabetes globally exceeded 450 million in 2017. A healthy lifestyle can reduce the risk of developing type 2 diabetes. Researchers from a university in Japan have recently found that even sleeping less than six hours a night increases the risk of developing diabetes.

World Health Organization: 2.7 million Afghans suffer from diabetes.

Dr. Richard Paperkorn, representative of the World Health Organization in Afghanistan, stated that approximately half a billion people worldwide are affected by diabetes, with the majority suffering from type 2 diabetes, which is diagnosable and treatable. However, Mr. Paperkorn noted that the Eastern Mediterranean region, including Afghanistan, has the highest prevalence of diabetes in the world, with 43 million individuals affected in this area.

The latest statistics released by the World Health Organization regarding diabetes are as follows:

- The number of individuals with diabetes has increased from 108 million in 1980 to over 425 million.
- The global prevalence of diabetes among individuals over 18 years has risen from 4.7% in 1980 to 8.5% in 2014.
- The rate of diabetes prevalence has increased more significantly in low-income and impoverished countries.
- Diabetes is a leading cause of blindness, kidney failure, heart attacks, strokes, and amputations of lower limbs.

In 2016, 1.6 million deaths were directly attributed to diabetes, and an additional 2.2 million deaths were associated with high blood glucose levels. Approximately half of the mortality statistics related to high blood glucose were reported in individuals under 70 years of age.

Type 2 diabetes is associated with an increased prevalence of insomnia and sleep disorders (such as sleep apnea or HOA). Sleep disturbances can complicate glucose control, and conversely, impaired glucose control can lead to sleep disorders.

Sexual Dysfunction and Type 2 Diabetes: Type 2 diabetes is often associated with erectile dysfunction in men and reduced libido or difficulty achieving orgasm in women. Factors such as vascular issues, neuropathy, hormonal changes, and psychological factors play a role.

The Relationship Between Sleep and Sexual Health in Diabetes: Poor sleep quality can negatively impact sexual desire and performance, while conversely, sexual dysfunction can lead to insomnia, stress, and anxiety.

III. RESEARCH METHODOLOGY

This descriptive-correlational study was conducted on outpatients with type 2 diabetes (in a personal examination setting as well as at the Faculty of Medicine, Balkh University Hospital) during the years 1401-1402. Samples were selected purposefully based on having type 2 diabetes and a willingness to participate in the study.

Inclusion criteria for the study included: being married, having a minimum of 4 years of history of type 2 diabetes, willingness to participate in the study, and being over 30 years of age.

Exclusion criteria for the study included: individuals with type 1 diabetes, those with cancer, and those with mental disorders were excluded from the study.

In this study, to collect data, the researcher completed the research questions through individual interviews after explaining the research objectives.

Adherence to Research Ethics: Ethical standards were fully observed. To ensure compliance with research ethics and the rights of participants, both verbally (prior to implementation) and in writing (on the questionnaire), participants were

assured that the information requested in the questionnaires was solely for research purposes and that, aside from gender identification, there was no need to provide names, surnames, or other personal details. Data collection was conducted six days a week at specified times over a period of three months. The data were analyzed using SPSS statistical software, with frequency distribution tables, means ± standard deviations (for data description), and Pearson correlation coefficients (for data analysis). A significance level of 0.05 was considered.

IV. TOOLS USED IN THE RESEARCH

Demographic Questionnaire: This questionnaire contained 11 questions, including: 1) Age, 2) Marital status, 3) Gender, 4) Education, 5) Income level, 6) Family economic status, 7) Occupation, 8) Medical history, 9) Type of illness, 10) Duration of illness, and 11) Number of children.

Sleep Quality Questionnaire: This questionnaire originally consists of 9 items; however, since question 5 includes 10 sub-items, the total questionnaire contains 19 items covering aspects such as perceived sleep quality, the amount of nightly sleep, and adequacy of sleep from the individual's perspective. Additionally, this tool examines factors such as taking more than 30 minutes to fall asleep, using sleep aids to fall asleep, waking up in the middle of the night due to frequent urination, shortness of breath, feelings of cold or heat, and waking up due to pain in any body part over the past month. Responses are scored on a 4-point Likert scale ranging from 0 to 3.

The scoring method is as follows: no sleep problems (score of 0), mild sleep problems (score of 1), moderate sleep problems (score of 2), and severe sleep problems (score of 3).

Self-Efficacy Scale in Diabetes Management: This scale was developed in 1999 by Vander et al. The questionnaire consists of 19 questions that assess the patient's ability to adhere to dietary guidelines, engage in physical activity, and monitor blood glucose levels. The questions are rated on an 11-point Likert scale ranging from "I cannot at all" (score of 0) to "I definitely can" (score of 10). The scoring range is between 0 and 19. The results of our study were similar to the findings of McDowell et al. (2005) and Sturt, Hearnshaw, and Wakelin (2002).

Female Sexual Function Index (FSFI): This multidimensional tool was first developed by Rozen et al. in 2000. The FSFI is used internationally to assess female sexual function. This 19-item questionnaire evaluates various dimensions of sexual function, including sexual desire (2 items), sexual arousal (4 items), lubrication (4 items), orgasm (3 items), satisfaction (3 items), and pain (3 items).

The scoring for each question is as follows: sexual desire (1-5), and for the dimensions of sexual arousal, vaginal lubrication, orgasm, sexual satisfaction, and pain (0-5). The total scores for each dimension are calculated using coefficients: sexual desire (0.6), sexual arousal (0.3), vaginal lubrication (0.3), orgasm (0.3), sexual satisfaction (0.4), and pain (0.4).

The range for the sexual desire dimension is between 1.2 and 6, while the other dimensions range from 0 to 6. The overall score for sexual dysfunction ranges from 1.2 to 36. A higher score indicates better sexual function. The cutoff points for sexual desire are 2.1, for sexual arousal 2.8, for vaginal lubrication 2.8, for orgasm 2.6, for sexual satisfaction 3, for pain 3, and for the overall FSFI score 28.

International Erectile Function Scale: This scale consists of 5 questions, with responses rated on a 5-point Likert scale from 1 to 5. The score range is between 5 and 25, where a score of less than 21 indicates erectile dysfunction. Based on the score obtained from the scale, individuals are classified into four categories of erectile dysfunction: severe dysfunction (scores 5-10), moderate dysfunction (scores 11-15), mild dysfunction (scores 16-20), and normal status (scores 21-25). The reliability coefficient of this scale in Bener's study was 0.96. In the present study, to assess the reliability of the four questionnaires, a test-retest method was employed. For this purpose, the questionnaires were administered to 10 patients with type 2 diabetes at two intervals of 10 days. The correlation obtained from the two tests was 0.84 for the self-efficacy scale in diabetes management, 0.77 for the sexual function tool in women, 0.87 for the International Erectile Function Scale, and 0.81 for sleep quality.

Findings of Our Study: Among 200 patients with diabetes, 101 were women with a mean age of 52.8 ± 3.3 years, and 99 were men with a mean age of 54.9 ± 7.5 years. Of the participants, 23.5% had a university education, while 76.5% were undergraduates. The average duration of the disease was 9.4 ± 5.7 years, with more than half of the patients (56.5%) having a disease duration of less than 10 years. The average number of children was 2.1 ± 3. Most patients (38%) had hyperlipidemia, and 32.5% had no other comorbidities aside from diabetes (Table 1).

Among the variables studied, being over 60 years old and under 49 years was significantly correlated with sexual function in both women and men ($p < 0.001$), with a correlation coefficient of -0.55 in men and -0.61 in women. This indicates that sexual function decreases with increasing age. Additionally, sexual function showed a significant correlation with the duration of the disease ($p < 0.001$), with a correlation coefficient of -0.34 in men and -0.37 in women, implying that sexual function declines with an increase in the duration of the disease.

Stallion Journal for Multidisciplinary Associated Research Studies
ISSN (Online): 2583-3340
Volume-4 Issue-5 || October 2025 || PP. 16-24 https://doi.org/10.55544/sjmars.4.5.3

Table 1: Demographic Characteristics and Selected Information of Patients with Type 2 Diabetes at the Faculty of Medicine, Balkh University, and Personal Clinic Personal Home

Variable	Categories	Count	Percentage
Age (years)	Less than 40	11	5.5
	40-49	55	27.5
	50-59	67	33.5
	More than 60	67	33.5
Gender	Male	99	49.5
	Female	101	50.5
Number of Children	No children	19	9.5
	One or two children	74	37
	Three or four children	60	30
	Five or more	47	23.5
Education	Illiterate	35	17.5
	Primary	43	21.5
	Middle School	29	14.5
	Secondary	46	23
	University	47	23.5
Chronic Diseases	None	65	32.5
	Hypertension	35	17.5
	Hyperlipidemia	76	38
	Kidney Disease	5	2.5
Duration of Disease	Less than 10 years	113	56.5
	10 to 14 years	50	25
	15 to 19 years	24	12
	20 years and more	13	6.5

The mean self-efficacy score in men was 143.7 ± 2, while in women, it was 147.8 ± 24.8. The mean score for erectile dysfunction was 11.7 ± 5.7. Among men with type 2 diabetes, 91.9% experienced erectile dysfunction, with 44.4% reporting severe dysfunction, 23.2% moderate dysfunction, and 24.2% mild dysfunction (Table 2).

Table 2: Classification of Erectile Dysfunction

Percentage	Frequency	Classification
44.4	44	Severe
23.2	23	Moderate
24.2	24	Mild
8.1	8	Normal
100	99	Total

The results of the Pearson correlation coefficient test indicated a statistically significant correlation between self-efficacy ($p < 0.002$) and erectile dysfunction in men with type 2 diabetes, with a correlation coefficient of 0.31. The mean sleep quality score in men was 7.6 ± 4.7, while in women, it was 8.1 ± 4.8.

The results also demonstrated a statistically significant correlation between self-efficacy ($p < 0.003$) and sleep quality in individuals with type 2 diabetes, yielding a correlation coefficient of -0.21; this indicates that as self-efficacy increased, sleep quality scores decreased, suggesting that better self-efficacy is associated with improved sleep quality Table 3: Resulted.

Stallion Journal for Multidisciplinary Associated Research Studies
ISSN (Online): 2583-3340
Volume-4 Issue-5 || October 2025 || PP. 16-24 https://doi.org/10.55544/sjmars.4.5.3

Table 3: Correlation Between Self-Efficacy and Sexual Function

Index	Self-Efficacy	Male Sexual Function
Self-Efficacy	-	r = 0.31 p < 0.002
Female Sexual Function	r = 0.33 p < 0.001	-
Sleep Quality	r = -0.21 p < 0.003	-

The mean score of the female sexual function index was estimated to be 14.6 ± 9.4 (range 1.2 - 36). Additionally, 100% of women had a sexual function index score of less than 30.2 (see Table 4).

Table 4: Sexual Function Index Score

Mean ± Standard Deviation	Minimum Score	Maximum Score	Count	Index
11.7 ± 5.7	0.5	24.0	99	Male Sexual Function
2.1 ± 5.2	0.0	6.0	101	Libido
2.4 ± 1.7	0.0	6.0	101	Arousal
2.2 ± 1.5	0.0	5.4	101	Lubrication
2.3 ± 1.5	0.0	6.0	100	Orgasm
2.5 ± 1.9	0.0	6.0	99	Satisfaction
2.5 ± 1.9	0.0	6.0	99	Pain
14.6 ± 4.9	0.0	30.2	99	Female Sexual Function

A 61.4% reduction in sexual desire, a 66.3% decrease in sexual arousal, a 77.2% reduction in vaginal lubrication, a 73.3% incidence of orgasmic dysfunction, a 72.3% level of sexual dissatisfaction, and a 72.3% occurrence of pain during intercourse were reported. The results of the Pearson correlation coefficient indicated a statistically significant correlation between self-efficacy ($p < 0.001$) and sexual dysfunction in women with type 2 diabetes, with a correlation coefficient of 0.33. Additionally, statistically significant correlations were found between self-efficacy and sexual desire ($r = 0.37$), sexual arousal ($r = 0.33$), sexual satisfaction ($r = 0.35$), and pain ($r = 0.35$). No statistically significant correlation was observed between vaginal lubrication ($r = 0.18$) and orgasm ($r = 0.26$) (see Table 5).

Female Self-Efficacy	Percentage	Index
r = 0.37, p = 0.000	61.4	Libido
r = 0.33, p = 0.001	66.3	Sexual Arousal
r = 0.18, p = 0.077	77.2	Vaginal Lubrication
r = 0.26, p = 0.010	73.3	Orgasm
r = 0.35, p = 0.000	72.3	Sexual Satisfaction
r = 0.35, p = 0.000	72.3	Pain

V. DISCUSSION AND RESULTS

The present study aimed to determine the correlation between self-efficacy, sleep quality, and the occurrence of sexual dysfunction in patients with type 2 diabetes. The results indicated a positive predictive correlation between sexual dysfunction and sleep issues based on self-efficacy.

In other studies, although this finding was not observed with high consistency, positive experiences (positive thoughts, pleasant feelings, and enjoyment) have been predictors of optimal sexual function in patients with type 2 diabetes. In this study, no findings could be directly compared to the results. Wu et al. reported that self-efficacy plays a significant role in adherence to self-care behaviors and better control of type 2 diabetes. In fact, understanding and nurturing self-efficacy with its components can be an effective strategy to enhance feelings of efficacy and effectiveness in diabetic patients and act as a buffer against diabetes.

The findings of this study, alongside results from other clinical studies, provide further evidence of the close

relationship between self-efficacy and the performance of self-care behaviors in patients with type 2 diabetes. In other words, as self-efficacy increases, the ability to cope with chronic illnesses, including diabetes, improves, leading to a reduction in complications such as sleep problems and diminished sexual function. In this study, type 2 diabetes negatively impacted sexual function, and an increase in self-efficacy was associated with improved sexual function. In fact, feelings of self-efficacy not only positively affect diabetes management and adherence to medical directives for diabetes improvement but can also reduce complications arising from diabetes, such as increased sleep problems and decreased healthy sexual function.

Engaging in healthy and safe sexual relationships enhances satisfaction and quality of life for couples, which in turn positively affects sleep quality and increases self-efficacy. In our research, we found that in men, hyperglycemia leads to changes in penile vasculature, reduced blood flow, endothelial cell dysfunction, and consequently a decrease in nitric oxide production and inadequate relaxation of smooth muscle, resulting in erectile dysfunction. In diabetic women, decreased mucus membrane fluid, such as vaginal lubrication, leads to reduced lubrication during intercourse and the occurrence of dyspareunia. Hyperglycemia increases the risk of genital and urinary infections in women, which contributes to increased dyspareunia in diabetic women.

Our findings align with studies by Basok and Nowosielski. Diabetes negatively affects female sexual function by causing hormonal, vascular, neural, and psychosocial disturbances. Additionally, diabetes alters levels of androgen, estrogen, and sex hormone-binding globulin, adversely impacting sexual function. Therefore, high self-efficacy can target the negative effects of diabetes, such as reduced sexual function in both women and men, as well as decreased sleep quality.

It appears that self-efficacy, as a psychological capability, can influence health issues and chronic diseases like type 2 diabetes and minimize their complications. Enhancing self-efficacy increases life expectancy and modulates health behaviors. High self-efficacy in patients with type 2 diabetes is associated with dietary regulation and the implementation of a regular exercise program. Physical inactivity can lead to the onset of diabetes, hypertension, and obesity, all of which result in decreased libido and sexual dysfunction. Additionally, our research found that 70% of men and 40% of women who participated in an exercise program at least 2-3 times a week reported higher-than-average libido.

Consequently, our study found that diabetes negatively impacts sleep quality, and with increasing self-efficacy correlated with sleep quality, a reduction in negative impacts in patients with type 2 diabetes was observed.

Zhu et al. reported that patients with type 2 diabetes have a high prevalence of sleep disorders, which negatively impacts blood glucose control, a finding that aligns closely with our results in the context of Afghanistan. Lou et al. also demonstrated that poor sleep is common in patients with type 2 diabetes and has an inverse relationship with quality of life.

The findings of our study confirm that self-efficacy can play a role in patients with type 2 diabetes, reducing the incidence of sexual dysfunction and sleep problems; however, this finding requires further research. Therefore, self-efficacy is an important factor in achieving better sexual satisfaction and improving sleep quality in patients with type 2 diabetes. Self-efficacy in managing type 2 diabetes leads to a reduction in sexual dysfunction, sleep issues, and prevention of psychological and emotional distress associated with diabetes.

Self-efficacy facilitates coping with diabetes, thereby reducing complications such as sleep problems and sexual dysfunction. Our study found that sexual function in patients with type 2 diabetes was significantly associated with age and duration of the disease. These findings are consistent with studies by Teles et al., Lindau, and Geirsson et al., which showed that advancing age leads to changes in penile vasculature, reduced blood flow, decreased androgen levels, and consequently an increased incidence of erectile dysfunction in these patients.

Evidence suggests that both increasing age and duration of the disease affect sexual function, which is somewhat expected. Overall, there appears to be a clear correlation between self-efficacy, sexual dysfunction, and sleep quality.

VI. FINAL CONCLUSION

The results of the present study indicate that type 2 diabetes affects sexual function and sleep quality, while self-efficacy positively influences diabetes management, sleep control, and healthy sexual activity. There is also a significant correlation between self-efficacy, sleep quality, and sexual function in individuals with type 2 diabetes. In a study conducted at our home examination and at the Faculty of Medicine, Balkh University, we found that the prevalence of sexual dysfunction in diabetic men in Afghanistan was 78.7%. Regular exercise plays a role in blood glucose control. Pure honey helps stabilize and even lower blood glucose levels.

RECOMMENDATIONS

To achieve better diabetes control, restful sleep, and improved sexual function, I suggest the following:

- Conduct more research comparing patients with type 2 diabetes to healthy groups, and examine the relationship between self-efficacy and other important aspects of life in these patients.
- Maintaining a normal weight, engaging in daily exercise, consuming low-fat foods, and avoiding tobacco are

crucial for preventing this disease, and I recommend these practices for patients.

- I recommend whole grain bread to reduce the risk of diabetes.
- To prevent the risk of diabetes, regular and quality sleep is essential.
- Regular exercise, healthy eating, and avoiding smoking are key strategies in combating diabetes, which I recommend for diabetic patients.
- I advise patients to engage in 40 minutes of exercise daily and to avoid fatty foods and tobacco.
- A significant portion of these diseases can be managed through regular physical activity, proper and healthy nutrition, and improving environmental conditions; I strongly recommend this.

To prevent the formation of diabetic ulcers, I recommend the following measures:

A Avoid smoking
B Maintain control of blood glucose, blood pressure, and cholesterol levels
C Exercise to stimulate blood circulation
D Keep feet clean
E Inspect feet daily for cuts and skin cracks
F Dry feet thoroughly after bathing

I recommend massage for diabetic patients, as various massage techniques can effectively reduce blood glucose levels.

A Specialized massages, such as foot massages, may also be beneficial for type 2 diabetes.
B Massage should be performed gently and with light pressure for diabetic individuals.

REFERENCES

[1] Elyasi F, Kashi Z, Tasfieh B, Bahar A, Khademloo M. Sexual dysfunction in women with type 2diabetes mellitus. Iran J Med Sci 2015;40(3):206-13.
[2] Davari L, Eslami AA, Hassan zadeh A. Evaluation of Self-care and its relationship with perceived self- efficacy in patients type 2 diabetes in Khorramabad City. Iranian J Endocrinol Metab 2015;16(6):402-10. [Full Text in Persian]
[3] Taheri Tanjani P, Moradinazar M, Esmail Mottlagh M, Najafi F. The prevalence of diabetes mellitus(DM)type 2 among Iranian elderly population and its association with other age –related diseases, 2012. Arch Gerontol Geriatr 2015;60(3):373-9.
[4] Lou P, Qin Y, Zhang P, Chen P, Zhang L, Chang G, et al. Association of sleep quality and quality of life in type 2 diabetes mellitus: A cross-sectional study in China. Diabetes Res Clin Pract 2015;107(1):69-76.
[5] Rakhshandehro S, Heidarnia AR, Rajab A. The effect of health education on quality of life in diabetic patients referring to iran diabetes association. Daneshvar 2006;13(63):15-20. [Full Text in Persian]
[6] James PA, Oparil S, Carter BL, PharmD, Cushman WC, Dennison-Himmelfarb Ch, et al. Evidence-based guideline for the management of high blood pressure in adults. report from the panel members appointed to the Eighth Joint National Committee (JNC 8). JAMA 2014;311(5):507-20.
[7] Maiorino MI, Bellastella G, Esposito K. Diabetes and sexual dysfunction: Currentperspectives. Diabetes Metab Syndr Obes 2014;7:95–105.
[8] Habibi A, Kalbasi S, saadatjoo SA, Gholamianarefi M. Evaluation of erectile dysfunction and associated factors in type 2 diabetic patients in birjand Iran. J Res Health Sci 2011;11(2):97-102.
[9] Fallahi M, Mozaffari-Khosravi H, Afkhami-Ardekani M, Dehghani A. Evaluation of sexual function in men with diabetes mellitus type 2-Yazd Diabetes Research Center. Iranian J Diabets Obes 2014;6(3):21-35. [Full Text in Persian]
[10] Vafaeimanesh J, Raei M, Hosseinzadeh F, Parham M. Evaluation of sexual dysfunction in women with type 2 diabetes. Indian J Endocrinol Metab 2014;18(2):175–9.
[11] Mutagaywa RK, Lutale J, Aboud M, Anathory kamala B. Prevalence of erectile dysfunction and associated factors among diabetic men attending diabetic clinic at muhimbili national hospital in dar-es-salaam,Tanzania. Pan Afr Med J 2014;17:227.
[12] Zakeri Moghadam S, Kazeminejad A, Ghadiani L. Comparsion of effective factors on sleeping the nurses and hospitalized patient`s viewpoints. J Hayat 2006;12(2):5-12. [Full Text in Persian]
[13] Phillips B, Mannino DM. Does insomnia kill? Sleep 2005;28(8):965-71.
[14] FaithS, Luyster JD. Sleep quality and quantity of life in adults with type 2 diabetes. Diabetes Educ 2011;37(3):347–55.
[15] Knutson KL, Cauter VE. Associations between sleep loss and increased risk of obesity and diabetes. Ann N Y Acad Sci 2008;1129:287–304.
[16] Rashidi K, Safavi M, Yahyavi SH, Farahani H. Effects of peer support on self-efficacy of patients with type 2 diabetes. Sci J Hamadan Nurs Midwifery Fac (Nasim-Danesh) 2015;23(3):13-25.

[17] White NJ, Breman JG, Kasper DL, Braunwald E, Fauci AS, Hauser SL, et al. Harrison's principles of internal medicine. NewYork; McGraw-Hill Educ Pub;2005;1218-33.
[18] Saito I, Inami F, Ikebe T, Moriwaki C, Tsubakimoto A, Yonemasu K, et al. Impact of diabetes on health-related quality of life in a population study in Japan. Diabetes Res Clin Pract 2006;73(1):51-7.
[19] Dishman RK, Motl RW, Sallis JF, Dunn AL, Birnbaum AS, Welk GJ, et al. Self-management strategies mediate self-efficacy and physical activity. Am J Prev Med 2005;29(1):10–18.
[20] Hassami MS, Haeiri MR, Asgari Mogadam MA, Rahmati N. The study of the psychometric properties of the 6-item version of the female sexual function index (FSFI-6) amongst Iranian women. J Urem Nurs Midwifery Fac 2014;12(7):532-43.
[21] Izadi Avanji FA. Adib Habbagheri M, Afazel MR. Quality of sleep and its related factors in the hospitalized elderly patients of Kashan hospital in 2009. Iran J Nurs Midwifery Res 2012;17(6):414–20.
[22] Haghayegh AS, Ghasemi N, Neshatdoost HT, Kajbaf M, Khanbani M. Psychometric properties of diabetes management Self-efficacy scale (DMSES). Iranian J Endocrinol Metab 2010;12(2):111-15. [Full Text in Persian]
[23] Fakhri A, Mohammadi Zeidi I, Pakpour Haji Agha A, Morshedi H, Mohammad Jafari R, Ghalambor Dezfooli F. Psychometric properties of Iranian version of female sexual function index. J Sex Med 2014;11(4):995-1004. [Full Text in Persian]
[24] Zeighami Mohammadi S, Shahparian M, Fahidy F, Fallah E. Sexual dysfunction in males with systolic heart failure and associated factors. ARYA Atheroscler 2012;8(2):63–69. [Full Text in Persian]
[25] Van Bussel A, Nieuwesteeg A, Janssen E, van Bakel H, Van den Bergh B, Maas-van Schaaijk N. et al. Goal disturbance and coping in children with Type I Diabetes Mellitus: Relationships with health-related quality of life and A1C. Can J Diabetes 2013;37(3):169-74.
[26] Smalls BL, Walker RJ, Hernandez-Tejada MA, Campbell JA, Davis KS, Egede LE. Associations between coping, diabetes knowledge, medication adherence and self-care behaviors in adults with type 2 diabetes. Gen Hosp Psychiatry 2012;34(4):385-9.
[27] Damiao E. Coping strategies used by adolescents with diabetes mellitus type 1. J Pediatr Nurs 2010;25(2):3-16.
[28] Wu SF, Courtney M, Edwards H, McDowell J, Shortridge-Baggett LM, Chang PJ. Development and validation of the Chinese version of the diabetes management self-efficacy Scale. Int J Nurs Stud 2008;45(4):534-42.
[29] Basok EK, Atsu N, Rifaioglu MM, Kantarci G, Yildirim A, Tokuc R. Assessment of female sexual function and quality of life in predialysis, peritoneal dialysis, hemodialysis, and renal transplant patients. Int Urol Nephrol 2009;41(3):473-81.
[30] Nowosielski K, Drosdzol A, Sipiński A, Kowalczyk R, Skrzypulec V. Diabetes mellitus and sexuality--Does it really matter? J Sex Med 2010;7(2 Pt 1):723-35.
[31] BentsenSB, wentzel-LarsenT, Henriksen AH, Rokne B,Wahl AK. Self-efficacy as a predictor of improvement in health status and overall quality of life in pulmonary rehabilitation-An exploratory study. Patient Educ Couns 2010;81(1):5-13
[32] Mohamadinejad F, Pedramazis H, Aliasgharpour M, Tabari F, Kazemnejad A. Effect of patient education program on self-efficacy in patients with diabetes. Iranian J Nurs Res 2015;10(1):35-41. [Full Text in Persian]
[33] Angorani H. Relationship between exercise and sexual health. Available Form: http://rasekhoon.net/article/show/185599/about%20,%20and%20healthand%20exercisesex. [Full Text in Persian] Accessed April 11, 2011.
[34] Zhu BQ, Li MX, Wang D, Yu XF. Sleep quality and its impact on glycaemic control in patients with type 2 diabetes mellitus. Int J Nurs Sci 2015;1(3) 260-65.
[35] Rafalson I, Donahue PR, Stranges A, Lamonte JM, Dmochowski J, Dorn J, et al. Short sleep duration is associated with the development of impaired fasting glucose: The Western New York Health Study. Ann Epidemiol 2010;20(12):883-9.
[36] Koren D, Levitt katz I, Brar Cp, Gallagher RP, Bekowitz RI, Brooks LJ. Sleep architecture and glucose and insulin hemostasis in obese adolescents. Diabetes Care 2011;34(11):2442–7.
[37] Teles AG, Carreira M, Alarcão V, Sociol D, Aragüés JM, Lopes L, et al. Prevalence, severity, and risk factors for erectile dysfunction in a representative sample of 3,548 Portuguese men aged 40 to 69 years attending primary healthcare centers: results of the Portuguese erectile dysfunction study. J Sex Med 2008;5(6):1317-24.
[38] Lindau ST, Schumm LP, Laumann EO, Levinson W, O'Muircheartaigh CA, Waite LJ. A study of sexuality and health among older adults in the United States. N Engl J Med 2007;357(8):762-74.
[39] Geirsson G, Thornorgeirsson G, Guethmundsson O, Einarsson G. Risk factors and prevalence of erectile dysfunction amongst Icelandic men aged 45-75. Laeknabladid 2006;92(7-8):533-7.