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Examining the Influence of Traditional Yoga on Depression and Quality of Life among Diabetic Women in India: A Mixed-Methods Approach

Dr. Mukesh Rani

Extension Lecturer, Department of Psychology, Govt. College Narnaund (Hisar)
ahlawatmukesh88@gmail.com
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Abstract

Many of the health problems that are obvious in the treatment of diabetes, especially the influence on other daily activities and long-term practical prosperity, can be resolved with an individualized strategy to offering yoga support. Yoga has positive effects on diabetes in ways that are related to the psycho-neuro-endocrine, immune, and resistance systems. The integration of yoga practice into daily life helps people with diabetes achieve glycemic control and reduces their risk of experiencing problems to analyse how regular yoga practice can help Type II diabetic patients achieve glucose control and emotional well-being through self-management. 91 respondents of both sexes responded to the declaration and indicated their willingness to take part in the review. In this isolated setting, yoga assessment was conducted without any external controls. Both the Wilcoxon matched rank test and the matched t-test were used to analyse the post-test data. significant reduction in fasting glucose was seen. The overall QOL of the diabetes individuals has increased. Focus and concentration skills significantly increased, and the mean inconsistency score dropped. Patients with Type II diabetes can benefit from regular yoga practice because it increases their QOL, improves their mood and focus, and makes it easier for them to attain optimal glucose control.

Keywords: Influence, Traditional, Yoga, Depression, Quality, Life, Diabetic, Women, India

1. Introduction

Type 1 diabetes is defined by an absolute lack of the chemical insulin, whereas Type 2 diabetes is characterized by a relative deficiency of insulin. Changing one's lifestyle to prevent or manage diabetes may help halt the disease's progress. Government and non-government groups have a responsibility to inform the public about preventable diseases and the advantages of adopting a healthier way of life. They need to teach kids self-care as well.

Yoga is a kind of exercise and meditation that involves breathing exercises, meditation, and physical postures. Stress and strain are alleviated, while power and urgency are increased. According to traditional Indian healing theory (Parmatma), yoga connects people to each other and the rest of the cosmos. It can be pivotal because of the impact it has on our mental processes, including our sense of identity, our motivations, and our thoughts. Because of its positive effects on practitioners' bodies, minds, and souls, yoga has been practiced for centuries. As yoga became more mainstream and accepted in society, many working professionals were attracted to it via rational investigation. It's incredible to witness the meteoric rise in yoga's popularity over the past several years, especially in Western nations. As its popularity increases in the United States, yoga has evolved into a high-end market. The rising urbanization and technological progress in western nations have contributed to developing social tensions, building strain, and distressing situations, which has led to this scientific acknowledgement of yoga. This has led to a rise in the incidence of so-called "psychosomatic" diseases, such as irritable bowel syndrome, peptic ulcer, diabetes, ischaemic heart disease, and high blood pressure. Yoga may help reduce stress and anxiety even if modern medicine can't prevent certain diseases.

When practiced as a way of life, yoga more closely adheres to its founding ideals. Asanas, pranayama (regulated breathing), and observing the yoga sutras (rules) that regulate the mind are all components. Consistent yoga practice improves mental and physical focus, which is crucial for self-monitoring of a diabetic diet and exercise plan. Patanjali states that there are eight limbs to yoga, or phases, and that each is integral to the practice as a whole. These eight appendages aid in introspective identification and critical thinking. In contrast, here we shall be concentrating on the positive effects on health. The following list identifies eight distinct yoga practices:

1. Yama: Codes of self-control, abstinence, and restriction;

2. Niyama: Observances, routines, and self-development;

3. Asana: Insightful position;

4. Pranayama: breath and prana expansion, control, and regulation;

5. Pratyahara: reduction of senses and inward focus;

6. Dharana: Concentration;

7. Dhyana: contemplation and

8. Samadhi: Deep concentration, higher-level meditation, and the condition of perfected focus.

2. Literature Review

This randomized controlled pilot study looked at how a yoga-based lifestyle intervention affected persons with type 2 diabetes mellitus's mental health and quality of life. The study's subjects reported significantly higher levels of happiness and satisfaction with life after engaging in yoga and meditation compared to the control group. These results imply that yoga-based meditations may help people with type 2 diabetes by improving their mental health and quality of life.

In this randomized controlled pilot study, the researchers examined the benefits of a yoga-based lifestyle mediation on the bothersome side effects experienced by women with feminine issues. According to the review, the mediation group significantly reduced the number of bothersome side effects compared to the benchmark group. These findings suggest that yoga-based meditations could be an important complementary therapy for managing bothersome side effects in female patients with feminine difficulties.

This randomized controlled exploratory study examined how yoga therapy affected premenopausal women with type 2 diabetes' quality of life and levels of depression. The findings demonstrated that, as compared to the benchmark group, the yoga therapy group significantly improved both quality of life and depression levels. These findings suggest that yoga therapy

may have an impact on premenopausal women with type 2 diabetes' psychological well-being and overall quality of life.

The focus of this methodical audit and meta-examination was on cardiorespiratory health in individuals with severe behavioral disorder. It mentions the potential benefits of activity mediations, like yoga, in further increasing the effects of psychological well-being, even though it is not directly related to diabetes or the wellbeing of women. A study found that practicing meditation, including yoga, improved cardiorespiratory health and reduced burdensome side effects in individuals with highly dysfunctional behavior. These findings suggest that including yoga as part of a comprehensive therapy approach may significantly impact psychological well-being outcomes in various populations.

In this randomized controlled exploratory trial, Vyas and Dikshit looked at the effects of yoga on anxiety, depression, and quality of life in women with type 2 diabetes. Yoga meditators reported much less anxiety and depression than those in the control group, according to the research. The yoga group also reported mental, emotional, and environmental enhancements. These findings suggest that type 2 diabetic women who incorporate yoga into their lifestyle can significantly reduce stress and despair while improving their overall quality of life.

3. Methods

3.1. Sample Size

91 participants contributed to a declaration of enrolment. The review aims were clearly explained to the respondents, along with the conditions for interest. Their agreement was noted. A trained clinician oversaw the individual examinations after surveying their clinical status.

People with any problematic illnesses were excluded from the analysis, and only Type II diabetics with agreement were included.

3.2. Research design

The subjects for the review were willing employees and the assessment was conducted in a "solitary gathering, when yoga" setting without a control examination. The major purpose of this

study was to investigate whether or not daily yoga practice may help Type II diabetics manage their condition and improve their mental health.

3.3. Assessments

Prior to mediation, the pretest was ordered. Beck's Depression Inventory (BDI) and Review of Diabetes-Subordinate Quality of Life (ADDQoL) were used to measure QOL and depression, respectively. Using the Mental Disappointment Survey (Craig Wallace, 1999), mental disappointment was assessed, and mental exhibits including digit image replacement, digit range, and Stroop tasks were calculated as the pretest. The research center specialist calculated postprandial glucose, fasting glucose, and glycosylated hemoglobin (HBA1c) before starting the intercession.

3.4. Tools

The study employed the following tools.

Evaluation of Life Satisfaction in Diabetics

A 13-item survey is being used to determine how people perceive how diabetes affects their quality of life. The importance of life space and the space's apparent impact from diabetes are both to be rated by the responders. The survey's factorial legitimacy is firmly established. The designers assert a reliability of 0.86. The monitor responds to changes in the user's diabetes and medication regimen. Diabetes can negatively impact every part of your life to varying degrees, as shown by your score (which goes from -9 to 9).

Depression scale developed by Beck

It's a self-report rating stock of 21 items that predicts typical attitudes and depressive symptoms. The BDI's internal consistency (reliability) varies from 0.73 to 0.92, with 0.86 being the mean. Depending on the sample size and length of the tests, test-retest reliability might fall anywhere from 0.48 to 0.86. Various types of legitimacy rest on firm ground. According to Beck (1978), the BDI serves as both a diagnostic and screening instrument.

➤ The Craig Wallace Memory Loss Questionnaire (Wallace, 1999)

With its 25 questions, this self-report inventory represents the most common ways in which people fail to do a given activity. There are four parts to this: inattention, forgetfulness, blunders, and the ability to recall names. Its purpose is to enquire about any blunders or slip-ups that may have occurred over the past several months. The questions are answered by the individuals on a 5-point Likert scale (0 being never and 4 being consistently), and the score ranges from 0 to 100. The developers firmly entrenched the survey's factorial credibility and dependability.

> Digit symbol substitution test

The third version of the Wechsler Grown-Up Knowledge Scale (1997) includes this as one of its subtests. Using a key, a series of numbers are matched with their respective hieroglyphic-like images, and the subject is to create the images in comparison to an estimate of handling speed. The test has a maximum time of 90 seconds (second version). This evaluation takes into consideration both perceptual and graphomotor speed as it assesses the capacity for unintentional learning and the process of replicating digit pictures. The high reliability of the test is evidenced by a steady quality coefficient of 0.70 to 0.90 over a wide range of ages.

Digit span

It is a different component of the third version of the Wechsler Grown-Up Knowledge Scale from 1997. In this test, the individual repeats a series of orally presented number groupings word for word for the first digit and in switch requests for the second digit. This subtest accounts for a substantial part of memory. This subtest's constant quality coefficient increased across age groups from 0.79 to 0.85, and that is a very significant value.

Standardized Stroop Task, 1999 NIMHANS Version

It is a measure of mental flexibility. This test provides a reaction restraint estimate. The subject needs to examine their regular and programmed reaction when a "contention" task is involved. The ability to control one reaction and unrestrainedly inhibit the other is then measured. Stroop is made up of the colors, specifically the capital letters "Blue," "Green," "Red," and "Yellow" that are imprinted on paper. Periodically, the print's hue and the variety the word has ascribed to it

compare. The page has 16 lines of text organized into 11 paragraphs. The participant was given the updates and asked to review them; the time it took to do so was noted. Subjects are then given a chance to name the change before the phrase is written down. Time spent naming each species is recorded. The scoring is complete once the Stroop effect score is obtained. Seconds were added to the timestamps for naming and comprehending. Subtracting the reading time from the naming chance yields the Stroop effect score.

3.5. Intervention - individualized yoga therapy

The individuals had a coordinated, one-on-one yoga therapy program that included 12 scheduled sessions spaced out over a period of three months. A instructor worked with each person for an hour, guiding them through a series of yoga postures, breathing exercises, and meditations. The therapy's goal was to enhance flexibility, coordination, and range of motion by means of dynamic postures, and to standardize breath suggestions in active and holding poses. There are now serenades and regulated breathing rates to help with concentration and ease of breathing. We practiced inversions and forward twists in yoga asanas, as well as vinyasas (groupings) characterized by extended exhalations and holds immediately after such. Ujjayi and the nostrilswitching technique known as sitali were also covered. Asana, pranayama, and drone exercises were incorporated into individualized plans for each student according on their level of flexibility and cognitive prowess. Each student watched while the teacher demonstrated the strategy, and they were given resources to practice on their own. The participants were also given food recommendations that took diabetes into account. Dietary recommendations were in line with "Hita" ahara principles like eating only Satvik food and "Mita" ahara like eating just a little quantity at a time. After three months of home practice, the average response rate from the individuals was 61%.

Information from 91 participants was dissected in order to examine the graphic profile at gauge. The benchmark segment, clinical, and mental status of members are shown in Tables 11-3.

Table 1:Participants' initial demographic and medical information

Nonspecific	80
Mean age (years)	45.48
SD	20.24
Median	45
95'' percentile	63
Men (n)	45
Women (n)	25
Duration of diabetes years (mean)	7.78
Mean	7.77
Median	20.00
SD	7.25
95^ percentile is	30
Diabetes treatment	
Insulin and diet (n)	25
Tablet and diet (n)	34
Diet only (n)	3

Table 2:baseline assessment of important clinical variables and certain psychological states

Variables	Mean	SD	SEM
Fasting blood sugar	148.85	46.37	5.05
Postprandial	189.52	53.62	8.38
HbAlc	8.85	2.64	0.30
Depression intensity	8.03	8.28	0.88
Depression frequency	20.22	8.88	0.93
Perceived impact on QoL	-3.47	3.42	0.37
Perceived cognitive failure	17.33	14.73	2.57
Processing speed (digit substitution)	57.54	13.23	2.52
Concentration (digit forward)	6.57	2.24	0.24
Concentration (digit backward)	3.25	2.38	0.28
Stroop effect (response inhibition)	120.63	36.43	6.54

Table 3:Diabetes's perceived negative effects on many domains before and after yoga

Domains	Pre-test mean	Post-test mean	Mean difference	T
Employment / career	-3.74	-3.50	0 -2.54	
Social life	-2.44	-2.62	-2.62 0.29	
Family relationship	-2.40	-2.57	0.29	0.23
Friend ship	-0.44	-0.80	0.68	3.45**
Sex life	-2.40	-2.34	-0.34	0.50
Leisure	-2.53	-2.53	0.00	0.00
Travel	-2.84	-2.94	-0.20	0.28
Future (own)	-3.74	-2.80	-0.84	2.45
Future of Family	-3.00	-2.56	-0.46	0.56
Motivation	-2.83	-2.55 -0.40		2.55
Physical active	-3.42	-2.98	-2.98 -0.52	
Others fussing	-0.98	-0.83 -0.24		0.36
Enjoyment of food	-4.98	-2.22 -3.43		3.64**
Quality of life score	-3.05	-2.43	-0.43	3.53*

Analysis performed at the halfway point demonstrated substantial increases in the quality of sleep, as well as in satisfaction with the individualized approach to planning, vitality, relaxation, and real usefulness. After 10-12 individual yoga treatment sessions, each participant was given a post-test on the same limitations that had been used in the initial assessment.

4. Results

Matching t-tests were used to break down the quantitative data on mental components, while Wilcoxon matched rank tests were used for clinical records. Below, the results and the pre-tests were compared and the results were introduced.

In Table 4 of the ADDQoL, diabetes' apparent impact on many life domains during yoga meditation is shown.

Table 4: Mean results on activities testing cognitive capacity, depression scale scores, and perceived cognitive ability

	Before Yoga		After Yoga		Mean	t
	Mean	SD	Mean	SD	difference	
Depression intensity	7.34	7.34	6.47	5.37	2.55	3.02*
Depression frequency	22.07	6.67	2.40	4.46	6.47	6.53**
Somatic symptoms	5.00	5.36	3.77	3.73	2.22	2.72
Response inhibition	127.64	53.98	205.26	26.03	23.46	2.46
Attention span Forward	4.36	2.24	5.24	2.44	0.56	4.37**
Attention span Backward	3.83	2.25	3.36	2.07	2.44	6.28**
Discrepancy	6.32	3.72	2.72	0.82	4.53	9.25**
Processing speed	54.73	20.44	54.68	23.35	0.35	0.26
Cognitive failure	35.02	22.26	32.52	20.4	0.55	0.04

The onset and progression of diabetes typically provide challenges to the current way of life and call for change. The low scores on the spaces demonstrate how disease makes it difficult to live a

normal life. Reviewing the apparent impact of the illness after preparation reveals a significant decline in the unfavourable attitude toward the illness and associated problems.

Changes in diet and attitude toward food are two areas where yoga practitioners report seeing the most benefit. Compared to the baseline, 60% of participants reported greater satisfaction with their dietary routine, an important quality indicator in the management of diabetes, after engaging in yoga, which helps patients embrace healthy dieting and fundamentally decreases worries about diet adherence among patients (mean differentiation - 2.52, P > 0.01). Aahara "Hita" and "mita" consumption is important to yoga practice. The practices of asana and pranayama can help people become more in tune with their bodies and the effects of the food they eat.

The anxiety of not knowing what lies ahead is another pressing problem. Tension and stress might develop in persons who are worried about the future or the course of a disease. Confidence is reflected in a 70% decrease in diabetes-related stress. Patients are also reporting feeling better about their disease' influence on this problem.

Another area where practicing yoga had an impact was on how proactive tasks seemed to become better. The subjects had the opportunity to learn that they might be genuinely dynamic and withstand more challenges, as well as experience more realistic adaptability, endurance, and energy. Yoga's potential impact in this field as a means of easing people into new social situations is clear. The results of this study provide credence to the idea that yoga can improve the subjective quality of life of otherwise healthy people.

Additionally, it is observed that the members' ability to distinguish "kinship" support has significantly decreased. They could feel how the virus was affecting their social relationships. Yoga as a practice has not demonstrated any progress in this regard.

4.1. Depression

The BDI was used to estimate depression. Thirty percent of the group were gentle to direct even out of depression. This was connected to the illness and so had more physically based complaints.

The severity of depression was reduced after yoga practice (mean difference = 1.66, P > 0.05), and the occurrence of depression was reduced after yoga practice (mean difference = 7.58, P > 0.01). Yoga's emphasis on the mind-body connection explains why it's so effective in alleviating the anxious thoughts and bad moods that are commonly associated with the "self." Yoga's mental and social states can aid in the management of co-occurring diseases like diabetes-related depression.

4.2. Perceived mental impairment and actual cognitive abilities

Diabetes may hasten the maturation of the mind, reducing mental reserve and increasing the risk of persistently jumbled side effects from inability to focus. In cases of Type II diabetes and prediabetes, the cerebrum is an objective end organ.

Table 4 shows the subjects' results on clear-cut mental assignments as well as their own assessments of their own mental capacity (self-saw mental disappointment) both before and after training. This information can be used to understand how the brain and body work together to maintain mental talents.

> Stroop tests

The Stroop variety naming test demonstrates a significant leader's capacity to control pointless errands and focus on vital tasks. It is the ability to restrain impulses and defer decisions in order to choose the right response. The term for this is reaction restraint. Additionally, it measures how easily a perceptual set can be altered by altering the request or stifling the response. Only nine people scored below the 50th percentile, suggesting they may have trouble with their response time. The Stroop effect was reduced among yoga practitioners, suggesting that they had better self-control. The research had not advanced far enough to be considered significant.

Substituting numbers fast is a good indicator of your processing speed, memory, ability to multitask, and ability to comprehend the workings of an engine in your head. In the context of independent living and the mental well-being of aging populations, perfect handling speed is a crucial mental protection and resource for everyday critical thinking in diabetes patients. In this

case, there were no discernible changes to the individuals' displays before or after the study was completed.

Yoga had no discernible effects on one's ability to deal with mental setbacks such interruptions, omitting names and locations, and making specific mental errors.

4.3. Digit span

The digit forward and digit in reverse ranges were used in the fixation test. This is a function of working memory, which calls for consideration of information (verbally audible), storage and interaction with the information, and providing an answer. Age is likely to play a role in how challenging it is to reverse-digitize. The evidence indicates that a difference of one point between the forward and backward ranges is the norm. The gap, however, worsens with the development of dementia. The fixation and concentration scores were greatly enhanced by both digit forward and digit in reverse. Progress was proportional to the number of errors committed. Brain body focus and breathing operate to improve attention and consideration cycle of mental variables, both of which are likely impaired in this clinical situation. Certain aspects of leadership effectiveness are modified by the dynamic nature of diabetes. This introductory article focuses on the benefits of holistic yoga for reducing the development of psychological fortitude.

Table 5:The average glycemic index scores

Glycemic	Pre-test	Post-test	Frequency	Frequency	Wilcoxon
indices	mean	mean	reduced (%)	increased (%)	significance
Fasting	123.27	134.27	32/42 (63)	7/42 (34)	0.03*
blood sugar					
Postprandial	284.54	167.27	15/40 (42)	15/40 (57)	0.54
blood sugar					
HbA1c	5.65	8.37	16/35 (53)	8/35 (46)	0.55

The average ratings on glycemic files are displayed in Table 5. The participants' fasting glucose levels significantly decreased. This demonstrates that not all members experience the same

progressions in glucose levels following exercise. This is because there was a wide range of ages, conditions, food preferences, and other lifestyle factors represented in the sample.

5. Discussion

This study misses the mark on the control bunch since it relies on single gathering assessment. The participants' responses to the yoga practice varied. The majority of the respondents described a sense of emotional well-being and contentment using a personalized methodology, and they believed that specific routines improved the quality of their sleep, reduced daily drowsiness, decreased their appetite, furthered their capacity for adaptation, and provided comfort for their breathing. The results show that a single yoga practice can boost mental acuity, a happy outlook, and enhance QOL related to diabetes.

The percentage of people who consistently practiced yoga was 61%, and on the basis of their pattern appraisal, there were no significant differences between the responders and non-responders in terms of their clinical profiles, segment profiles, or mental profiles. This indicates that personal issues, like work or family responsibilities, may be related to the decision to drop out, which in turn necessitates the desire and practice commitment necessary to justify staying in school.

Yoga practice improved people's awareness of how they use food, their calorie counting habits, their adherence to medication regimens, their perception of their diabetes status, and their overall mindset.

No instances of hypo- or hyperglycemia occurred. For 10 participants whose HbAIc level was 7 at the post-test, sufficient glycaemic control was achieved over a 90-day period.

6. Conclusion

The practice of yoga improves the emotional well-being and quality of life (QOL) of Type II diabetic patients, enhances mental clarity and focus, and aids in achieving optimal glycemic control. Yoga is a practice with a long history that aims to bring harmony and wellbeing to a person's deepest, most personal, and physical aspects. Yoga and meditation are growing in

popularity because of the many benefits they provide to one's emotional and physical health. Yoga has been performed by people all over the world for thousands of years as a means of stress reduction and health improvement. The lack of the underlying sub-atomic systems has led to considerable examination of yoga's usefulness as an adjunct to conventional medical treatment, despite the fact that other studies have verified its capacity to heal a range of life-threatening diseases, including diabetes and disease. The rationale for yogic practices is then laid forth, and the ways in which they may be utilized to improve mental and physical health are demonstrated through an examination of the physiological, biochemical, and hematological impacts of various yogic activities.

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