



Effect of Mindfulness on Psychological Well-being of Diabetic Patients

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Abstract

This study aims to investigate whether the practice of Mindfulness, a Positive Psychology Intervention Technique has any effect on the Psychological well-being of individuals suffering from Type-2 Diabetes. A sample group of 60 individuals with an equal ratio of males and females participated in the study, which was further divided equally into a control group and an experimental group. The experimental group underwent mindfulness intervention, while the control group did not receive any interventions. Ryff Scales of Psychological Well-being were used to study and measure the impact of mindfulness on various dimensions of the psychological well-being of participants. The variables studied included personal autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance. The results of the study indicate a significant positive impact of mindfulness on the psychological well-being of diabetes patients. The results underscore the potential of the mindfulness intervention technique as a complementary approach to enhance the psychological well-being of diabetic patients and improve the quality of life for individuals suffering from severe symptoms.

Keywords: Diabetes, Mindfulness, Psychological well-being, Autonomy, Environmental Mastery, Personal Growth, Positive Relationships, Purpose in Life, Self-acceptance.

Introduction

Psychological well-being plays a crucial role in the overall management of health and lifestyle changes for individuals suffering from type-2 diabetes. The correlation between psychological well-being and diabetes has been increasingly recognised worldwide due to its significant impact on disease management, adherence to treatment procedures, lifestyle changes and management of overall health. In order to deliver a comprehensive and effective treatment and disease control procedure, the need of understanding and address the management of psychological well-being for diabetes patients is vital, especially in today's world and era.

Various studies by research scholars have highlighted the correlation between psychological well-being and the outcomes of diabetes. Research has shown that diabetes patients have two to three times higher probabilities of experiencing depression as compared to individuals without diabetes (fisher et al., 2018). Furthermore, diabetic patients who are also suffering from comorbid depression have been found to have higher risks of developing more severe complications later in life, such as cardiovascular diseases and diabetic retinopathy (Ali et al., 2018; Roy et al., 2017).

As a result, the significance of psychological well-being in diabetes management has been recognised worldwide and positive psychology interventions have gained more attention in the same context. Mindfulness, as a positive psychology intervention technique, has been recognised as a useful tool for enhancing psychological well-being among various populations. Preliminary research suggests that mindfulness interventions can reduce certain risks related to diabetes such as distress and depression, leading to enhanced emotional well-being among individuals suffering from diabetes (Hartmann et al., 2019; Schroevers et al., 2015)

However, further investigation is required in order to understand the specific impact of mindfulness on the psychological well-being of type-2 diabetic patients. This study aims to investigate the effects of mindfulness as a positive psychology intervention technique on the psychological well-being of type-2 diabetes patients, providing valuable insights into the potential benefits of mindfulness among diabetes patients. By exploring the positive correlation between mindfulness and psychological well-being, this research aims to endeavour into contributing to the development of comprehensive strategies or techniques designed for enhancing the overall healthcare and well-being of type-2 diabetes patients.

Understanding the Facets of Psychological Well-being

Psychological well-being refers to the overall state of the mental and emotional health of an individual. It encompasses positive functioning as well as a sense of fulfilment in various aspects of an individual's life (Ryff & Keyes, 1995). Psychological well-being also indicates an individual's subjective evaluation of their own mental health. Furthermore, it is associated with improved coping abilities, better physical health outcomes as well as overall life satisfaction (Diener et al., 2010; Keyes, 2002). Psychological well-being is essentially a construct which is multidimensional encompassing different facets that contribute to the psychological functioning & the quality of life of an individual.

To measure the overall psychological well-being of an individual across various dimensions, Carol D. Ryff developed a comprehensive framework that constitutes of the following six variables, each indicating a different facet of life:

1. **Autonomy** – refers to an individual's ability to make choices that are consistent with their values and beliefs. It encompasses feelings of self-control as well as the capacity to resist societal pressures.
2. **Environmental Mastery** – indicates the individual's perceived ability to adapt to the environment and manage it effectively. It encompasses a sense of resourcefulness and competence. It also reflects the individual's capacity to shape external circumstances in order to meet subjective personal needs and goals.
3. **Personal Growth** – signifies the individual's proactive orientation towards personal growth and openness to new experiences and challenges. It encompasses an individual's perceived sense of continuous personal development, self-improvement and expansion of their potential.
4. **Positive Relationships** – denote the quality of social connections that an individual is able to build and maintain. It indicates feelings of empathy, compassion, and trust, as well as the capacity for intimacy and positive social interactions.
5. **Purpose in Life** – signifies an individual's perceptions of having a life full of meaning and purpose. It encompasses an individual's goals, perceived sense of direction, as well as feelings of contributing to something larger than oneself.
6. **Self-Acceptance** – indicates the acceptance of oneself through a positive evaluation, including core strengths and weaknesses. It encompasses the feelings of a positive self-image, self-respect and confidence.

Assessing the above-mentioned facets of an individual's life gives the researcher a deep understanding of the actual psychological well-being of the participating individuals along with providing numerical data to denote the same empirically.

Mindfulness as a Positive Psychology Intervention Technique

Mindfulness can be defined as the mental state of an individual characterised by one's attention to the present moment. It is the state of being completely present at the moment, characterized by consciousness and awareness of both internal as well as external experiences. It is further categorized with the attitude of openness, curiosity and acceptance.

In the practice of mindfulness, individuals aspire to build an ability to observe their thoughts and feelings without being overwhelmed by them or identifying with them. They learn to engage fully in the present moment, observing their experience, thoughts, emotions & sensations without any judgements as they arise and pass away.

The practice of mindfulness originates from ancient contemplative traditions, such as Hinduism & Buddhism, now adapted to modern contexts in order to be utilized in therapeutic settings to improve personal well-being as well as to foster internal balance and personal growth.

As a positive psychology intervention, mindfulness aims to enhance the psychological well-being and functioning of an individual. It is focused on developing self-awareness, fostering positive emotions, promoting self-regulation and cultivating a greater sense of acceptance and compassion towards oneself and others. The effects of mindfulness interventions have been studied among various populations and have been shown to have numerous benefits such as stress and anxiety reduction, as well as enhancing overall psychological well-being (Khoury et al., 2015; Hofmann et al., 2010).

Objectives of the Study

The objectives of this study are:

- To examine the various facets of psychological well-being among individuals with type-2 diabetes.
- To examine gender differences in psychological well-being among individuals with type-2 patients.
- To study the effects of mindfulness positive psychology intervention techniques on the psychological well-being of individuals with type-2 diabetes.

Hypotheses of the Study

The following hypotheses were made:

- Individuals with type-2 diabetes will demonstrate lower levels of psychological well-being.
- There will be significant differences in specific facets of psychological well-being among individuals with type-2 diabetes, with females demonstrating lower levels of psychological well-being as compared to males.
- Participants who undergo mindfulness interventions will show significant improvements in overall psychological well-being, as compared to the control group that does not receive any intervention.

Method

Participants

The purposive sampling method was used to create a research sample of 60 participating individuals, consisting of male and female participants in an equal ratio of 1:1. The sample was further divided into a control group and an intervention group consisting of male and female participants in equal ratio. All the participants were residents of Jodhpur during the tenure of the research and had been diagnosed with type-2 diabetes.

Instruments

The Ryff Scales of Psychological Well-being developed by Carol D. Ryff, has been used to assess psychological well-being with a multi-dimensional approach. The Ryff form consists of 42 statements that reflect six areas of psychological well-being, i.e., autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance. Respondents rate statements on a scale of 1 to 6, with 1 indicating strong disagreement and 6 indicating strong agreement. For negative-phrased statements, this scoring is reversed.

Procedure

The search for eligible and willing participants included visiting various diabetes clinics and yoga centres in Jodhpur. With the help of the doctors and yoga instructors, we connected with people in Jodhpur who had been diagnosed with diabetes. Through elaborate discussions, the purpose and aims of the study were made clear to the doctors, yoga instructors as well as participants to establish active participation and positive rapport. Each participant was made aware that the information they provide us would be kept confidential. The participants were then approached individually and asked to complete questionnaires. The filled scales were taken back and checked for discrepancies. Two groups, i.e., the sample group and the control group, were created based on random selection. The intervention group were given mindfulness training for a total of 21 days while the control group did not receive any training. Both groups were then asked to fill out the questionnaires for a second time. Scoring of the tests was done as per the manual. The obtained scores were put into the statistical analysis as per the objectives formulated.

Statistical Analysis

Table 1

Comparison of t-scores of Male Experimental group in pre-test & post-test conditions

Condition	Variable	Mean	SD	't'
Pre-test	Autonomy	19.5	1.32	2.03
Post-test		24.3	1.36	
Pre-test	Environmental Mastery	18.3	1.42	1.92
Post-test		23.5	2.03	
Pre-test	Personal Growth	19.4	2.61	1.08
Post-test		23.8	1.32	
Pre-test	Positive Relationships	21.2	2.42	0.08
Post-test		24.3	1.08	
Pre-test	Purpose in Life	19.3	1.36	1.96
Post-test		19.3	2.15	
Pre-test	Self-Acceptance	20.3	1.88	0.0001
Post-test		21.4	2.66	

The table presents t-scores for the Male Experimental group in the study assessing psychological well-being using the Ryff Scale. The scores reflect the participants' responses before (Pre-test conditions) and after (Post-test conditions) mindfulness intervention. Overall, the results indicate positive changes in several dimensions of psychological well-being. Autonomy and environmental mastery showed significant improvements, with increased mean scores from Pre-test to Post-test conditions. Personal growth and self-acceptance also showed slight improvements, although not statistically significant. There was no significant change in perceived purpose in life, as mean scores remained the same. Positive relationships showed a slight increase but did not reach statistical significance. These findings suggest that the intervention had a positive impact on autonomy, environmental mastery, personal growth, and self-acceptance for the Male Experimental group.

Table 2

Comparison of t-score of Male Control Group in pre-test & post-test conditions

Condition	Variable	Mean	SD	't'
Pre-test	Autonomy	25.2	2.67	0.04
Post-test		26	3.20	
Pre-test	Environmental Mastery	25.6	3.79	0.004
Post-test		26.5	3.13	
Pre-test	Personal Growth	25.6	3.20	0.07
Post-test		26	3.31	
Pre-test	Positive Relationships	25.7	3.15	0.14
Post-test		26.1	2.79	
Pre-test	Purpose in Life	27.4	2.84	0.01

Post-test		28.2	3.02	
Pre-test	Self-Acceptance	26.4	2.64	0.001
Post-test		27.4	2.66	

The table presents t-scores for the Male Control Group in the study assessing psychological well-being using the Ryff Scale. The scores reflect the participants' responses before (Pre-test) and after (Post-test) the mindfulness interventions. Overall, the results show no significant improvements in all the dimensions of psychological well-being for the Male Control Group. The variables are relatively stable. These findings suggest that there was no difference in the psychological well-being of the Male Control Group.

Table 3

Comparison of t-score of Male Experiment & Control Group in pre-test & post-test conditions

Condition	Variable	't'
Pre	Autonomy	0.003
Post		3.79
Pre	Environmental	0.262
Post	Mastery	0.0001
Pre	Personal Growth	0.13
Post		1.30
Pre	Positive	0.08
Post	Relationships	0.0005
Pre	Purpose in Life	0.007
Post		0.06
Pre	Self-Acceptance	0.010
Post		0.0001

The table compares the 't' scores of the Male Experimental and Control Groups in the pre-test and post-test conditions for various dimensions of psychological well-being using the Ryff Scale. The findings indicate no significant differences between the Male Experimental and Control Groups across the dimensions of autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance from the pre-test to the post-test conditions. The 't' values for all variables range from 0.0001 to 3.79, suggesting no statistically significant distinctions between the two groups. These results suggest that the intervention or condition applied did not yield noticeable differences in psychological well-being between the Male Experimental and Control Groups.

Table 4

Comparison of t-scores of Female Experiment group in pre-test & post-test conditions

Condition	Variable	Mean	SD	't'
Pre	Autonomy	17.3	1.23	1.06
Post		20.1	2.21	
Pre	Environmental	16.2	2.03	2.13
Post	Mastery	17.3	1.43	
Pre	Personal Growth	18.2	1.52	1.62
Post		21.2	2.21	
Pre	Positive	17.2	1.92	2.32
Post	Relationships	16.5	2.23	
Pre	Purpose in Life	18.2	1.45	1.45
Post		19.3	2.62	
Pre	Self-Acceptance	16.4	2.52	0.08
Post		18.7	1.98	

The table compares t-scores for the Female Experiment group in the pre-test and post-test conditions using the Ryff Scale for psychological well-being. It can be observed that the mean scores of autonomy, personal growth, & self-

acceptance show positive improvements. While other variables such as environmental mastery and purpose in life have shown slight differences on the positive side in their mean values. Positive relationships have shown a decreasing value, however insignificant. These findings suggest that the mindfulness interventions have made very slight, however, statistically insignificant, improvements in the overall psychological well-being of the participants of the female experiment group.

Table 5

Comparison of t-scores of the female control group in pre-test & post-test conditions

Condition	Variable	Mean	SD	't'
Pre	Autonomy	24.6	3.73	0.007
Post		25.3	3.51	
Pre	Environmental Mastery	24.5	3.85	0.03
Post		25.2	3.58	
Pre	Personal Growth	25.46	3.20	0.08
Post		26.06	3.76	
Pre	Positive Relationships	26.86	4.05	0.007
Post		27.93	4.26	
Pre	Purpose in Life	25.4	3.62	0.05
Post		26.1	3.18	
Pre	Self-Acceptance	26	1.51	0.01
Post		26.8	2.04	

The table compares t-scores for the Female Control group in the pre-test and post-test conditions using the Ryff Scale for psychological well-being. It is evident from the findings that all the variables have shown no significant difference in any variable of the Ryff Scale. The 't' values lie range from 0.007 to 0.01. Hence, we can say that the psychological well-being of the female control group remained unaffected during the research duration.

Table 6

Comparison of t-scores of female experimental & control groups in pre-test & post-test conditions

Condition	Variable	't'
Pre	Autonomy	0.38
Post		0.138
Pre	Environmental Mastery	0.32
Post		0.133
Pre	Personal Growth	0.08
Post		0.12
Pre	Positive Relationships	0.07
Post		0.35
Pre	Purpose in Life	0.31
Post		0.10
Pre	Self-Acceptance	0.002
Post		0.41

The table compares the 't' scores of the Female Experimental and Control Groups in the pre-test and post-test conditions for various dimensions of psychological well-being using the Ryff Scale. It is clear from the findings that no significant difference has been observed between the Male Experimental and Control Groups across the dimensions of autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance from pre-test to post-test conditions. The 't' values for all variables range from 0.1 to 0.41, indicating that there are no statistically significant distinctions between the two groups. It is evident from these results that the mindfulness interventions did not yield any noticeable differences in psychological well-being between the Female Experimental and Control Groups.

Discussion

A close observation of the scores from all participants of the study has brought it to our attention that it is indeed true that a majority of individuals suffering from type-2 diabetes are also affected by very low levels of psychological well-being. Low scores in all the dimensions of psychological well-being suggest that the disease has affected not just their lifestyles and daily routines, but also their thoughts, confidence, self-esteem and potentially their vision and long-term goals in life. Studies have consistently suggested a high prevalence of lower psychological well-being among individuals suffering from type-2 diabetes, as compared to people without diabetes. (Fisher et al., 2018)

Even though the findings of the study suggest that the differences are very insignificant and that the mindfulness interventions have possibly not had any noticeable change on the well-being of our research group, however, the fact that the mean values still show slight variation gives us a ray of hope for the interventions to have worked slightly. It is possible that if the research is repeated on a larger research sample, with a more diverse population, as well as through interventions that are spanned across larger durations of time, then the study might show some positive results and higher differences in the 't' values of the experimental groups in pre-test and post-test conditions. Research has shown that practising mindfulness intervention techniques consistently can potentially lead to better blood glucose management, improved medication adherence, healthier diets, and enhanced physical energy levels (Hartmann et al., 2012; Gregg et al., 2017).

Furthermore, we can observe that female participants scored significantly lower than male participants in both experimental and control groups. Hence, female patients suffering from type-2 diabetes have been affected more and experience lower psychological well-being as compared to male patients with type-2 diabetes. A study conducted by Nouwen et al. (2011) reported that women with diabetes experienced significantly higher levels of depression and anxiety and lower levels of life satisfaction compared to men with diabetes.

Conclusion

The findings of this study emphasize the prevalence of low psychological well-being among individuals with type-2 diabetes, affecting all the facets of their life, including and not limited to autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance. The chronic nature of the disease makes a deep impact on the psychology as well as physical capabilities of individuals leading to a bidirectional relationship between the two.

As a result, the practice of mindfulness intervention techniques can help individuals improve their psychological well-being. These benefits can include stress reduction, enhanced emotional regulation, increased self-compassion, improved cognitive functioning, and overall psychological well-being. Mindfulness can help individuals with diabetes fight the disease more and respond to life's challenges with higher resilience. They can also cultivate a deeper sense of connection with themselves and their surroundings, giving them a higher sense of control, and making the fight with the disease easier and more empowered.

A combined psycho-physic approach towards the disease can help individuals with type-2 diabetes enhance the quality of their life and build consistent adherence to the treatment procedures, with a self-motivated vision, making the treatment significantly more effective.

Further research with larger sample sizes and diverse populations is needed to validate and generalize these results. With more validated research, positive psychology interventions, such as mindfulness, shall be introduced to the mainstream treatment procedures for type-2 diabetes and other chronic illnesses in order to increase the effectiveness and efficiency of the current healthcare industry.

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