

A Study of the Effect of Psychological Intervention on Patients Suffering from type 2 Diabetes on Their Physiological and Psychological States

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Abstract:

Diabetes and other serious psychophysiological health problems have been diagnosed in a significant portion of the population. There are three basic forms of diabetes, each with a unique genesis. Juvenile diabetes, commonly known as type 1 diabetes, is characterised by its early onset and hereditary predisposition. Type 2 diabetes is a disorder that usually starts in adulthood. Stress in particular is thought to be a major psychological contributor to type 2 diabetes. Gestational diabetes, which arises during pregnancy, is the third kind of diabetes. The prevalence of type 2 diabetes is widespread, particularly in South East Asia. India is the world's diabetes capital. The bio psychosocial approach places a strong emphasis on the biological, psychological, and social aspects that contribute to the rise in diabetes. Diabetes is now the leading cause of death. Despite cutting-edge medical interventions for the critical problem of managing glucose levels. Although psychological therapies have also been shown in studies to be useful in managing patients' psychophysiological status, pharmaceutical treatment is still seen as being crucial in the management of type 2 diabetes. Health psychologists have highlighted the importance of using psychological intervention to manage blood glucose levels (BGL). The study of the literature demonstrates that psychological intervention is useful in treating the psychological state of lifestyle disorders (diabetes). One of the psychological remedies is 2.

Keywords: *Type 2 diabetes, psychological, Juvenile diabetes, psychological therapies, psychological state*

Introduction:

Background

The WHO has warned that until 2050, diabetes will be one of the leading causes of high mortality due to its rising prevalence. South East Asian nations would be the most impacted, with India serving as the disease's epicentre. Diabetes, which is characterised by high blood sugar levels and a number of health complications including hyperglycemia, cardiovascular disease, kidney disease, foot ulcers, blindness, limb amputation, heart

disease, and stroke, is thought to be a psychosomatic condition. These complications all shorten life expectancy and lower quality of life (N. Durga et al. 2021).

Diabetes patients must receive treatment. The management of blood glucose levels below normal indicates hypoglycemia, or low blood sugar, and beyond normal indicates hyperglycemia, which can cause consequences. In the field of ophthalmology, retinal images play an important role in the diagnostic process for a variety of eye diseases.

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Diabetes is a chronic condition that continues to have a high mortality rate. Surveys and current research show a 50% increase in diabetes-related fatalities in India between 2005 and 2015. (GDB). Each year, around 1.5 million new cases of diabetes are identified in Americans. Only a small number of research have focused on the wide spectrum of potential psychophysiological elements that may be useful in explaining the development, aggravation, and maintenance of diabetes. Studies of diabetes patients have rarely addressed psychological and environmental factors.

Looking at the pace of type 2 diabetes growth, it is necessary to investigate the causes of this growth. In order to manage or control type 2 diabetes, psychological intervention is necessary. This chapter summarises the most recent research on the effects of psychological factors (stress, anxiety, and aggression state) on diabetes patients' physiological status as well as the efficiency of psychological interventions. A patient who is familiar with the internet should receive a different treatment from their dentist than a patient who is not knowledgeable about dental health (Ritvija Cinderella, et al. 2021)

Objective

The following are the primary goals of the conducted research study:

1. To research the physiological (blood glucose level & blood pressure) and psychological (stress, anxiety, aggression) conditions of type 2 diabetes patients
2. To assess the impact of psychological intervention (Biofeedback and Progressive Muscular Relaxation) on the psychological and physiological status of type 2 diabetes patients.

Hypothesis

H0. There is no significant change in the physiological (blood glucose level & blood pressure) and psychological (stress, anxiety, aggression) conditions of type 2 diabetes patients

H1. There is significant change in the physiological (blood glucose level & blood pressure) and psychological (stress, anxiety, aggression) conditions of type 2 diabetes patients.

H0. There is no significant change in the impact of psychological intervention (Biofeedback and Progressive Muscular Relaxation) on the psychological and physiological status of type 2 diabetes patients.

H2. There is significant change in the impact of psychological intervention (Biofeedback and Progressive Muscular Relaxation) on the psychological and physiological status of type 2 diabetes patients.

Material and method:

Study design

Survey, correlational, and experimental research are the types of study that are now being done. Survey study entails asking participants to respond to questions in order to gather data on the demographic and psychophysiological status of type 2 diabetes patients.

Prior to the psychological intervention, the relationship between the demographic and psychological status and physiological status was investigated using a correlational study design.

After psychological risk factors for diabetes patients were identified, an experimental research design was used to manage the patients' psychophysiological status. Randomized single-blinded prospective controlled trials were utilised in experimental research.

Data collection and data analysis

This research is both descriptive and experimental. Following the design of the study, the researcher moves on to the management and collecting of data. Following the collection of data, the researcher will investigate and employ descriptive research. The researcher will use the techniques listed below to gather data:

Primary Data Collection

The primary source is where the researcher gets first-hand knowledge or original facts about a subject. With the aid of SPSS (16th) version, the data was statistically examined using F-test, Cross Tab Analysis, which contains chi-square, and cramer's V. With the aid of the ADANCO (advanced analysis of composites) software, the variance was estimated using maximum likelihood estimation (Henseler& Dijkstra, 2015). Its initial publication was in 2014. Data calculations were performed using the most recent version of ADANCO, 2.0.1; ADANCO is a programme for variance-based structural equation models.

Secondary Data Collection

The secondary data will be gathered by the researcher through articles, newspapers, and the Internet. This is a small but equally important component of the research. For this area, information will be acquired from websites, journals, books, published articles, and corporate documents. This type of information has been obtained and recorded by other persons or organizations, sometimes for completely unconnected reasons.

Result and Discussion:

The results of this study are broken down into three sections: section one deals with descriptive statistics, section two with a structure equation model, and section three with a latent growth curve model. The outcomes are shown in the following sections: sections 1 (parts A and B), 2, and 3.

Section-1

To determine the correlation between demographic factors and blood glucose levels and blood pressure in type-2 diabetes patients, cross tab analysis with chi-square and cramer's-V were conducted.

(Part-A) Relationship between demographic factors and patients with type II diabetes' blood glucose levels prior to psychosocial therapy.

Results from part-A show that many of the type-2 diabetes participants in this study have hyperglycemia. The majority of patients are male, come from metropolitan areas, have higher levels of education, are married, are between 50 and 60 years old, have either an eye issue or none at all. Age, gender, education, and health complications all significantly predicted BGL.

Before receiving psychiatric treatment, there was an association between the blood pressure of diabetic type II patients and certain demographic factors (Part-B).

Results from part-B show that many of the study's patients with diabetes type 2 are hypertensive. Most of the patients are from metropolitan areas, are well educated, are married, are between the ages of 51 and 70, have eye and kidney difficulties, and a higher proportion of patients are male. They also have a history of 1–10 years of symptoms. Age, education, the affected year of diabetes, and health complications all significantly correlated with blood pressure.

Section 2: Analysis of the connection between type 2 diabetes patients' psychological and physiological conditions prior to psychological intervention.

To examine the connection between diabetes type II patients' psychological and physical health With the aid of the ADANCO software ('Advanced Analysis of Composites'), version 2.0.1, three structural equation models (SEM) were generated. The three models that were obtained fit the samples well.

Models 1 and 2 show that perceived stress and state anxiety were significant predictors for the development of high blood sugar (hyperglycemia) and high blood pressure (hypertension). This means that as stress and anxiety levels rise, so do the risks of hyperglycemia and hypertension in people with type 2 diabetes.

Model 3 shows that aggression and blood pressure were significant predictors for the development of hyperglycemia, meaning that as these two factors rose, there was an increase in the risk of developing hyperglycemia.

Conclusion:

Understanding the effectiveness of psychological intervention in managing blood glucose levels and psychophysiological parameters is provided by the current research work. According to research, there is a correlation between blood glucose levels and blood pressure and demographic factors such age, gender, education level, marital status, affected year of diabetes, and complications. Additionally, it has been found that the JPMR and biofeedback intervention programmes are successful in lowering blood sugar levels and improving psychophysiological conditions.

The results of the latent growth curve model also suggest that the management of blood glucose level and other psychophysiological parameters is positively impacted by the psychological intervention.

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