

## A Critical Review of The Research Exploring the Manner in Which Stress and Health Impact the Well-Being of Diabetics

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### ABSTRACT

**Purpose:** This thorough analysis explores the most recent findings on the relationship between stress, health outcomes, and the wellbeing of people with diabetes. Diabetes requires constant self-care, which is impacted by psychological pressures and health-related difficulties. **Approach:** The review explores the relationship between stress and physiological markers in diabetics, including insulin sensitivity, glucose management, and overall health outcomes. It also looks into the psychological aspects of stress, such as how it affects diabetics' quality of life, mental health, and emotional well-being. **Overall view:** The results emphasize the intricate reciprocal link between stress and diabetes control, highlighting the necessity of comprehensive therapies that take into account both the mental and physical facets of well-being. Gaining an understanding of these dynamics is essential to creating methods that effectively support the overall health of people living with

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A class of metabolic diseases known as diabetes mellitus, which is typified by elevated blood sugar levels, is becoming a major worldwide health issue. Recent years have seen a sharp increase in the prevalence of diabetes, which has spurred further research into the different elements influencing the disease's management and overall effects on health. An estimated 463 million persons worldwide are likely to have diabetes in 2019, and by 2045, that figure is expected to rise to 700 million (International Diabetes Federation, 2019). Diabetes is a major public health problem. Maintaining an active lifestyle, following dietary guidelines, and regulating blood glucose levels are all important aspects of managing diabetes, which is a difficult and complex condition. Furthermore, stress—both acute and chronic—can negatively affect a person's health and make managing diabetes more difficult. Stress can result in unhealthy eating habits, sedentary lifestyles, sleep disturbances, and other bad health behaviours that exacerbate diabetes-related consequences. This study looks at the relationship between health and stress and how it affects the general wellbeing of diabetics. Immune system abnormalities, pancreatic damage, insulin resistance, hormone imbalances, and genetic differences can all lead to diabetes.

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Serious side effects include hypoglycemia (low blood sugar), diabetes-related ketoacidosis (insufficient insulin causing fat breakdown and blood acidity), and hyperosmolar hyperglycemic syndrome (high blood sugar causing dehydration and disorientation). Additional effects include intestinal paresis, hearing loss, dental health concerns, infections, foot ailments, skin diseases, sexual problems, neuropathy (nerve damage), retinal dysfunction, and coronary problems (heart attacks, strokes, and atherosclerosis).

Controlling blood pressure, cholesterol, and weight in addition to using insulin, taking prescription drugs, altering one's diet, and exercising frequently are all part of management. The risk of pre-diabetes, type 2 diabetes, gestational diabetes, and autoimmune and genetic diabetes cannot be prevented, but it can be decreased by following a balanced diet, getting regular exercise, managing stress, limiting alcohol intake, getting enough sleep, quitting smoking, and taking prescribed medications for diabetes risk factors. Being at ease, healthy, and content entails contributing meaningfully to society and upholding one's standard of living. Changes in blood sugar levels can lead to mood swings, worry, exhaustion, and problems with mental clarity. Strong bonds, meaningful interactions, physical fitness, purpose, stress management, mental wellness, and a sense of belonging are among the crucial components. Individual studies reveal that relationships with others have a greater influence on happiness than one's financial situation.

The World Health Organisation (WHO) defines health as more than just the absence of disease; it is a comprehensive condition of physical, mental, and social well-being. It is a practical tool that highlights social, individual, and physical skills. There are connections between spiritual, emotional, mental, and physical well-being. Financial well-being, for instance, lowers stress and enhances nutrition, but spiritual well-being offers peace of mind and direction, improving mental health. To attain complete well-being and equilibrium, a holistic perspective on health is necessary. Stress is a common response to challenging situations and can result in concern or mental strain. Prejudice, stress, anxieties, life transitions, or having too many responsibilities can all contribute to it. Aches, fatigue, chest discomfort, and difficulty falling asleep are further symptoms. Since stress can worsen mental health, it is crucial to control it. Exercise, a healthy diet, little screen time, self-care, journaling, cutting back on coffee, spending time with loved ones, and setting boundaries are some of the techniques.

1. Leah Gilbert, Justine Gross, Stefano Lanzi, Dan Yedu Quansah, Jardena Puder, and Antje Horsch published an integrated investigation of the relationships between diet, physical activity, and psychological well-being in women with gestational diabetes mellitus on February 7, 2019. Carefully chosen phrases related to the domains of interest (diet, physical exercise, and psychological well-being) were part of a thorough search approach. The databases CINAHL, PsycINFO, Embase, Pubmed, and Cochrane were used to look for publications published between 1980 and February 2018. At least two interesting themes were covered by observational or interventional studies that were included in this review. Reports on maternal outcomes for women with GDM were solicited by the articles. 14,419 citations were found using the search methods after duplicates were eliminated. 114 articles were selected after titles and abstracts were screened. There are 16 publications in this review: 14 intervention trials and 2 observational studies. Based on observational research, there is a positive correlation between physical activity and food choices and psychosocial well-being, which includes self-efficacy and social support. This comprehensive study found that psychological

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health had an impact on physical activity and nutrition in women with GDM. It is recommended that future study integrate psychological well-being into therapy, since observational studies show that social support and self-efficacy play a significant role in helping individuals maintain a healthy lifestyle after being diagnosed with GDM.

2. The effect of yoga practice on glucose control, physiological stress, and well-being in type 2 diabetes: exploring a mechanism of action a thesis by Maricarmen Vizcaino, from University of Texas at El Paso the primary aim of this dissertation was to examine, using two distinct methodologies in two independent exploratory investigations, the effects of yoga practice on the glucose management of individuals with type 2 diabetes. Using a quasi-experimental methodology, the first research looked at how eight weeks of yoga practice affected glucose control while accounting for earlier limitations found in the literature. The second research looked at the acute impact of yoga practice on instantaneous glucose management using a single-subject approach. Compared to the control group, yoga practitioners' haemoglobin A1c decreased at the conclusion of the intervention in the quasi-experimental trial, although the difference was not statistically significant. Dehydroepiandrosterone (DHEA) and cortisol diurnal curves both exhibited a general tendency towards improvement and at the conclusion of the intervention, participants in yoga reported considerably reduced levels of felt stress. There was a strong correlation established between perceived stress, pleasant and negative emotions, and changes in morning cortisol and DHEA. After practicing yoga for 60 minutes, certain individuals in the single-subject design had the biggest drops in their blood sugar levels when compared to the control condition. These drops seemed to be associated with reductions in cortisol and shifts in positive and negative moods. But the outcomes weren't constant; the extent of Yoga's impact on blood sugar levels appears to differ from person to person and rely on one's present state of health.
3. Diabetes management behaviours of young adults towards psychological well-being by Willemse, M. In the broader Gauteng area of South Africa, this study examined the psychosocial factors that support the psychological well-being of young adults with type 1 diabetes under control. The present study aimed to investigate the impact of psychosocial variables, namely a personal model of diabetes, meaning, and social support, on psychological well-being in relation to blood glucose levels (HbA1c) that were found to be within the near-normal range. A multi-methods approach was used in the study, starting with a primarily qualitative framework. The life experiences of eight young adults with well-controlled type 1 diabetes were examined in order to collect qualitative information about the psychosocial factors affecting their psychological well-being and diabetes management practices. After that, six young adults with well-controlled type 1 diabetes participated in semi-structured interviews to find out how the previously discovered psychosocial factors related to diabetes management practices. The objective was to get a comprehensive knowledge of the ways in which these psychosocial factors influence diabetes management practices and the coping strategies people employ to cope with type 1 diabetes. In order to further our comprehension of the connections between the psychosocial factors and the diabetes management practices of the young adult, quantitative data analysis was also conducted. The personal model of diabetes (IPQ-R), psychological well-being (PHI), social support (M-DSSQ), meaning (MLQ), and diabetes management (DSMP-SR) were among the validated, psychometrically sound instruments from which the quantitative data was gathered. Ultimately, a case study of a young adult with well-controlled type 1 diabetes was

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investigated to evaluate the reliability of earlier findings about the psychosocial variables and their connections to the individual's psychological well-being and diabetes management behaviors.

4. Hope and mental health in diabetics: a correlational research by Mohd. Iyial Khan, Tabeer Ahmed, and Aqueleem Un Nabi the Rajiv Gandhi Centre for Diabetes JNMC, AMU, Aligarh, randomly chose 100 diabetes patients, 50 of whom were male and the remaining 50 of whom were female, in order to investigate the impact of hope on psychological well-being. The adult hope questionnaire and the psychological wellbeing questionnaire were used to gather information from diabetes patients. For analysis, the pearson product moment technique and the T test were employed. The association between hope and psychological wellness was shown to be considerably favourable, and the results showed a significant difference between male and female diabetes patients with regard to hope and psychological wellbeing.
5. A systematic study by Christina N. Massey, Emily H. Feig, Laura Duque-Serrano, Deborah Wexler, Judith Tedlie Moskowitz, and Jeff C. Huffman on well-being therapies for people with diabetes the psychological well-being constructs (e.g., optimism, positive affect) have been linked to better medical outcomes, including better glucose management and reduced death rates. The study conducted a critical review analysis and looked at individuals with diabetes. Because they are easy to administer, generally relevant to a variety of psychological distress levels, and may boost self-efficacy and motivation for diabetic self-care, well-being treatments may be a good fit for people with diabetes. This systematic review, which followed PRISMA principles, looked at peer-reviewed papers that looked at the effects of well-being therapies (such positive psychology interventions, etc.) that were indexed in PubMed, PsycINFO, and/or Scopus between the creation of the database and October 2017. 34 publications (N = 1635 participants) with significant variation in the kind of intervention, measurements employed, and outcomes examined were discovered; most of them concluded that the intervention was beneficial. Overall, the findings show that a variety of well-being treatments seem to have potential for enhancing health outcomes in this group; however, there is currently a lack of conclusive information in the literature about the most successful interventions. Further thorough, controlled, and well-powered investigations of particular therapies with widely recognised, clinically relevant outcome measures are required in light of the heterogeneity in interventions and results.
6. The impact of mindfulness-based stress reduction on patients with type 2 diabetes mellitus's emotional well-being and glucose control was published on June 10, 2018, and it was written by A. Armani Kian, B. Vahdani, A. A. Noorbala, A. Nejatiasafa, M. Arbabi, S. Zenoozian, and M. Nakhjavani. Their study sought to ascertain how individuals with type 2 diabetes responded to an intervention including mindfulness-based stress reduction (MBSR) in terms of emotion management and glucose control. Supplies and Procedures. For this randomised controlled experiment, sixty type 2 diabetic patients were chosen from an outpatient clinic at Imam Hospital in Iran. While the control group kept receiving therapy as normal, the intervention group took part in eight MBSR sessions. Two indicators of glycemic management were measured: HbA1c and fasting blood sugar. The General Health Questionnaire (GHQ-28), the Hamilton Depression Rating Scale (HDRS), and the Hamilton Anxiety Rating Scale (HARS) were used to assess overall mental health, depression, and anxiety, respectively. Every

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evaluation was carried out at baseline, eight weeks later, and three months later as follow up. The Outcomes showed that the MBSR intervention group had a significant decrease ( $p < 0/05$ ) on all end measures, including FBS, HbA1C, HARS, and HDRS scores, as compared to the control group. In conclusion, Patients with type 2 diabetes saw a notable improvement in their glucose control and mental well-being after MBSR.

7. Prevalence and correlates of diabetes distress, perceived stress and depressive symptoms among adults with early-onset Type 2 diabetes: cross-sectional survey results from the Danish DD2 study by A. Bo, F. Pouwer, L. Juul, S. K. Nicolaisen, H. T. Maindal which was published in 23 July 2019 seeks to determine the frequency of depression symptoms, perceived stress, and diabetic distress in individuals with early-onset Type 2 diabetes and investigates the relationships between these conditions and clinical and socio demographic traits. A cross-sectional study was conducted among Type 2 diabetics aged 20 to 45 who were part of the Danish Centre for Strategic Research in Type 2 Diabetes nationwide cohort between 2010 and 2016. The survey measured socio demographic traits, depressive symptoms (10-item short form of the Centre for Epidemiological Studies Depression Scale Revised), felt stress (10-item felt Stress Scale), and diabetic discomfort (20-item Problem Areas in diabetic Scale). National health registries provided the clinical data that were gathered. The poll was completed by 216/460 (47%) people with Type 2 diabetes, 48% of whom were women, according to the results. The duration of the diabetes was 5 (3–7) years, and the median (IQR) age was 42 (38–44) years. Overall, the Problem Areas in Diabetes Scale  $\geq 40$  indicated high levels of distress for 24% of respondents, the Perceived Stress Scale  $\geq 18$  indicated high levels of stress for 46% of respondents, and the Centre for Epidemiological Studies Depression Scale Revised  $\geq 10$  indicated increased symptoms of depression for 41% of respondents. Emotional issues were more common in women than in males. Diabetes distress did not correlate with other clinical or socio demographic factors, but it was higher in individuals taken non-insulin glucose-lowering medications than in those who did not. Elevated depressed symptoms were linked to antidepressant drug use and unemployment, as well as high felt stress. Finally in Denmark, we discovered that persons with early-onset Type 2 diabetes had a significant incidence of emotional issues. For this population, mental health issues related to diabetes as well as general emotional issues should be addressed, with an emphasis on psychosocial conditions and physical health.
8. Harmony in Health: A Narrative Review Exploring the Interplay of Mind, Body, and Diabetes with a Special Emphasis on Emotional Stress by Balakrishnanpillai, Jayakrishnan, Kesavadev, Jothydev; Saboo, Banshi This thorough analysis examines the complex relationships that exist between the mind, body, and diabetes, with an emphasis on the significant effects that emotional stress has on those who are treating this long-term illness. Based on an abundance of studies at the interface of psychology, physiology, and diabetes management, the review explores the complex ways that emotional stress affects insulin sensitivity, glycemic control, and general well-being. It stresses the inverse association between diabetes outcomes and emotional well-being and goes beyond conventional biological viewpoints to include psychosocial components. There are insightful talks about how stress hormones, neurotransmitters, and inflammatory processes mediate the intricate relationship between mental well-being and metabolism control. Evidence-based tactics and programs aimed at enabling people with diabetes to manage emotional stresses in an efficient manner. In order to

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provide a thorough understanding of the complex relationships that exist between the mind, body, and diabetes, this review attempts to shine light on the importance of treating emotional stress as a crucial part of receiving complete diabetes treatment. The useful advice adds to a better comprehension of the complex interplay between mental health and the complicated fabric of diabetes care.

9. Edwin B. Fisher, PhD, Carolyn T. Thorpe, MPH, PhD, and Robert F. DeVellis, PhD. conducted a study on Healthy Coping, Negative Emotions, and Diabetes Management. The aim of their study was to evaluate the literature relevant to healthy coping in diabetes management and to identify areas that require additional research and effective interventions. According to the study's findings, there are significant and reciprocal relationships between behavioral elements, psychological variables, coping mechanisms, metabolic regulation, and quality of life. Treatments for general self-management, coping or problem-solving interventions, stress management, cognitive behavioral therapy, behavioral family system therapy, depression medications with medication support, and problem-solving counseling have been shown in well-controlled studies to improve quality of life and metabolic control.
10. Andrew JA Keen, "The nature and impact of poor emotional wellbeing in people with diabetes" Compared to the general population, diabetes patients are more likely to experience depression, anxiety, and discomfort. The complicated nature of the accompanying symptoms makes it harder to manage demanding illnesses like types 1 and 2 diabetes on one's own. There is little evidence linking diabetic distress, anxiety, and depression to HbA1c. It follows that it is not unexpected that general population interventions enhance the mental health of individuals with diabetes but have little effect on glycemic management. Novel therapeutic techniques are needed, combining psychological strategies that have been shown to enhance glycemic management with brief, successful therapies for common mental health issues. All rights reserved by John Wiley & Sons, 2019. *Practical Diabetes* 36(4), 132–135 (2019).

### **REVIEW AND CRITICAL ANALYSIS**

The relationship between stress, health, and well-being is a dynamic and complicated phenomenon in the complex fabric of human existence, particularly when taking chronic illnesses like diabetes into account. High blood sugar levels are a hallmark of diabetes, a condition that requires a sophisticated grasp of these relationships for both efficient treatment and overall wellness. For those who have diabetes, maintaining their health requires careful blood glucose management with food, exercise, and medication. In order to move the definition of health from the simple absence of sickness to the active management of the condition, regular monitoring and adherence to treatment programs are crucial. Diabetes is greatly impacted by stress on both a psychological and physiological level. Stress causes the body to release chemicals like adrenaline and cortisol, which can raise blood sugar levels and upset the delicate balance needed to treat diabetes. Diabetes complications can be made worse by long-term stress, which can cause insulin resistance. As diabetes may lead to emotional stress, frustration, anxiety, and depression, treating the illness and addressing emotional and social components are important for the well-being of those who have it. It takes a good outlook, mental health promotion, and supportive networks to improve well-being. Mind-body techniques that help manage stress and enhance blood sugar management, such as mindfulness meditation, yoga, and deep breathing exercises, are effective tools for improving well-being and reducing stress in people with

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diabetes. Creating a strong social network through peer support and support groups can help reduce the psychological effects of diabetes. For the management of diabetes and general well-being, a holistic approach to health that prioritizes enough sleep, frequent exercise, and a balanced diet is essential. These lifestyle choices reduce stress and encourage energy. In conclusion, controlling diabetes involves not only physical health but also social and emotional well-being. A complete approach to health must acknowledge the influence of stress on managing diabetes and incorporate holistic techniques to improve overall well-being. By embracing a holistic perspective, individuals with diabetes can navigate their condition's challenges and foster balance and vitality in their lives.

### CONCLUSION

This comprehensive review of literature highlights the intricate relationships between stress, psychological well-being, and diabetes management across various studies. The findings underscore several key themes: the impact of lifestyle interventions including diet and physical activity on psychological outcomes in gestational diabetes; the potential benefits of yoga in improving glucose control and reducing stress in type 2 diabetes; and the critical role of psychosocial factors such as social support and self-efficacy in promoting well-being among young adults with type 1 diabetes. Additionally, studies examining mindfulness-based stress reduction and emotional stress in diabetes further emphasize the bidirectional influence between mental health and metabolic control. Importantly, interventions targeting emotional well-being alongside traditional medical approaches show promise in enhancing overall diabetes management. However, the review also reveals gaps in research, including the need for more rigorous studies to validate the efficacy of specific psychological interventions. Moving forward, integrating psychological support into diabetes care frameworks is crucial for optimizing health outcomes and enhancing quality of life for individuals living with diabetes.

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