Self-care Behaviour

Psychological Factors in Diabetic Adults

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Preface

Diabetes is a debilitating condition affecting an individual at biological, psychological and social levels. As per World Health Organization (WHO) figures, 347 million people worldwide have diabetes. Additionally 46% of people with diabetes are undiagnosed. These figures are on the rise owing to population growth, aging, urbanization and increasing prevalence of obesity and physical inactivity.

India has the second largest population of 69 million people with diabetes only behind Chine with 109 million diabetics. It is an emerging global epidemic predicted to become 7th leading cause of death in the world by the year 2030. Besides, Diabetes has far reaching consequences spanning different dimensions of diagnosed populations. For instance, it is the leading cause of blindness, amputation and kidney failure in the world today. It not only leads to increased dependence on others but also leads to psychological disturbances by virtue of elevated stress levels in many cases.

Diabetes has been a significant focus of research in sciences for last two decades. There is ample literature on the subject in medicine and Psychology as well. Different organizations like World Health Organisation (WHO), International Diabetic Federation (IDF) etc have compiled data with regard to its nature, prevalence and management spanning across geographies. However studies in this direction have picked up lately in Kashmir. Diabetologists, General Practitioners, Dieticians etc are at the forefront of imparting necessary medical interventions and conducting

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research on local populations.

There is a strong effect of customary dietary practices, life styles and lack of awareness among people on the management of diabetes. Traditional practices in these areas coupled with dearth of specialists in the field in view of swelling figures of diagnosed population make maintenance of controlled glucose levels difficult. A need was felt to study the condition in the light of Bio Psychosocial Model, more so from a patient's perspective, in handling of Diabetes Type I, Diabetes Type II including Gestational Diabetes. The purpose of the present assessment was to arrive at a conclusive picture depicting the level of awareness, treatments and effectiveness thereof among patients. The results would help devise an action plan for better handling and redressal of significant issues including role of Psychological factors, self care, medication, diet regimen, exercise etc and awareness about effects of illness, hormonal levels, consumption of alcohol and other allied issues in the management of diabetes. This becomes all the more important given that 90% of worldwide diagnosis is that of Type II Diabetes which is preventable by adoption of certain practices, routines and measures.

The present work has been possible due to consistent guidance and inputs of Dr. Humera Shafi, generosity of institutes and cooperation of patients who although have had a participatory role founded data for the study.

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Urooj-un-nisa

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List of Abbrevations

Abbreviations	Description
DM	Diabetes Mellitus
T1DM	Type 1 Diabetes Mellitus
T1DM	Type 2 Diabetes Mellitus
IDDM	Insulin-Dependent Diabetes Mellitus
NIDDM	Non-Insulin-Dependent Diabetes Mellitus
HbA1C	Hemoglobin A1C
GDM	Gestational Diabetes Mellitus
WHO	World Health Organization
BPS	Bio-psychosocial
EEG	Electroencephalogram
SWB	Spiritual Well-Being
AIDS	Acquired Immune Deficiency Syndrome
BDI- II	Beck's Depression Inventory Second Edition
PAID	Problem Areas In Diabetes
RWB	Religious Well-being
EWB	Existential Well-being
SCI	Self Care Inventory
MMAS-8	Morisky Medication Adherence Scale-8 Item

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Abstract

Diabetes is a common chronic illness affecting millions of children and adults throughout the world. It is a lifestyle disease and can be successfully managed by good self-care activities such as diet, exercise and medication adherence. Although maintaining self-care is known to be important for individuals with type 2 diabetes, this is often difficult to maintain over time. Psychological factors have been shown to impact self-care behaviors in adults with type 2 diabetes. In this context, the study is aimed to examine the psychological factors (depression, emotional distress and spiritual well-being) and self-care behaviours (diet, exercise and medication adherence) among adult patients with type 2 diabetes. An attempt has also been made to investigate the associations between these variables. Differences were also sought in both psychological factors and self-care behaviours with respect to insulin and non-insulin type 2 diabetic adults. A sample of 435 adults with type 2 diabetes using the purposive sampling technique was taken for the study. Beck's Depression Inventory-II (BDI-II) by Beck, Steer, & Brown (1996), Problem areas in diabetes scale (PAID) developed by Joslin Diabetes Centre and Spiritual Well-Being Scale (SWB) developed by Paloutzian and Ellison (1982) were used to measure the psychological factors among these type 2 diabetic adults. Also, Self Care Inventory (SCI) developed by La Greca and colleagues (1992) and Morisky 8 Item Medication Adherence Scale (MMAS-8) developed by Morisky (1986) were used to collect the data about self-care behaviours among the population. Findings revealed that majority of

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the type 2 diabetic adults fall in the minimal level of depression as well as emotional distress but were significantly high on the levels of spiritual well-being. A statistically significant negative correlation existed between depression and exercise and medication adherence among type 2 diabetic adults but no correlation was found between depression and diet adherence among these adults. Significant negative correlations were also found between emotional distress and diet, exercise and medication adherence. The results also revealed significant positive correlations between spiritual well-being and diet, exercise and medication adherence among these adults. Results of the study also showed that, insulin taking and non-insulin diabetic adults differ significantly on depression, emotional distress and spiritual well-being. Insulin taking type 2 diabetic adults were found to have more depression and emotional distress but low spiritual well-being than non-insulin type 2 diabetic adults. The study finally revealed that insulin taking and non-insulin diabetic adults differ significantly on diet as well as medication adherence. Insulin taking diabetic adults were found to have more diet adherence but low medication adherence than non-insulin taking diabetic adults. Regarding exercise adherence, insulin taking and non-insulin type 2 diabetic adults do not differ significantly. The above results indicated a relationship between psychological factors and self-care behaviours among type 2 diabetic adults. Strategies to improve self-care behaviour in relation to type 2 diabetes should first focus on improving the individual's psychological state.

Keywords: Depression, Emotional distress, Spiritual well-being, Diet, Exercise and Medication adherence.

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Introduction

Diabetes Mellitus (DM), a chronic disease, is prevalent in nearly all the countries. It is a complex disorder of fat, carbohydrate, and protein metabolism that is primarily a result of a deficiency or complete lack of insulin secretion by the beta cells of the pancreas or resistance to insulin. The disease is often familial but may be acquired, as a result of the administration of excessive glucocorticoid (Mosby, 2009). It may also be referred to as a group of metabolic diseases in which a person has high blood sugar, either because the body does not produce enough insulin, or because cells do not respond to the insulin that is produced. This high blood sugar produces the classical symptoms of polyuria (frequent urination), polydipsia (increased thirst) and polyphagia (increased hunger).

There are three main types of diabetes: Type 1or insulin dependent diabetes, Type 2 or non-insulin dependent diabetes and Gestational diabetes. Other forms of diabetes mellitus include congenital diabetes, which is due to genetic defects of insulin secretion, cystic fibrosis-related diabetes, steroid diabetes induced by high doses of glucocorticoids, and several forms of

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monogenic diabetes.

Since 1921, all forms of diabetes have become treatable and about type 2 diabetes, it may be controlled with medications. Both type 1 and 2 are chronic conditions that usually cannot be cured. Pancreas transplants have been tried with limited success in type 1 diabetes mellitus (T1DM); gastric bypass surgery has been successful in many with morbid obesity and type 2 diabetes mellitus (T2DM). Gestational diabetes usually resolves after delivery. Diabetes without proper treatments can cause many complications. Acute complications include hypoglycaemia, diabetic ketoacidosis, or nonketotic hyperosmolar coma. Serious long-term complications include cardiovascular disease, chronic renal failure, and retinal damage. Adequate treatment of diabetes is thus important, as well as blood pressure control and lifestyle factors such as smoking cessation and maintaining a healthy body weight.

Classification

Most cases of diabetes mellitus fall into three broad categories: type 1, type 2, and gestational diabetes.

Type 1 diabetes

Diabetes mellitus type 1 is a form of diabetes mellitus that results from autoimmune destruction of insulin-producing beta cells of the pancreas. It was formerly called insulin-dependent diabetes mellitus (IDDM). The subsequent lack of insulin leads to increased blood and urine glucose. This type of diabetes can be further classified as immune-mediated or idiopathic. The classical symptoms of this type of diabetes are polyuria (frequent urination), polydipsia (increased thirst), polyphagia (increased hunger), and weight loss (Cooke & Plotnick, 2008). The majority of

type1 diabetes is of the immune-mediated nature, where beta cell loss is a T-cell mediated autoimmune attack (Rother, 2007). There is no known preventive measure against type 1 diabetes, which causes approximately 10% of diabetes mellitus cases in North America and Europe. Most affected people are otherwise healthy and of a healthy weight when onset occurs. Sensitivity and responsiveness to insulin are usually normal, especially in the early stages. Type 1 diabetes can affect children or adults but was traditionally termed "juvenile diabetes" because it represents a majority of the diabetes cases in children.

Eventually, type 1 diabetes is fatal unless treated with insulin. Injection is the most common method of administering insulin besides insulin pumps and inhaled insulin. Other alternative methods are pancreatic transplants that have been used and also Islet cell transplantation has raised hope for a cure of diabetes for the past 3 decades (Agarwal & Brayman, 2012). Transplantation is experimental yet growing. Generally, people who develop type 1 are otherwise healthy. Although the cause of type 1 diabetes is still not fully understood, it is believed to be of immunological origin.

Type 2 diabetes

Diabetes mellitus type 2 (formerly noninsulin-dependent diabetes mellitus, NIDDM) or adult-onset diabetes) is a metabolic disorder that is characterized by high blood glucose in the context of insulin resistance and relative insulin deficiency (Kumar, Fausto, Abbas, Cotran, & Robbins, 2005). This is in contrast to diabetes mellitus type 1, in which there is an absolute insulin deficiency due to destruction of islet cells in the pancreas (Dolores, 2011). The classic of diabetes mellitus type 2 symptoms are excess thirst, frequent urination,

and constant hunger.

Type 2 diabetes is initially managed by increasing exercise and dietary modification. If blood glucose levels are not adequately lowered by these measures, medications such as metformin or insulin may be needed. There is a typical requirement of routine blood sugar level check for those who are insulin dependent.

The development of type 2 diabetes is caused by a combination of lifestyle and genetic factors (Ripsin, Kang, & Urban, 2009; Riserus, Willett, & Hu, 2009). Diet and obesity comes under personal control while other factors such as increasing age, female gender, and genetics are not (Kronenberg, Polonsky, Larsen, & Melmed, 2011). A lack of sleep has been linked to type 2 diabetes and is believed to act through its effect on metabolism (Touma & Pannain, 2011). The nutritional status of a mother during fetal development may also play a role, with one proposed mechanism being that of altered DNA methylation (Christian & Stewart, 2010).

Long-term complications of this type of diabetes can include high blood sugar, heart disease, strokes, diabetic retinopathy where eyesight is affected, kidney failure which may require dialysis, and poor circulation of limbs leading to amputations. The acute complication of ketoacidosis, a feature of type 1 diabetes, is uncommon (Fasanmade, Odeniyi, & Ogbera, 2008). However, nonketotic hyperosmolar coma may occur.

Gestational diabetes

Gestational diabetes mellitus (GDM) resembles type 2 diabetes in several respects, involving a combination of relatively inadequate insulin secretion and responsiveness. It occurs in most cases of pregnancies and may improve or disappear after delivery. Gestational

diabetes is fully treatable but requires careful medical supervision throughout the pregnancy.

Even though it may be transient, untreated gestational diabetes can damage the health of the fetus or mother. Risks to the baby include macrosomia (high birth weight), congenital cardiac and central nervous system anomalies, and skeletal muscle malformations. Increased fetal insulin may inhibit fetal surfactant production and cause respiratory distress syndrome. Hyperbilirubinemia may result from red blood cell destruction. In severe cases, perinatal death may occur, most commonly as a result of poor placental perfusion due to vascular impairment. Labor induction may be indicated with decreased placental function. A cesarean section may be performed if there is marked fetal distress or an increased risk of injury associated with macrosomia, such as shoulder dystocia.

Epidemiology

Globally as of 2010, it is estimated that 285 million people are living with type 2 diabetes making up about 90% of the total cases of diabetes (Melmed, Polonsky, Larsen, & Kornberg, 2011). Its incidence is increasing rapidly, and it is estimated that by 2030, this number will be almost doubled (Wild, Roglic, Green, Sicree, & King, 2004). Type 1 diabetes causes an estimated 5–10% of all diabetes cases (Daneman, 2006) or 11–22 million worldwide (World Health Organization, 2011). The incidence of type 1 diabetes has been increasing by about 3% per year (Aanstoot et al., 2007). Diabetes mellitus occurs throughout the world, but is more common (especially type 2) in the more developed countries. The greatest increase in prevalence is, however, expected to occur in Asia and Africa by 2030 (Wild et al., 2004). The increase in incidence of diabetes in developing

countries follows the trend of urbanization and lifestyle changes, perhaps most importantly a "Western-style" diet (Riserus et al., 2009).

India leads the world with largest number of diabetic subjects earning the dubious distinction of being termed the "diabetes capital of the world". For India the increase in type 2 diabetes is estimated to be 58%, from 51 million people in 2010 to 87 million in 2030 (Snehalatha & Ramachnadaran, 2009). India also has an incidence of 10.6 cases/year/100,000; of type 1 diabetes and recent studies indicate that the prevalence of type 1 diabetes in India is increasing (Raha et al., 2009).

The overall prevalence of Diabetes in Kashmiri population was 6.05% in 2011 out of which 4.03% were known diabetic and 2.02% undiagnosed diabetic subjects (Ahmad, 2011). Ahmad (2011) also revealed in his study that the prevalence of diabetes mellitus increases with age. In the target population of 20 years and above the prevalence of DM increased with age from 3.02% in 20-40 year old through 5.80% in those aged 40-60 years and 16.66% in those aged > 60 years. Hence, age is considered as most consistent risk factor for rise in DM prevalence.

Though diabetes is a condition which is related to physical changes in a human body but the effect of psychosocial factors on diabetes cannot be underestimated. Psychosocial factors have an impact on the various aspects of the disease like disease management, adherence to self care behaviours etc. Psychosocial means "pertaining to the influence of social factors on an individual's mind or behaviour, and to the interrelation of behavioural and social factors".

Bio-psychosocial model

The bio-psychosocial model (BPS) as theorized by George L. Engel (Engel, 1977) is a general model or

approach which posits that biological, psychological and social factors, all play a significant role in human functioning in the context of disease or illness (Figure 1). Indeed, health is best understood in terms of a combination of biological, psychological and social factors rather than purely in biological terms (Santrock, 2007). This is in contrast to the traditional, reductionist biomedical model of medicine that suggests every disease process can be explained in terms of an underlying deviation from normal function such as a pathogen, genetic or developmental abnormality, or injury (Engel, 1977). The concept is used in fields such as medicine, nursing, health psychology and sociology, and particularly in more specialist fields such as psychiatry, health psychology, family therapy, chiropractic, clinical social work, and clinical psychology. The biopsychosocial paradigm is also a technical term for the popular concept of the "mind–body connection", which addresses more philosophical arguments between the biopsychosocial and biomedical models, rather than their empirical exploration and clinical application (Sarno, 1998).

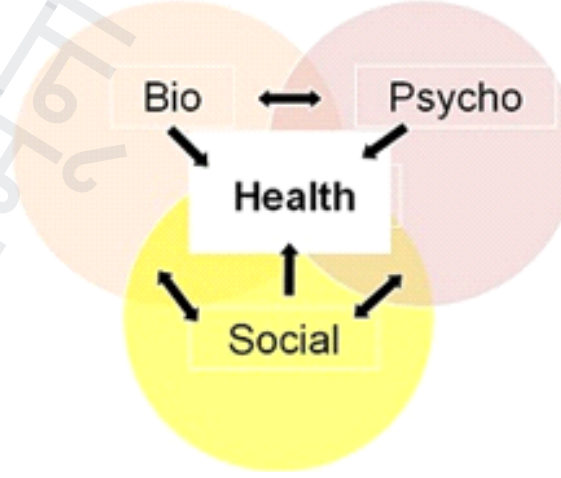


Figure 1: Bio-psychosocial Model

Psychological Factors in Diabetes Care

Nearly all patients with diabetes lapse in adherence at some point during the course of their illness. Although most research has focused on adherence to medication, adherence also encompasses numerous health-related behaviours that extend beyond taking prescribed pharmaceuticals. The participants at the WHO Adherence meeting in June 2001 (Sabate, 2001) concluded that adherence to any regimen reflects behaviour of one type or another. Seeking medical attention, filling prescriptions, taking medication appropriately, obtaining immunizations, attending follow-up appointments, and executing behavioural modifications that address personal hygiene, self-management of asthma or diabetes, smoking, contraception, risky sexual behaviours, unhealthy diet and insufficient levels of physical activity are all examples of therapeutic behaviours. In a study done by Wertheimer and Santella (2009), it was shown that the rate of noncompliance is higher in patients with chronic illnesses. This is because the drug regimens for these patients are often long-term, complex regimens that alter existing behavioural patterns.

Nonadherence is often mistakenly attributed to inadequate knowledge about proper diabetes care. Many other psychosocial factors contribute significantly to this problem, such as inadequate social support, time pressures, stress and health beliefs that are incompatible with the regimen (Weissberg et al., 1995; Boehem et al., 1997; Schlundt et al., 1997). Results of the study done by Glasglow, Toobert, and Gillete (2001) also showed that the general psychosocial barriers that seem most strongly and consistently related to low levels of self management and diabetes related quality of life are low self efficacy and low levels of family social support.

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