Chapter-1
INTRODUCTION

Background of the Study

The average population health in Jordan comes out quite favorable when evaluated against a number of universal health indicators. The average life expectancy at birth is 72 years, which is relatively very high for the developing world (World Health Organisation, 2005). Whereas access to and advances in health technologies and development are the primary drivers behind the rise in life expectancy and a decrease in the mortality (Ministry of Human Resources, Hashemite Kingdom of Jordan, 2016). Therefore the increased living standards and better health care are considered to be the primary contributors to a population growth rate of approximately 2.5% annually (World Health Organisation, 2005). At present, preventable diseases have been continually reduced and eradicated, chronic diseases, which often outbreak later in life, have kept steadily increasing. Chronic diseases are considered the leading cause of morbidity and mortality in Jordan. The Jordanian Ministry of Health, thus, in collaboration with the Centres for Disease Control and Prevention has established a behavioural risk factor surveillance system to examine and monitor the behavioural risk factors associated with chronic diseases throughout. Diseases such as diabetes have been burdening Jordan’s health care system with rather expensive and long term treatments, carrying significant social costs as well. Psychological Well-Being and Quality of Life are considered as the major factors associated with diabetic patients. Description of these variables will make it more clear. Main variables in the present investigation are Psychological Well-Being and Quality of Life among diabetes mellitus patients from rural and urban areas.

Before describing variables undertaken, viz., Psychological Well-Being and Quality of life it is important to know about Diabetes Mellitus, hence, a detailed description follows:

1.1. Diabetes Mellitus

Diabetes is an age old problem. It is known dates back to centuries before Christ. The Egyptian Ebers Papyrus (ca. 1500 B.C.) described diabetes as a disease related to the passage of much urine. Celsus (30 B.C. to 50 A.D.) recognised the disease but, it was
not until two centuries later that another Greek physician, the renowned Aretaeus of Cappadocia, gave the name diabetes. He made the first complete clinical description, describing it as “a melting down of the flesh and limbs into urine”. In the 3rd to 6th centuries A.D., scholars in China, Japan and India wrote of a condition with polyuria in which the urine was sweet and sticky. However, although it had been known for centuries that diabetic urine tasted sweet, it remained for Willis in 1674 to add the observation “as if imbued with honey and sugar”. The name diabetes mellitus was established as mellitus refers to honey. A century after Willis, Dobson demonstrated that the sweetness was, indeed, due to sugar. From the time of the earliest recorded history of diabetes, progress in the understanding of the disorder came slowly until the middle of the 19th century (MacFarland, 1991).1

Gradually the complications of diabetes were recognised by scientists and medical practitioners. An Arab physician Avicenna elucidated hereditary factors of diabetes in 1000 A.D. He also described two varieties of this disease. One, in today’s terminology, is Type I (IDDM) and the other is Type II (NIDDM. Within the past century an association was established with a disturbance in the beta cells. These islets were first noted in fish by Brockman early in the 19th Century, but they bear the name of Langerhans who described them in mammals in 1869. Soon after, the German scientists, von Mering and Minkowski, found that surgical removal of the pancreas produced diabetes in the dog. At the turn of the century, an American, Opie, noted the beta cells in the islets to be damaged in humans dying of the disease. Finally in 1921 Banting and Best, Canadians, prepared active extracts of the pancreas which lowered the elevated glucose levels of diabetic dogs (Engelhardt, 1989).2

1.1.1. Meaning and Definition of Diabetes

Diabetes mellitus is a chronic progressive metabolic disorder characterised by hyperglycemia and often associated with several etiologies. The term diabetes mellitus describes a metabolic disorder characterising multiple etiologies further characterised by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both. The effects of diabetes mellitus include long term damage, dysfunction and failure of

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1 MacFarland, 1991
2 Engelhardt, 1989
various important organs of the body. According to Marble et al. (1985), “diabetes tends to run in families; is associated with accelerated atherosclerosis, and predisposes to certain specific microvascular abnormalities including retinopathy, nephropathy and neuropathy. It doubles the risk of stroke, increases the risk for heart attacks 2- to 3-fold, and for peripheral vascular problems, particularly in the feet, 50-fold. There are other problems, such as the lessening of resistance to infection, especially if the diabetes is poorly controlled”.

Several terms have been used to describe and classify diabetes. Some of them are based on the age of onset and others are based on the stage or the severity level of the disease. Substantial differences in the diagnosed criteria used by diabetes experts were also found (West, 1975). This leads to confusion which hindered the assessment of data from studies of the natural history of the disease and its complications. The NDDG [USA] then created a new classification based on clinical or descriptive observations from epidemiologic studies of large populations to provide uniform designations and a framework for collecting investigative and epidemiological data on diabetes (NDDG, 1979). A similar but more inclusive classification adopted by the World Health Organisation Expert Committee on Diabetes Mellitus in 1980 (WHO, 1980) which was modified in 1985 (WHO, 1985) has received general acceptance. Following are the common sub-classifications of diabetes mellitus:

- **Type I Diabetes.** It is insulin dependent diabetes mellitus-IDDM. It involves about 15 % of the diabetic population, occurs primarily in young patients, but may be seen at any age. It is usually characterised by an abrupt onset of symptoms, although present evidence suggests that its evolution may involve an antecedent period of slowly developing auto-immune damage to the pancreatic B cells (Leslie et al, 1989).

- **Type II Diabetes.** It is non-insulin dependent diabetes mellitus-NIDDM. It occurs in 80 to 85 % of the diabetic population, is usually encountered in adults, but may occur in young patients. NIDDM is recognised as having a strong genetic basis, as evidenced by studies of identical twins and by familial transmission of diabetes in an autosomal dominant inheritance pattern (Taylor, 1989).

- **Malnutrition-Related Diabetes Mellitus- MRDM.** Malnutrition-related diabetes mellitus is a clinical subgroup that included in the WHO classification but not in
that of the NDDG. It occurs predominantly among young adults in tropical, developing countries. Distinctive clinical features and course, and the great number of cases in certain regions led to the creation of this new major class of diabetes. Clinical studies have suggested the existence of at least two subclasses: FCPD and PDPD (Abu-Bakare, 1986).

According to Unnikrishnan and Mohan (2015) “Fibrocalculous pancreatic diabetes (FCPD) is an uncommon form of diabetes that occurs as a result of chronic calcific pancreatitis, in the absence of alcohol abuse. The disease is restricted to tropical regions of the world, and southern India has the highest known prevalence of FCPD. The typical patient with FCPD is a lean adolescent or young adult of either sex, presenting with a history of recurrent bouts of abdominal pain and steatorrhea. Demonstration of large, discrete pancreatic calculi by plain radiographs or ultrasonography of the abdomen is diagnostic. While the exact etiology of FCPD is unknown, genetic, nutritional and inflammatory factors have been hypothesised to play a role. Diabetes in FCPD is often brittle and difficult to control; most patients require multiple doses of insulin for control of glycemia. However, in spite of high blood glucose levels, patients rarely develop ketosis. Mal-absorption responds to pancreatic enzyme supplementation. Surgical removal of stones is indicated for symptomatic relief of intractable pain. While patients with FCPD develop micro-vascular complications as frequently as those with type 2 diabetes, the macrovascular disease is uncommon. Development of pancreatic malignancy is the most dreaded complication and should be suspected in any patient who complains of weight loss, back pain or jaundice”.


There are some other types of diabetes mellitus which were formerly termed secondary diabetes. This is a heterogeneous subclass that includes many specific disorders that induce diabetes including pancreatic disease, hormones, drugs or chemicals, certain genetic syndromes and insulin receptor abnormalities (Keen et al., 1982).

In clinical practice, suspicion of diabetes is gleaned from history and physical findings. Symptoms such as fatigue, thirst, polyuria, weight loss, and recurrent
infection are frequent clues. Family histories of diabetes, obesity, unfavourable obstetrical experiences, premature atherosclerosis, and neuropathic disorders are indicators of probable diabetes mellitus. Urine glucose testing is frequently performed as a screening test but is not acceptable for diagnostic purposes. A positive urine test can be a helpful indicator but may give misleading results during pregnancy because of increased renal blood flow or in the presence of renal glycosuria. Patients with high renal glucose thresholds or elderly patients with decreased renal blood flow may not have glycosuria in spite of elevated blood glucose concentrations (Shuman, 1988).

In normal subjects, the normal upper limit of fasting plasma glucose is 6.4 mmol/l 115 mg/dl. Diabetes can be diagnosed reliably when fasting plasma glucose concentrations are 7.8 mmol/l ≥ 140 mg/dl. Immediate confirmation of the diagnosis can be obtained by determining the glycated-haemoglobin concentrations simultaneously. If the glycated-haemoglobin concentration is greater than normal, the diagnosis is confirmed by an elevated ambient glucose concentration preceding the fasting plasma glucose determination. Otherwise, second diagnostic plasma/blood glucose is required on a second occasion in asymptomatic subjects. With few exceptions, fasting plasma glucose values correlate well with the rise in plasma glucose concentrations observed after a meal or glucose load, although it is less sensitive and less specific for the diagnosis of diabetes than the post-glucose load glucose (Shuman, 1988).

A two-hour postprandial plasma glucose concentration of '1 L. 1 mmol/l [^200 mg/dl] or 10 mmol/l [^ 180 mg/dl] for whole blood may be indicative of diabetes if certain precautions have been observed. Because glucose utilisation is impaired in persons consuming low-carbohydrate or weight-reduction diets, the postprandial glucose test should be performed in those consuming unrestricted diets providing greater than 150 g of carbohydrate daily for at least 3 days. Additional precautionary measures include eliminating drugs that reduce glucose tolerance, having individuals maintain normal physical activity, and avoiding the test in ill or stressed persons. The test is most reliably performed using a standard oral glucose load. In patients with liver or kidney disease, partial gastrectomy, or thyrotoxicosis, elevated postprandial plasma glucose may also be observed. Diabetes can also be found in subjects with normal fasting values, although this is unusual in clinical practice (Shuman, 1988).
The oral glucose tolerance test (OGTT) is the most sensitive test for the diagnosis of diabetes. Without scrupulous care in standardising the test and preparing the patient, however, the OGTT can be misleading since some factors can interfere with normal glucose tolerance and result in a hyperglycemic curve. This test is not required for diagnostic purposes when the fasting plasma glucose is unequivocally elevated. The OGTT as adopted by the WHO requires two plasma glucose values; fasting and 2-h after a 75 g glucose load. The intervening samples at ½, 1, and 1½ hours are not used. The scheme provides a simple and accurate method for obtaining diagnosis criteria. There is insufficient evidence from the available studies to justify the use of the more complicated NDDG criteria. Both sets of diagnostic criteria specify that a fasting plasma glucose $\geq 7.8$ mmol/l ($\geq 140$ mg/dl) and/or a 2-h of 11.1 mmol/l ($\geq 200$ mg/dl) are diagnostic of diabetes mellitus in the nonpregnant adult \cite{WHO1985, Harris1985}. If only the 2-h value is elevated, then a second test is required for confirmation. The latter value represents the concentration observed in the bimodal distribution of two-hour plasma glucose in epidemiological studies and is the glucose concentration at which characteristic microvascular lesions such as diabetic retinopathy appeared in such studies \cite{Shwman1988}.

\subsection*{1.1.2. Diabetes Mellitus and Morbidity/ Mortality}

Diabetes mellitus is one of the leading causes of death. Studies show a greater risk of cardiovascular death among diabetic patients as compared to non-diabetic patients. It is much higher among women as compared to men but in some cases situation is reversed. Ischemic heart disease was 2.8 times as frequent in men and 2.5 times as frequent in women. Ischemic heart disease counted for approximately one-half of the deaths among diabetic men and one-third of those among diabetic women. Other cardiovascular disease (including renal disease) deaths were 2.34 and 1.93 times as frequent in diabetic men and women, respectively. Non-cardiovascular causes accounted for 26\% of the excess of deaths among diabetic men and 22\% among women. The risk of death increased with increasing duration of diabetes. Thus, each additional 10 years of diabetes was associated with a 24\% increase in risk for cardiovascular disease death \cite{Finch1988}.

Related to morbidity, atherosclerosis is more severe and starts earlier than in non-diabetics. Due to this accelerated atherosclerosis diabetics have a markedly increased
risk of myocardial infarction, cerebral stroke and gangrene of the legs. Taken together, the various macro-vascular complications account for about 75% of all deaths in diabetes. How diabetes contributes to the complex process of atherogenesis is unclear. Factors that may play a role are hypertension (one of every two adult diabetics is hypertensive), hyperlipidaemia and hypercholesterolaemia, sorbitol accumulation in cells of the vessel walls and altered platelet aggregation (Marble, 1985).

Infections, which in the pre-insulin era played a significant role in the natural course of diabetes, are nowadays having minor significance for the diabetic. Infections most often affect the skin, the urinary tract and the kidney [pyelonephritis with and without necrotising renal papillitis]. Necrobiosislipoidica is a rare skin disease closely related to diabetes. It usually develops after diabetes has been present for years, but in some patients it may precede clinical diabetes (Marble, 1985).

1.1.3. Diabetes Mellitus and Genetics

The importance of the genetic contribution to NIDDM has been established by the study of certain inbred populations, the almost 100% concordance of disease in monozygotic twins and by familial clustering. The study of inbred populations has suggested that the genetic component of NIDDM is due to a single gene inherited in an autosomal dominant fashion (Hitman et al., 1991). For the type I diabetes, studies show that the first degree relatives have a higher risk of developing this disease than unrelated individuals from the general population (approximately 6% vs <1% respectively (Dorman and Bunker, 2000). Some family studies also reveal that first degree relatives of individuals with type II diabetes mellitus are about 3 times more likely to develop the disease than individuals without a positive family history of the disease (Flores et al., 2003; Hansen 2003; Gloyn 2003). It has also been shown that concordance rates for monozygotic twins, ranged from 60-90%, are significantly higher than those for dizygotic twins. These findings suggest a strong relation of diabetes mellitus genetic factors.

1.1.4. Diabetes Mellitus: and Obesity

The association between obesity and NIDDM has long been recognised, and while NIDDM is more frequent among obese persons, it is also clear that not all the obese, even the very obese, develop NIDDM. Obesity may, therefore, be a frequent
precipitant of NIDDM among those who are otherwise susceptible to its development, and NIDDM may develop among persons who are not obese. Many studies of the incidence of NIDDM have demonstrated a relation with obesity, and the risk is related to the duration, degree and distribution of obesity (Horton, 1990).

The risk of developing NIDDM in relation to obesity is a function of the underlying susceptibility to the disease, and the evidence of the interaction of genetic susceptibility and obesity first came from one of the earliest follow-up studies of diabetes epidemiology conducted in Oxford, Massachusetts (O'Sullivan et al., 1965). They found that the appearance of NIDDM was more frequent among the obese when there was a history of diabetes in a parent than when there was no parental history. In addition, among Pima Indians who have at least one parent with NIDDM, the incidence is much more strongly related to obesity than among persons of similar degrees of obesity in whom neither parent has NIDDM (Zimmet, 1982). In support of this observation, a recent report showed that the duration of obesity increases the incidence of NIDDM in Pima Indians (Everhart et al., 1992).

1.1.5. Diabetes Mellitus and Diet

Diet has long been believed to play a role in the development of diabetes and the idea that excessive caloric intake could increase the frequency of the disease and conversely that caloric deprivation could reduce it was reinforced several times (West, 1978). Diabetes mortality rates decreased in countries that experienced food shortages during World War I and World War II, whereas the rates were relatively unchanged in countries where the food supply was unaffected. However, cross-sectional or case-control studies have failed to document any convincing relation between dietary intake and NIDDM (Ekoe, 1988). Based on studies of diabetes prevalence in several populations, West showed that obesity was closely correlated with the prevalence of diabetes, but he was unable to find any evidence that calorie intake or individual components of the diet, independent of obesity, were implicated in its pathogenesis.

Studies of migrant populations suggest that diet may play a role in the development of the disease. Most of the studied populations, as in the Pacific, that have migrated from a traditional environment who now have higher prevalence of diabetes than are found in their countries of origin, consume diets that are at least as high in calorie content and that contain much higher quantities of refined carbohydrates, e.g., rice, flour, and sugar,
than in the traditional environment. Such populations, however, develop obesity and their level of physical activity is usually decreased (Taylor et al., 1989). Similarly, among the Japanese subjects residing in Hawaii, for example, the prevalence of NIDDM is twice that found in Hiroshima, but the caloric consumption was no different, yet the Hawaiian Japanese consume approximately twice as much fat, one-third less complex carbohydrate, and almost three times as much simple carbohydrate as their counterparts in Hiroshima. Of the few attempts to perform prospective studies on the relationship between the risk of developing NIDDM and dietary intake, in one there was no effect of diet or its components on the incidence of men with diabetes. By contrast, a significantly increased carbohydrate and starch consumption was found among 87 subjects who subsequently developed the disease, and only total and complex carbohydrates showed a significant relation to the incidence of the disease (Ekoe, 1988).

Total calorie intake is greater among persons who subsequently develop diabetes, but whether the effects of dietary intake on the incidence of diabetes are the result of obesity or diet is unknown. Although sucrose intake has been suggested as a factor in the development of NIDDM, based on the observation of higher sucrose intakes in some populations with high rates of diabetes, there is no convincing epidemiological evidence at this time that sucrose per se is a risk factor for the disease (Mann, 1987).

1.1.6. Diabetes Mellitus and Physical Activities

Physical activity influences glucose metabolism, since well-trained athletes, have less glycaemia after a glucose load, and insulin responses are diminished compared to untrained persons of similar weight. Conversely, profound physical inactivity, e.g., bedrest, is associated with the development of abnormal glucose tolerance and higher insulin levels. These observations suggest that physical activity influences insulin resistance (Horton, 1988).

There are few epidemiological studies of the relation of NIDDM to physical activity. The prevalence of diabetes, in Fiji, was twice as high in those with the lower degrees of physical activity and, while suggestive of a protective effect, the amount and degree of physical activity needed to achieve protection from NIDDM is unknown (Taylor, 1989). Similar results have been found recently in the cross-sectional study from Mauritius (Dowse, Zimmet and Gareeboo, 1991) and in the prospective study from Malta (Schranz, Thomilheto and Marti, 1991).
Chapter 1

Introduction

After describing the Diabetes Mellitus, the investigator presents the description of variables viz., Psychological Well-Being and Quality of Life in the ongoing write up.

1.2. Psychological Well-Being

Psychological Well-Being (PWB) is a state of well-functioning with an effective interpersonal skill and interaction with the members of society and work organisation along with required energy and potential to cope with routine problems. Members of the society may include family, relatives, friends and any person in social contact. Members of the workgroup involve coworkers including superiors and subordinates. The routine problems may be concerned with routine matters of family, dealing with relatives and friends, performing well in the work organisation, and the problems related with personal growth and development commonly faced by every individual. Persons with good PWB are better able to deal with these problems as compared with the persons with poor PWB. Deci and Ryan (2008) conceptualised psychological well-being “as a combination of positive affective states like happiness and functioning with optimal effectiveness in individual and their respective social lives”. Christopher (1999) argued that “PWB plays a crucial role in theories of personality and development in both pure and applied forms; it provides a baseline from which we assess psychopathology; it serves as a guide for clinical work by helping the counsellor to determine the direction clients might move to alleviate distress and find fulfilment, purpose, and meaning; and it informs goals and objectives for counselling-related interventions”. While Huppert (2009) hold the view that PWB is about lives going well. He argued that “psychological well-being should be considered as the combination of feeling good and functioning effectively towards routine”. Hence, by definition people with high PWB have been reported feeling happier, capable, well adjusted, well supported and satisfied with life. Huppert further argued that “the consequences of PWB for including better physical health along with mental health, mediated probably by brain activation patterns, neurochemical effects and significant genetic factors”.

Taking different aspects, various psychologists and health professionals have carried out research work in the field of well-being. Most commonly well-being is defined according to its general characteristic addressing the optimal psychological
experience and functioning. Historically there are two broad concepts related to well-being-eudemonic and hedonic (Deci and Ryan, 2008).

The Eudemonic is derived from ancient Greek philosophy notably the work of Aristotle and were later championed by mills among other. Eudemonic measures emphasis’ ‘human flourishing’’ literally (Well -being or good) and Daimonia (demon or spirit) and virtuous action, which is argued to be not always congruent with happiness or satisfaction, but to reflect a broader and multi-factored set of need. Hedonic measures follow the criteria of maximising pleasure and avoiding pain an approach dating back to ancient Greek philosophy that found later expression in the work of Bentham and his followers (OPHI, 2007). According to Ryff and Singer (1996) “eudaimonia” is the idea of striving towards excellence based on one’s own unique potential”.

The hedonic concept relates well-being with happiness and emphasise that it creates a balance between positive and negative aspects of routine life. Contrary to that, the eudemonic perspective analyses how well a person is living in relation to his /her true self. Though there is no standard or widely accepted measure of either hedonic or eudemonic well-being, but commonly used instruments include Bradburn’s Affect Balance, Neugarten’s Life Satisfaction Index, Ryff psychological Well -being scale, Rosenberg’s self-esteem scale , and a variety of depression instruments (Ryan and Deci, 2008).

Literature witnesses that researchers’ focus is shifting from an emphasis on disorder and dysfunction to the well-being and positive mental health. Thus, a paradigm shift has especial prominence in current psychological research and it has also captured the attention of epidemiologists, social scientists, economists, and policymakers”. Literature reveals that positive perspective is enshrined in the constitution of the World Health Organisation, where health is defined as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. More recently, the WHO has defined positive mental health as “a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life,

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3 OPHI, 2007
4 Ryan and Deci, 2008
can work productively and fruitfully, and is able to make a contribution to his or her community” (e.g. Hunsley and Lee, 2007; Harari, Waehler, and Rogers 2005)

The psychological well-being is probably the most extensively used construct among psychologists and mental health professionals. However, there is still no consensus regarding the operational definition of this construct. In recent times, a lot of theories related to well-being were proposed. Also, a number of various types of empirical research that use different indices of similar construct have been carried out. However, theorists have found that the concept of psychological well-being (PWB) is much more complicated and debatable. Practically speaking, psychological well-being serves as an “umbrella” term for many constructs that assess psychological functioning (Cheng, Chan, and Fung, 2009; Cummins, Massey and Jones, 2007; Edwards, Ngcobo and Pillay, 2004)

1.2.1. Components of Psychological Well-Being

**Following are six components of Psychological Well-being:**

**1.2.1.1. Autonomy**

Autonomy can be understood as the self-determining ability to regulate behaviour from within by refusing to social pressures of acting and thinking in certain ways due to social pressure. Autonomy can be identified by properties like internal regulation of behaviour, individuation, and internal locus of control, independence and self-determination.

Underlying these properties is on the belief that one’s thoughts and actions are one’s own and should not be determined by agencies or causes outside one’s control. The fully functioning person is assumed to have an internal locus of evaluation, whereby a person does not look to others for approval but evaluates oneself by personal standards as stressed by (Ryff and Singer, 1998).

**1.2.1.2. Environmental Mastery**

When a person has the ability to create or choose contexts that are suitable to his or her values or needs, taps on opportunities surrounding the environment, has ability to control external activities and has mastered the art of managing the environment, that person is said to have achieved environmental mastery. Also is the extent to which
individuals can manage their own environment and select contexts that enable them to satisfy their needs and achieve their goals. People who score high in environmental mastery can manage their environment by selecting or establishing contexts that satisfy their needs. Those who obtain low scorers feel lack control over their environment and often experience difficulty managing their daily activities.

1.2.1.3. Purpose in life

Everybody has a purpose in life but the question, is that how it can be achieved? Its purpose could only be achieved if one understands it fully. The purpose in life is the extent to which an individual believes that one has meaning in life, personal objectives and goals that are associated with life purpose. People who score high on purpose in life have goals and objectives in life. Further, they believe that there is a meaning to life. On the other side, low scorers have few goals and often feel that life has no purpose for them. Goals or purpose in one’s life gives a person a feeling of being directed towards a meaning in his life either in his past or present. This gives person believes about purpose and objectives in life.

1.2.1.4. Positive Relations with Others

Ryff (1989) established that good relationship implies warm, satisfying, trusting relationships with others. It is concerned about the welfare of others; capability of strong empathy, affection, and intimacy; understands give-and-take of human relationships. It is the possession of quality relations with others. Various studies emphasise the importance of a warm and trusting interpersonal relationship. The central component of mental health and wellbeing is the ability to love with others. Feeling of empathy and affection with others, expression of love, deeper friendship, and complete identification with others are some of the important aspects of a positive relationship.

1.2.1.5. Self-acceptance

Self-acceptance refers to the positive attitude towards self, acceptance of multiple aspects of self that may include both good and bad qualities, good perception of the past, and it includes the extent to which individuals are satisfied with themselves regardless of their weaknesses and past experiences. People who have high self-acceptance are positive about them and comfortably acknowledge their strengths and
weaknesses. Low self-acceptance discontents them and is unhappy with particular qualities that they possess. They often wish that they were different from how they are. Self-acceptance is the main feature of mental health and wellbeing. Life span theories also acceptance of one’s self and one’s past. Thus holding a positive attitude towards oneself emerges as an important characteristic of positive psychological functioning.

1.2.1.6. Personal Growth

Ryff (1989) defined personal growth as the continuing ability to develop one’s potential, in order to grow and expand as a potential adult. Openness to experience is a key property of the fully functioning person. A person with such a personality does not settle for a fixed state with all problems solve, rather he/she will continuously keep developing. Life-span theories also gave explicit emphasis to continued growth and to facing new challenges of tasks at different periods of life (Ryff and Singer, 1998).

Thus, it can be stated that personal growth includes a person feeling to continuously strive for development, perceiving self as expanding and growing, ready to experience new things, knows his or her actual potential, observes improvement in his/her own behaviour over time, and is constantly improving oneself effectively by reflecting more self-knowledge.

The above six factors encompass all major aspects of psychological well-being. (Ryff, 1989; Ryff and Singer, 1996; Ryff and Singer, 2006; Ryff and Singer 2008a; Ryff and Singer, 2008b)

A growing number of studies demonstrate that there is a relationship between diabetes mellitus, psychological well-being and neurotic disorders. Globally, the diabetes mellitus has reached an alarming stage. “The International Diabetes Federation (IDF)” reported the global prevalence rate of diabetes mellitus to be 8.2% (about 382 million people suffering with the disease) in 2014 which is projected to increase to 592 million by 20355.

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Having examined the description of Psychological Well-Being, now a detailed description of Quality of life will be presented, given below:

1.3. Quality of Life (QOL)

At the time of evaluating the burden of a chronic illness, it is important to study the quality of life of the individual. There are many corresponding factors which accelerate or delay the recuperating process; quality of life is one of them. It is an important indicator of health and well-being that determine the effectiveness of treatment plan, decide the priority for the distribution of resources, and help in policy developments (Karen et al., 2008).

Quality of life is concerned with the general well-being of persons as well as societies. It outlines the negative and positive features of life and indicates life satisfaction including everything from physical health, family, education, employment, wealth, religious beliefs, finance and the environment. Quality of life includes a wide range of contexts such as international development, healthcare, politics and employment. Though the quality of health is an important aspect of quality of life, however, it is important not to mix up the concept of QOL with a more recent growing area of health-related QOL (HRQOL). When we look at HRQOL, we in effect, look at QOL and its relationship with health. The concept of quality of life should also be separated from the standard of living which is based primarily on income.

In common sense, quality of life (QOL) is the perceived as quality of persons’ daily life, that is, an assessment of their well-being or lack thereof. The concept of quality of life involves emotional, social, and physical aspects of the life of individuals. In health care, health-related quality of life (HRQOL) is an assessment of how the individual's well-being may be affected over time by an illness or disorder (WHO, 2005).

1.3.1. Daily Living Activities and Quality of Life

Because health problems can interfere with even the most basic aspects of daily living (for example, comfort, quality of sleep, eliminating wastes, feeding oneself, dressing, and others), the professions have codified the concepts of (ADLs) and instrumental activities of daily living(IADLs). Such analysis and classification
help to at least partially objectify quality of life. It cannot eliminate all subjectivity, but it can help in improving measurement and by and by reducing ineffability.

The structure of the WHOQOL reflects the issues that a group of scientific experts, as well as lay people in each of the field centres felt were important to the quality of life (WHO, 1995; 2005). The six broad domains of quality of life and the twenty-four facets covered within each domain are shown below. All items are rated on a five point scale (1-5).

1. **Physical health:** It includes:
   - Energy and fatigue
   - Pain and discomfort
   - Sleep and rest

2. **Psychological Aspects:** It includes:
   - Image and appearance
   - Negative feelings
   - Positive feelings
   - Self-esteem
   - Thinking
   - Learning
   - Memory
   - Concentration

3. **Level of Independence:** It includes:
   - Mobility Activities of daily living
   - Dependence on medicinal substances and medical aids
   - Work Capacity

4. **Social relationships:** It includes:
   - Personal relationships
   - Social support
5. **Environment:**
- Financial Resources Freedom
- Physical Safety and Security
- Health and Social Care
- Accessibility and Quality Home Environment
- Opportunities for Acquiring new Information and Skills
- Participation in and opportunities for recreation/leisure Physical environment (pollution/noise/traffic/climate)
- Transport

6. **Spirituality/Religion:**
- It include Personal beliefs about Religion/Spirituality

### 1.3.2. **Health-Related Quality of Life and Well-Being**

Health-related quality of life (HRQOL) is a multi-dimensional concept that includes domains related to physical, mental, emotional, and social functioning. It goes beyond direct measures of population health, life expectancy, and causes of death, and focuses on the impact health status has on quality of life. A related concept of HRQOL is well-being, which assesses the positive aspects of a person’s life, such as positive emotions and life satisfaction. Clinicians and public health officials have used HRQOL and well-being to measure the effects of chronic illness, treatments, and short- and long-term disabilities. Quality of life, in general has also been found related to long-term disease patients as well as their care-takers. As for example, Yang, Chenille, Jason, Yolanda and Amine, (2012) assessed the quality of life and symptom burden among long-term lung cancer survivors. Findings of their study revealed a significant decline over the years in the quality of life of patients and other family members.

Lu, Ten and Kao. (2016) conducted research to study the relationship between health-related quality of and heart rate variability. There are a growing number of evidence that Autonomic nervous system activity has a significant impact on health-related quality of life among the patient, mainly because altered Autonomic nervous system activity is a frequent physiological consequence of the diseases, thereby
relating Autonomic nervous system activity to patient’s perception of health-related quality of life in a unidirectional manner. The study conducted by Lu et al., (2016) examined whether health-related quality of life can independently contribute to heart rate variability in a well-defined healthy population. Findings of their study showed a significant relation of health-related quality of life to variances in heart rate variability

### 1.3.3. Marital Relations, quality of Life and Health

Marital relations have an impact on quality of life as well as on the quality of health. Healthy relations between husband and wife not only lead to healthy family environment but also serve as a source of satisfaction. The husband-wife relations have some unique characteristics. The most important characteristic is the emotional attachment, closeness and intimacy up to the level of no veil for anything between them. Marital relations are not merely for an orgasmic purpose. Rather it includes lifelong partnership in every aspect of life including the forthcoming generation. When this relationship takes a conflicting turn, all the dreams come down to the earth. It may cause feelings of insecurity and uncertainty among the marital partners. Each one of them may remain in a dilemma that may develop anxiety disorders. Unhealthy marital relations not only hinder the daily activities but also lead to some psychosomatic diseases like digestive problems, unusual body pain or a headache etc. hence an unhealthy marital relation affects the quality of life as well as the quality of health.

### 1.3.4. Socio-Cultural Issues, Quality of Life and Health

As a matter of fact, good health is the outcome of various factors such as genetic inheritance, accessibility to the good health caters, personal behaviours, and more important the general external environment that may include the quality of air, water, and housing & other living conditions. In addition, a growing body of research has documented associations between social and cultural factors and health and quality of life. As for example Santos, Tavares, Rodrigues, Dias, and Ferreira (2013) examined the quality of life in relation to socio-demographic variables among the rural and urban elderly persons with diabetes mellitus. Findings of the study revealed a better quality of life among rural persons compared with urban elderly individuals with diabetes mellitus.
1.3.5. Traumatic Stress, Quality of Life and Health

Traumatic stress is a kind of emotional disturbance. When the emotional disturbances become unmanageable, the affected person faces many problems in his/her daily activities. Such a situation also creates adjustment problems within the family. It has a significant impact on other family members also. The effect is especially on the spouse and children because of too much care. The spouse is at particular risk because of the especially close relations. He/she is in continuous exposure of traumatic reaction of the partner. One partner’s response act as a trigger for the other’s response. When one partner (spouse) is in a continuous traumatic situation, it gives trouble to the specific relations between husband and wife. Under such a situation a person has to sacrifice many of the needs and desires.

Beside the husband-wife relations, children are also affected. For children, the most intimate persons are the parents. If one of them is under traumatic stress, it creates anxiety and depression among them. Their normal behaviour gets affected, and they develop a problem of not to be mixed with other persons. The post-traumatic disorder and quality of life have been studied by researchers in a number of ways. As for example Seedat, Lochner, Vythilingum and Stein (2006) studied the degree of functional disability and quality of life impairment among the patients having post-traumatic stress disorder. They emphasised that quality of life impairment among the patients having post-traumatic stress disorder and functional disability is at least comparable with and in many instances greater than, that of patients with other anxiety and mood disorders. , and Bret, Scheneider, Glen, Palmer, Romero, and Regan (2015) also conducted a study regarding Post-traumatic stress disorder and Quality of Life Outcomes of veterans seeking treatment in a residential rehabilitation treatment program. They investigated the difference in post-traumatic stress disorder symptom severity and quality of life following successful completion of a rehabilitation treatment program using the Post-traumatic stress disorder checklist and the Quality-of-Life inventory and whether there is a differential treatment effect due to type of trauma exposure. Findings of their study suggested that veterans completing treatment at a Veterans Affairs Medical Center residential rehabilitation treatment program demonstrate overall significant decreases in Post-traumatic stress disorder symptoms and improvement in their quality of life, with the type of trauma exposure having no significant effect on treatment outcome. Johansen, Wahl, Eilertsen,
Weisaeth and Hanestad (2007) also find out a relationship between traumatic stress and quality of life. They evaluated the predictive value of post-traumatic stress disorder symptoms for quality of life. Findings of the study elucidated that individuals diagnosed with full or partial symptoms of posttraumatic stress disorder have a poor quality of life compared with not diagnosed or normal populations.

After complete description of both the variables under study, the following objectives were considered for investigation.

1.4. Objectives of the Study

1. To assess the psychological well-being of diabetic patients in rural and urban area.

2. To assess the quality of life of diabetic patients of rural and urban area.

3. To have a comparative analysis of the psychological well-being of diabetic patients residing in the rural and urban areas.

4. To compare the quality of life of diabetic patients residing in the rural and urban areas.

After giving comprehensive details of the variables, it is necessary to provide a relevant related survey of literature which has found the direction of the study to fill the void of knowledge in the area of present investigation. For this purpose chapter-2 is meant to highlight and describe the related literature.