In behavioral studies research design plays a significant role in collecting and analyzing data and drawing inferences. Mohsin (1984) opines that “research design depicts the plan which states the relation observed facts and events on the basis of which conclusion could be drawn”. Several methodological approaches and designs have been developed and discussed (Fergusan, 1981) but the choice of appropriate design depends upon the special characteristics and availability of the sample, nature of the measuring instruments and restraints regarding the manipulation of the variables being studied. Thus, the choice of method is governed by the aims of the study, the variables under investigation and the nature of the data.

The present study is designed to determine the effect of health locus of control, resilience and perceived social support on health status. In this chapter the research procedure for this study is presented. The design of proposed research, participants, instrumentation, procedure and method of data analysis are described.

The present investigation has primarily focused on the following variables

**Predictor Variables**

1. Health Locus of Control
2. Resilience
3. Perceived Social Support

**Criterion Variable**

1. Health Status (Health Related Quality of Life)

Methodology is the key element in carrying out any kind of research. It is of a great importance in any scientific inquiry, as the validity and reliability of the facts primarily depends upon the system of investigation. The various aspects concerning the methodology have been described under the following heads:
Sample

Sample is the portion of the entire population or universe of a certain kind of objects. It is important that the sample must possess almost all the qualities and characteristics of the population or the universe selected for the investigation. The sample of the present study comprised of 200 type 2 diabetic patients. They were selected from the Out Patient Department (OPD) of Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh, through convenient sampling method. The sample consisted of 82 male type 2 diabetic patients, and 112 female type 2 diabetic patients. The mean age of the patients was 52.85 years. The sample was divided into control diabetic patients (HbA1C equal to 6.5) and uncontrolled diabetic patients (HbA1C above 7)

Sample Characteristics

N=200

<table>
<thead>
<tr>
<th>Age</th>
<th>Mean = 52.63 years</th>
<th>S.D = 9.45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration Of Diabetes</td>
<td>Mean = 6.79 years</td>
<td>S.D = 6.10</td>
</tr>
<tr>
<td>HbA1C</td>
<td>Mean = 7.47</td>
<td>S.D = 1.52</td>
</tr>
<tr>
<td>Gender</td>
<td>Males=84 (42%)</td>
<td>Females= 116 (58%)</td>
</tr>
<tr>
<td>Education level</td>
<td>Literate = 107 (53.5%)</td>
<td>Illiterate =97 (48.5%)</td>
</tr>
<tr>
<td>Complications of Diabetes</td>
<td>With diabetes complications= 73 (36.5%)</td>
<td>Without complications of diabetes =127 (63.5%)</td>
</tr>
<tr>
<td>Mode of Treatment</td>
<td>Insulin dependent =50 (25%)</td>
<td>Tablet takers =150 (75%)</td>
</tr>
<tr>
<td>Controlled and Uncontrolled Diabetes</td>
<td>Controlled Diabetics =88 (44%)</td>
<td>Uncontrolled Diabetics = 112 (56%)</td>
</tr>
</tbody>
</table>
INCLUSION CRITERIA

- Diagnosis of type 2 diabetes with treatment initiated at least 1 year prior to the study.
- Patients aged more than 30 years
- Patients who were co-operative for the interview

EXCLUSION CRITERIA

- Patients less than 30 years of age
- Having any co-morbidities (it refers to any chronic disease not related to diabetes but patients having complications were not excluded)
- Pregnancy at the time of the survey
- Patients who were not co-operative for the interview

Tools Used

In the present study the researcher used the following tools to measure the health locus of control, resilience, perceived social support and health status of type 2 diabetic patients.

Demographic information about name, age, gender, education, marital status, HbA1C, mode of treatment, and diabetes complications were also taken along with the questionnaires.

Following tools were used for data collection.

1. Personal Data Sheet
2. Health Locus of Control Scale
3. Resilience Scale
4. Perceived Social Support Scale
5. Health Status Scale.
**Personal Data Sheet (PDS)**

The PDS includes the information under the following major headings: Name of the patient, age, gender, marital status, HbA1C, education, mode of treatment, and diabetes complications.

**Health Locus of Control Scale**

The Multidimensional (MHLC) scale developed by K.A Wallston et al. (1978) consists of 18 items. The scale is composed of three-6 items subscales reflecting the degree to which individuals attribute health outcomes to internal control(6 items), and chance(6 items). Each sub-scale measures an individual’s tendency to believe that health outcomes are due mainly to one’s own behaviour (IHLC), Powerful others such as medical professionals or family (PHLC), or to and chance (CHLC). PHLC and/or CHLC are classified as “external” belief, and IHLC as “internal “belief (Wallston and Wallston 1978). Responses on items are taken on a 6-point rating scale ranging from strongly disagree (1) to strongly agree (6). They have Cronbach alphas in the .60-.75 range and test-retest stability coefficients ranging from .60-.70.

All the items of MHLC subscales were arranged in a random order. Higher subscale scores indicated greater locus of control along that dimension. The internal consistency of the scale ranged between (0.67 to 0.77). In a comparative study of Wallston’s Multidimensional scale of HLC and Lau-Ware Scale of HLC, Marshall et al. (1990) demonstrated the psychometric superiority of the Wallston instrument over the other. Its factor analysis supported categorization of the Wallston items into the proposed dimensions. Its scores are added separately for its three dimensions i.e., Internal control, Powerful others and Chance.
Resilience Scale

To measure resilience, the Resilience scale developed by Waglind and Young (1993) was used. The scale is a 25 item scale of Likert type with possible score range from 25 to 175 the higher the score, the stronger resilience. This scale measures the degree of individual resilience, which is considered a positive personality characteristic that enhances individual adaptation.

Waglind and Young on the basis of literature on resilience arrived at five components as the basis for developing their instrument. Following are the five components.

1. Equanimity is a balanced perspective of one’s life and experiences.
2. Perseverance is persistence despite adversity or discouragement
3. Self-Reliance is a belief in oneself and one’s capabilities
4. Meaningfulness is the realization that life has purpose
5. Existential Aloneness is the realization that each person’s life path is unique.

All the items were scored on a 7-point Likert scale (1= strongly disagree to 7= strongly agree), with a possible scores of 25 to 175. Waglind and Young (1993) reported internal consistency reliabilities for the instrument ranging from .76 to .91 from several of their previous studies. Test –re test reliabilities range from .67 to .84. Correlations from other instruments included measures of morale (.54, .43, and .28), Life satisfaction (.59 and .30), Perceived stress (-.67 and -.32), Symptoms of stress (-.24), depression (-.36) and self esteem (.57).

Scale of Perceived Social Support

Perceived social support was measured by a scale developed by Zimet et al. (1998). The scale is seven point Likert- type scale, ranging from very strongly disagree (1) to very strongly agree (7). It consists of 12 items to measure the perceived adequacy
of support from the following three sources: Family (items 3, 4, 8 and 11), Friends (items 6, 7, 9 and 12) and Significant others (items 1, 2, 5 and 10).

Zimet et al (1988) in the original study administered the MSPSS and the Hopkins Symptom Checklist (HSCL; Derogatis, Lipman, Rickels, Unlenhuth, & Covi, 1974) to 275 male and female Duke University undergraduates. In this initial study, a principal components factor analysis confirmed the subscale structure proposed. In addition, coefficient alpha values ranged from .81 to .90 for the family subscale, from .90 to .94 for the friends subscale, from .83 to .98 for the significant other subscale and from .85 to .91 for the scale as a whole, indicating good internal reliability. Similarly, test–retest values ranged from .72 to .85, indicating good stability. Adequate construct validity was demonstrated in significant correlations between the MSPSS subscales and the Depression and Anxiety subscales of the HSCL. In analyzing gender differences, it was found that women reported receiving significantly greater support than men from friends, from a significant other, and overall.

SF 36v2

Permission was taken from Quality Metric Incorporated to use the SF36v2 in this study. The SF 36 is the most widely used generic instrument to measure health status/health related quality of life. The SF-36 is one of the most widely used general health related quality of life measures and it is sometimes called “Gold Standard” in measuring health status across the World and is considered to be the most relevant to the diabetes population (Bradley, 1996; Garratt et al., 2002; McColl et al., 1995). Based on the SF-36, the SF-36v2 health survey (SF 36v2; Ware, 2000, 2004; Ware et al., 2007) offers significant improvements in the measurement of HRQOL. The survey has been used in various populations, including type-2 diabetics (De Berardis et al., 2005; Paschalides et al., 2004; Trief et al., 2003; Woodcock et al., 2001). The MOS SF-
36 v.2 has established content, criterion and construct validity. The latter was assessed using the Quality of Well-Being Scale, Sickness Impact Profile, and Katz Activities of Daily Living scale, Duke Health Profile, Nottingham Health Profile, Functional Status Questionnaire, Modified Health Assessment Questionnaire, and the Shortened Arthritis Impact Measurement Scales (McHorney et al., 1993). Published reliability statistics have exceeded the minimum standard of 0.70 recommended for measures used in group comparisons in more than 25 studies (Tsai, Bayliss, & Ware, 1997); most have exceeded 0.80 (McHorney et al., 1994; Ware et al., 1993).

This questionnaire has eight domains, viz Physical Functioning (PF), Role Physical (RP), Bodily Pain (BP), General Health (GH), Vitality (VT), Social Functioning (SF), Role Emotional (RE), and Mental Health (MH). The ‘physical functioning’ domain measures performance of physical activities such as running, lifting and carrying groceries, climbing stairs, walking etc. Low scores indicate significant limitations in performing physical activities while high scores reflect little or no such limitations. Role-Physical includes measures for example, of limitation or time reductions in capacity for work or other activities and the kind of work which can be undertaken. High scores indicate little or no problems with work or other daily activities stemming from physical problems. ‘Bodily pain’ covers the intensity of pain, and the extent to which pain interferes with normal activities. Low scores indicate high levels of pain that impact normal activities, whereas high score indicates no pain and no related impact on normal activities. ‘General Health’ relates to respondents’ view and expectations on their health. High scores represent better general health. ‘Vitality’ relates to energy level and fatigue, and addresses subjective well-being. Low scores indicates feelings of tiredness and being worn-out, high scores indicate feeling full of energy all or most of the time. ‘Social Functioning’ addresses health related impacts on
the quantity and quality of social activity. The high scores indicate that the individual performs normal social activities without interference from physical or emotional problems. ‘Role-Emotional’ assesses the effect of mental health on time spent at work or other activities, and the amount and degree of care devoted to work or the performance of other activities. Low scores on this scale reflect problems with work or other activities as a result of emotional problems. High score reflect no such limitations due to emotional problems. ‘Mental Health’ covers depression, anxiety, loss of behavioral/emotional control and psychological well-being. Low scores on mental health are indicative of frequent feelings of nervousness and depression, whereas high scores indicate feelings of peace, happiness, and calm. Self-Evaluated Transition item was not used in the scoring. Ten items were reverse scored. Few items needed Recalibration for this purpose Quality Metric Scoring Software version 3 was used. Scoring was done using Quality Metric Scoring Software version 3. Domains were scored from 0-100. Higher score represents better health status.

**Procedure**

Permission to conduct the research was taken from the concerned Hospital authority and participants. The data were collected by the researcher. Personal data sheet (PDS) and four questionnaires namely Health Locus of Control scale, Resilience Scale, Perceived Social Support and SF36v2, were administered on the patients. Each respondent took almost 25-30 minutes in answering all the questions. They were assured that their responses would be kept strictly confidential and would be used exclusively for research purpose.

**Method of Data Analysis**

For determining the effect of health locus of control, resilience and perceived social support on health status, multiple regression analysis (step-wise), and
independent samples t-test were used to compare the differences of demographic variables. The analysis has been done by using Statistical Package for Social Sciences (SPSS) version 16

**Ethical Considerations**

The following ethical issues were fulfilled for the present research study:

**Confidentiality and Anonymity**

In this research confidentiality and anonymity were maintained. The information given was kept secret and safe and was not used unfairly to compromise the research work. The subjects were convinced that the results will have no personal consequences against them.

**Voluntary Participation**

Participation was voluntary no one was forced to participate. There was no payment for completing the survey.

**Withdrawal**

Participants were free to withdraw anytime they feel like without any penalty.