

## **A STUDY TO ASSESS THE QUALITY OF LIFE IN TYPE II DIABETES MELLITUS PATIENTS USING APPRAISAL DIABETES SCALE IN TERTIARY CARE TEACHING HOSPITAL.**

**Satish S.<sup>1</sup>, Devika M. Nirmal\*<sup>2</sup> and A. R. Shabaraya<sup>3</sup>**

<sup>1</sup>Associate Professor, Department of Pharmacy Practice, Srinivas College of Pharmacy,  
Mangalore, Karnataka-574143.

<sup>2</sup>Student, PharmD, Department of Pharmacy Practice, Srinivas College of Pharmacy,  
Mangalore, Karnataka-574143.

<sup>3</sup>Professor and Head, Department of Pharmacy Practice, Srinivas College of Pharmacy,  
Mangalore, Karnataka-574143.

Article Received on  
20 July 2021,

Revised on 10 August 2021,  
Accepted on 30 August 2021,

DOI: 10.20959/wjpr202111-21577

### **\*Corresponding Author**

**Devika M. Nirmal**

Student, PharmD,  
Department of Pharmacy  
Practice, Srinivas College of  
Pharmacy, Mangalore,  
Karnataka-574143.

### **ABSTRACT**

The Appraisal of Diabetes Scale (ADS) is a 7-item self-report scale evaluating the individual's appraisal of his or her diabetes. The purpose of the study was to assess the quality of life (QOL) in diabetes mellitus using Appraisal Diabetes Scale (ADS). The present study was a prospective observational study which involved in 100 patients with Type II Diabetes Mellitus was conducted in a tertiary care hospital in Mangalore. Patients of age  $\geq 18$  years and diagnosed with type II diabetes mellitus for  $\geq 6$  months (with and without comorbidities) were enrolled in the study. The sociodemographic and clinical characters were noted in the self-designed proforma. The QOL was assessed by ADS. Participants met inclusion criteria were enrolled in the study.

Majority of study participants were age range of 40-60. When analysing 7 variables with have 5point scale in ADS the first variable was related to influence of diabetes on routine that is how upsetting is having diabetes for them, 45% of the participants before intervention found having diabetes extremely upsetting them whereas 44% of the patients after intervention not at all felt upset. Observing control on DM, 45% of the patients had no control before intervention and 4% had total control. When observing self-assurance, it was noted that 6% of the patients before intervention has uncertainty in life due to diabetes and 60% of them had no uncertainty with diabetes. 4<sup>th</sup> variable was self-prediction on DM over

several years, 35% of the participants before intervention are expected to worsen their diabetes over the years when compared to 8% of the patients after interventions. Voluntary effect is one of the major criteria to have QOL in DM, this was measured with 5<sup>th</sup> variable suggest that 80% of the participants believe that achieving good diabetic control due to individual effort as compared to other factors before intervention and other 80% of the patients after intervention felt that the effect on QOL is due to their effort and the other factors. While perceiving individual effectiveness in coping with DM, it was noted that participants before intervention (70%) agreed that they are not at all effective in coping up with the diabetes whereas 25% participants are effectively coping up with diabetes after intervention. Usually, Chronic disease interfere with achieving life goals, 7<sup>th</sup> variable collected informed viz. to what degree does the DM influencing it were identified. 98% (slight amount (6%), moderate amount (50%), large amount (28%), extremely large amount (14%)) of the patients before intervention felt that diabetes get in their way of developing their life goals and 96% (not at all (55%), slight amount (20%), moderate amount (15%), large amount (6%)) after intervention could achieve their life goals. The study concludes that QOL in DM patients before intervention was low which suggest that clinical pharmacist intervention can play a major role to increase the quality of life in Diabetes Mellitus patients.

**KEYWORDS:** Appraisal Diabetes Scale (ADS), Type II Diabetes Mellitus, Quality of Life.

## INTRODUCTION

The physical component, mental, cogitative component, psychological and social component are the four components affecting the Quality of Life in any diabetes patients.<sup>[1]</sup> Combinations of micro- and macro vascular complications and genetic risk factors are still dominant in patients even though their health-related quality of life is decreased. Through patient education we can reduce the burden of diabetes and improve the patient outcome, as to the quality of life. The QOL is very dominant because it is a major tool to forecast an individual's capacity to control the disease and maintain durable health and well-being.<sup>[2]</sup> The Appraisal of Diabetes Scale (ADS) is a 7-item self-report scale to assess the patient's appraisal of his or her diabetes which is the indicator of QOL. Participants rate each question on a 5- point scale. The particular scale's author states that the ADS can be concise as a relatively quick (5 minute) screening tool to check a patient's adaptation to diabetes or risk for objection with a treatment regimen. The test is easily directed to the patient (written or oral form) and is simple to score and elucidate.<sup>[3]</sup> The smaller the total score, the more

positive the appraisal program. Thus, lower scores are superior. An analysis of the items suggests that the scale does monologue one important aspect of diabetes-specific HRQOL, the impact of diabetes on psychological functioning, although quite incisively.<sup>[3]</sup> The clinical pharmacist intervention program is one of the effective ways in improving the clinical outcome and the patients QOL with type 2 diabetes mellitus.<sup>[4]</sup>

## MATERIALS AND METHODS

**Study design:** A prospective cross-sectional study to assess the quality of life in type 2 diabetes mellitus using ADS.

**Study site:** The study was conducted in tertiary care teaching hospital in Mangalore.

**Study duration:** The study was conducted for a duration of 6 months from January 2021 to June 2021.

**Sample size:** The study was limited for a sample of 100 based on the time schedule allotted for the project including other circumstances.

**Sample method:** Data collection form, Appraisal Diabetes Scale, interventions including educational tool viz Patient information leaflet.

**Ethical clearance:** The study protocol was approved by the Institutional Ethics Committee [IEC]. (RefNo: SIEC/SIMS and RC/2021/03/05).

### Study criteria

**Inclusion criteria:** Patients selected were above the age of 18 years and taking medications for Type II Diabetes Mellitus during the period of the study.

**Exclusion Criteria:** Patients below the age of 18 years and patients of either pregnant or lactating category.

**Source of data:** Data(s) for the study were collected using data collection form from the patients and patient case files from the General Medicine Department and Endocrinology Department.

### Study method

#### Preparation of Informed Consent Form/ Patient information leaflet

Informed consent form was prepared in English, Malayalam and Kannada and same were used. Before selection of subjects, the consent form was orally explained to the participants before filling it and non-verbally by taking help of caregiver (when needed) and staffs who are well known to the patients and made them understood. In the study, only the contributors

desired to fill ICF were included. Patient Information Leaflet was prepared in English and was explained to them.

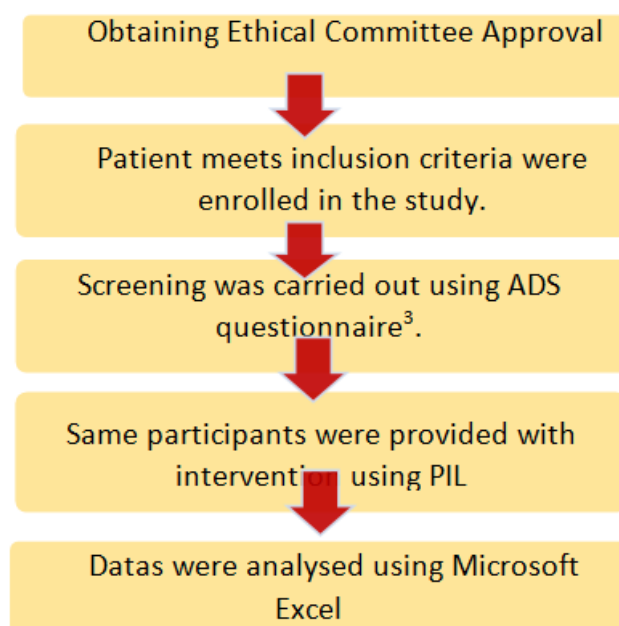
### Intervention Study

The same participants participated at pre- and post-test, Pre-test was considered as before intervention and post-test as after intervention. During intervention period educational intervention was given by UC using Patient Information Leaflet and QOL was identified using ADS was scored in both pre- and post-test.

### Data(s) Collection

Data(s) were collected using data collection form with the aid of ADS and through direct interaction with the patient.

### OPERATIONAL MODALITY



### RESULT

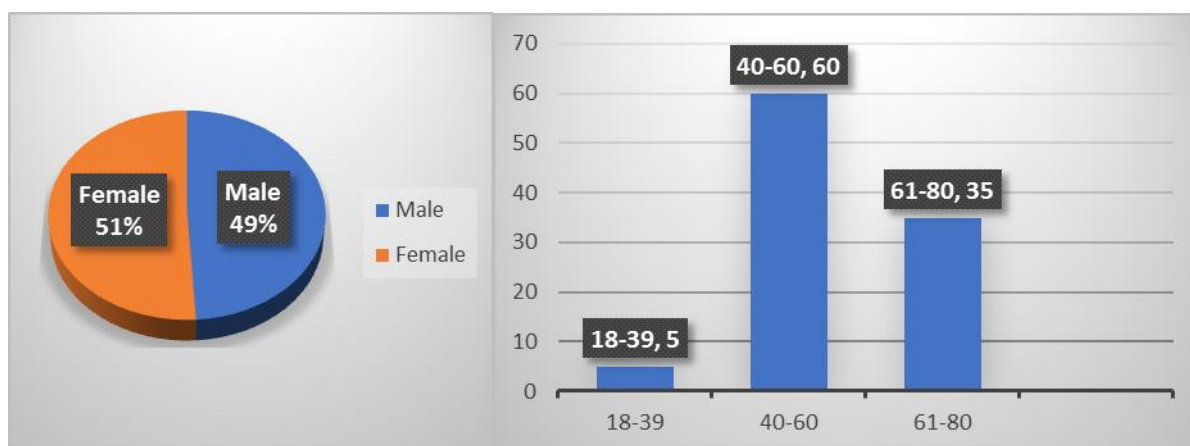
#### Demographic details of the study participants

A total of 100 patients participated in present study. 49% of participants were males and 51% were females. The highest percentage of age group was 40-60 years (60%) followed by 61-80 (35%) and age group of 30-39(5%). In general, obese persons experience significant impairments in quality of life as a result of their obesity, with greater impairments associated with greater degrees of obesity. Obesity is associated with significantly reduced QOL in

patients with diabetes, present study also measured BMI, out of the total, 98% of the patient has a BMI ranging from 18.5-24.9 which is normal or healthy weight and 2% of the participants accounts for overweight (25.0-29.9).

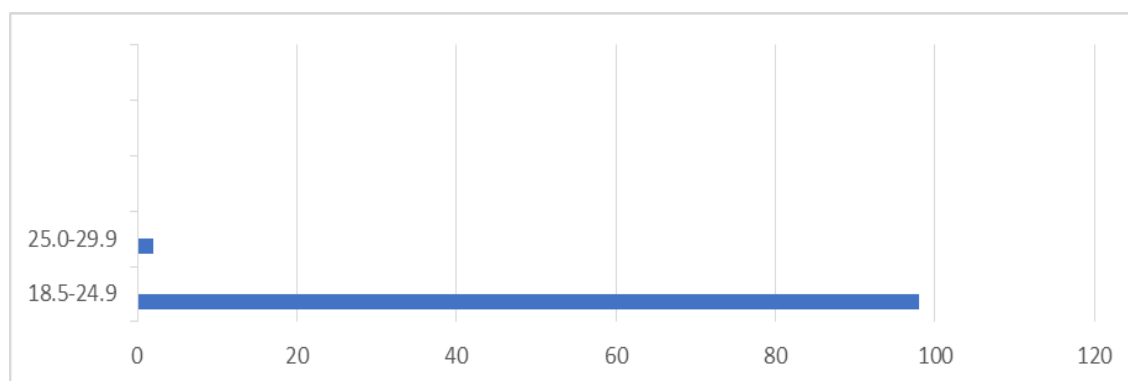
**Table 1: Demographic details of the study participants.**

Characteristics	Number	Percentage (%)
<b>Gender</b>		
Male	49	49
Female	51	51
<b>Age (in years)</b>		
18-39	5	5
40-60	60	60
61-80	35	35
<b>BMI</b>		
18.5-24.9	98	98
25.0-29.9	2	2



**Fig. 1: Gender.**

**Fig. 2: Age distribution.**



**Fig. 3: Body Mass Index (BMI).**

**Appraisal diabetes scale (ADS)**

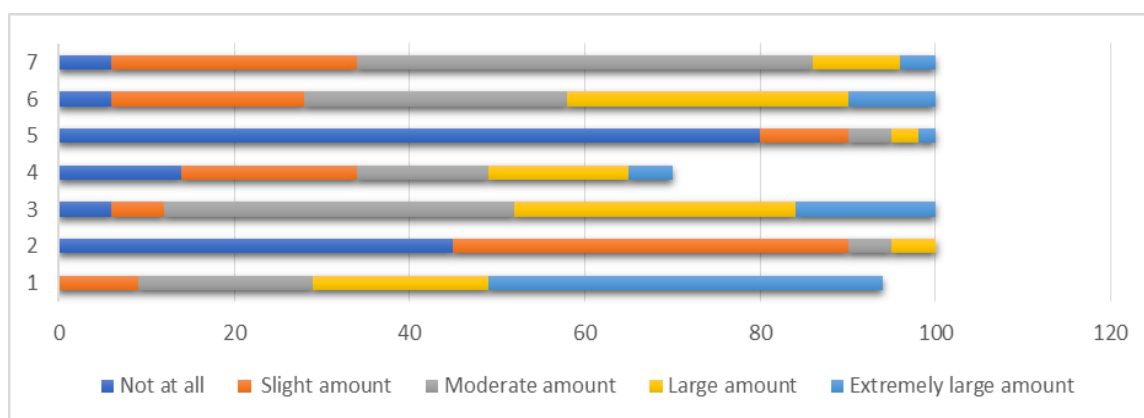
Quality of life in diabetes mellitus patients was identified from ADS Scale. ADS is an incisive as a relatively quick (5mins) screening tool to examine a patient's adjustment to diabetes or risk for noncompliance with a care regimen. When analysing 7 variables with have 5point scale in ADS the first variable was related to influence of diabetes on routine that is how upsetting is having diabetes for them. 45% of the participants before intervention found having diabetes extremely upsetting for them whereas 44% of the patients after intervention not at all felt upset with diabetes. Observing control over diabetes, 45% of the patients had no control over the diabetes before intervention and 4% had total control. When observing self-assurance, it was noted that 6% of the patients before intervention has uncertainty in life due to diabetes and 60% of them had no uncertainty with diabetes. 4<sup>th</sup> variable was related to self-prediction on DM over several years. 35% of the participants before intervention are expected to worsen their diabetes over the years when compared to 8% of the patients after interventions.

Voluntary effect is one of the major criteria to have QOL in DM, this was measured with 5<sup>th</sup> variable suggests that the 80% of the participants believe that achieving good diabetic control due to individual effort as compared to other factors before intervention and other 80% of the patients after intervention felt that the effect on quality of life is due to their effort and the other factors. While perceiving individual effectiveness in coping with DM, participants before intervention (70%) agreed that they are not at all effective in coping up with the diabetes whereas 25% participants are effectively coping up with diabetes after intervention.

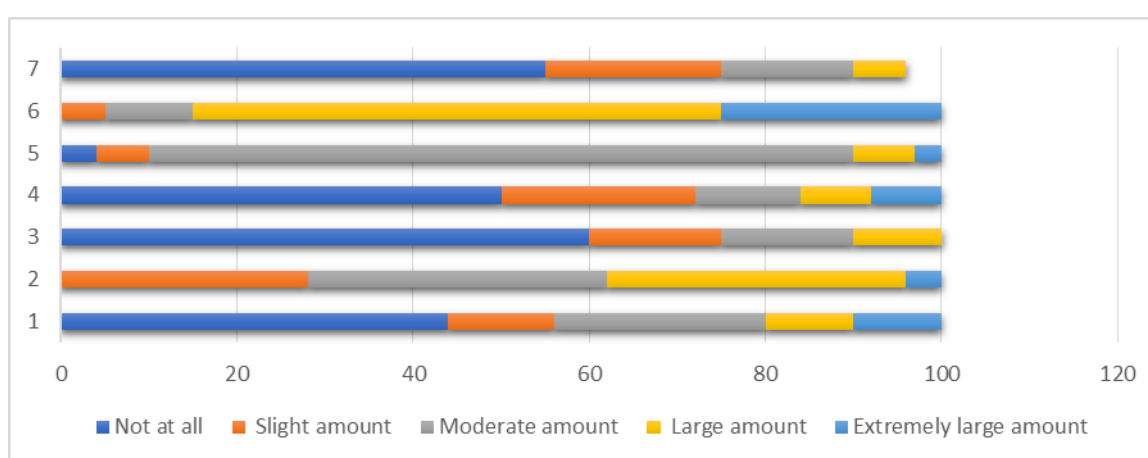
Usually Chronic disease interfere with achieving life goals, 7<sup>th</sup> variable collected informed viz. to what degree does the Diabetes Mellitus influencing it were identified, 98% (slight amount (6%), moderate amount (50%), large amount (28%), extremely large amount (14%)) of the patients before intervention felt that diabetes get in their way of developing their life goals and 96% (not at all (55%), slight amount (20%), moderate amount (15%), large amount (6%)) after intervention could achieve their life goals.

**Table 2: Appraisal Diabetes Scale.**

		<b>Before Intervention.</b>	<b>After Intervention</b>	
<b>Variable</b>	<b>Constant</b>	<b>Percentage (%)</b>	<b>Percentage (%)</b>	<b>Percentage Change (%)</b>
1. How upsetting is having diabetes for you	a. Not at all b. Too slightly upsetting c. Moderately upsetting d. Very upsetting e. Extremely upsetting	0 9 20 26 45	44 12 24 10 10	44 3 4 16 35
2. How much control over your diabetes do you have?	a. Not at all b. Slight amount c. Moderate amount d. Large amount e. Total amount	45 45 5 5 0	0 28 34 34 4	45 17 29 29 4
3. How much uncertainty do you currently experience in your life as a result of being diabetic?	a. Not at all b. Slight amount c. Moderate amount d. Large amount e. Extremely large amount	6 6 40 32 16	60 15 15 10 0	54 9 25 12 16
4. How likely is your diabetes to worsen over the several years?	a. Not likely at all b. Slightly likely c. Moderately likely d. Very likely e. Extremely likely	14 20 15 16 35	50 22 12 8 8	36 20 3 8 3
5. Do you believe that achieving good diabetic control is due to your effort as compared to factors which are your control?	a. Totally because of me b. Mostly because of me c. Partially because of me and other factors d. Mostly because of other factors e. Totally because of other factors	80 10 5 3 2	4 6 80 7 3	76 4 75 4 1
6. How effective are you in coping with your diabetes?	a. Not at all b. Slightly effective c. Moderately effective d. Very effective e. Extremely effective	70 19 5 4 2	0 5 10 60 25	70 14 5 56 23
7. To what degree does your diabetes get in the way of your developing life goals	a. Not at all b. Slight amount c. Moderate amount d. Large amount e. Extremely large amount	2 6 50 28 14	55 20 15 6 4	53 14 35 22 10



**Fig. 4: Response of Type 2 DM before intervention.**



**Fig. 5: Response of Type 2 DM after intervention.**

## DISCUSSION

The Appraisal Diabetes Scale (ADS) is a effective tool for evaluating the individual's appraisal of his or her diabetes which is the indicator of quality of life.<sup>1</sup> Accused rate each statement on a 5- point scale. The scale's author state that the ADS can be perceptive as a relatively quick (5 minute) airing tool to examine a patient's modification to diabetes or risk for noncompliance with a care regimen. The test is easily accomplished (written or oral form) and is modest to score and interpret. The lesser the total score, the more constructive the appraisal strategy. Thus, inferior scores are better.<sup>[3]</sup>

With the aid of ADS become easy to understand the hideous consequence of diabetes on patient's lives. Diabetic's QOL becomes shoddier when complications start to progress or comorbidities coexist. Even a minute occurrence of diabetes worsens a person's quality of life (QOL).<sup>[1]</sup> The QOL evaluation is considered as prime measure of outcome in chronic disease control. Education on Awareness of diabetes mellitus had more influence on manage

the condition and enhance the quality of life.<sup>[2]</sup> The factor that was confidently and importantly correlated with QOL was the patient's adherence to diabetes – related self - support activities such as proper diet, exercise routine and glycaemic control.<sup>[5]</sup>

Present study suggests that, in the first variable it was found that a smaller number of participants felt upset during diabetes after intervention. When observing self-restraint over diabetes it was noted that patients after intervention were higher in number. High number of patients after intervention had no experience with uncertainty in their life as a result of being diabetic. Almost half of the patients after intervention does not feel that the diabetes would worsen over several years. Volunteering effect is high in patients after intervention. There has been an increase in coping up with diabetes in patients after intervention. More than half of the participants felt that diabetes does not interfere in achieving their life goals.

A PIL is an educational element to hand down patient education concerning a disease, medications and lifestyle modifications for prominent patients outcomes.<sup>[6]</sup> PIL was found to be adequate in improving quality of life in diabetes at altered level.<sup>[7]</sup>

The results of the study demonstrated that the patients who were provided after intervention reported overall excellent diabetes related quality of life. Our study shows the importance of quality of life with the help of ADS scale which shows better patient adjustment to the disease.

## CONCLUSION

Quality of life is an important parameter in diabetes treatment modality. The study concludes that QOL in diabetes mellitus patients before intervention was low. In generally QOL can be improved not only because of pharmacological therapy, also non-pharmacological management of disease can also help patients to improve quality of life. Education on awareness of diabetes mellitus had more influence on manage the condition and enhance the quality of life.

## ACKNOWLEDGEMENT

We are thankful to all individuals who were involved in the research.

## REFERENCE

1. Aikaterini Trikkalinou Athanasia K Papazafiropoulou, Andreas Melidonis. Type 2 diabetes and quality of life. World Journal Diabetes, 2017; 8(4): 120-129.

2. Vivek Bhanubhai Prajapati, Raushan Blake, Leelavathi Dinesh Acharya et al. Assessment of quality of life in patients using the modified diabetes quality of life -17 questionnaire. *Brazilian Journal of Pharmaceutical sciences*, 2017; 53(4): 18-44.
3. Carey M. P, Jorgensen R. S, Weinstock R. S, Sprafkin R. P, Lantinga L. J, Carnrike C. L. M, Jr, Baker M. T, & Meisler A. W. Reliability and validity of the appraisal of diabetes scale. *Journal of Behavioral Medicine*, 1991; 14: 43-51.
4. Paulomi M Sudhir. The significance of measuring health related quality of life in type 2 diabetes mellitus. *International Journal of Diabetes in Developing Countries*, 2014; 34(2): 59-60.
5. Romulus Timar , Iulian Velea , Octavian M azilu . Factors influencing the quality of life perception in patients with type 2 diabetes mellitus. *Patient Prefer Adherence*, 2016; 10: 2471-2477.
6. Santosha Vooradi, Leelavathi D Acharya, Shubha Seshadri, G Thunga, K Vijayanarayana. Preparation, Validation and user testing of patient information leaflets on Diabetes and Hypertension. *Indian J Pharm Sci.*, 2018; 80(1): 118-125.
7. V. N. Harikiran, Dixon Thomas, Giri Raja Sekhar, Ram Keshav Reddy, Y. Padmanabha Reddy. Impact of Patient Information Leaflet (PIL) for Diabetes Mellitus counselling in rural South India. *International Journal of community Pharmacy*, 2011; 4(3): 18.
8. Shabaraya A. R, Vishnusharma M, Rajendran SD, Suresh B. The Role of Patient Education on the Quality of Life of Asthma Patients -A Controlled Study. *INDIAN DRUGS – BOMBAY*, 2007; 44(2): 132.
9. Bela Patel, Bhavit Oza, Kamlesh Patel, Supriya Malhotra, Varsha Patel. Health related quality of life in type 2 diabetic patients in Western India using World Health Organization Quality of Life – BREF and Appraisal of Diabetes Scale. *International journal of diabetes in developing countries*.2014; 34(2): 100-107.
10. Thomas E Burroughs, Radhika Desikan Brian M Waterman Debra, Janet McGill. Development and validation of the diabetes quality of life brief clinical inventory. *Diabetes Spectrum-diabetes journal*, 2004; 17(1): 41-49.
11. Li CHENG, Xiao -mei LI, Cui-xia GAO, Rong HUI, Junling YANG, Yu-ning WU. The status and influencing factors of the Appraisal of Diabetes – related stress among diabetic inpatients. *Chinese Journal of Nursing*, 2013; 8: 34-40.
12. Thomas M Gill, Alvan R Feinstein. A critical Appraisal of the quality of life measurements. *Jama*, 1994; 272(8): 619 -626.
13. Kolotkin R L, Meter K, Williams G.R. Quality of life and obesity. *Duke University*

Medical center, 2001; 2(4): 219-229.

14. Mark A Hlatky, Sheng – Chia Chung, Jorge Escobedo, William Hillegass et.al. The effect of obesity on quality of life in patients with diabetes and coronary artery disease. American Heart Journal, 2010; 159(2): 292-300.