

# Quality of Life and Compliance of Patients with Type 2 Diabetes Mellitus who Receive Oral Hypoglycemic Agents versus Insulin Therapy

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## ABSTRACT

*In Latin, the word diabetes means “flow through” and mellitus means “honey”, and clinically, it is characterized by the excess of blood sugar or glucose in blood and urine instead of getting converted into glycogen. Need for the study: The International Diabetes Federation 2007 stated that diabetes mellitus currently affects 246 million people worldwide and is expected to affect 380 million by 2025. “A comparative study was conducted to assess the quality of life and compliance among patients with type 2 diabetes mellitus who receive oral hypoglycemic agents versus insulin therapy at KMCH, Coimbatore.” The objective was to compare the quality of life (QOL) and compliance of patients with type 2 diabetes mellitus who receive oral hypoglycemic agents versus insulin therapy. Descriptive research design and non-probability convenient sampling technique were adopted for this study. Instruments consisted of demographic proforma, Ferrans and Powers Quality of Life Index–Diabetes Version III to assess QOL, and diabetes mellitus compliance assessment scale prepared by the investigator. Data were collected and analyzed using descriptive and inferential statistics. Discussion: The mean QOL–social and economic dimension score of respondents with oral hypoglycemic agents versus insulin therapy were 27.91 and 15.57, respectively. The results of this study revealed that respondents those who were on OHA had high QOL when compared to respondents with insulin therapy. The mean QOL–psychological/spiritual dimension of respondents with OHA versus insulin therapy were 27.61 and 15.61, respectively. This shows that the respondents with OHA have high QOL in psychological/spiritual dimension when compared to respondents with insulin therapy. The respondents who receive oral hypoglycemic agents have high QOL and compliance when compared to respondents who receive insulin therapy.*

**Keywords:** compliance, diabetes, hypoglycemic, quality of life

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## INTRODUCTION

The way you think, the way you behave, the way you eat, can influence *your life by 30 to 50 years*

Deepak Chopra

Diabetes mellitus is well known to the human beings from the pre-historic times onwards. It was first identified by Egyptians about 3500 years ago. The

Ayurvedic physicians Charaka and Sushruta described that the patient with diabetes mellitus passes sweet urine in large amount, that is, rain of honey. So they named diabetes mellitus as “Madhumeha” [1].

There are many facts that are coming to light after we become aware of diabetes

mellitus statistics, which includes one person in the world is dying of diabetes mellitus for every 10 seconds and there will be two new diabetic cases in the world being identified for every 10 seconds [2]. The types of diabetes mellitus include type 1 diabetes mellitus, type 2 diabetes mellitus, gestational diabetes mellitus and maturation-onset diabetes mellitus. Among these, type 2 is the most common form of diabetes mellitus [3]. It is usually called as age-onset or adult-onset diabetes mellitus, and this form of diabetes mostly occurs in people who are obese and those who are not doing exercise [4]. It is considered as a milder form of diabetes mellitus because of its slow onset and usually it can be controlled with proper intake of diabetic diet and oral hypoglycemic agents [5, 6]. If the blood sugar level is not controlled with diet and oral hypoglycemic agents, insulin injections are necessary to maintain the blood sugar level [7].

### **Need for the Study**

Coffey et al. (2002) reported that the chronic hyperglycemia of diabetes mellitus is associated with long-term damage, dysfunction and failure of various organs especially the eyes, kidneys, nerves, heart and blood vessels [8]. The chronicity of diabetes and potential for serious complications often result in significant financial burden, decreased quality of life (QOL) and major lifestyle changes for patients and their families [9].

Ramachandran (2004) revealed that, as many as, 37% of patients with diabetes mellitus suffer at least one microvascular complication, and at least 13% have more than one complication [10]. In a study of 3010 patients with diabetes mellitus, the prevalence of microvascular complications are: retinopathy was 23.7%, nephropathy was 5.5%, neuropathy was 27.5%, and prevalence of coronary artery disease (CAD) was 11.4% and peripheral vascular disease (PVD) was 4%. [11].

### **Statement of the problem**

A comparative study to assess the QOL and compliance among patients with type 2 diabetes mellitus who receive oral hypoglycemic agents versus insulin therapy at KMCH, Coimbatore.

### **Objective**

To compare the QOL and compliance of patients with type 2 diabetes mellitus who receive oral hypoglycemic agents versus insulin therapy.

### **Assumption**

The QOL is influenced by illness and its treatment.

### **REVIEW OF LITERATURE**

Redekop et al. (2002) conducted a study on health-related QOL (HRQOL) and treatment satisfaction in Dutch patients with type 2 diabetes mellitus. The sample size for their study was 1348 [12]. They used a generic instrument to measure the HRQOL, and Diabetes Treatment Satisfaction Questionnaire was used to assess the treatment satisfaction of patients with type 2 diabetes mellitus. Results of their study showed that patients with type 2 diabetes mellitus without complications had high QOL when compared to patients with complications [13].

Yolanda et al. (2000) conducted a study between adherence to drug treatment and the QOL in patients with type 2 diabetes mellitus. A comparative study on a random sample of 238 patients with type 2 diabetes mellitus was selected [14]. The study was carried out over one year in four family medicine units of the Mexican Institute of Social Security in Mexico. The patient's knowledge regarding their medical prescription and attitudes to treatment adherence was measured through a structured questionnaire [15]. The QOL was measured by using WHO QOL questionnaire. Results of their study showed that there was no association

between QOL and treatment adherence behavior [16].

**MATERIALS AND METHODS**

Descriptive research design and non-probability convenient sampling technique were adopted for this study. The study was conducted at Outpatient Department of Diabetology at KMCH, Coimbatore. The sample size comprised 160 patients between 40 and 60 years. Eighty patients consumed oral hypoglycemic agents and another 80 were on insulin therapy. Patients with microvascular and macrovascular complications and receiving both OHA and insulin therapy were excluded from this study.

**Development of Tool for Data Collection**

Tools consisted of demographic proforma, Ferrans and Powers Quality of Life Index–Diabetes Version III were used to assess QOL. The tool consisted of two parts with 34 items: Part 1: how satisfied is you with, and Part 2: how important to you is diabetes mellitus compliance assessment scale [17] (figure 1). The questionnaire had 30 items which included diet with 6

items, medication with 6, exercise with 3 items; habits with 3 items, foot care with 6 items and follow-up with 6 items.

**Data Collection**

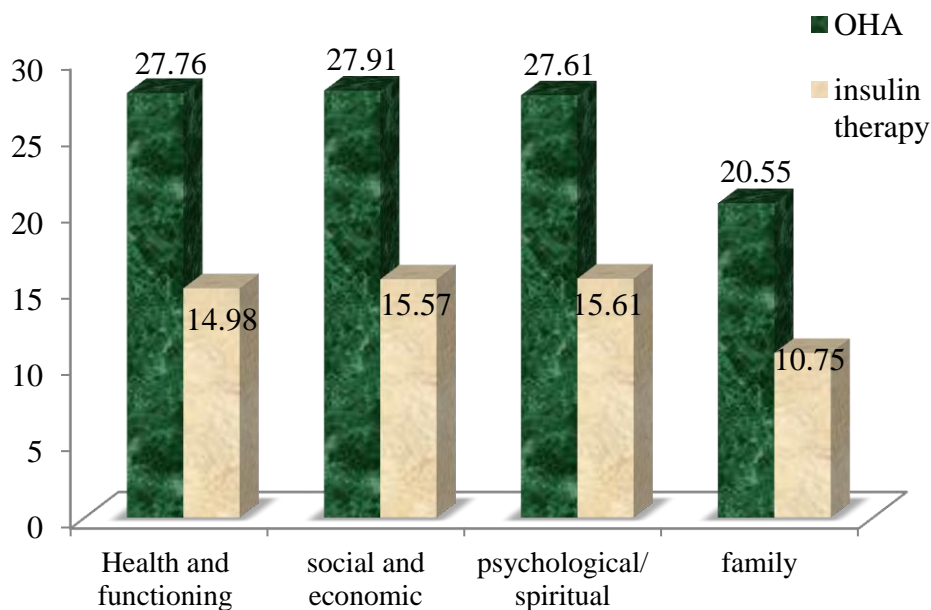
Self-administered questionnaires were used for assessing the QOL and compliance. The respondents took average time of 30–45 minutes to answer the questionnaire.

**Data Analysis and Interpretation**

The collected data were and analyzed using descriptive and inferential statistics.

There is a significant difference in compliance of patients with OHA when compared to insulin therapy in diet, medication, exercise, foot care and follow-up. There is no significant difference in compliance of patients with OHA when compared to insulin therapy in habits.

**Comparison of Quality of Life of Patient’s with OHA versus Insulin Therapy**



*Fig. 1. Comparison of QOL of respondents with OHA versus insulin therapy according to dimension.*

### Analysis and Interpretation

This study shows that the compliance has influence on QOL. If the patient had high compliance, then the QOL of respondents was also high. The respondents who receive oral hypoglycemic agents have high QOL and compliance when compared to respondents who receive insulin therapy as given in table 1.

**Table 1.** Comparison of Compliance of Respondents with OHA versus Insulin Therapy According to Each Domain.

Item	Groups	Mean	SD	t-Value
Diet compliance	OHA	14.63	1.95	20.64*
	Insulin therapy	7.77	2.24	
Medication compliance	OHA	13.61	2.05	18.79*
	Insulin therapy	6.72	2.55	
Exercise	OHA	5.89	1.55	7.27*
	Insulin therapy	4.20	1.55	
Habits	OHA	6.22	1.25	2.77(NS)
	Insulin therapy	5.40	2.34	
Foot care	OHA	13.63	1.89	13.81*
	Insulin therapy	8.75	2.53	
Follow-up	OHA	13.35	1.80	15.70*
	Insulin therapy	7.53	2.77	

### LIMITATIONS

- [1] This study was limited to only literate people who could read and write Tamil or English.
- [2] This study was conducted only in outpatient department.

### RECOMMENDATIONS

- (1) A similar study can be replicated in other settings.
- (2) A similar study can be conducted with a large number of population.
- (3) Similar study can be conducted as a longitudinal study.
- (4) A standard protocol can be established to improve the QOL.

### CONCLUSION

The respondents with oral hypoglycemic agents have good QOL in health and

functioning dimension, social and economic dimension, psychological dimension, family dimension, and in follow-up when compared to respondents those who receive insulin therapy. There was no association exist between age, sex, educational status, marital status, type of family, area of residence and duration of illness with respect to compliance. This study shows that the compliance has influence on QOL. The respondents who receive oral hypoglycemic agents have high QOL and high compliance when compared with respondents who receive insulin therapy.

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**APPENDICES**

**Quality of Life Index© Diabetes Version – III (Ferrans And Powers)**

**How Satisfied Are You With?**

Sl. no.	Components	Very Dissatisfied	Dissatisfied	Slightly Satisfied	Moderately Satisfied	Satisfied	Very Satisfied
1.	Your health?						
2.	Your health care?						
3.	The amount of energy you have for everyday activities?						
4.	Your ability to take care of yourself without help?						
5.	Your ability to control your blood sugar?						
6.	The changes you have had to make in your life because of diabetes (such as diet, exercise, taking insulin or diabetes pill, checking blood sugar)?						
7.	The amount of control you have over your life?						
8.	Your chances of living as long as you would like?						
9.	Your family's health?						
10.	Your children?						
11.	Your family's happiness?						
12.	Your sex life?						
13.	Your spouse, lover, or partner?						
14.	Your friends?						
15.	The emotional support you get from your family?						

16.	The emotional support you get from people other than your family?						
17.	Your ability to take care of family responsibilities?						
18.	How useful you are to others?						
19.	The amount of worries in your life?						
20.	Your neighbourhood?						
21.	Your home, apartment, or place where you live?						
22.	Your job (if employed)?						
23.	Not having a job (if unemployed, retired, or disabled)?						
24.	Your education?						
25.	How well you can take care of your financial needs?						
26.	The things you do for fun?						
27.	Your chances for a happy future?						
28.	Your peace of mind?						
29.	Your faith in God?						
30.	Your achievement of personal goals?						
31.	Your happiness in general?						
32.	Your life in general?						
33.	Your personal appearance?						
34.	Yourself in general?						

**Diabetes Compliance Assessment Scale**

Sl. No.	Item	ALWAYS 3	OFTEN 2	RARELY 1	NEVER 0	SCORE
	<b>Diet</b>					
1.	Do you include cereals in your diet?					
2.	Do you follow the dietician’s advice in fruits and vegetable consumption?					
3.	Do you avoid sweets in your daily food?					
4.	Do you take your food regularly?					
5.	Do you carry sugar or candy when you travel?					
6.	Do you follow the diet counselling advices in consuming fried items and calorie requirements?					
	<b>Medication</b>					
7.	Do you take the medications (OHA/Insulin) half an hour before food?					
8.	Do you continue taking medications if your blood sugar level is normal?					
*9.	Do you skip the dose of medicine if you have forgotten?					
*10.	Do you take the skipped dose of medicine along with the next due?					
*11.	Do you increase the dose of medications by yourself if you have consumed more sweet items?					
*12.	Do you consume any other medicines instead of allopathic treatment?					
	<b>Exercise</b>					
13.	Do you exercise for at least 30 minutes every day?					
14.	Do you avoid exercising during the peak action time of the drugs/insulin?					
15.	Do you consume snacks after exercise?					

<b>Habits</b>						
*16	Do you smoke now?					
*17	Do you consume alcohol now?					
*18	Do you have habit of tobacco chewing?					
<b>Foot Care</b>						
*19	Do you walk bare footed?					
20.	Do you wash your foot with soap and water daily?					
21.	Do you inspect your foot daily for any wound/ ulcers?					
22.	Do you dry the wet between toes after washing foot?					
23.	Do you wear well-fitting sandals?					
24.	Do you cut the nails regularly?					
<b>Follow-Up</b>						
25.	Do you check your blood sugar level as per Dr's order?					
26.	Do you go for regular check up to your doctor?					
27.	Do you go for eye check up every 6 months?					
28.	Do you test your urine for sugar and acetone level as per doctor's advice?					
29.	Do you visit cardiologist as per your doctor's advice?					
30.	Do you go for dental check up every 6 months?					

Note: \* denotes reverse scoring.