

# Non-Adherence To Diabetic Treatment And Its Effect On Glycemic Control, Study At A Rural Hospital Of Tiruchirappalli, Tamilnadu,India

P S, R N

## Citation

P S, R N. *Non-Adherence To Diabetic Treatment And Its Effect On Glycemic Control, Study At A Rural Hospital Of Tiruchirappalli, Tamilnadu,India*. The Internet Journal of Health. 2010 Volume 13 Number 1.

## Abstract

**Objective:** To study the Non-Adherence of the diabetic patients to the medical management in terms of diet, exercise and drugs and its effect on glycemic control. **Materials and Methods:** One hundred diabetic patients, randomly selected, excluding juvenile diabetes and gestational diabetes; age ranging between 30 – 75 years were interviewed using a standardized questionnaire. **Results:** The adherence was good with drugs & poor with exercise. Adherence was higher in males than in females. Among the 81(81%) patients following diet, exercise and drugs, 32(39%) had good adherence, 41(51%) and 8(10%) had fair and poor adherence respectively. All the eight (100%) patients with poor adherence had poor glycemic control, while 33(80.5%) patients with fair and 6(18.75%) patients with good adherence had poor glycemic control. The awareness was slightly better in the group with positive family history. The number of patients having regular practice of monitoring blood glucose level, blood pressure and weight was 74(74%), 46(46%) and 52(52%) respectively. **Conclusion:** The study confirms that good adherence to diabetic management is the cornerstone for good glycemic control and to ultimately reduce its complications. The study reveals the necessity of knowledge<sup>6</sup> for the patients about the disease and its progress.

## INTRODUCTION

Diabetes mellitus is one of the alarming non communicable medical and public health problems threatening India's health scenario. World Health Organization (WHO) predictions put the figure at 40 million diabetic Indians by 2010 and 60 millions by 2025. Adherence is affected by many factors related to the patient and the disease<sup>1</sup>. The developed countries have a good diabetic education program which includes the treating physician, a diabetic nurse, a diabetic educator, a diabetic counsellor, a dietician which are all lacking in a developing country<sup>2</sup>. This in turn reflects as poor patient adherence to diabetic management in developing countries. Non-adherence to treatment protocols is of particular interest and significance in the diabetic population. The reasons for the patient's non-adherence<sup>1</sup> to therapy should be explored. The diabetic treatment regimen requires active attention to various areas such as diet, exercise, drugs and self monitoring of blood glucose.

## MATERIALS AND METHODS

The study was carried out randomly among diabetic patients who visited the medicine out patient department in Chennai

Medical college Hospital & Research centre, Tiruchirappalli, Tamilnadu, India from December 2010 to May 2011. A proper Ethics approval from the Institutional Ethics Committee of Chennai Medical College Hospital & Research Centre was obtained. One hundred (100) diabetic patients were included in the study, after excluding the patients with type<sub>1</sub> diabetes and gestational diabetes. Among the patients included, there were 56 male and 44 females. The age of the patients ranged between 30–75 years.

On the day of visit to the out patient department, a standardized questionnaire covering the educational level, family history, life style factors, degree of adherence to physician's advice, medications and complications if any, was completed by an interview with the patients. The questionnaire also included a column for the patients to express their knowledge about diabetes mellitus and its associated complications, which was helpful for the attitude analysis of the subjects. From the patient's case reports complete details about their previous blood glucose levels, associated diseases and diabetic complications were noted. For analyzing the patients, the rate of adherence was classified into 3 categories such as good, fair and poor .

**ADHERENCE WITH DIET:**

- Good – strictly following the dietary schedule
- Fair – often did not following the dietary schedule
- Poor – did not follow at all.

**ADHERENCE WITH EXERCISE:**

- Good – walking minimum for 30-60 min/day at least for 3-4 days/week.
- Fair – walking for minimum of less than 3 days in a week.
- Poor – did not going for walk at all.

**ADHERENCE WITH DRUGS:**

- Good – taking all medications properly.
- Fair – missing 2-4 dosages per month.
- Poor – missing more than 4 dosages per month.

**RESULTS**

Among the 19(19% ) patients following Medical Nutritional Therapy, only 6 (31%) patients were in good adherence category, whereas patients with fair and poor adherence were 11(58%) and 2(11%) respectively. All the six(100%) patients with good adherence had their FBS level below 110mg/dl while 8 out of 11(73%) with fair adherence and all the 2(100%)patients with poor adherence had their FBS level > 110mg/dl.

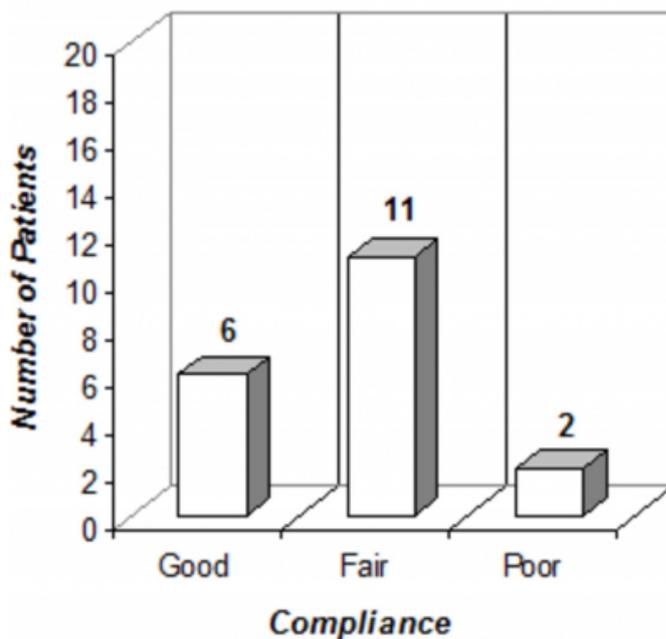
Among 81(81% ) patients following diet, exercise and drugs, 32(39%) had good adherence,41(51%) had fair adherence and 8(10%) had poor adherence. All the eight (100%) patients with poor adherence had their FBS level >110mg/dl , while 33(80.5%) patients with fair adherence and 6(18.75%) patients with good adherence had their FBS level >110mg/dl.

Adherence was higher in males than in females<sup>1</sup>. The awareness was slightly better in the group with positive family history<sup>5</sup>. Among 31 patients who were addicted to smoking, 23 had reduced and 8 had stopped smoking and among 43 patients, who were alcoholic, 33 had reduced and 10 had stopped consuming alcohol after diagnosis of diabetes. The number of patients having regular practice of monitoring blood glucose level<sup>7</sup>, blood pressure<sup>4</sup> and weight<sup>8</sup> was 74(74%), 46(46%) and 52(52% ) respectively. The number of patients who were regular with periodical follow-

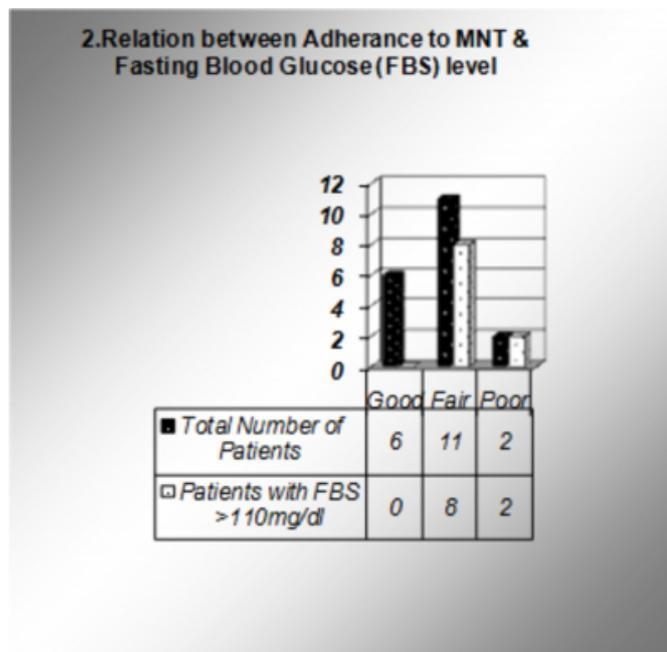
up, Ophthalmic and Dental check-ups were 69(69%), 22( 22%) and9(9%) respectively. The awareness about the foot care and skin care was present in 5 patients(5%) and 2 patients (2%) respectively. In the diet,exercise,drug group, out of 32 patients with good adherence, only 4(12.5%) patients had developed complications and all the 8(100%) patients with poor adherence had developed complications<sup>3</sup>. Among 27 patients with diabetes for 5 to 10 years, 10 (37%) had developed complications. Among 81 patients, 52 patients were under treatment with oral hypoglycemic drugs and 29 had insulin along with oral hypoglycemic drugs.

**Figure 1**

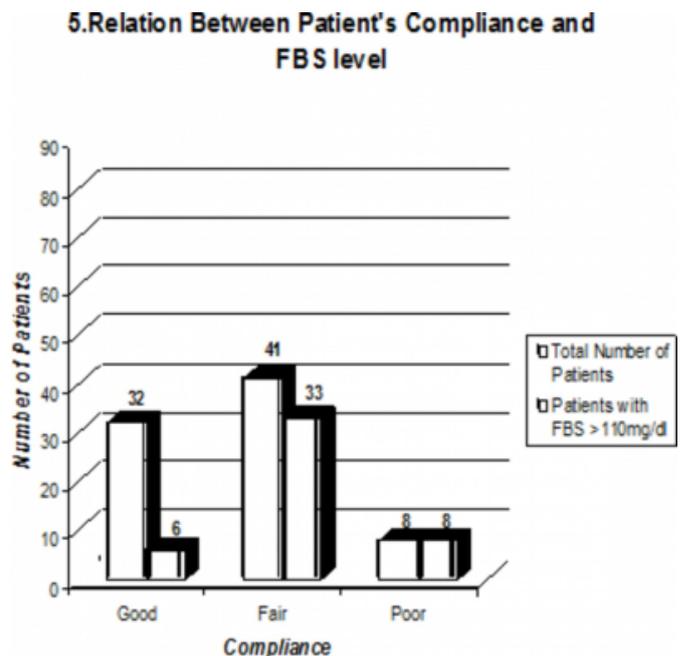
**1.Compliance among patients prescribed with Medical Nutritional Therapy (MNT)**



**Figure 2**

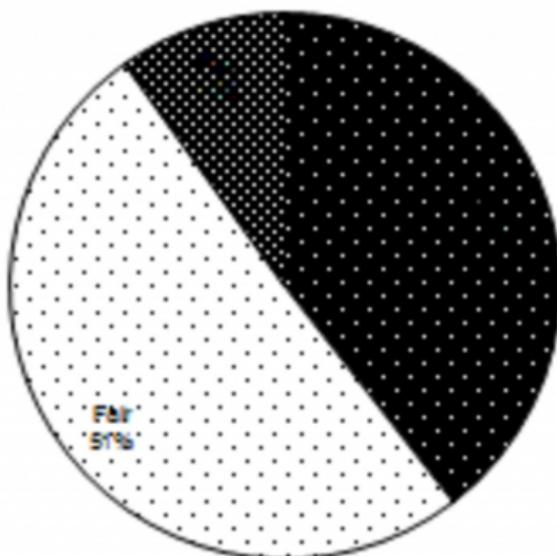


**Figure 4**



**Figure 3**

**4.Adherence among patients prescribed with diet,exercise and drugs**



**DISCUSSION**

The study confirms that adherence to diabetic management results in a good glycemic control and will reduce its complications. Patients under Medical Nutritional Therapy, if they have a good adherence to diet and exercise<sup>8</sup>, have a better chance of avoiding drugs. The extent of adherence with diet, exercise, and drugs seems to be in the order of drugs, diet and exercise<sup>1</sup>. Adherence is maximum is for drugs and adherence with exercise is very poor especially in developing countries like India. The need for good adherence to maintain a good glycemic control is essential to prevent or minimize the complications. The males swing to extremities in adherence whereas the females have a uniform intermediate adherence and have to be counselled for better adherence. Family history of diabetes mellitus creates a better awareness of diabetes. Higher levels of family support and greater self-efficacy are associated with higher levels of diet and exercise self-care. The awareness<sup>6</sup> about blood glucose monitoring<sup>7</sup> is a good indicator for the self care of diabetes mellitus. The awareness about blood pressure monitoring and weight monitoring is also important for the control of diabetes and its complications. The risk of complications<sup>3</sup> is inversely proportional to the degree of adherence.<sup>1</sup> The chronicity<sup>1</sup> of the disease in years has a direct relationship with the incidence of complications.

**CONCLUSION**

The study confirms that good adherence to diabetic

management is the cornerstone for good glycemic control and hence to reduce its complications. The diabetes education<sup>2</sup> program, in developing countries will raise the awareness about the importance of controlling diabetes and the adherence to diabetic management.

### References

1. M.S.Khattab, A.Abolfotouh,M.Y.Khan, M.A.Humaidi & Y.M.Alkaldi: Compliance and control of diabetes in a family practice setting, Saudi Arabia. *Eastern Mediterranean Health Journal*;1999;Volume 5:755-765.
2. A.Asha, R.Pradepa, V.Mohan: Evidence for benefits from diabetes education program. *International. J. Diab.Dev.Countries*; 2004;Volume 24
3. Diabetes control & complications research group. *N Engl J Med*;1993; 329: 977-86.
4. John R.White,Jr Pharm D, PA-C: Home Blood Pressure Monitoring and Diabetes. *Clinical Diabetes*; 2004; vol 22:1 28-31
5. Lonnie K.Wen, PhD, Marvin D. Shephard, PhD., Michael L. Parchman, MD,MPH: Family support, diet & exercise among older Mexican Americans with Type 2 diabetes. *Diabetes Educ*; Nov/Dec 2004; Volume 30
6. N.M.Kamel, Y.A.Badawy, N.A El-Zeiny & I.A.Merdan: Sociodemographic determinants of management behaviour of diabetic patients ,Diabetics knowledge of the disease and their management behavior. *Eastern Mediterranean Health Journal*; 1999;5: 963-973
7. KarterAJ,Ackerson LM,DarbinianJA,D agostino RB,Liu J: Self-monitoring of blood glucose levels and glycemic control: the Northern California Kaiser Permanente Diabetes registry. *Am j Med*;2001 Jul;111(1):1-9.
8. Samuel Klein,Nancy F Sheard,Xavier Pi:Weight management through lifestyle modification.*Diabetic Care*; Aug 2004; 27 no.8: 2067-73
9. Joan N Kalyango,Erisa Owino,Agatha P Nambuya: Non-adherence to diabetes treatment at Mulago Hospital in Uganda: prevalence and associated factors. *Afr Health Sci*; 2008 June; 8(2): 67-73.
10. Yusuff KB, Obe O, Joseph BY:Adherence to anti-diabetic drug therapy and self management practices among type-2 diabetics in Nigeria. *Pharm World Sci*. 2008 Dec;30(6):876-83. Epub 2008 Sep 11.

**Author Information**

**Prabhu Shankar. S**

Associate Professor of Medicine, Department of Medicine, Chennai Medical College Hospital & Research Centre

**Ramya. N**

Assistant Professor of Medicine, Department of Medicine, Chennai Medical College Hospital & Research Centre