



RESEARCH ARTICLE

EFFECT OF PSYCHOLOGICAL COUNSELING IN OVERCOMING FEAR OF SELF INJECTING AND SELF TESTING AMONG TYPE 2 DIABETIC PATIENTS ON INSULIN INITIATION

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ABSTRACT

**Background:** The initiation of insulin therapy is often one of the most difficult and important choices that individuals with diabetes have to make. Insulin therapy among Type 2 Diabetic patients (T2DM) often becomes necessary when oral hypoglycemic agents are no longer effective. During the initiation of insulin therapy patient experiences various psychological disturbances which leads to fear of self injecting among self testing. Although the number of studies was limited and identified adverse treatment outcomes in diabetes patients with fear of insulin, self injection and self testing no studies have been focused on overcoming fear of self injecting and self testing and evaluating its impact on glycemic level. Thus, the current study aims at evaluating the effect of psychological counseling in overcoming fear of self injecting and self testing among type 2 diabetic patients on first time insulin.

**Method:** The study conducted among 80 patients with uncontrolled Type 2 Diabetes Mellitus and who were prescribed with first time insulin injection. These patients were randomly assigned to control arm and study arm. The short Diabetes Fear of Injecting and Self-testing Questionnaire (D-FISQ) composed by two subscales that access fear of self injection (FSI) and fear of self testing (FST) was administered individually to all the patients based on the inclusion criteria. In the control arm patients prescribed with first time insulin was counseled by Diabetes Educators and they were administered with DFISQ Questionnaire at baseline and during the follow up visit to the hospital. For patients in the study group, patients prescribed with first time insulin was counseled by Diabetes Educators in addition to Diabetes Education counseling they were rendered with psychological counseling with regular intervals of follow up and was administered with DFISQ Questionnaire at baseline and during the follow up visit to the hospital.

**Result:** The finding highlights that patients on first time insulin injection rendered with diabetes education and followed by psychological counseling had better psychological outcomes in overcoming fear of self injecting and self testing.

**Conclusion:** Thus psychological counseling has to be included as routine management for the patients prescribed with insulin injection for the first time.

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INTRODUCTION

Diabetes is fast gaining the status of a potential epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease (Joshi and Parikh, 2007; Kumar *et al.*, 2013). Historically, insulin has been an underutilized "last resort" option in diabetes management. However, it is becoming increasingly valued because of its ability to promote appropriate levels of glycemic control, lower risk of long term complications (Brunton *et al.*, 2006; Riddle, 2002; United Kingdom Prospective Diabetes Study, 1995, 1998 & 1999).

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Daily self-injecting of insulin and frequent self-monitoring of blood glucose (SMBG) are essential to adequately manage insulin-requiring diabetes. Insulin treated diabetic patients need to inject themselves daily and are required to self test their blood glucose regularly. Although majority of patients are able to integrate this task into their lives, patients prescribed with first time insulin injections don't get used to daily injecting/or self testing and suffer from longer lasting fear of self injecting (FSI) or fear of self testing (FST) (Snoek *et al.*, 1997; Mollema *et al.*, 2000) Patients with FSI and FST are likely to have great difficulty in managing diabetes effectively. Adherence to insulin therapy and self-testing can be quite problematic in a number of patients (Ruggiero *et al.*, 1997; Morris *et al.*, 1997; Evans *et al.*, 1999). A survey (Ruggiero *et al.*, 1997) showed that 97% of insulin-treated diabetic patients

reported to 'always' or 'usually' take their insulin medication as recommended, but for blood-glucose monitoring, 7.2% of the study population indicated that they had never followed their self-testing recommendations over the past month. Various patient-related factors have been identified as important obstacles to optimal self-management. However, it is unknown how often 'non-adherence' in diabetes is related to Fear of self injecting and Fear of self testing. Fear of injecting and self testing is associated with poor glycemic control, clinical complication, psychological co-morbidities and poor general well being among Diabetic population, (Alex *et al.*, 2009) Extreme fear of self-injecting and injection phobia is likely to compromise glycemic control as well as psychological distress (Mollema *et al.*, 2000; Fu *et al.*, 2009). Fear has a negative impact on the treatment of patients with diabetes. Likewise, fear of SMBG (finger prick) can be a source of distress and may affect self-management. Evidence suggests that fear of blood and injury is associated with less frequent self-testing (Berlin *et al.*, 1997; Metzger *et al.*, 2010) and poor glycemic control (Metzger *et al.*, 2010) Paucity of studies have identified poor health care counseling and several factors leading to injection anxiety (De Coninck *et al.*, 2010). In the Diabetes Attitudes, Wishes, and Needs (DAWN) study it is found that more than half of insulin-naïve patients expressed anxiety about starting insulin therapy (Diabetes Attitudes, Wishes, and Needs (DAWN) Study, 2005) and presence of these anxiety symptoms was strongly associated with less self-monitoring, fewer daily insulin injections (Zambanini *et al.*, 1999). In a recent survey of insulin-naïve patients with type 2 diabetes, 28.2% of respondents reported that they would be unwilling to take insulin if it were prescribed<sup>17</sup> Insulin use often involves negative perceptions, both the decision and the therapy may present an emotional and logistical hurdle, leading to patient resistance to treatment (Zambanini *et al.*, 1999; Berlin *et al.*, 1997; Fitzgerald *et al.*, 2000; Hunt *et al.*, 1997).

## MATERIALS AND METHODS

A hospital based prospective follow up study was conducted among 80 consecutive patients with uncontrolled Diabetes Mellitus and who were prescribed with first time insulin injection at tertiary care hospital, North Chennai India. The study population includes all patients aged 30-70 with diabetic duration more of than 2 years. Psychological details pertaining to fear factor on self injection and self testing were recorded accordingly. During the study period 6 patients were dropped from the study and their data were not included in any of the analysis. Patients with T1DM, major psychiatric disorder were excluded from the study. Patients were assigned to control and study arm based on randomization chart. The short Diabetes Fear of Injecting and Self-testing Questionnaire (D-FISQ), composed by two subscales that assess fear of self injection (FSI) and fear of self testing (FST) was administered individually to all the patients based on the inclusion criteria.

### Group-1- Control arm

In the Control arm diabetes education counseling was rendered to the patients prescribed with first time insulin injection by certified diabetes educators. Pre assessment on Diabetes Fear of Injecting and Self-testing was administered using DFISQ questionnaire and post assessment was administered using the similar questions during the follow up visit to the hospital.

### Group-2- Study arm

In the Study arm diabetes education counseling followed by psychological counseling was rendered to the patients prescribed with first time insulin injection by diabetes educators and psychologist. Pre assessment on Diabetes Fear of injecting and Self-testing was administered using DFISQ questionnaire. They were followed up over phone addressing their specific concerns related to fear of self injecting and self testing; post assessment was administered using similar questions during the follow up visit to the hospital.

### Diabetic Fear of Injecting and Self Testing (DFISQ)

DFISQ was administered throughout the study. It consists of 15 questions with two domains which measures the psychometric properties of Diabetes Fear of Injecting and Self-Testing (D-FISQ). SPSS software was used to assess the data.

## RESULTS

A total of 80 patients were included in the study out of which 40 patients were enrolled in the control arm and 40 in the study arm among which 57.50% were male and 42.50% were female in control arm likewise 62.50% were male and 37.50% were female in study arm. Mean age of the control and study arm patients was 52.10 and 52.38 respectively. Gender details of study subjects are shown in Table 1.

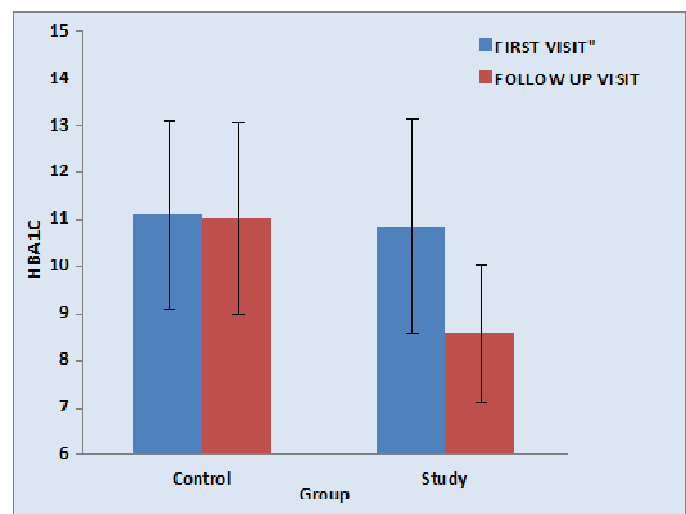


Fig. 1. HbA1C Status of study subjects

The mean score of HbA1C during first and follow up visit among control and study arm is presented in table 2 and shown in fig 1. As represented in table and figure Control arm did not show a significant differences in HbA1C at follow up visit when compared to first visit where as in study arm significant differences were observed in HbA1C ( $p < 0.0001$ ) at follow up visit compared to first visit. Table 3 and figure 2 clearly depicts that in control arm with routine diabetes education counseling no much difference were found in psychological fear measuring self injecting of insulin and self testing of blood glucose. Where as in the Study arm with routine diabetes education counseling followed by psychological intervention addressing various psychological concerns related to fear, had better psychological outcome and significance difference was observed in fear measuring self injecting of insulin ( $p < 0.0001$ )

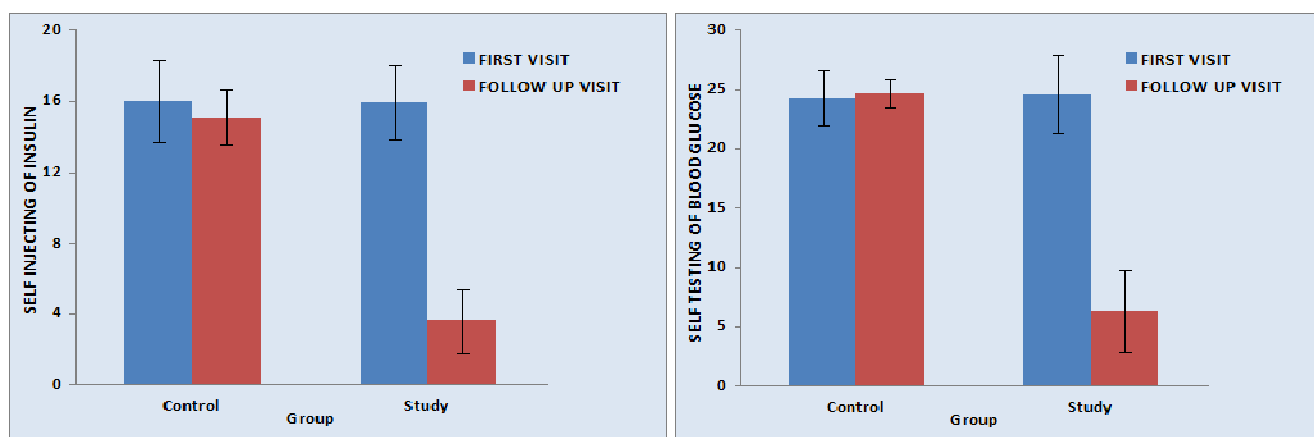


Fig. 2. Bar diagram representing significance changes in fear factor of self injecting and self testing among the study population

Table 1. Gender details of study population

Variable	Group		P-Value*
	Control	Study	
Sex	Male	23 57.50%	0.41
	Female	17 42.50%	
		25 62.50%	
		15 37.50%	

Table 2. Comparison of the study subjects during the first visit and the follow up Visit on the Hba1c status

CONTOL GROUP (N=40)					STUDY GROUP ( N=40)							
HBA1C	First visit		Follow up visit		Change (Mean)	P value	First visit		Follow-up visit		Change (Mean)	P value
	Mean	SD	Mean	SD			Mean	SD	Mean	SD		
	11.10	2.00	11.04	2.04	0.06	0.759	10.85	2.27	8.57	1.45	2.28	0.0001**

\*\*Significant at 0.01 level.

Table 3. Comparison of the study population on their fear factor of self injecting and self testing

Variables	CONTROL (N=40)				STUDY (N=40)			
	Mean	SD	Change (Mean)	P-value	Mean	SD	Change (Mean)	P-value
Fear of self injecting of insulin (Before Intervention)	16.03	2.30	0.95	0.009	15.93	2.12	12.33	0.0001*
Fear of self injecting of insulin (After Intervention)	15.08	1.54			3.60	1.82		*
Fear of self testing of blood glucose (Before Intervention)	24.25	2.36	-0.35	0.423	24.53	3.30	18.25	0.0001*
Fear of self testing of blood glucose (After Intervention)	24.60	1.19			6.28	3.49		*

\*\*Significant at 0.01 level.

Table 4. Representing significant difference in control and study group between male and female at follow up visit

Group (Control)	Male(N=23)		Female(N=17)		P-Value*
	Mean	SD	Mean	SD	
HBA1C	11.00	2.27	11.09	1.76	0.88
Self injecting of insulin	15.00	1.57	15.18	1.55	0.73
Self testing of blood glucose	24.48	1.34	24.76	0.97	0.46
Group (Study)	Male(N=25)		Female(N=15)		P-Value*
	Mean	SD	Mean	SD	
HBA1C	8.56	1.40	8.59	1.58	0.94
Self injecting of insulin	3.52	1.53	3.73	2.28	0.73
Self testing of blood glucose	6.48	3.53	5.93	3.52	0.64

and self testing of blood glucose ( $p < 0.0001$ ). Thus the present finding indicates that the intensive psychological intervention among patients taking insulin injection for the first time paved way for significant glycemic control (HBA1C) by reducing the fear of self testing and self injection. Thus study have highlighted that standard education advice with psychological counseling showed significant improvement in managing diabetes effectively by addressing psychological fear of self

injecting and self testing and due to which glycemic level gets improvised among patients taking first time insulin injection. Table 4 represents that in both the group male showed better compliance in the parameters of HBA1C and self injecting of insulin when compared to female where as in self testing of blood glucose parameter female showed better compliance in study group when compared to male at follow up visit.

## DISCUSSION

Psychological counseling plays an important role in managing diabetes. Psychological problems such as depression, stress and anxiety also have adverse effects in the management of diabetes. T2DM patients prescribed with first time insulin injection suffer from various psychological stages of grief such as denial, fear, anxiety, bargaining and acceptance which leads to poor glycemic control in patients. Psychological problems such as stress and anxiety have adverse effects on fear of self injecting and self testing and in managing diabetes effectively. Injection phobia is a severe and limiting fear of needles classified as an anxiety disorder in the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV-TR). Patients often consider insulin as the last treatment option, as a form of punishment or failure of self control (Mollema *et al.*, 2000) but fear of needles and its association with pain remains as one of the most important factor and this fear has a negative impact on the treatment of patients with diabetes (Fu *et al.*, 2009). Paucity of studies have shown that Psychological barriers and fears such as fear of self-injection and personal phobia about blood, needle and pain as well as perceived side effects also hindered insulin acceptance (Mohamed Azmi Hassali *et al.*, 2014). Fear of injectable therapy is a main concern for many patients (Davida *et al.*, 2015). Individuals with diabetes often feel that insulin is the beginning of the end. They fear taking the injection and feel that there is a stigma associated with insulin and due to which HbA1C gets affected. HbA1C reflects good glycemic control and is one of the important targets for DM patients for reducing the risk of complications (Anneli Rätsep *et al.*, 2010).

The present study evaluated the effect of psychological counseling addressing the psychological fear on self injecting and self testing and to determine its impact on HbA1C among T2DM prescribed with first time insulin injection and this is the first study to analyze the fear factor and to determine whether it changes with intensive psychological counseling. Psychological factors play a major role in diabetes management. The present study finding highlighted that in study group significant improvement was observed in the domains of fear on self injecting and self testing due to which significant reduction in HbA1C was noted, where as in control group, no much significant improvement was observed in the domains of fear on self injecting and self testing due to which no much reduction was observed in HbA1C. Thus, the findings emphasized that psychological counseling showed a better improvement in overcoming fear of self injecting and self testing. Further with the routine diabetes education counseling, fear factor on self injecting and testing remained the same due to which no further improvements was observed in HbA1C. Psychological therapy with routine diabetes education counseling showed significant differences in the domains of fear of self injecting and self testing and due to which significant improvement was observed in HbA1C. Thus, Psychological counseling plays an important role among Type 2 Diabetic patients prescribed with first time insulin injections.

## Conclusion

In India, this is perhaps the first study in the domain of psychological counseling addressing the fear factor of self injecting and self testing and evaluating its impact on glycemic level among patients prescribed with first time insulin

injection. The study highlights the importance of psychological counseling among patients taking insulin injection for the first time. It is also proven that patient offered with routine education counseling followed by psychological counseling has better outcomes in overcoming fear of self injecting and self testing and due to which their HbA1C level gets improvised. Thus the study recommends that patients prescribed with first time insulin injection has to be rendered with psychological support during the initiation of insulin for the betterment of glycemic level and psychological wellbeing.

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## Conflict of Interest

The authors have not declared any conflict of interest

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