

# Evaluation of the Insulin Self-Titration Education Program of Patients with Diabetes

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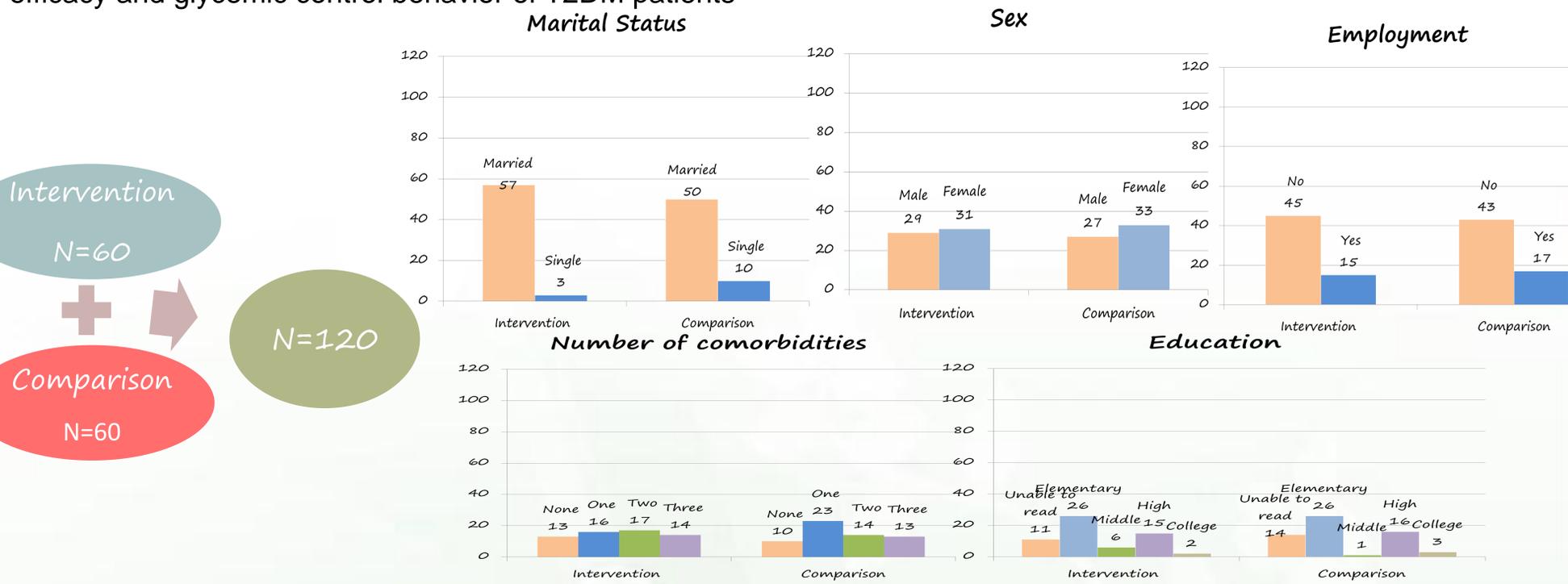
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## Background and Objectives:

Type 2 diabetes mellitus (T2DM) is one of the most common chronic diseases and costly conditions in the world. It is also associated with serious complications and comorbidities. Diabetes mellitus requires continuous care and successful management of this disease cannot be achieved without patients involvement. The effect of educational interventions on self-care is particularly important for glycemic control. Therefore, the aim of this study was to evaluate the effects of an insulin self-titration education program on glycemic control, self-efficacy and self-care behaviors in hospital-based type 2 diabetes out-patients.

## Methods:

A quasi-experimental design was used to examine the effects of self-titration program on insulin treated T2DM. 120 patients were recruited from one district hospital in Central Taiwan, 60 patients were either in the insulin self-titration or in the routine care. Insulin Diabetes Management Self-Efficacy (IMDSE) and Diabetes Self-Care (DSC) questionnaires were used as self-efficacy indicators. Outcomes were determined by changes in HbA1C, fasting blood sugar, self-efficacy and glycemic control behavior of T2DM patients

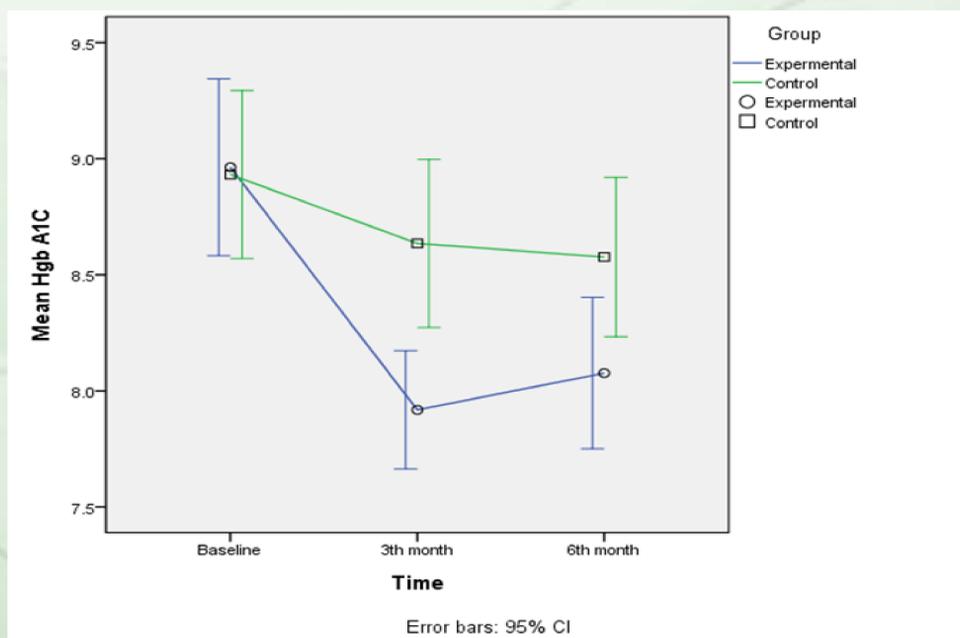


## Results:

The average HbA1C in the interventional group was significantly lower than that in the control group at the third and sixth months after intervention. The difference in HbA1C over time was analyzed by GEE. The results showed that the interaction between group and time was statistically significant (Wald  $X^2 = 15.16$ ,  $p = 0.001$ ). The slope parameter ( $\beta$ ) showed a change in the average hemoglobin, from the baseline to the sixth month, the interventional group was significantly reduced by  $-.53$  (95% CI:  $-.92 \sim -.14$ ) compared with the control group. From the basic test to third month, the interventional group was also significantly reduced compared with the control group  $-.75$  (95% CI:  $-.75$ ). In the sixth month, the self-efficacy and self-care behavior score of the interventional group was significantly higher than the control group ( $t=7.131$ ,  $p<.001$  ;  $t=8.122$ ,  $p<.001$ ).

## Conclusion:

The insulin self-titration education program was an effective tool in glycemic control, self-efficacy and self-care behavior in insulin treated T2DM patients, without increasing adverse events (hyper or hypoglycemia). The professional care providers could use this educational program for improving clinical outcomes.



Changes in Hgb A1C over time from the first to third measure. The data are shown as mean and 95% confidence interval (error bars).

Between-group comparisons on number of hypoglycemia incidents, insulin diabetes management self-efficacy, and diabetes self-care.

Variables	Intervention (n=60)		Comparison (n=60)		t	p
	Mean	SD	Mean	SD		
Number of hypoglycemia incidents	0.33	0.73	0.37	0.66	-.26	.794
Self-efficacy	70.40	7.40	61.29	6.59	7.13	<.001***
Diabetes self-care	69.89	6.79	60.30	6.11	8.12	<.001***

t value, independent t-test; \*  $p<0.05$ ; \*\*  $p<0.01$ ; \*\*\*  $p<0.001$

Insulin Diabetes Management Self-Efficacy (IMDSE)