# Development and Evaluation of a Patient-Oriented Education System for Diabetes management

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摘要

**Abstract**

Purpose

To develop and evaluate a Web-based, patient-orientated diabetic education management (POEM) system.

Methods

The POEM system has been developed to extend hospital patient education by integrating patients' medical care data into their education program components and presenting them on the Web. Since most patients are concerned about their medical care data, the POEM system can provide the incentives for patients to continuously and persistently log in and learn the required knowledge and skills, improving their clinical outcomes. A quasi-experimental method that uses control groups and pretests was used to evaluate the outcomes of the system intervention. We recruited patients with type-2 diabetes and alternatively assigned them to intervention and control groups. We compared laboratory test results including fasting blood glucose, HbA1c, total cholesterol, triglyceride (TG), and HDL between the two groups from the first visit through each follow-up visit. The study period progressed from September 2003 to May 2004 at the Metabolism Center of a medical teaching hospital in Taipei.

Results

In this study, we recruited 274 participants: 134 (57% males and 43% females) in the intervention group and 140 (46% males and 54% females) in the control group. The patients' laboratory test results from the first visit for fasting blood glucose, HbA1c, total cholesterol level, TG, and HDL in the intervention and control groups were respectively 187.54 ± 77.10 and 189.99 ± 73.49 mg/dl, 9.03 ± 2.79% and 8.95 ± 2.23%, 193.29 ± 47.93 and 202.52 ± 58.45 mg/dl, 152.48 ± 70.85 and 157.37 ± 74.88 mg/dl, and 44.97 ± 12.09 and 45.32 ± 12.08 mg/dl. There were three follow-up visits during the study period. We collected laboratory test results of the two groups through each of the following visits and analyzed them using ANCOVA. We discovered a significant difference in fasting blood glucose levels between intervention and control group as early as the first follow-up. At the second follow-up, both fasting blood glucose and HBA1c levels were significantly different between intervention and control group. At the third follow-up, there was a significant difference in fasting blood glucose, HBA1c, and total cholesterol between intervention and control group. We also monitored the number of logins for the patients in the intervention group during the follow-up period. The result showed the patients had consistently logged into the POEM system (about 8.5 ± 3.7 logins per person per month after 3 months enrollment). Thus, the patients in the intervention group had better control of their fasting blood glucose, HbA1c and total cholesterol levels than those in the control group due to the assistance of the system.

Conclusions

The POEM system can help patients control their glucose, HbA1c and total cholesterol levels to manage their diabetes, providing an easy and inexpensive way to extend hospital-based patient education services for community-based continuous patient education.