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Use of Short Message Service (SMS) Reminders to Improve the Attendance Rate of Diabetes-related Multidisciplinary Services in a General Outpatient Clinic: A Randomized Controlled Trial

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Introduction

The multi-disciplinary Risk Assessment and Management Programme (RAMP) for Diabetes Mellitus (DM) patients includes individual and group consultation led by nurses and allied health professionals in general outpatient clinics (GOPCs). Internal data showed the non-attendance rates of various RAMP services could reach 30%, which is a wastage of scarce health care resources. Short Message Service (SMS) reminder was proven to be an effective strategy to reduce non-attendance rate according to systematic review, yet the effect in GOPC and multidisciplinary service appointments remained unknown.

Objectives

To determine whether using SMS reminder in type II DM patients attending GOPC resulted in higher attendance rate of RAMP services when compared to those without.

Methodology

This was a single-centre randomized-controlled study. DM patients booked with more than 1 RAMP service appointments (i.e. scheduled blood taking, individual or group consultation led by nurses, optometrists, dietitians and physiotherapists) were recruited. Subjects were randomized into intervention or control group by random sequence generation with variable block length. The group assignment was blinded to recruiting personnel and outcome assessors. All subjects received appointment slips for the RAMP services. SMS reminders with appointment type, date and time, and clinic contact number for enquiry were sent to patients' mobile phone 24-72 hours before each scheduled appointment in intervention group. Control group received usual care with no reminder. Statistical analysis was done by SPSS.

Result

297 eligible subjects were approached, 15 were excluded and 11 refused to participate. 271 subjects were recruited (response rate 96%). Their mean (\pm SD) age was 63.3 \pm 11.3. Their mean duration of DM was 6.9 \pm 5.3 years with mean HbA1c 7.37 \pm 1.32%. They were randomly assigned to intervention (N=135) or control (N=136) group. 733 appointments (intervention N=372, control N=361) were analyzed. The overall attendance rates were 92.7% in the intervention group and 83.1% in the control group (OR 2.60, 95%CI 1.61-4.19, $p < 0.001$). The number needed to treat was 10.4. The SMS cost for increasing one attendance is only \$6.2. In subgroup analysis, SMS reminders were effective for appointments of nurse complication screening (OR 3.06, 95% CI 1.22-7.66, $p = 0.017$) and retinopathy screening by optometrist (OR 2.73, 95% CI 1.07-7.01, $p = 0.037$).

In conclusion, using SMS reminder was cost-effective to improve the attendance rate of RAMP services and reduce resource wastage.