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## The effects of diabetes self-management support and education through text-messaging (DSMSET) in the health beliefs, diabetes care profile and HbA1C of diabetes mellitus patients

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The study aims to explore the effects of the diabetes self-management support and education through text-messaging (DSMSET) in improving expanded health beliefs, diabetes care profile and in decreasing HbA1C of adult patients with diabetes mellitus through automated sending of SMS. A randomized controlled trial, the research is based on the expanded health belief model that upholds sequential goal-settings to improve predictors of appropriate behavior towards glycemic control of the subjects as biological marker of adherence. The researcher together with Ateneo Java Wireless Competency Center developed DSMSET system, a low-cost, two-way text messaging system designed to deliver self-help, educational messages based on the 9 dimensions of health management and can work with SHINE OS+ enabled systems. A total of 122 eligible subjects from UERM PO Domingo OPD Services Department of Medicine and Sweet Diabetics Club based in CHAMP Wellness Clinic were enrolled. Using simple table random digits, subjects were divided equally to trial arms with n=61 for SMS group and n=61 for non-SMS group. The intervention group received DSMSET intervention for 90 days and was required to reply pre-set codes. Both groups answered two sets of survey questionnaires and blood samples were taken for glycated hemoglobin. Data such as demographics for both groups were also collected using SHINE OS+ at baseline and after 90 days. At follow-up, 110 were subjected to analysis using descriptive and inferential statistics through STATA15 and SPSS23 and were distributed equally. As for the results, the median age of the participants was 64, with 8 out of 10 being female. 54% finished secondary education while the average HbA1C is 7.98. As for the results, total expanded health belief scores (8 constructs), diabetes care profile score, likelihood to take action score of the SMS group increased compared to the non-SMS group with  $377.71 \pm 33.33$  to  $398.65 \pm 30.86$ ,  $P=0.0004$ ;  $84.4 \pm 16.69$  to  $103.13 \pm 14.06$ ,  $P=<0.001$ ;  $26.44 \pm 4.80$  to  $29.31 \pm 3.59$ ,  $P=<0.001$  respectively. Combined expanded health belief scores also showed modest improvement in the SMS group with  $404.15 \pm 34.09$  to  $427.96 \pm 32.38$ ,  $P=0.001$ . For HbA1C however, SMS group only posted ( $-0.01\%$  from  $8.11 \pm 1.21\%$  to  $8.10 \pm 1.41\%$ ,  $P=0.963$ ) decrease in the HbA1C while the non-SMS group have increased HbA1C on average. Generally, SMS group and non-SMS groups registered significant differences statistically across the constructs yet; no significant relationships were established between HbA1C and the predictors for both trial arms at any moment of the study period. In conclusion, DSMSET demonstrated efficacy although health beliefs alone may be not sufficient to take action towards modest glycemic levels.

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