

# The Impact of Diabetes Education and Peer Support upon Weight and Glycemic Control of Elderly Persons with Noninsulin Dependent Diabetes Mellitus (NIDDM)

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**Abstract:** We assessed diabetes education and peer support interventions as facilitators of weight loss and glycemic control in a community sample of 79 elderly persons with noninsulin-dependent diabetes mellitus (NIDDM). Different groups received: education only, education and peer support, and no treatment. Peer support was higher in groups where it was actively facilitated. Weight loss and reduction in level of glycemic control occurred within groups receiving both diabetes education and peer support. (*Am J Public Health* 1987; 77:634-635.)

## Introduction

Noninsulin-dependent diabetes mellitus (NIDDM) is the most common type of diabetes.<sup>1</sup> The majority of individuals with NIDDM are obese.<sup>2</sup> Dietary modification, the treatment of choice for obese persons with NIDDM,<sup>3</sup> is rarely effective.<sup>4-7</sup> The purposes of the current study were: 1) to determine whether supportive behavior could be elicited from elderly peers in a diabetes education class, and 2) to determine the incremental effects upon weight loss and upon the reduction in blood glucose levels when social support is added to diabetes education.

## Methods

Registration for the project was through senior citizen centers or nutrition sites located in four largely rural counties of Oregon. All participants had diabetes mellitus, were not treated with insulin, and had been advised by their health care provider to lose weight. Of the 79 subjects, 80 per cent were female and 20 per cent male. The mean age was 68.2 (SD = 7.2) and initial mean assessments of body weight and level of blood glucose were 165.7 lbs (SD = 36.2) and 57.9 nmoles per fructose equivalent (SD = 14.1).

Three groups were formed: education only (E), (n = 19); education and peer support (E+PS), (n = 32); and control (C), (n = 28). All interventions and assessments were conducted at the senior centers and nutrition sites through which participants had registered. Because the sites were located over a largely rural, four-county area, it was not feasible to randomly assign participants to conditions, so sites were randomized. There were three sites assigned to each condition.

## Interventions

Ten 60-minute education classes were conducted by a registered dietitian. Basic concepts about diabetes and its nutritional aspects served as the foundation for all sessions. E groups received an additional hour of unstructured class time at each meeting. Peer support sessions, also 60 minutes

long, immediately followed for the E+PS groups. The peer support facilitator was trained in group dynamics, and sought to foster peer interaction, focusing on group behaviors critical to self-help groups.<sup>8</sup> For each intervention, eight sessions were held weekly. The ninth and tenth sessions were held during week 12 and week 16, respectively.

## Measures

Glycosylated hemoglobin (GHb) was measured with a colorimetric assay procedure.<sup>9</sup> Weight was measured with a portable scale, calibrated with a standard weight. Level of peer support was measured with an adaptation of the Arizona Social Support Schedule.<sup>10</sup> Other psychosocial variables were measured with an adaptation of the Diabetes Educational Profile.<sup>11</sup> Assessments of all variables was made preintervention, postintervention-1 (week 8), and postintervention-2 (week 16).

## Results

There were no between-group differences in peer support, weight, or level of GHb at preintervention. At postintervention-1 mean peer support levels in group E+PS (67.9, SD = 23.9) were higher than mean peer support levels reported for group E (50.8, SD = 24.9), ( $X_d = 17.1$ , 95% CI:3.1, 31.1). Moderate weight loss and reduction of GHb level occurred in group E+PS, but not in other groups at postintervention-1 (Table 1).

## Discussion

Our data indicate that peer support can be enhanced among elderly persons attending diabetes education classes and it is related to desired changes in health behavior. Group E+PS experienced substantially greater weight loss and an initial reduction in GHb level than group E.

The size of our samples was small and the duration of the interventions was less than optimal to show changes in level of GHb. While GHb changes can be detected at eight-week intervals,<sup>12</sup> a three-month interval may be better.<sup>13,14</sup> A one year follow-up would have indicated whether the interventions had a more lasting impact.

Nevertheless, community-dwelling persons with NIDDM were studied, in contrast to the more typical and less generalizable studies of young insulin-dependent diabetic patients evaluated while they are hospitalized or at a diabetes summer camp.<sup>15,16</sup> Moreover, group E+PS facilitated reductions in weight and GHb, at least on a short-term basis. This finding warrants additional investigation of peer support as an adjunct to diabetes education and other types of patient education. Including a group facilitator on the diabetes education team might increase costs, but the increased efficacy of diabetes education should compensate for the expenditure. With diabetes' annual total economic impact of at least \$14 billion,<sup>17</sup> we should be able to afford investigating procedures that might improve the prognosis for the 5.8 million individuals with diabetes.<sup>18</sup>

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**TABLE 1—Difference Scores and Confidence Intervals for Preintervention, Postintervention-1, and Postintervention-2 Scores within Groups [Education only (E), Education and Peer Support (E+PS), and Control (C)]**

Variables	Preintervention Mean (standard deviation)	Change Pre-postintervention-1 (95% CI)	Change Postintervention-1 to Postintervention-2 (95% CI)
Group E (N = 19) Weight	161.1 lbs. (31.9)	-1.2 lbs. (-2.6, +0.2)	-0.5 lbs. (-1.8, +0.5)
Glycosylated hemoglobin	60.9 nmoles <sup>a</sup> (15.2)	-3.1 nmoles (-7.7, +1.5)	+1.1 nmoles (-1.1, +3.2)
Group E+PS (N = 32) Weight	159.3 lbs. (37.8)	-5.5 lbs. (-6.8, -4.2)	+0.5 lbs. (-0.4, +1.4)
Glycosylated hemoglobin	58.5 moles (14.6)	-3.7 nmoles (-5.7, -0.5)	+2.0 nmoles (+0.9, +3.0)
Group C (N = 28) Weight	164.1 lbs. (31.2)	+0.6 lbs. (-1.1, +1.8)	—
Glycosylated hemoglobin	57.8 nmoles (13.5)	-0.7 nmoles (-2.5, +1.1)	—

NOTE: Postintervention-2 data are not reported for group C.  
<sup>a</sup>nmoles per fructose equivalent.

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