

The Relationship between Diabetes Self-Management Education and High Levels of Comprehensive Diabetes Clinical Care

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Background Information

- The American Diabetes Association (ADA) publishes standards of medical care in diabetes. These standards provide the evidence that supports interventions to manage diabetes and improve diabetes outcomes.
- Diabetes self-management education (DSME) is a collaborative process in which diabetes educators help people with or at risk for diabetes gain the knowledge and problem-solving and coping skills needed to successfully self-manage the disease and its related conditions.

Summary of the Analysis & Results

- 2011 and 2012 Connecticut Behavioral Risk Factor Surveillance System (BRFSS) data were used.
- For this analysis, DSME was defined as answering “yes” to the BRFSS question: Have you ever taken a course or class in how to manage your diabetes yourself?
- BRFSS variables are available for the following ADA-recommended clinical services: annual dilated retinal examination, annual foot examination by a health care professional, at least one A1c test every 6 months, annual flu vaccination, and ever having had the pneumococcal vaccination.
 - High comprehensive diabetes clinical care (CDCC) includes respondents reporting having received four or more of the ADA recommended clinical services.
- Table 1 shows the adjusted odds ratios from the final logistic regression model using CDCC as the dependent variable (modeled for high CDCC).
- **After adjusting for sociodemographic characteristics and healthcare coverage, adults with diagnosed diabetes reporting having had DSME are about 2 times more likely to have high levels of CDCC compared with those who have not had DSME (Table 1).**
- Additionally, in the adjusted model, high levels of CDCC are found among adults with diabetes who
 - are White, non-Hispanic compared with Black, non-Hispanic;
 - are 65 years or older compared with adults 18 to 64 years old; and
 - have healthcare coverage compared with those with no healthcare coverage.

Limitations

- BRFSS data is self-reported and the reliability of the responses are dependent on the respondent’s understanding of the question and ability to recall past events. Other biases may be related to survey length and language. Also, BRFSS only reaches households with telephones.
- The small number of respondents for some sociodemographic groups limits the ability to produce reliable estimates for those population groups.
- Future analyses of high levels of CDCC will aggregate more years of survey data. Only two years of data could be aggregated because of BRFSS methodological changes made in 2011.

Behavioral Risk Factor Surveillance System (BRFSS)

- BRFSS is a state-based system of telephone (landline and cell) health surveys sponsored by the Centers for Disease Control and Prevention (CDC). Respondents are randomly selected adults (aged 18 years or older who do not live in institutional settings) within randomly selected households.



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Table 1. Multivariate Logistic Regression Model of Factors Associated with High CDCC among Connecticut Adults (18+ years) with Diagnosed Diabetes* (N = 1,531), 2011 & 2012 BRFSS data

Respondent Characteristics	Unweighted Number†	Adjusted Odds Ratio	95% Confidence Interval	p
Gender				
Male	671	1.0	reference group	--
Female	860	1.1	0.8-1.5	0.650
Race & Ethnicity‡				
Black, non-Hispanic	180	1.0	reference group	--
White, non-Hispanic	1166	2.3	1.3-3.9	0.003
Hispanic	185	1.7	0.8-3.4	0.160
Age (years)				
18-64	713	1.0	reference group	--
65+	818	2.2	1.6-3.0	<0.001
Educational Attainment				
High School Graduate/GED or Less	750	1.0	reference group	--
Some College	387	1.3	0.9-2.0	0.136
College Graduate	394	1.3	0.9-1.9	0.194
Annual Household Income				
<\$25K	493	1.0	reference group	--
\$25K-74,999	519	1.0	0.6-1.4	0.865
\$75K+	271	0.8	0.5-1.3	0.445
Missing income	248	0.7	0.4-1.2	0.148
Marital status				
Not married/ not a couple	842	1.0	reference group	--
Married or unmarried couple	689	1.4	1.0-1.9	0.053
Healthcare Coverage				
No Healthcare Coverage	92	1.0	reference group	--
Has Healthcare Coverage	1439	3.6	1.7-7.4	<0.001
Diabetes Self-Management Education§				
No DSME	831	1.0	reference group	--
DSME	700	2.1	1.5-2.8	<0.001

*Diagnosed diabetes = respondents who answered “Yes” to the question: “Have you ever been told by a doctor that you have diabetes?” Includes type 1 and type 2 diabetes. Gestational diabetes and prediabetes were categorized as not having diagnosed diabetes. †Numbers may not sum to total due to missing data. ‡Data for non-Hispanic Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaskan Native, other race, or multiracial adults are not reported due to the small number of respondents. §DSME = respondents who answered “Yes” to the question: Have you ever taken a course or class in how to manage your diabetes yourself?

References

1. Johnson TM, Murray MR, Huang Y. Associations Between Self-Management Education and Comprehensive Diabetes Clinical Care. *Diabetes Spectrum*. 2010;23(1):41-46.
2. Connecticut DPH. 2013. Connecticut BRFSS, 2011 & 2012 unpublished data. Connecticut DPH, Hartford, CT.