

Diabetes and Depression: Double Trouble

Carrie L. Washburn, M.P.H.

**Oregon Diabetes Prevention & Control Program
DHS – Public Health Division**

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Why Did We Do This Study?

- **Depression is common**
- **Data suggest increased frequency of depression among those with chronic disease, and diabetes in particular**
- **Depression could interfere with ability to self-manage other illnesses**

Study Methods

- **Behavioral Risk Factor Surveillance System (BRFSS): July 2003 – December 2004**
 - Respondents: non-institutionalized, general population in Oregon, 18+
- **Chronic diseases assessed: arthritis, diabetes, heart disease, and stroke**
- **Telephone callback survey**

Study Measures

- **Depression**
 - **Clinical confirmation in past 12 months**
 - **Ever been treated and currently taking medication**
 - **Active symptoms consistent with major depression in past 2 weeks (Patient Health Questionnaire – 9)**
 - **Composition definition (1 of above 3 criteria)**

Patient Health Questionnaire – 9 (PHQ-9)

- **Standardized, validated measure**
- **Assesses symptoms of major depressive episode as defined in DSM-4**
- **“little interest or pleasure in doing things” or “felt down, depressed or hopeless” must be reported for characterization**

PHQ-9

Over the last 2 weeks, how often have you:

		None	Several days	More than half	Nearly every day
1	had little interest or pleasure in doing things?				
2	felt down, depressed or hopeless?				
3	had trouble falling asleep or staying asleep or sleeping too much?				
4	felt tired or had little energy?				
5	had a poor appetite or ate too much?				
6	felt bad about yourself?				
7	had trouble concentrating?				
8	moved or spoken very slowly? Or the opposite – been very fidgety or restless?				
9	had thoughts that you would be better off dead or of hurting yourself?				

Study Measures, con't.

- **Self-Management**
 - **Knowledge of self-care information**
 - **Confidence to perform self-management behaviors**
 - **Actual self-management tasks**

Self-Management Measure: Knowledge

- **Has a health professional?**
 - **Explained or shown how to get appropriate physical activity**
 - **Given advice about weight**
 - **Explained or shown how to follow a healthy eating plan**
 - **Explained or shown how to take medications**
 - **Explained disease complications**

Self-Management Measure: Confidence

- **How confident are you?**
 - **Get at least 30 minutes moderate physical activity 3+ days/week**
 - **Stay at a normal body weight or lose excess weight**
 - **Follow a healthy eating plan**
 - **Take medications as prescribed**
 - **Do all tasks and activities necessary to manage disease on a regular basis**
 - **Check your blood sugar daily**
 - **Check feet for wounds/sores daily**

Self-Management Measure: Behavior

- **Tasks included:**
 - **Physical activity (met CDC physical activity recommendations)**
 - **Weight control (lose or maintain weight, eating fewer calories, using physical activity)**
 - **Nutrition (5 fruits & vegetables per day)**
 - **Taking medications as prescribed**
 - **Current smoking status**

General Population Comparison for Depression Rates

- **2005 Oregon BRFSS Survey**
 - **4,807 respondents**
 - **Assessed for depression using same measures as callback survey**

Findings

Demographics

- **1638 total respondents**
- **491(30%) with diabetes**
- **Of respondents with diabetes:**
 - **49% female**
 - **81% aged 45 years or older**
 - **16% out of work or unable to work**

Prevalence of Depression in Callback Survey Among Those with Diabetes

- 11% of respondents had active symptoms consistent with depression in past 2 weeks (PHQ-9)**
- 23% of respondents reported clinical confirmation of depression in past 12 months**
- 19% reported currently prescribed Rx for depression**
- Overall, 31% of respondents had depression based on one of these criteria (composite definition)**

Prevalence of Depression and Diabetes

	Callback Survey	2005 BRFSS (general pop'n)
	N = 491	N = 4807
Clinical confirmation in past 12 months	23%	12%
Currently prescribed medication	19%	11%
Active symptoms of depression (PHQ-9)	11%	5%
Composite definition (using above criteria)	31%	17%

Depression and Diabetes

- **Compared to those without depression, those with diabetes and depression were more likely to:**
 - **Report an annual income of <\$15,000***

**Significant difference*

Knowledge about Self-management

- **Levels of knowledge about self-care behaviors generally similar between respondents with and without depression**

Confidence in Self-management

- **Those with depression less confident that they can:**
 - **Get regular physical activity (45% versus 67%)***

**Significant difference*

Self-management Behaviors

- **Those with depression less likely to:**
 - **Engage in vigorous physical activity (4% versus 19%)***

**Significant difference*

Chronic Disease & Knowledge, Confidence and Behaviors

- **Knowledge***
 - Advice about weight control
- **Confidence***
 - Get moderate physical activity
 - Stay at a normal body weight
 - Follow healthy eating plan
 - Take medications as described
 - Do all things necessary to manage condition

**Significant difference*

Chronic Disease & Knowledge, Confidence and Behaviors, con't.

- **Behaviors***
 - **Engage in light physical activity**
 - **Meet CDC physical activity recommendations**
 - **Try to lost weight**
 - **Use physical activity to manage/lose weight**

Limitations

- **Cross-sectional study; self-reported responses**
- **No way to assess depression status of responders vs. non-responders to callback survey**
- **Telephone-based surveys conducted in English and Spanish only**
- **Power of analysis is limited by small numbers of respondents with diabetes and depression**

Conclusions

- **30% of Oregonians with diabetes also suffer from depression**
- **Depression significantly impacts people's confidence and ability to self-manage diabetes and other chronic disease**
- **Differences in self-management confidence and behaviors not attributed to differences in knowledge**
- **Screening for depression, particularly among those with chronic disease, is important**

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Contact:

**Oregon Diabetes Program
Health Promotion & CD Prevention Program
Oregon DHS, Public Health Division
800 N.E. Oregon Street, Suite 730
Portland, OR 97232**

Phone: 971.673.0984

Fax: 971.673.0994

**HPCDP Epidemiologist: Dr. Richard Lemman
richard.f.leman@state.or.us**

Rates of Depression by Chronic Disease – Callback Survey

	Active Symptoms (PHQ-9)	Composite Definition
Diabetes	11%	31%
CVD	13%	34%
Arthritis	10%	30%

Comparison of High vs. Low PHQ-9 Scores among those Classified as Depressed

- Among respondents classified as depressed based on composite measure:
 - 33% considered actively depressed (PHQ-9 score ≥ 5)
 - 67% not actively depressed (PHQ-9 score < 5)

Comparison of High vs. Low PHQ Scores, among those with Depression

	High PHQ-9 Score	Low PHQ-9 Score
<i>Knowledge</i>		
Health professional explained complications of condition in a way they understood	61%	79%
<i>Confidence</i>		
Get physical activity	42%	62%
Follow healthy eating plan	37%	59%
Take medications as prescribed	75%	94%
Do all necessary management activities	41%	73%
<i>Behavior</i>		
Use physical activity to regulate weight	37%	59%

All differences significant at $p < 0.05$

Schematic process - Depression Callback Survey

BRFSS administered July 2003 through December 2004 (n=11,870)

No report of chronic disease

(n=8897)

Self-report of chronic disease (n=2973)

"No" to re-contact
(n=597)

Missing re-contact
(n=105)

"Yes" to re-contact (n=2271)

duplicate #,
Contractor did not call
(n=9)

never called by contract or
(n=126)

not reached or incomplete survey
(n=498)

Complete depression survey
(n=1638)

Diabetes=491

Did not complete survey (n=1335)

Completed depression survey
(n=1638)