



Prediabetes

- Impaired fasting glucose
 - 100-125 mg/dl
- Impaired glucose tolerance
 - 2 hour glucose tolerance test = 140-199 mg/dl
- Elevated glycosolated hemoglobin
 - 5.7 – 6.4%
 - (ADA, 2016)

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Gaps in Current Research

- Study designs and samples
- Lack of information about factors which may be barriers or facilitators to engagement in lifestyle modification among those who are not enrolled in prevention programs
- Lack of information about the needs of individuals with prediabetes in Middle Atlantic states

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Prevalence of Prediabetes in the United States

Year	Source	Estimated Prevalence
2005-2006	National Health and Nutrition Examination Survey (NHANES)	29.6% <small>(Geiss et al, 2010)</small>
2010	Behavioral Risk Factor Surveillance System (BRFSS)	4.4-10.2% <small>(CDC, 2012)</small>
2009-2011	NHANES	36.2% <small>(Bullard et al., 2013)</small>
2010-2012	Centers for Disease Control and Prevention (CDC)	37% <small>(CDC, 2014)</small>

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Purpose

- Describe **characteristics** of individuals in New Jersey, New York and Pennsylvania who self-report a diagnosis of prediabetes
- Describe the **self-management activities** of individuals in these states who self-report a diagnosis of prediabetes
- Explore the **relationships between characteristics and engagement in self-management activities** of individuals in these states with self-reported prediabetes

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Significance

- Lifestyle modification is the primary treatment modality for prediabetes and diabetes prevention.
 - Interventions to support successful self-management fall within the diabetes educator scope of practice (American Association of Diabetes Educators, 2012; American Nurses Association, 2010; Fillman, 2010).

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Methodology

- Secondary analysis of 2013 New Jersey, New York and Pennsylvania BRFSS data
 - Cross sectional, descriptive, correlational study of de-identified data in the public domain
 - Institutional Review Board approval

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Inclusion & Exclusion Criteria

- Respondents in the 2013 BRFSS
 - Adult residents of New Jersey, New York or Pennsylvania
 - Inclusion criteria
 - Self-report a diagnosis of prediabetes or “borderline diabetes”
 - Exclusion criteria
 - Self-report of current pregnancy

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Characteristics of Sample

	n	%
Age: 45-64	228	42.1
Age: ≥ 65	243	44.9
Sex: Female	306	56.6
Race: White only, non-Hispanic	350	73.2
Unmarried	302	56.1%
Annual Household Income: < \$35,000	237	53.9%

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Statistical Analysis

- Power Analysis
- Data Cleaning
 - Missing data: Pairwise deletion
- Descriptive
- Correlational: Pearson’s Chi Square Analysis

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Characteristics of Sample

Body Mass Index	n	%
Underweight ($\geq 12, < 18.5$)	5	1
Normal ($\geq 18.5, < 25$)	100	19.7
Overweight ($\geq 25, < 30$)	192	37.8
Obese (≥ 30)	211	41.5

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Results

	State			
	New Jersey	New York	Pennsylvania	Total
2013 BRFSS Participants				
Total Participants	13,386	8,979	11,429	33,794
Met inclusion criteria	243	131	167	541
% Met inclusion criteria	1.8%	1.5%	1.5%	1.6%

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Characteristics of Sample

	n	%
Non-smoker	440	81.3
Elevated Cholesterol	300	57.7
Hypertension	323	59.7
No Angina/Coronary Heart Disease	479	88.5

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Characteristics of Sample

	n	%
Disability	187	35.4
Health Insurance	495	91.5
Primary Care Provider	497	92.4

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Fruit and Vegetable Intake

Independent Variable	n	χ^2	df	p
Marital Status	492	5.128 Phi -0.102, OR 1.75	1	0.024
Dark Green Vegetable Intake	486	91.759 Phi 0.435, OR 10.8	1	< 0.001
Engagement in At Least 150 Minutes Aerobic Physical Activity/Week	444	11.245 Phi -0.159, OR 1.1	1	0.001

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Self-Management Behaviors

		n	%
Dark green vegetable intake	≥ 1	118	26.7
	<1	324	73.3
Intake of at least 5 fruits/vegetables per day	Yes	78	15.8
	No	415	84.2
Engagement In At Least 150 Minutes/Week of Aerobic Physical Activity	Yes	206	46.4
	No	238	56.6

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Discussion- Characteristics

- Prevalence of prediabetes (CDC, 2012; CDC 2014; Pennsylvania Department of Health, 2012)
- Age (Cowie et al., 2009; Cowie et al., 2010; Holzer, 2009; New York State Department of Health, 2011)
- Race/ethnicity (Cowie, et al., 2009; Cowie, et al., 2010; New York State Department of Health, 2011)
- Comorbidities
 - Overweight & obesity (Gallo et al., 2010; Holzer, 2009; New York State Department of Health, 2011; Zhou, Remsburg, Cafield & Hols, 2012; Zhou & Qi, 2012)
 - Cardiovascular disease (Zou et al., 2010; Taylor, Spence, Rains, Sharma & Pothoff, 2011)
 - Disability (Chen et al., 2012; Koton, Ruber & Nelson, 2012; Lee et al., 2013)

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Physical Activity

Independent Variable	n	χ^2	df	p
Sex	446	6.618 Phi 0.122, OR 1.64	1	0.01
Annual Household Income	377	5.183 Phi -0.117, OR 1.6	1	0.023
Current Smoking Status	446	7.781 Phi 0.132, OR 2.14	1	0.005
BMI: Overweight or obese	419	7.745 Cramer's V= 0.136	2	0.021
Health Insurance	445	3.901 Phi 0.094, OR 2.071	1	0.045
Use of an Assistive Device	445	6.772 Phi 0.123, OR 2.02	1	0.009
Dark Green Vegetable Intake	442	15.52 Phi -0.187, OR 2.33	1	< 0.001
Intake of At Least 5 Fruit/Vegetables Per Day	444	11.245 Phi -0.159, OR 1.1	1	0.001

Discussion- Characteristics

- Health Care Access Barriers (CDC, 2015; National Association of Chronic Disease Directors, n.d.)
- Fruit and vegetable intake (CDC, 2013)
- Physical activity (CDC, 2010)

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Discussion – Physical Activity

- Sex: Female
- Income: < \$35,000
- Health care access barriers: No health insurance coverage (Taylor, Spence, Raine, Shama & Plotnikoff, 2011)
- Current smoker
- BMI: Overweight or obese
- Fruit and vegetable intake < 5 servings per day
 - Dark green vegetable intake < 1 serving per day

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Implications for Practice

- Risk assessment and screening
- Nutrition
- Physical activity
- Management of comorbidities

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Discussion – Fruit/Vegetable Intake

- Marital status: married or partnered
- Dark green vegetable intake: ≥ 1 serving per day
- Physical activity: ≥ 150 minutes per week

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Implications for Education

- Universal Design
- Novel delivery approaches

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Limitations

- Secondary analysis
- Sample

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Implications for Advocacy

- Third party payer coverage for diabetes prevention services

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Recommendations for Future Research

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