NEWS BRIEFING
Population Health Strategies

*moderated by:*
David G. Marrero, PhD
University of Arizona Health Sciences
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Mental Health Disorders and Diabetes Distress Among Adults with Diabetes

Symposium Summary

Mary Beth Weber, PhD, MPH
Emory University
Presenter Disclosures

- Nothing to disclose
Symposium Speakers

• **Dr. Mary de Groot**: The Epidemiology and Impact of Mental Health Disorders among Adults with Diabetes

• **Dr. John W. Newcomer**: Diabetes among Patients with Complex Mental Health Disorders and with Use of Antipsychotic Medications—Implications for Screening and Management

• **Dr. Mark D. Williams**: Caring for the Whole Patient—Best Practices for Managing Mental Health Disorders and Diabetes

• **Dr. Kathryn Evans Kreider**: Diabetes Distress—Epidemiology, Impact, and Treatment
Diabetes

Mental Health
Depression
Anxiety Disorders
Diabetes Distress
Eating Disorders

Biology
Behavior
Treatments
Diabetes and Mental Health Disorders

- Further complicate diabetes management
- Affect mental health presentation
- High rates of cardiometabolic risk factors
- Higher rates of severe secondary complications
- High cost (monetary, time) of managing two chronic disorders
- Premature mortality
- Higher rates of functional disability
Diabetes and Severe Mental Illness

• Antipsychotic medications further increase risk

• Less likely to screened or treated for hyperglycemia

• Less likely to receive the most effective care if they have a cardiovascular event
Diabetes Distress

“...Diabetes distress (DD) refers to the emotional distress associated with the ongoing worries, burdens and concerns that occur when managing a demanding chronic disease like diabetes over time.”

Fisher, Gonzalez, & Polonsky, 2014

Poor self care behaviors, low diabetes self-efficacy, and lack of adherence
Caring for Patients with Diabetes and Mental Health Disorders

• Care is often in silos
• Primary care providers have limited per patient time
• Delays in getting psychiatric care
• Shortage of psychiatrists
Alternative Models are Needed

• Good evidence for improvement:
  o Screening/testing reminders for physicians
  o Psycho-Education of patients
  o Psychiatrists co-located with primary care
  o Care Coordinators
  o Team care model/Collaborative care model
What is needed?

• More research on mental health disorders, diabetes distress and diabetes, particularly:
  o Finding the best models of care
  o In children
  o In low- and middle-income countries
• Better whole-patient care
• Reduction of stigma of mental health disorders
Research Perspectives on Depression and Diabetes

The Stress Hormone Link

Sherita Hill Golden, MD, MHS, FAHA
Johns Hopkins University School of Medicine
Hugh P. McCormick Professor of Endocrinology and Metabolism
Executive Vice-Chair, Department of Medicine
Presenter Disclosures

• Nothing to disclose
Diabetes and Depression: A Common Association in Adults

• Aggregate odds ratio of depression in adults with diabetes compared to those without diabetes: 2.0 (95% CI: 1.8, 2.2)

• Lifetime prevalence of major depression higher in individuals with diabetes (17.5%) compared to those without diabetes (6.8%)

Anderson et al. Diabetes Care, 2001
Traditional Approach to Considering Pathogenesis: Direction of Association

- **Diabetes mellitus**
  - Psychosocial
  - Hyperglycemia
  - Depression

- **DIABETES**
  - New complications
    - Multiple complications
      - Visual impairment
      - Impotence
      - Impaired physical/cognitive functioning
  - Lack of social support
  - Passive coping skills

- **DEPRESSION**

- **HYPERGLYCEMIA**
  - Adverse effects on hippocampus
    - Atrophy (shrinking)
    - Brain cell death
  - Brain region that controls mood and cognition
Diabetes Predicts Development of Depression

- Individuals with diabetes at baseline had a 50% higher risk of developing depression during follow-up compared to those without diabetes

- Independent of differences in diabetes complications, socioeconomic status, and obesity

Golden et al, JAMA, 2008
Depression

Interrelated biological pathways
- Stress hormone axis dysfunction
- Inflammation
- Disrupted circadian (sleep) rhythms

Obesity-promoting Health Behavior

Treatment-related

Diabetes Mellitus

- Hypothalamic-pituitary adrenal axis activation
- Sympathetic nervous system activation
- Increase in catecholamines
- Increase in interleukin-6
- Central obesity
- Insulin resistance

Type 2 DM

Insulin Regulates Glucose Metabolism

Normal insulin action:
- Glucose and other food molecules are metabolized for energy

Abnormal insulin action:
- Insulin resistance, glucose and other food molecules are not metabolized
- No energy!
Depression Predicts Development of Diabetes

- Depression was associated with type 2 diabetes risk factors:
  - Less physical activity
  - Greater calorie intake
  - Higher likelihood of current smoking
  - Higher body mass index
  - High levels of inflammatory markers

- After controlling for these factors, depression was associated with a 21% higher risk of developing type 2 diabetes

Golden et al, JAMA, 2008
Innovative Approach to Depression-Diabetes Association: Shared Risk Factors (“Common Soil”)

- Overt hypercortisolism – leads to development of type 2 diabetes and depression (e.g., Cushings’ Syndrome)
- Shared risk factor hypothesis

Holt RIG, *Diabetes Care*, 2014
So what? Significance and Future Directions

• Modification of the cortisol stress response: a novel approach to primary prevention of Type 2 diabetes (complementary to established measures)

• Collaborative care models that simultaneously treat depression and diabetes will likely improve outcomes for both conditions
Diabetes Risks in U.S. Asian Indian Immigrants Impacted by Adopted Lifestyle Habits

Nitha Mathew Joseph, PhD, RN
University of Texas Health Science Center at Houston
Assistant Professor, Cizik School of Nursing
Presenter Disclosures

• Nothing to disclose
Reason for Study

- Asian Indians are the second largest and fastest growing Asian-American groups (3.19 million) in U.S.
- Greater risk for morbidity and mortality from diabetes and cardiovascular diseases (CVD) than Caucasians and other immigrants in the U.S.
  - Lower rates of participation in physical activity
  - Unhealthy eating habits
- Acculturation-related adopted lifestyle habits increase risks for obesity, diabetes and cardiovascular diseases (CVD)
  - NO national study among Asian Indians
Study Goal

- Examined the role of lifestyle behaviors, specifically physical activity and dietary behaviors, for increasing the risk for diabetes and cardiovascular diseases due to acculturation in Asian Indians using Diabetes in Asian Indians (DIA) national study data.
Methods

- **National Study**: Seven U.S. urban sites
- Sample size: 1,038 adult Asian Indians (average age, 48.5 years)
- Physical activity and dietary behaviors: Revised Health Promotion Lifestyle, Profile II
- Acculturation: Language proficiency subscale of the Acculturation Scale for Southeast Asians
- Risks for diabetes and cardiovascular diseases: BMI, blood pressure, fasting blood sugar, glycosylated Hemoglobin (HbA1c) and lipid profiles
- Analysis: Descriptive statistics and path analysis
Results

• Healthy dietary behavior influenced the association between acculturation and HbA1c levels.

• Physical activity influenced the association between acculturation and HDL levels.

• Dietary behavior and physical activity did not influence the relationship between acculturation and many of the other risk factors for diabetes and heart diseases.
Summary and Conclusions

• Additional research needed to understand the mechanisms by which acculturation affects other cardiometabolic risk factors such as:
  o Smoking
  o Alcohol
  o Psychosocial factors
  o Abdominal obesity
• Designing culturally tailored dietary education and physical activity:
  o Promote positive lifestyle changes
  o Reduce and/or prevent diabetes and heart disease
• Reduce the health and economic burden with these conditions.
Preventing Type 2 Diabetes Through Lifestyle: The National Diabetes Prevention Program

Ann Albright, PhD, RDN
Centers for Disease Control and Prevention
Presenter Disclosures

• Nothing to disclose
National Diabetes Prevention Program (DPP)

• The largest national effort to mobilize and bring effective lifestyle change programs to communities around the country!
National DPP Strategic Goals

- Increase coverage among public and private payers
- Increase referrals from healthcare providers
- Increase the supply of quality programs
- Increase demand for the National DPP among people at risk
Coverage for Public Employees

- Over 3.4 million public employees and dependents in 18 states have the National DPP lifestyle change program as a covered benefit.

States with Coverage for State/Public Employees
- California
- Colorado
- Connecticut (DOT workers)
- Delaware
- Georgia (Kaiser members)
- Kentucky
- Louisiana
- Maine
- Maryland (partial payment)
- Minnesota
- New Hampshire
- New York
- Oregon (educators/local government)
- Rhode Island
- Tennessee
- Texas
- Vermont
- Washington

Demonstrations ongoing in North Dakota, Pennsylvania, South Dakota, and Utah
Medicare Diabetes Prevention Program

Phase 1 - CMMI Authorization to Evaluate Innovative Payment Techniques

• CMMI conducted a model test of Medicare participants in the Y-DPP and found substantial cost savings per participant (2012-2015)
• HHS Secretary announced that Medicare will cover the National DPP lifestyle change program for eligible Medicare beneficiaries (March 2016)
• First time that both traditional healthcare providers and community-based organizations can enroll as Medicare suppliers to deliver a preventive service

Phase 2 - Rule-Making Process

• First final rule established the MDPP Expanded Model (Nov. 2016)
• Second final rule established policies related to beneficiary eligibility, payment structure, and supplier enrollment/program integrity requirements (Nov. 2017)

Phase 3 - Implementation

• CDC-recognized organizations began enrolling as Medicare DPP (MDPP) suppliers on January 1, 2018
• MDPP suppliers began offering MDPP services to Medicare beneficiaries on April 1, 2018
• CMS established an MDPP Help Desk (1-877-906-4940 or mdpp@cms.hhs.gov)
• CDC established a Customer Service Center (July 2018)
Medicaid Coverage – Work with Partners

- **Goal:** Achieve sustainable coverage of the National DPP lifestyle change program for Medicaid beneficiaries
- **Result:** Remove cost barriers and reduce diabetes health-related disparities for high-risk, high burden populations

- **Work with State Health Departments** – Funded health departments in all states and DC to partner with their Medicaid sister agencies to make the case for coverage
  - 9 states have full or partial coverage through Medicaid authorities, demonstrations, or pilots
    - Statewide coverage in place or in process: CA, MN, MT, NJ, VT
    - Demonstration projects in process: AR, MD, OR, PA
- **Work with National Organizations** – Funded ten national organizations to establish new programs through affiliate sites in underserved areas to reach priority populations
- **Work with Managed Care Organizations (MCOs)** – Funded a comprehensive Demonstration Project with MCOs in MD and CCOs in OR with a focus on implementation and uptake:
  - Screened, tested, referred, and enrolled almost 1,000 participants in both in-person and virtual programs
  - Implemented a value-based coverage and reimbursement model
  - Supported by an Expert Panel of representatives from all major Medicaid MCO national organizations
- **Products/Outcomes**
  - Virtual Learning Collaborative with 20 States
  - National DPP Coverage Toolkit: https://coveragetoolkit.org/
  - New Tools and Resources for the National DPP Customer Service Center: https://nationaldppcsc.cdc.gov
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MEDIA CONTACT

On-site Press Office – Room 109B

Press@diabetes.org