DIABETES PREVENTION PROGRAM (DPP): A PROGRAM OF THE CDC, TARGETING PRE-DIABETICS IN JOHNSON COUNTY

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PUBLIC HEALTH ISSUE
TYPE 2 DIABETES PREVALENCE

- 30.3 million people in the United States (CDC, 2017)
  - 1 out of 10
- Diabetes develops due to high levels of glucose in the blood.
- Most common form- Type 2 diabetes
  - 90-95% of diagnosed cases (CDC, 2017)
- Prediabetes occurs when blood sugar is higher than normal levels
  - 1 in 3
- Risk factors
COST OF DIABETES

• Medical costs
  • $245 billion in 2017
  • More than twice as high
• Risk of co-morbidity
  • Vision loss
  • Kidney Failure
  • Heart Disease
  • Stroke
  • Peripheral Neuropathy
• Tertiary prevention is not the answer
FUTURE TRENDS (ROWLEY ET AL., 2017)

• Prevalence of diabetes will increase by 54%
  • 30.3 million ➔ 54.9 million
• Medical costs will increase by 53%
  • $245 billion ➔ $622 billion
• Emphasis placed on primary prevention
  • Cuts the risk in half
• Without prevention, 15-30% will develop type 2 diabetes within 5 years (CDC, 2017).
APPLIED PRACTICE EXPERIENCE
JOHNSON COUNTY DEPARTMENT OF HEALTH AND ENVIRONMENT (JCDHE)

• Accredited health department in Northeast Kansas
• Offers a variety of services
  • Child Care Licensing and Education
  • Disease Investigation
  • Emergency Planning
  • Solid Waste and Pool Inspections
  • Community Outreach
  • Walk-in Clinic
• Jan 2019- April 2019
PROJECTS

• Tobacco Education and Resources
• Diabetes Prevention Program (DPP)
• Blog Posts for Live Well JOCO
INTEGRATED LEARNING EXPERIENCE
Diabetes Prevention Program (DPP)

• Program of the Centers for Disease and Prevention (CDC)
• Year-long lifestyle change program
• Designed to prevent Type 2 diabetes in prediabetic adults
• Groups consist of 10-15 participants
• CDC-approved curriculum
  • 22 modules
  • Topics include dietary tracking, basic nutrition and common barriers
• Program goals
  1) Lose 5 to 7 percent of starting body weight
  2) Increase physical activity to 150 minutes per week
DPP Research Study

- Randomized clinical trial
- Included over 3,000 subjects
  - Overweight
  - Diagnosed with prediabetes
  - 45% from minority groups
- 27 clinical centers in the United States
- Treatments Groups
  1) Lifestyle Intervention
  2) Drug Therapy
  3) Placebo
Lifestyle group reduced their risk by 58%
  • Regardless of race, sex, age or SES
  • Subjects 60+ showed 71% reduced risk
Drug therapy group reduced risk by 31%
Other findings of Lifestyle group
  • Average weight loss was 14.5 lbs.
    • 49.7% of subjects reached or surpassed the 7% weight loss goal
  • Average weekly activity was 224 minutes
    • 74.4% of subjects reached or surpassed the 150 minute goal
DPP Study Results- 10 year Follow Up

- Diabetes incidence
  - Lifestyle group- reduced by 34%
  - Drug therapy group- reduced by 18%
- Incidence rates were similar to the 3 year study
- Cumulative incidence of diabetes remained the lowest in the lifestyle group
PROJECT DESCRIPTION
DPP at JCDHE

• Two months of weekly meetings of two DPP groups
  • Retired group of adults aged 60+
  • Middle-aged working adults
• Participants were self referred
• I assisted with the course by preparing materials and with the facilitation of the course.
DPP Concepts

• Self-efficacy
• Facilitation style presentation
• Addressed barriers weekly
• Provided cooking and physical activity demonstrations
• Use of tools
RESULTS
Paired *t*-test Results

The TTEST Procedure

Difference: WTbefore - WTafter

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<table>
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| DF  | t Value | Pr > |t| |
|-----|---------|------|---|
| 12  | 2.96    | 0.0120 |
DISCUSSION
Interpretation of Results

- The mean weight loss was found to be 5.3538 pounds (SD= 1.8103).
- Statistically significant?
  - *t*-value of 2.96
  - *p*-value of 0.0120
  - Test indicates significant results
  - 7 weeks of the DPP course did affect weight in the participants
- Weight change achieved was 5.4 pounds (95%CI: 1.4—9.3 pounds)
Application of the Social Ecological Framework

- **Individual level**
  - Targets the participants in the DPP program
  - Focus on individual needs, characteristics, SES, knowledge, attitudes and beliefs
  - Provided through one-on-one consultations

- **Interpersonal level**
  - Targets of change are the social influences
  - Family, work and social norms
  - Addressed factors in a group setting
  - Dietitian asked participants to make changes as a family
Institutional and Community

• Institutional level
  • Currently participants are self-referred
  • More emphasis on medical referrals
  • Crucial that hospitals and clinics focus on preventative measures and use risk factors to aid in referrals
  • Prevention first, treatment second

• Community level
  • Assess factors or barriers in the community
  • Demographic must be considered
  • Raise awareness of health risk
Policy Level

• FDA New food labels will make it easier for consumers to determine nutrient information of a food item

• Modifications to food labels can greatly impact lifestyle change

• DPP participants were taught how to read food labels and understand upcoming changes

FDA, 2018
Health Behavior Theories

• Social Cognitive Theory
• Theory of Planned Behavior
• Health Belief Model
Social Cognitive Theory

- Six Concepts
  1. Reciprocal determinism
  2. Behavioral capability
  3. Expectations
  4. Self-efficacy
  5. Observation Learning
  6. Reinforcements
Theory of Planned Behavior

- Behavioral attitude
- Subjective norms
- Perceived behavioral control
Health Belief Model

- Highlights the perceptions of behavior change
- Perceptions
  - Perceived susceptibility
  - Perceived severity
  - Perceived benefits and barriers
- Also considers the concepts of cues to action and self-efficacy
COMPETENCIES
Competency #6: Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels.

- Health Equity Council
  - External and Internal councils
- External Council issue
  - Affordable housing
- Internal Council issue
  - Equal access to health care
Competency #9: Design a population-based policy, program, project or intervention.

- Training PowerPoint and presentation on the health risks of teen vaping
- Major public health issue in Johnson County
- Material was presented at a workshop held in early April
Competency #14: Advocate for political, social or economic policies and programs that will improve health in diverse populations.

- Research to help develop policy change at institutions
- Aided in updating materials such as brochures and performing research on third-hand smoke
Competency #19: Communicate audience-appropriate public health content, both in writing and through oral presentation.

- Oral Presentation
  - Vape Presentation
  - Diabetes Prevention Program
  - Portion control lecture

- Written
  - Live Well JOCO blog posts
  - National Nutrition Month
  - Diabetes Alert Day 2019
Competency #21: Perform effectively on interprofessional teams.

- Health Equity Council
- Train the Trainer workshop
- National Public Health Week
Questions?
Thank You

- **Graduate Committee:**
  - Dr. Richard Rosenkranz
  - Dr. Sara Rosenkranz
  - Dr. Mark Haub

- **APE & ILE Preceptor**
  - Megan Foreman

- **MPH Program**
  - Dr. Ellyn Mulcahy
  - Barta Stevenson