Sigma Theta Tau
28th International Nursing Research Congress
2017

Title: A pilot study evaluating the effectiveness of diabetes prevention in a medically underserved community

Presenters: Stefanie A. Schroeter, DNP, APRN, FNP-BC; Kelley Anderson; Andrew C. Robie

Purpose: This pilot study evaluated the effectiveness of participation in the National Diabetes Prevention Program (NDPP) for weight reduction in a sample of prediabetic individuals in an urban medically underserved community. The study also evaluated the challenges of implementing the NDPP into such a community, where rates of low education, poverty, medical comorbidities and psychosocial comorbidities are high. The NDPP was developed from a large multicenter study by Knowler and co-authors (2002), Diabetes Prevention Program Research Group, demonstrating a reduced risk for diabetes in prediabetic individuals who participated in an intensive lifestyle intervention program aimed at reducing weight and improving lifestyle habits. There is limited literature describing the use of the NDPP in medically underserved communities.

Methods: The NDPP was integrated into existing health services within a federally qualified health center (FQHC) in an urban medically underserved community. Participants were identified prediabetics receiving primary health care services within the FQHC, with hemoglobin-A1c levels between 5.7 and 6.4 percent, over the age of 18 years, with a body mass index (BMI) 24 and higher. Participants were excluded if they had a previous or current diagnosis of type I or II diabetes, or a prior hemoglobin-A1c level of 6.5 percent or higher. The participants received weekly to biweekly group sessions aligning with the 2012 NDPP curriculum. Study data was obtained through the 16-session core program of the NDPP. A pre-test, post-test paired group *t*-test was completed to evaluate the change in mean weight and BMI at the beginning and end of the core program. Correlational analyses were completed to evaluate the association between weight change, age, gender, number of sessions attended, and total minutes of physical activity. Anecdotal evidence regarding successes and challenges of implementation of the program within the FQHC were noted.

Results: Twelve participants initiated the program, and eight completed at least four of the 16 sessions. The mean weight loss for all participants was 5.3 pounds, and 7.4 pounds for those who completed at least four sessions. There was a significant difference in pre-weight, post-weight and BMI ($p < 0.05$) for all participants and those who completed a minimum of four sessions. Weight loss was independent of age or gender. Weight loss was more significant when the lowest weight attained was considered in place of the last recorded weight. A significant positive correlation was found between weight loss and number of sessions attended ($p < 0.05$), and between weight loss and total minutes of physical activity ($p < 0.05$).

Conclusion: Participation in the core portion of the NDPP significantly reduced weight and BMI in a group of prediabetic individuals in an urban medically underserved community, with weight

loss unrelated to age and gender. These results are consistent with prior research that demonstrated the effectiveness of an intensive lifestyle intervention on reduction in diabetes risk. A greater level of weight loss was associated with higher levels of program participation through session attendance and physical activity. There was an observable discrepancy between the final program weight and the lowest weight attained, suggesting the importance of considering weight fluctuations in evaluating program effectiveness. Challenges such as low literacy and education, and medical and psychosocial comorbidities were documented and suggested a potential negative impact on weight loss.

References:

District of Columbia Department of Health (2013). District of Columbia Community Health Needs Assessment, Volume 1. Retrieved from http://doh.dc.gov/sites/default/files/dc/sites/doh/page_content/attachments/2nd%20Draft%20CHNA%20(v4%202)%2006%2004%202013%20-%20Vol%201.pdf.

Knowler, W. C., Barrett-Connor, E., Fowler, S. E., Hamman, R. F., Lachin, J. M., & Walker, E. A., Diabetes Prevention Program Research Group (2002). Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. New England Journal of Medicine, 346(6), 393-403.

University of Pittsburgh (2012). 2012 CDC-Developed Curriculum and Handouts. Based on the DPP research trial supported by cooperative agreement number U01-DK48489 from the U.S. Department of Health and Human Services, which has certain rights in the material. Retrieved from http://www.cdc.gov/diabetes/prevention/lifestyle-program/curriculum.html.