DIETARY FIBER TO IMPROVE METABOLIC SYNDROME IN ADULTS

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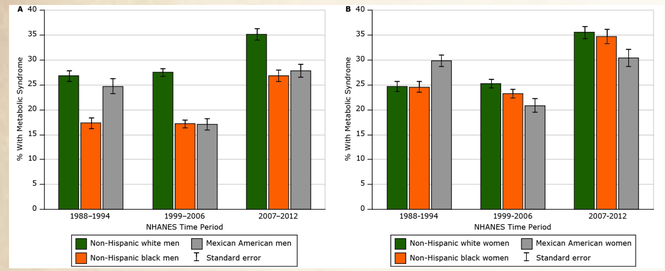
Practice Concern

- In the United States, prevalence of metabolic syndrome increased by 35% since 1988
- Over two thirds of the U.S. population are either overweight or obese
- More than one third of all U.S. adults meet diagnostic criteria for metabolic syndrome
- From 1988 to 2012, metabolic syndrome prevalence increased in every sociodemographic group

(Moore, Chaundhary & Akinyemiju, 2017)



Prevalence of metabolic syndrome among U.S. adults (National Center for Health Statistics, 2016)

Needs Assessment

- Costs associated with medications used to treat obesity, hypertension, hyperlipidemia and type 2 diabetes mellitus
  - Average medication prices range $4-$550 (GoodRx, 2018)
- Side effects of medications to treat components of metabolic syndrome
- Therapeutic effects of soluble fiber on components of metabolic syndrome
- Cost and availability of soluble fiber supplement
- The use of complementary health approaches is increasing and is expected to continue to increase (Clark, Black, Stussman, Barnes & Nahin, 2015)

PICOT Question

- In patients over 18 years of age, does soluble fiber dietary supplementation improve components of metabolic syndrome such as hyperlipidemia, hypertension, glycemic control, weight and waist circumference?

Literature Review

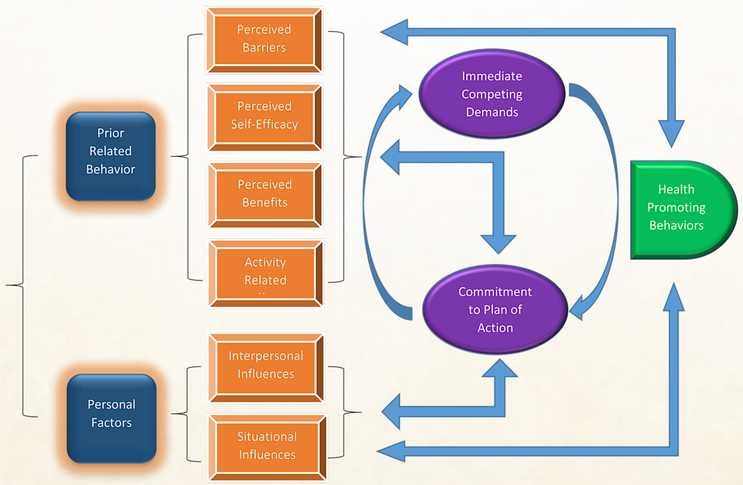
- Databases utilized: PubMed, CINAHL, MEDLINE and Cochrane Library
- Keywords: dietary fiber, metabolic syndrome, soluble fiber, hypertension, hyperlipidemia, obesity, insulin, type 2 diabetes, and glycemic control
- Eleven level 1 articles of meta-analysis or randomized control trials were selected
- Two level 5 expert opinion articles were selected

EBP Guidelines

- **Hyperlipidemia**
  - Fiber supplemented groups showed a 21% reduction in total cholesterol, and 27% reduction in LDL cholesterol (Hartley, May, Loveman, Colquitt & Rees, 2016)
- **Hypertension**
  - An increased consumption of dietary fiber is inversely related to blood pressure measurement and may contribute to prevention of hypertension (Galisteo, Duarte & Zarzuelo, 2007)
- **Weight and Glucose Regulation**
  - 10.5 grams of soluble fiber intake daily significantly reduced BMI, fasting blood glucose levels, A1C, insulin and c-peptide levels (Abutair, Naser & Hamed, 2016)
  - Numerous multi-month clinical studies demonstrate a meaningful reduction in fasting serum glucose, insulin levels and A1C with gel forming fiber supplementation (Lambeau & McRorie, 2016).

Theoretical Framework

Pender's Health Promotion Model



(Pender, Murdaugh & Parsons, 2005)

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Implementation

- **Stakeholder Education**
  - Present the benefits of soluble fiber supplementation and treatment instructions
    - Clinicians and support staff
    - Patients, family and caregivers
- **Baseline Data Collection**
  - Collect patient blood pressure, weight, waist circumference, fasting lipids and A1C measurements
- **Treatment**
  - 5g psyllium husk fiber (1tsp) mixed in 8 oz. of water
    - Average cost per dose: $0.11
  - Take three times a day, 30 minutes prior to eating, every day
- **Recommended Daily Fiber Intake**
  - Men: 38 grams per day for ages 19 to 50 and 30 grams per day for age 50 or older
  - Women: 25 grams per day for ages 19 to 50 and 21 grams per day for ages 50 and older

(Institute of Medicine, 2005)

Evaluation

- Assess patient tolerance to intervention monthly
- Collect follow up patient data and lab values monthly for 3 months
- Compare baseline data to post-treatment data
- Identify impact of therapy on data collected
- Assess patient satisfaction with intervention results
- Continue fiber therapy indefinitely as tolerated

References

- Available upon request

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