The Effects of Group Based Diabetes Self-Management Education Programs on Hemoglobin A1c in Type 2 Diabetic Adults

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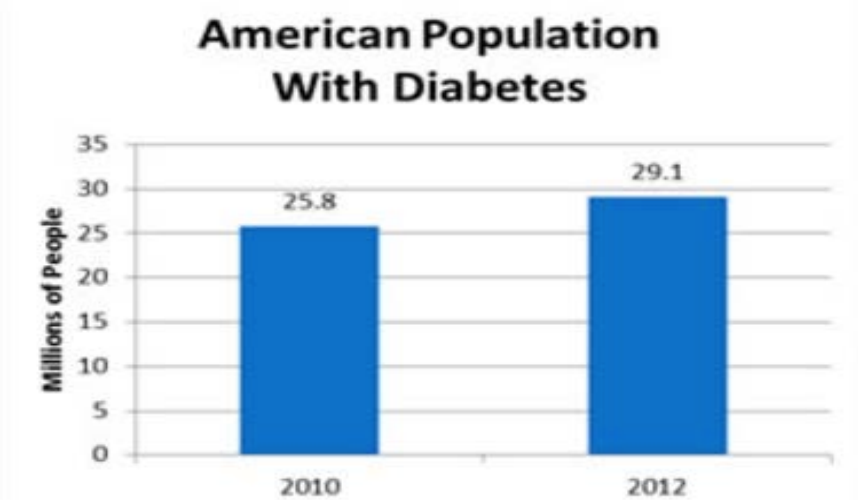
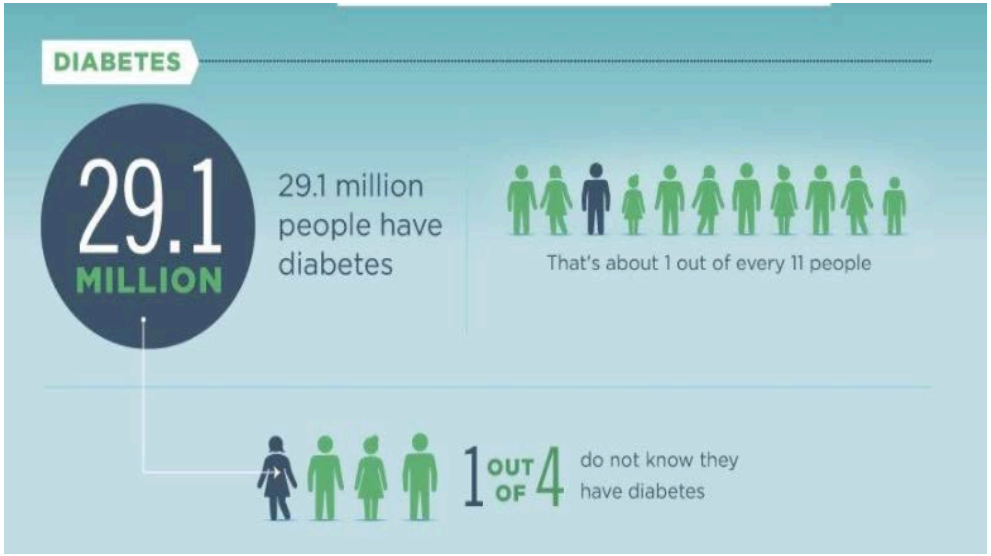
Clinical Problem

- Type 2 Diabetes (T2D) is a major public health issue, and its complications, such as hypertension and hyperlipidemia, cause many serious health issues for individuals (Ignatavicius & Workman 2013).
- Currently, every 1 in 11 adults have are diagnosed with T2D; this number is projected to increase to 1 in every 5 adults by 2050 (CDC, 2014).



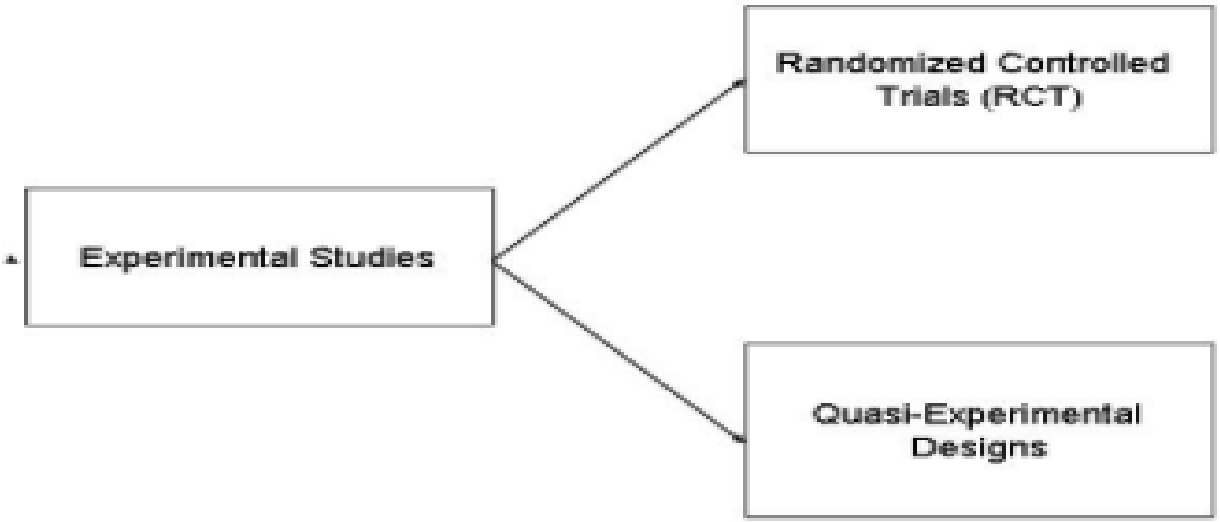
http://www.diabetes.org/diabetes-basics/statistics/?referrer=https://www.google.com/



https://www.cdc.gov/diabetes/data/statistics/2014statisticsreport.html

Purpose

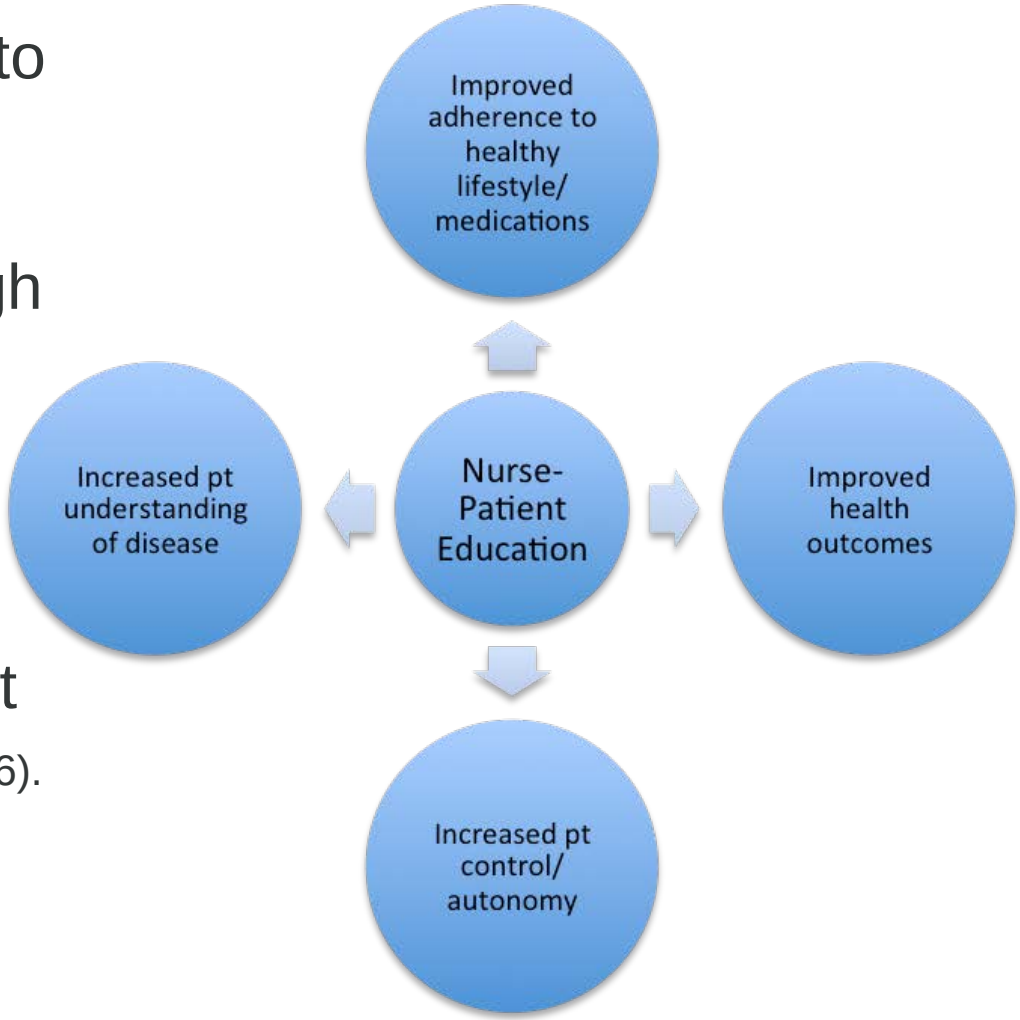
- To analyze the effectiveness of three studies of group-based diabetes self-management education programs on improving glycemic control and diabetes knowledge in adults with Type 2 Diabetes.



https://www.med.uottawa.ca/sim/data/Study_Designs_e.htm

Significance to Nursing Practice

- T2D patients can continue to live normal lifestyles if they adequately maintain their blood glucose levels through treatment and lifestyle modification.
- Patient education provided by nurses is known to significantly improve patient health outcomes (Bastable, 2016).



Methods

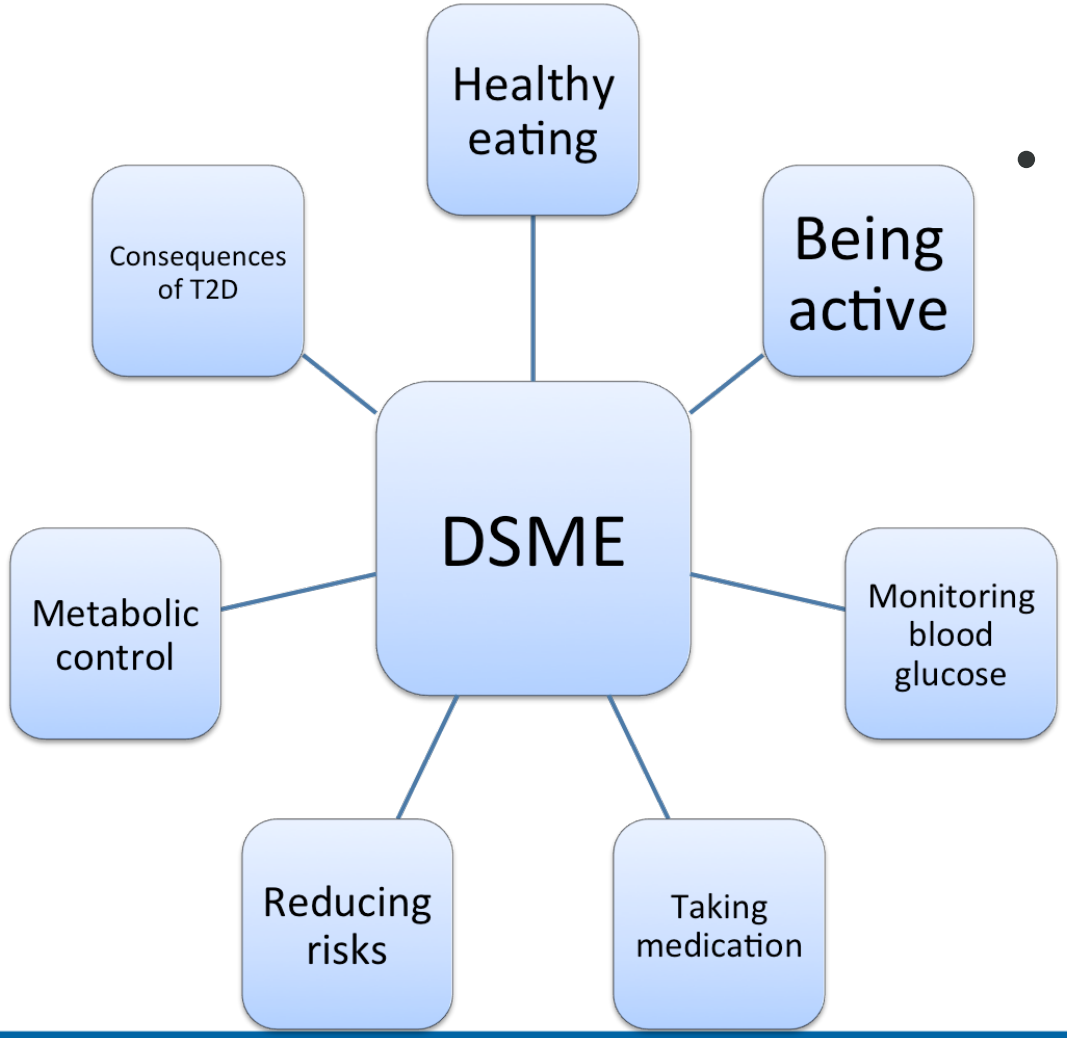
Databases Used: PubMed, CINAHL, Google Scholar, Web of Science

Key Search Words: Type 2 diabetes, self management, education, hemoglobin A1c

Parameters: English-only, peer-reviewed, research article, adults 19+, published in the last 5 years

- All three studies focus on the effects of group self-management education (intervention) on hemoglobin A1c levels in type 2 diabetic patients.

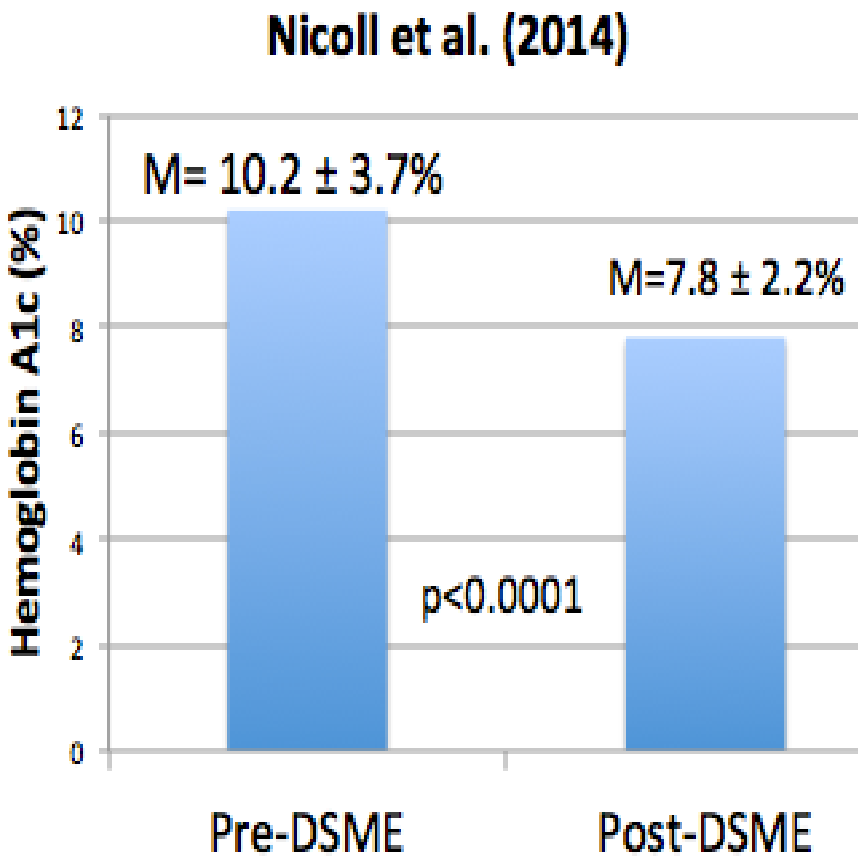
The Intervention: DSME

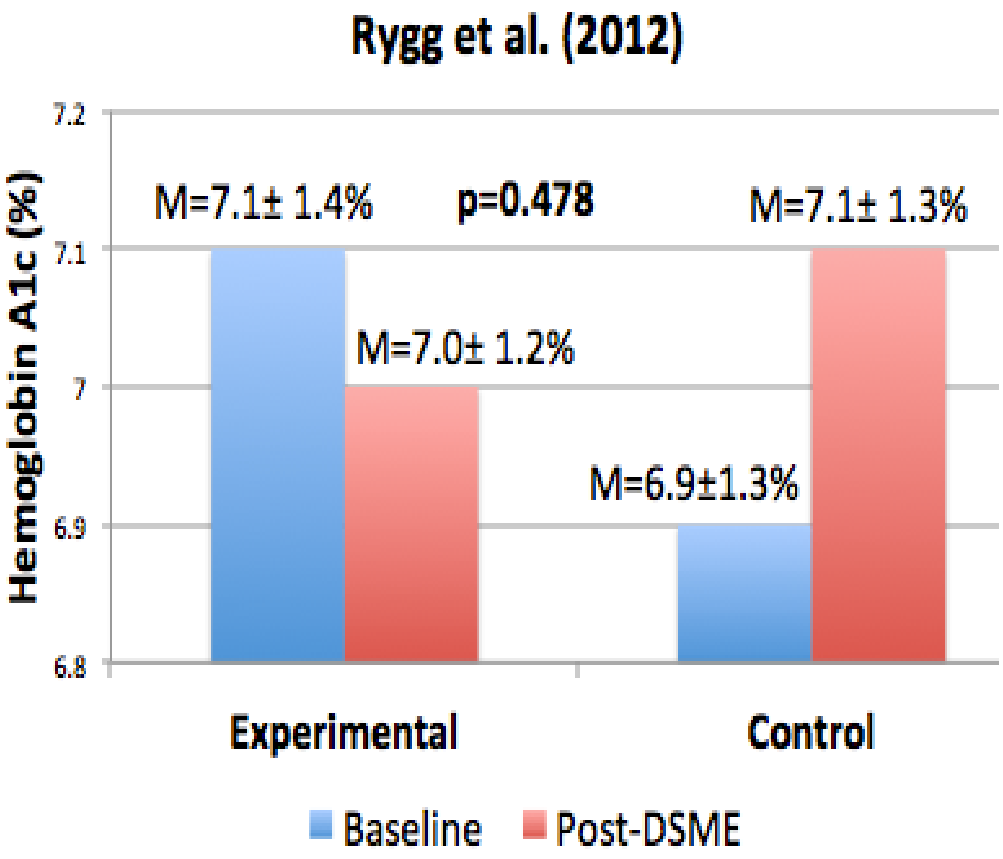


- The American Diabetes Association recognizes diabetes self-management education (DSME) as being a crucial part in managing diabetes and improving patient outcomes (Nicoll et al., 2014).

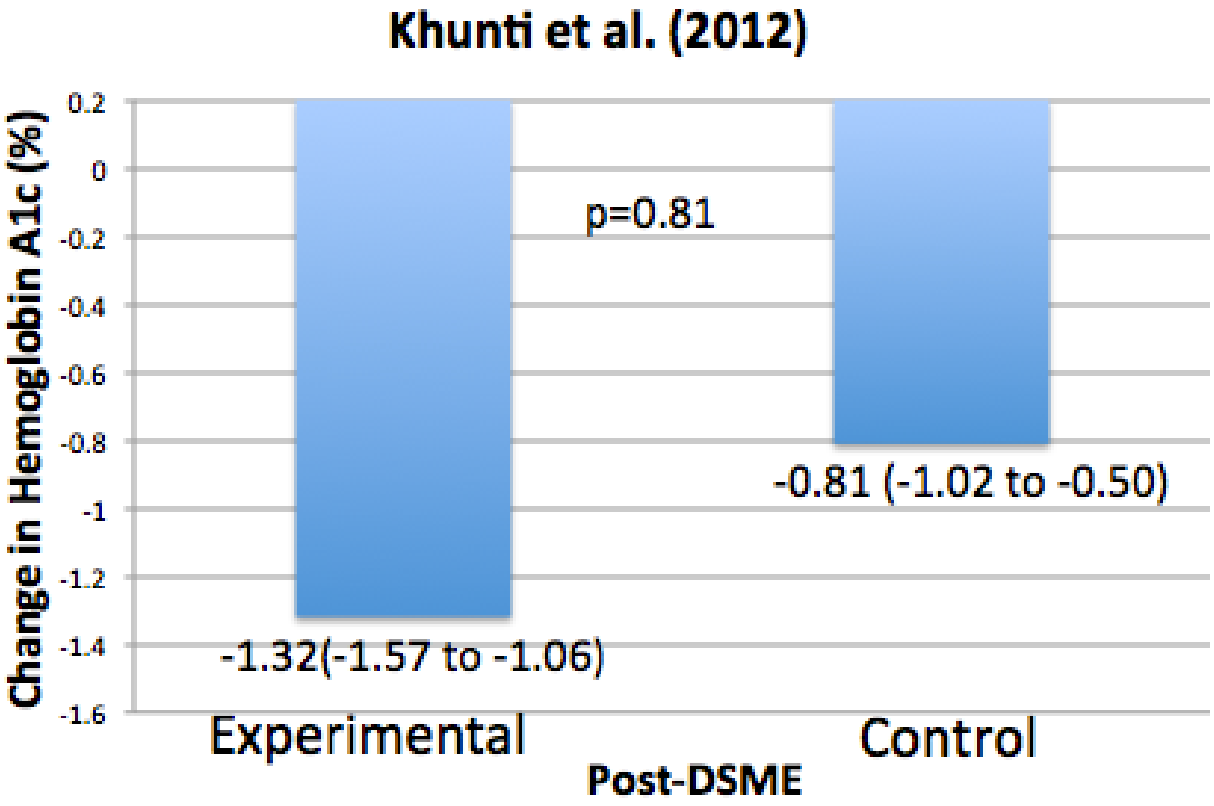
	Nicoll et al. (2014)	Rygg et al. (2012)	Khunti et al. (2012)
Intervention	• DSME for 10 hours total divided into 2 sessions • Topics covered: healthy eating, being active, monitoring blood sugar, taking medication, reducing risks, problem-solving, and healthy coping.	• DSME for 15 hours total divided into 3 sessions • Topics covered: information about diabetes type 2 and its components, diet, physical activity, and improving metabolic control.	• DSME for 6 hours total over 1 session • Topics covered: lifestyle factors, food choices, physical activity, and cardiovascular risks.
Final number of subjects (n)	43	133	731

Results: Hemoglobin A1c Levels

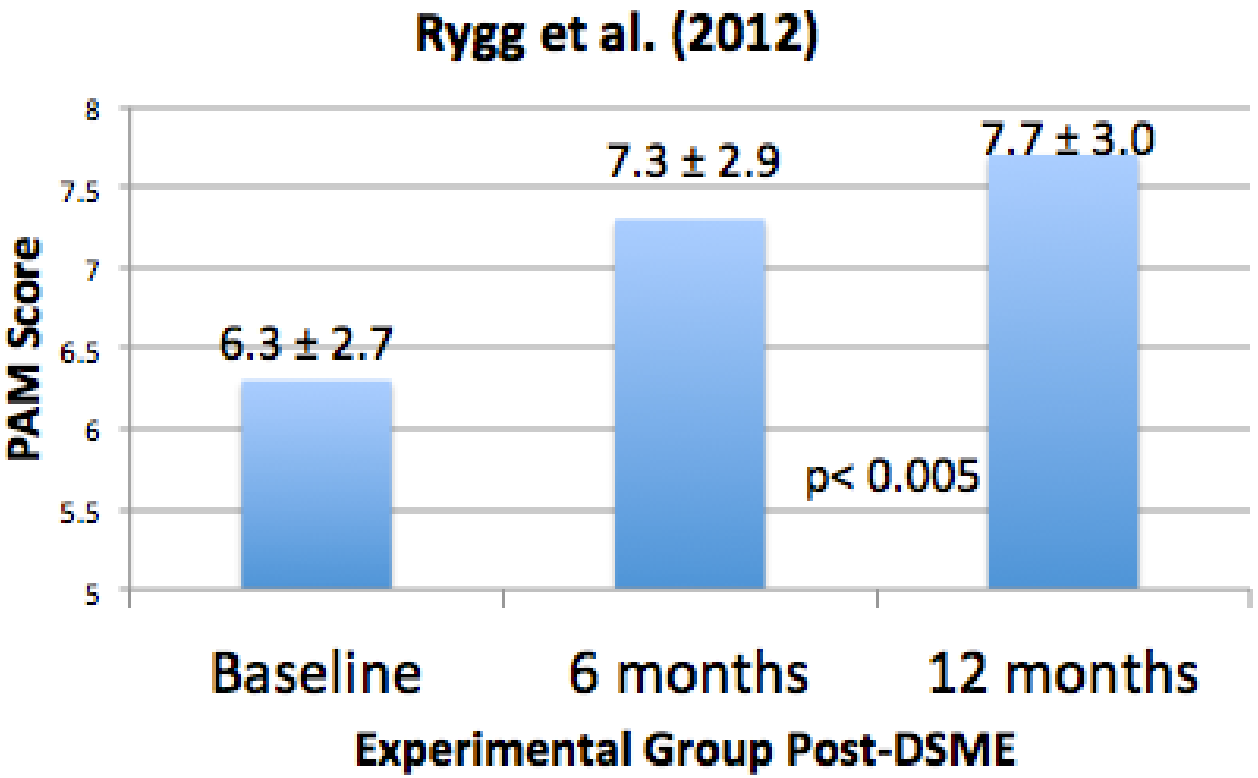




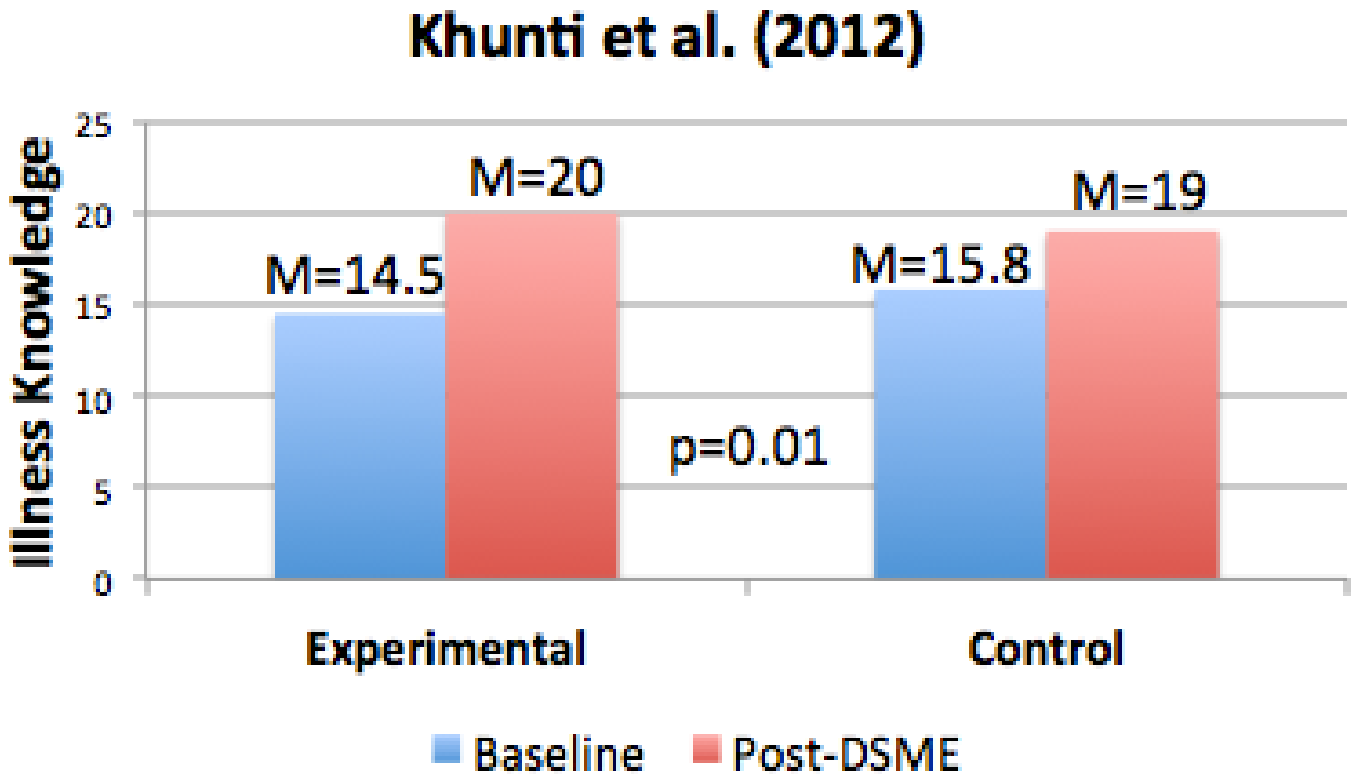
Results: Percent Change in Hemoglobin A1c Levels



Results: Diabetes Knowledge



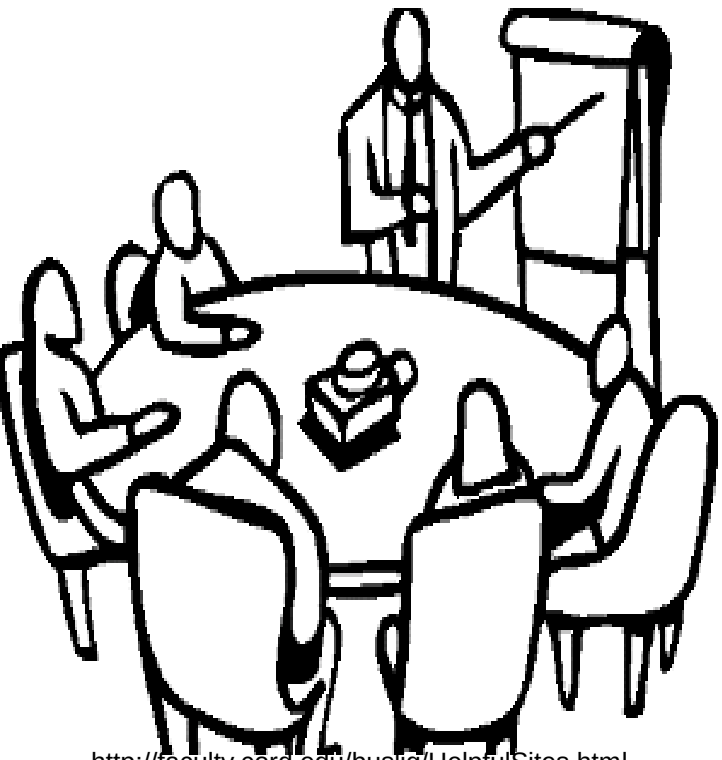
Results: Diabetes Knowledge



Discussion

- **Rygg et al. (2012) and Khunti et al. (2012) are randomized controlled trials; Nicoll et al. (2014) is a one-group quasi-experimental study**
  - RCT design presents data with less bias, and attributes any difference in outcome to the intervention (Sullivan, 2011).
  - Both designs are experimental in nature
- **Strong validity in the method used to measure the primary outcome**
  - All blood samples were taken at reputable health care providers offices or clinics
- **All studies used had convenience sampling**
  - Considered weak, since participants are recruited based on their accessibility (Bornstein, Jager, & Putnick, 2013).
- **All studies had weaknesses in the type of blinding used**
  - (2014) and Khunti et al. (2012) were not blinded, and Rygg et al. (2012) was single blinded, possibly leading to biased outcomes.
- **DSME was implemented differently in each study**
  - There is currently no standardized curriculum or “best” approach to DSME

Nursing Implications



http://faculty.cord.edu/buslig/HelpfulSites.html

- DSME significantly increases diabetes knowledge and knowledge to self-manage diabetes
- Mixed results were reported when studying the efficacy of DSME on reducing hemoglobin A1c levels; however, all studies did report a slight decrease in post-intervention subjects
- DSME is a secondary preventative method that can be encouraged by nurses, in aims of reducing diabetes morbidity and the costs associated with healthcare

Gaps in Knowledge & Future Research

Gaps in Knowledge	Future Research
• Lack of research on the different types of DSME and the benefits of each • Identifying the most effective DSME • Generalizability to other populations	• How many hours should subjects receive DSME? • Number of courses? • Type of setting? • Topics covered throughout the course? • Number of people in each group? • Test on diverse populations

Conclusion

- DSME slightly reduces hemoglobin A1c levels and increases diabetes knowledge
- Patient education is an important component of nursing practice; thus, DSME is within the nursing scope of practice
- As a secondary prevention method, DSME can help relieve the large amount of healthcare costs related to diabetes
- Future research is needed to identify the best approach to DSME and to develop a standardized curriculum

http://www.letsintern.com/blog/group-discussion-tips/

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