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## Seminar Papers and Posters

### Title

The Effects of Group Based Diabetes Self-Management Education Programs on Hemoglobin A1c in Type 2 Diabetic Adults: A Review of Experimental Studies

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

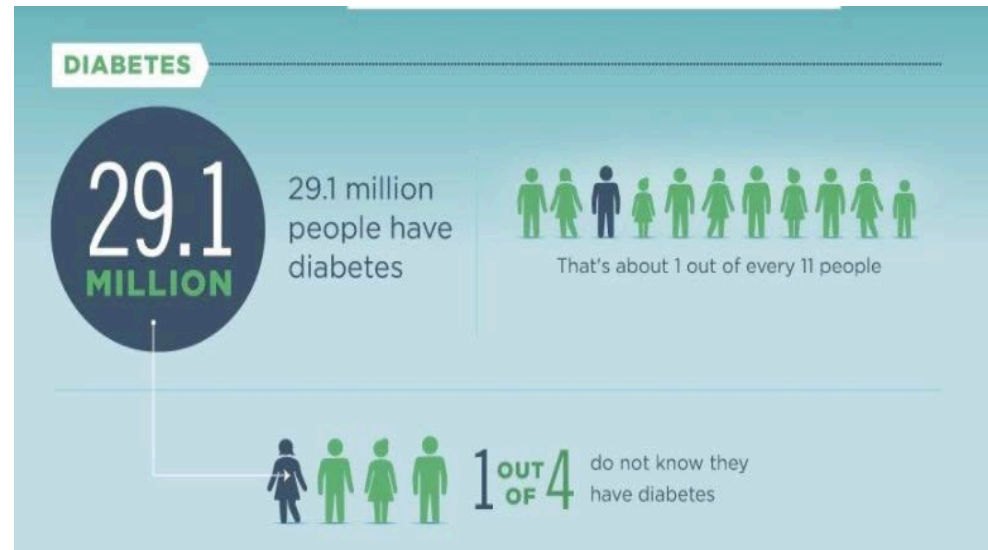
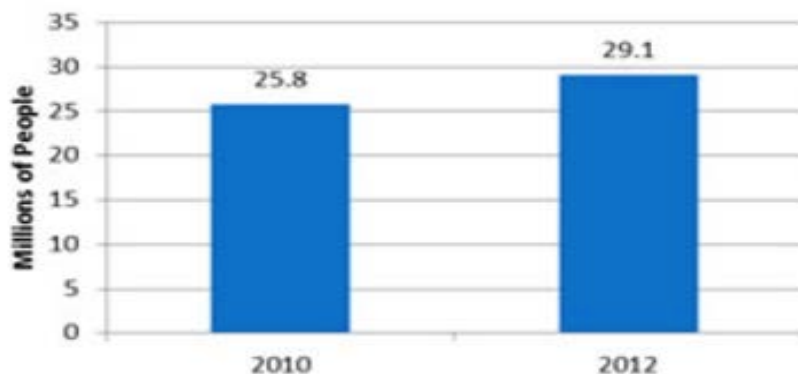
Paulina Atachian

BSN Candidate, Class of 2017

# Clinical Problem

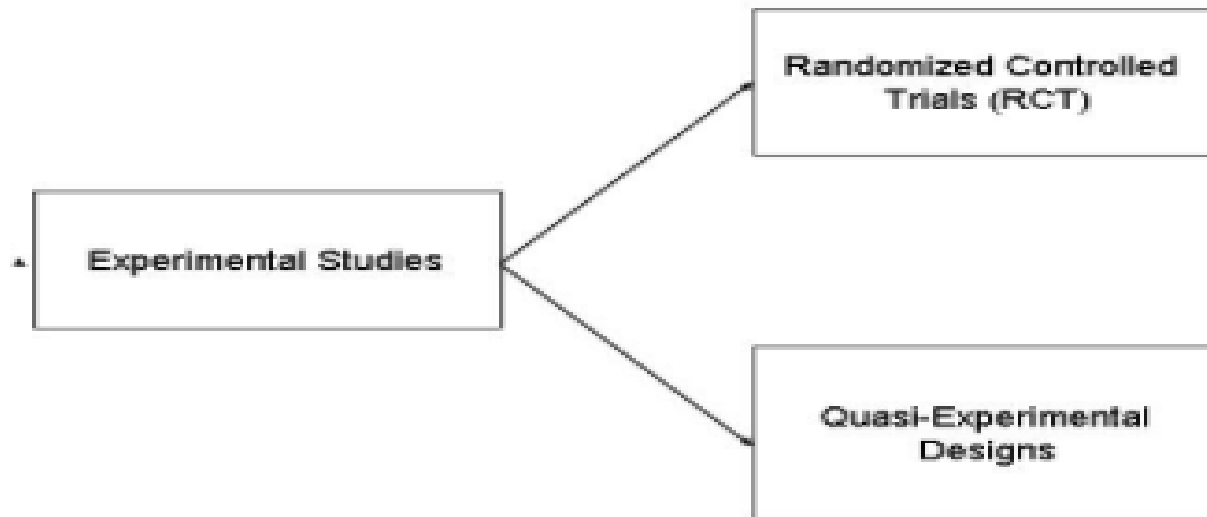
- Type 2 Diabetes (T2D) is a major public health issue, and its complications, such as hypertension and hyperlipidemia, cause many serious health issues for individuals (Ignatavicius & Workman 2013).
- Currently, every 1 in 11 adults have are diagnosed with T2D; this number is projected to increase to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

**American Population  
With Diabetes**



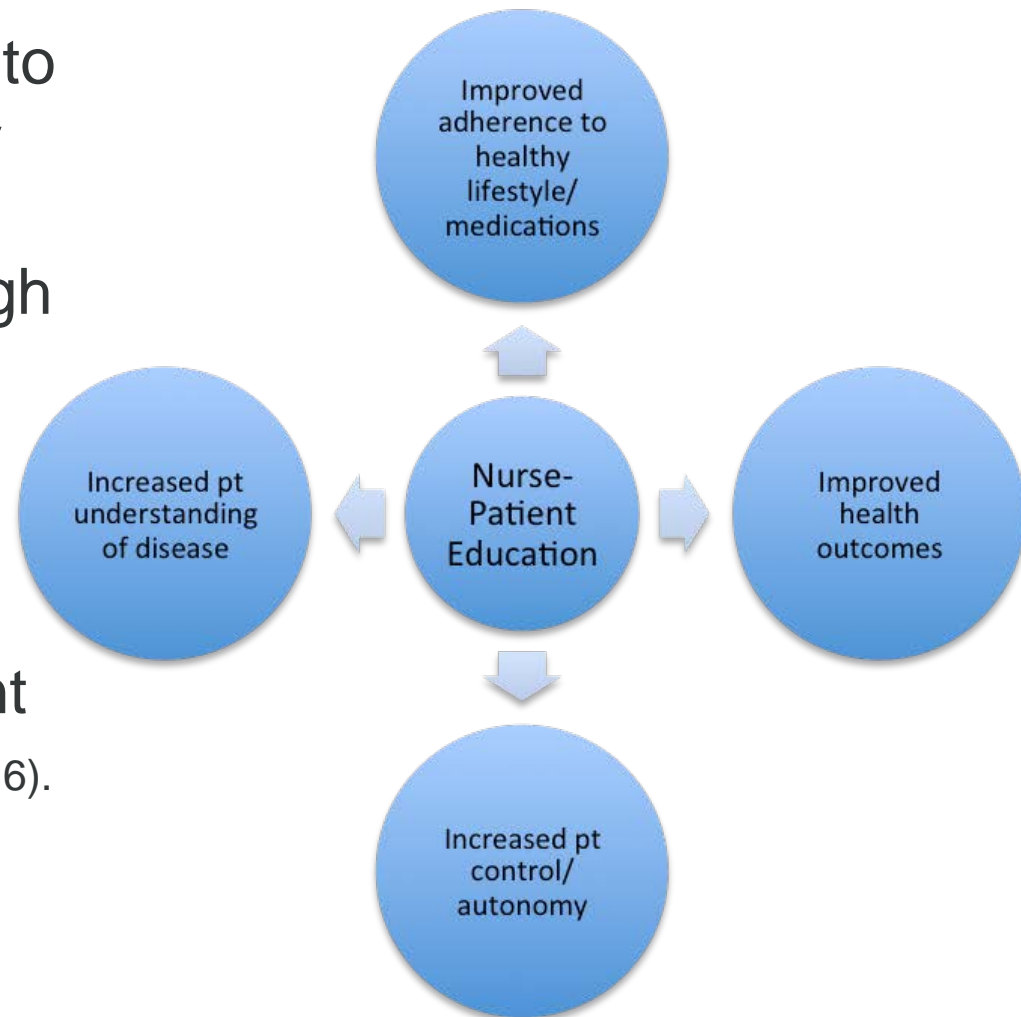
# Purpose

- 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.



# 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

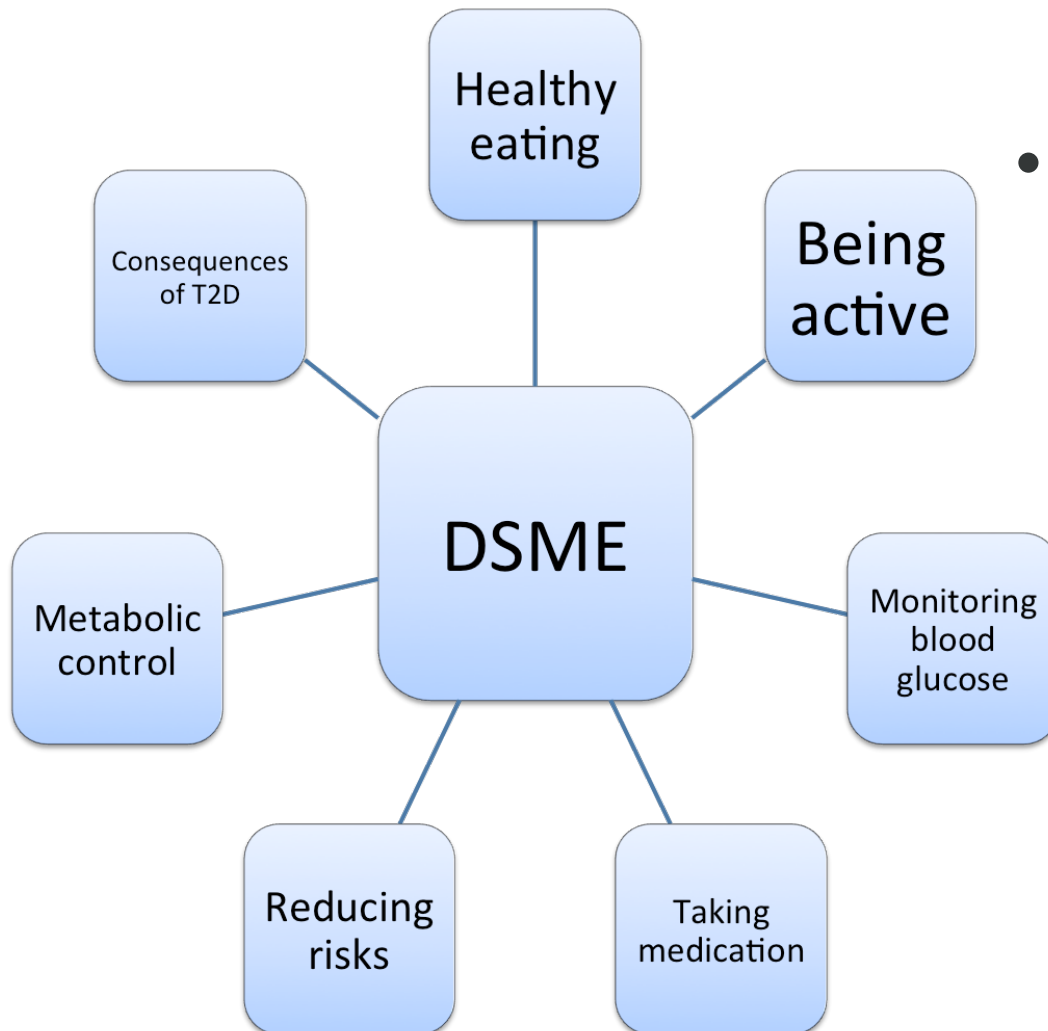
Databases Used: PubMed, CINAHL, Google Scholar, Web of Science

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



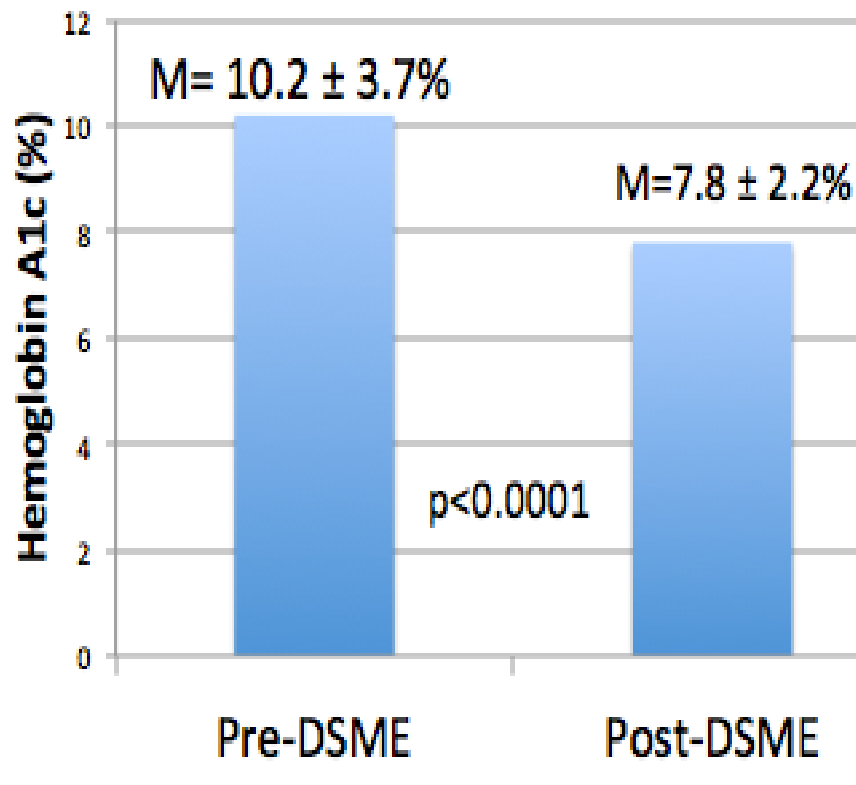
- The American Diabetes Association recognizes diabetes self-management education (DSME) as being a crucial part in managing diabetes and improving patient outcomes (Nicoll et al., 2014).

|                                     | <b>Nicoll et al.<br/>(2014)</b>  | <b>Rygg et al.<br/>(2012)</b>  | <b>Khunti et al.<br/>(2012)</b>  |
|-------------------------------------|--|--|--|
| <b>Intervention</b>                 | <ul style="list-style-type: none"> <li>• DSME for 10 hours total divided into 2 sessions</li> <li>• Topics covered: healthy eating, being active, monitoring blood sugar, taking medication, reducing risks, problem-solving, and healthy coping.</li> </ul> | <ul style="list-style-type: none"> <li>• DSME for 15 hours total divided into 3 sessions</li> <li>• Topics covered: information about diabetes type 2 and its components, diet, physical activity, and improving metabolic control.</li> </ul> | <ul style="list-style-type: none"> <li>• DSME for 6 hours total over 1 session</li> <li>• Topics covered: lifestyle factors, food choices, physical activity, and cardiovascular risks.</li> </ul> |
| <b>Final number of subjects (n)</b> | <b>43</b>  | <b>133</b>   | <b>731</b>   |

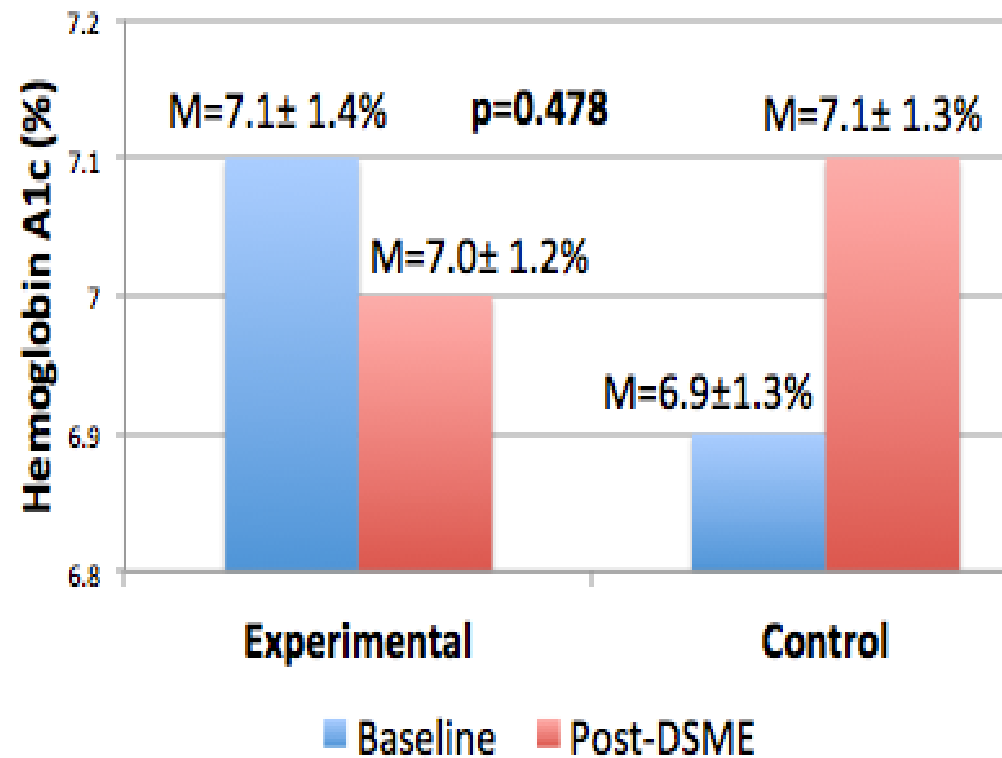


## Results: Hemoglobin A1c Levels

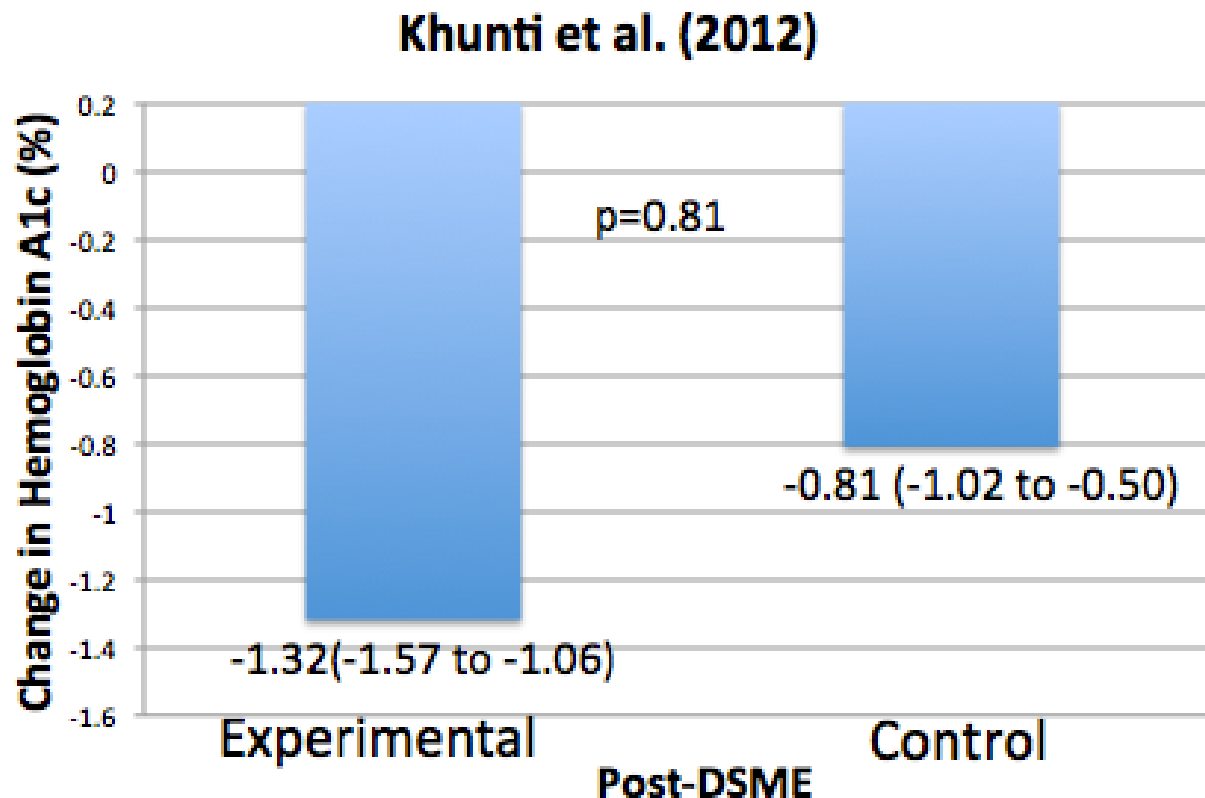
Nicoll et al. (2014)



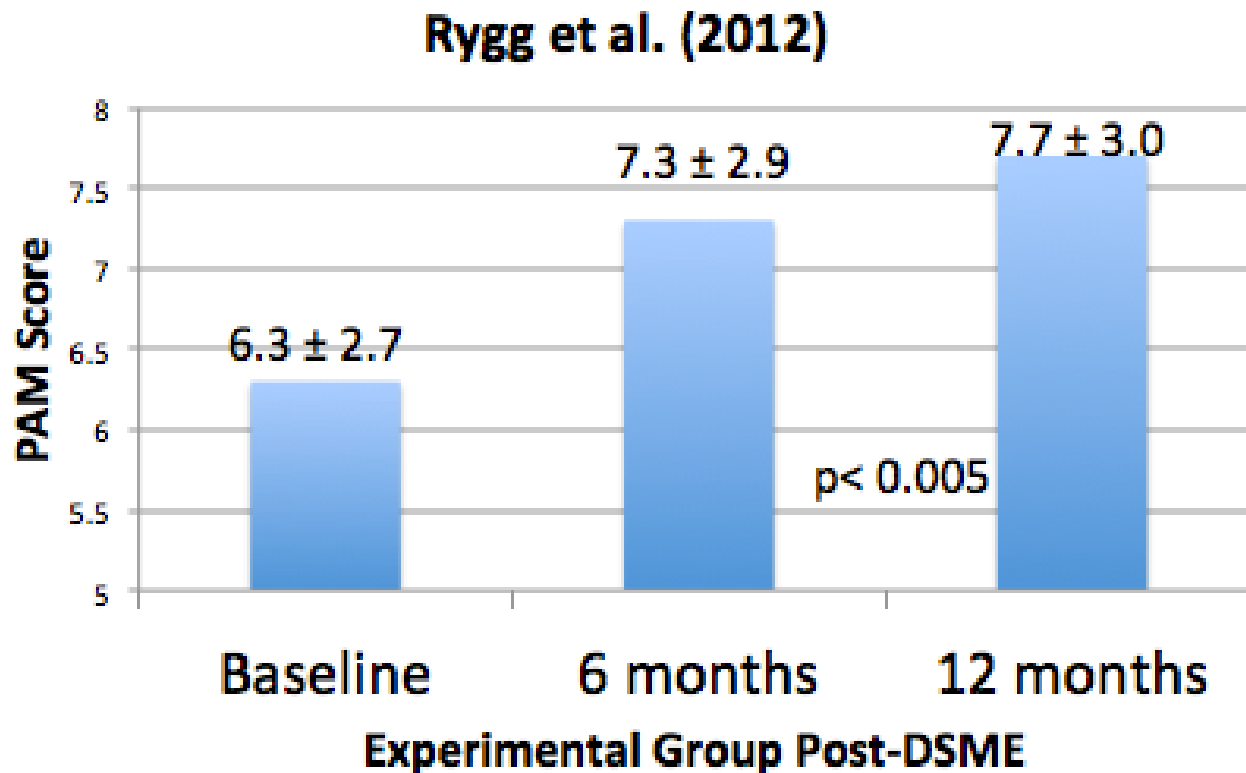
Rygg et al. (2012)



# Results: Percent Change in Hemoglobin A1c Levels

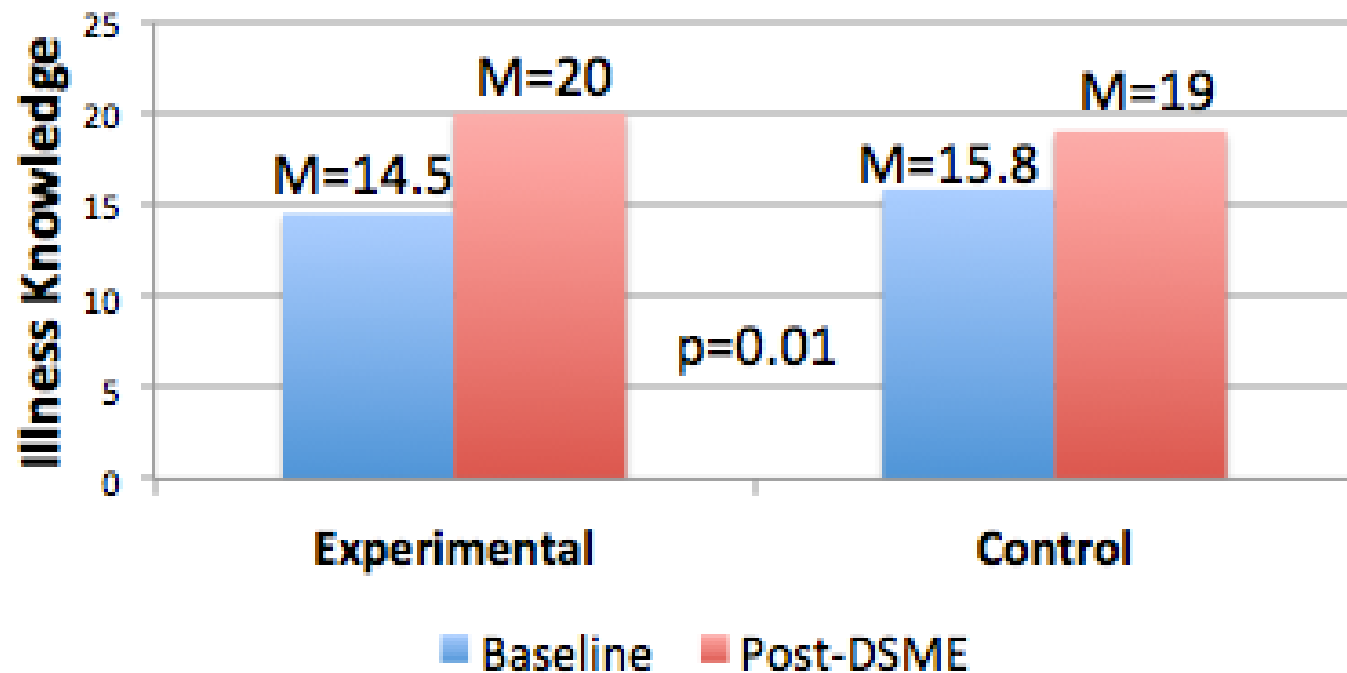


# Results: Diabetes Knowledge



# Results: Diabetes Knowledge

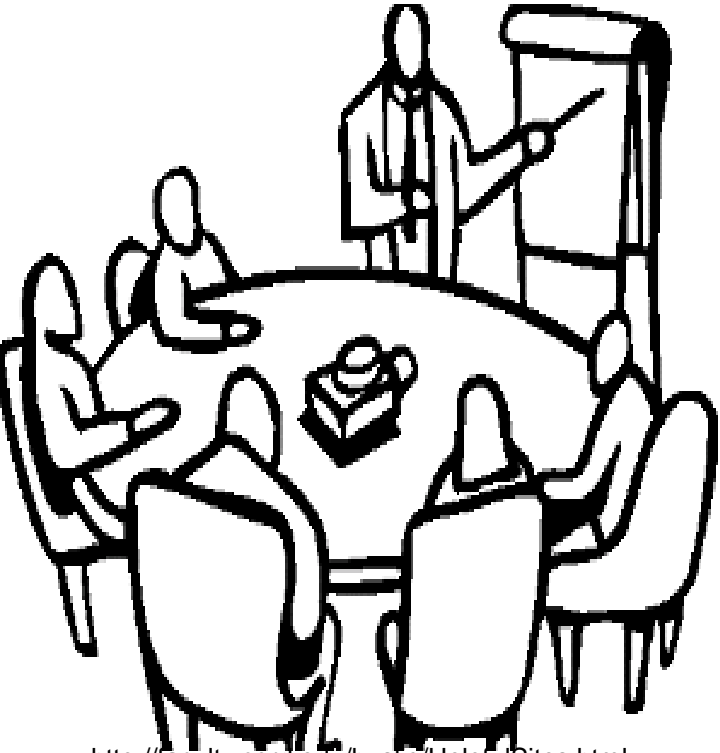
Khunti et al. (2012)



# 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

| <b>Gaps in Knowledge</b>   | <b>Future Research</b>   |
|--|--|
| <ul style="list-style-type: none"><li>• Lack of research on the different types of DSME and the benefits of each</li><li>• Identifying the most effective DSME</li><li>• Generalizability to other populations</li></ul> | <ul style="list-style-type: none"><li>• How many hours should subjects receive DSME?</li><li>• Number of courses?</li><li>• Type of setting?</li><li>• Topics covered throughout the course?</li><li>• Number of people in each group?</li><li>• Test on diverse populations</li></ul> |

# 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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