Caring for Pregnant People of Size

A Nurse-Midwife's Guide for the First Prenatal Visit

Elizabeth G. Muñoz, MSN, CNM

Committee Chair:

Bette Moore PhD, RN, IBCLC, FAAN

Committee Members:

Pam Jones, DNP, RN, NEA-BC, FAAN

Sharon L. Holley, DNP, CNM, FACNM

- 1 million people living with Obesity in U.S. (CDC, 2018)
- Highest growing obesity class is class III (BMI >/=40.0) (ACOG, 2020; NCHS, 2020).
- At least 25% of women BMI >30.0 prior to pregnancy
- Estimated that 1 in 2 pregnant people have Obesity (ACOG; NCHS).

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Introduction

- Differences seen across racial groups with the rate of obesity
  - both before and during pregnancy
- BIPOC have higher incidence of obesity than white counterparts (NCHS, 2020).
- Pregnant people of Latin-x /Hispanic heritage have the highest rate of obesity in pregnancy
- African American women more likely to have severe obesity in pregnancy (Chen, et al., 2018; NCHS, 2020).

Introduction

- Other factors that affect the risk of a pregnant person having obesity are:
  - rural living location
  - working a sedentary job (Chen, et al., 2018; NCHS, 2020).

Implications of Obesity in Pregnancy

- **Physical Implications: Increased Risk of Cesarean birth**

- The current rate of cesarean birth in all pregnancies across the United States ranges from 22.4% to 38.3% and research evidence supports that this wide range may be affected by the type of provider used for pregnancy and birth care (Carlson, 2019; CDC, 2020).

- A person with a BMI above 30.0 has an elevated risk of birthing via cesarean when compared to someone with a BMI under 30.0, and this risk could be as much as five times that of the accepted normal risk (Carlson; Chu, et al., 2007).

There is good news!

- CNMs often have lower cesarean section rates than physician, even in groups with higher BMIs (Carlson).

- For example, birthing centers have a cesarean rate of about 6%, while the national cesarean section rate at hospitals hovers around 32% (VUSN, 2015).

- Even with some participating CNMs practicing in the hospital setting, the practice site for this project has a much lower cesarean section rate than typical physician practices, ranging from 14-18% (VUSN, 2015).

Implications of Obesity in Pregnancy

Financial Implications: Higher Healthcare Costs

- Pregnant people with Obesity can experience increased health risks (hypertension, diabetes, etc)
- This leads to higher healthcare costs (Galtier-Dereure, Boegner, & Bringer, 2000).
- Costs can be lowered in the care of this patient population by promoting the opportunity for a vaginal birth, and this includes induction of labor when indicated (Hopkins, et al., 2019, Subramaniam, 2015).

Significance of the problem

- CNMs attend 8.4% of births in the United States (Nat'l Vital Statistics).
- CNMs can provide the midwifery model of care for those with moderate health risks who historically have been cared for by physicians, such as with Obesity.
- **Some midwives are not comfortable with caring for the pregnant person with obesity for a variety of reasons, including lack of knowledge about the current recommendations. (Reither, et al., 2018).**
- CNMs at the chosen practice site have varying degrees of knowledge and comfort levels to care for people of size in pregnancy (also known as pregnancy complicated by obesity).
- Current practice guidelines at the SON Midwifery Practice do not highlight information specific to the evidence-based midwifery model of care.

The Problem

- No training available for CNMs caring for pregnant people of size at the first prenatal visit
  - Clinical Problem
  - Provider level
  - Discussed/Originated at CNM staff meeting
  - CNMs desired more information/guidance

- Current Practice: refer to the practice guidelines
  - Guidelines are current
  - No discussion of evidence behind the recommendations

Purpose and Objectives

The purpose of the project is to improve the

- **Confidence**
- **Knowledge**
- **Self-efficacy levels**

of the CNMs in my practice when caring for pregnant people with obesity by creating and implementing an educational module for caring for these patients at their first prenatal visit.

Background

- The practice site for this DNP project is a large CNM practice that is affiliated with a School of Nursing.
  - In operation for over 20 years
    - known in the community for adhering to evidence-based care.
  - Has two clinic locations and two locations for birth.
    - first birth site is an out of hospital birth center
    - Both sites have BMI cut-offs to receive care with the VUSN CNMs
      - BMI cut-offs are not present for all CNM practices but for these two the cut-offs are:
        - (Birth Center =40.0 and Hospital = 50.0)
  - The hospital CNMs attend birth at a major medical center with an ongoing initiative to reduce the primary c-section
- There are currently 34 CNMs of varied experience levels on staff at the two sites and each site risks patients out of care at a specific BMI cut-off.
  - At birthing center, patient must have a BMI of less than 39.9 kg/m2 at the start of care
  - Hospital site uses 49.9kg/m2 as their BMI cut-off.
  - This is due to the different patient risk levels allowed for each site.

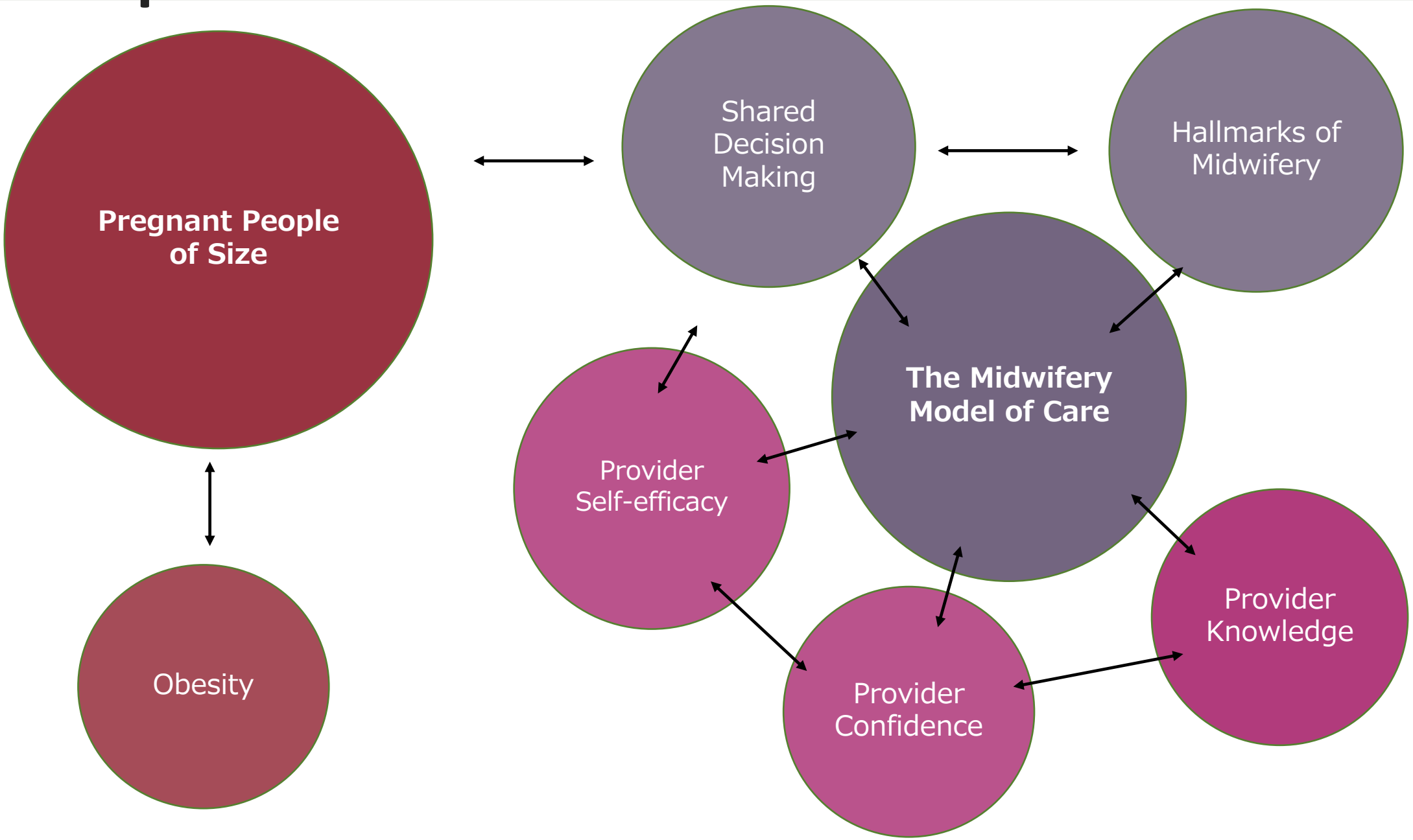
Objectives

Objective	Date Completed
1. Assess the CNMs current plan of care protocol for the initial prenatal visit for a pregnant person with a BMI over 40.0 and compare to the latest evidence available (focusing on primary research articles published within the last five years).	2/28/2021.
2. Review the plan of care protocol for the first prenatal visit to assess how it aligns with the hallmarks of midwifery care specifically examining if the protocols promote patient autonomy, normalization of pregnancy and birth, and informed consent**.**	3/1/2021
3. Create an online, asynchronous, educational module rooted in the adult learning theory aimed to increase knowledge and confidence for the CNMs. This targeted training will review the current written care protocol in an educational video and provide resources that can be used when caring for pregnant people with obesity. This module will also include an overview of the hallmarks of midwifery to consider when caring for patients with obesity, as well as tips for addressing implicit bias.	6/20/2021.

Objectives

Objective	Date Completed
4. Once IRB approval is received, assess baseline provider confidence and knowledge levels when caring for people of size in pregnancy via a pre-test, immediately prior to implementation of module. There is no desired baseline score, as the goal is to measure overall change in these levels .	6/21/2021-7/7/2021
5. Implement the educational module.	6/21/2021-7/7/21
6. Measure the outcome of this project by a post-test that will assess the change in provider confidence and knowledge levels.	6/21/21-7/7/2021
7. Analyze data and report findings to my DNP committee in a written paper and oral presentation.	7/8/21-7/21/20

Concepts


Pregnant People of Size
Obesity
Shared Decision Making
Hallmarks of Midwifery
The Midwifery Model of Care
Provider Self-efficacy
Provider Knowledge
Provider Confidence

Framework: The Adult Learning Theory

First published in 1984 by Malcolm Knowles

Popularized “andragogy” vs pedagogy

Adult Learning Theory, the first four Assumptions

1. Self-concept: from dependence to self-direction
2. Adult learner experience: experiences inform learning
3. Readiness to learn: tasks oriented/attached to social roles
4. Orientation to learning: change occurs from postponed to immediate application of information (Knowles, 1984).

The Adult Learning Theory: Bandura's Lens

Albert Bandura added a 5th assumption to Knowles' theory:

5. The motivation to learn is internal

Expanded upon Knowles' work and added the following "four principles of Andragogy":

- Involve adults in planning/evaluating the instruction
- experience/mistakes create foundation for learning
- Interest in information with "immediate relevance"
- problem-based learning (Pappas, 2013).

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Applying the Adult Learning Theory

Project Component	Application of Theory
1. the problem was identified by participants	1. the participants chose the subject matter
2. The “why” of the project was introduced before implementation and questions answered.	2. Foundation was explained and goals were reviewed, leading to internal motivation
3. Module addresses latest evidence-based practice methods	3. so that up-to-date information could be immediately applied
4. Specific practice changes are recommended	4. Task-oriented information presented

PICOT

PICOT Question	
Population	For Nurse-Midwives at Vanderbilt Medical Center
Intervention	does completion of a virtual educational module about initiating care for pregnant people with BMI of 40 or higher based on the Midwifery Model of Care
Comparison	rather than standard care (use of the current practice guidelines)
Outcome	increase their confidence, knowledge, and self-efficacy levels
Time	from baseline to immediately after implementation

PICOT

Revised PICOT Question	
Population	For healthcare providers
Intervention	does the completion of an evidence-based healthcare intervention module
Comparison	compared to no education
Outcome	increase their confidence, knowledge, and self-efficacy levels
Time	from baseline to immediately after implementation

Comparing/Contrasting the Literature

- 5 studies included in review differed by:
  - Participant type and number
    - Healthcare student vs healthcare provider
  - Country/location
    - Netherlands, Thailand, Spain, USA, Australia
  - Frameworks
    - Bandura's Self-Efficacy (2 articles used this)
    - Kirkpatrick Model for Education
    - Azjen's Theory of Planned Behavior
    - Social Cognitive Theory
  - Instruments used
    - GSES
    - Focus Groups
    - EBP course
    - Interviews
  - Results
    - Increase in self-efficacy, confidence, and knowledge

Themes/Categories in Evidence

- Consistent Themes
  - Increased confidence, knowledge, and self-efficacy when education targets evidence-based recommendations for specific patient populations.
  - Interventions rooted in promoting self-efficacy appear to be successful, though the body of research is not fully developed.

Evaluating the Evidence

- Strengths
  - Positive results
  - Similar frameworks
  - Multidisciplinary samples
  - Validated tools
  - Completed with short timeframe
- Weaknesses
  - Small sample size
  - No high-level evidence, such as RCT
  - Little evidence from US
- Gaps
  - Missing high-level studies
  - All cohort studies—concern for sampling bias
- Future Research
  - **Absence of midwifery voice noted**
  - Focus on midwifery-specific research

Methods: Design, Participants, and Setting

- **Project Design**
  - Quality Improvement Project
  - Small dose of an intervention for CNMs
- Participants
  - **Certified Nurse-Midwives**
  - experience levels range from less than one year of practice to up to 30 years of practice
  - included those who work full-time and part-time
- **Setting:**
  - Vanderbilt School of Nursing Nurse-Midwifery Practice
    - out-of-hospital birthing center and hospital setting

Methods: Implementation

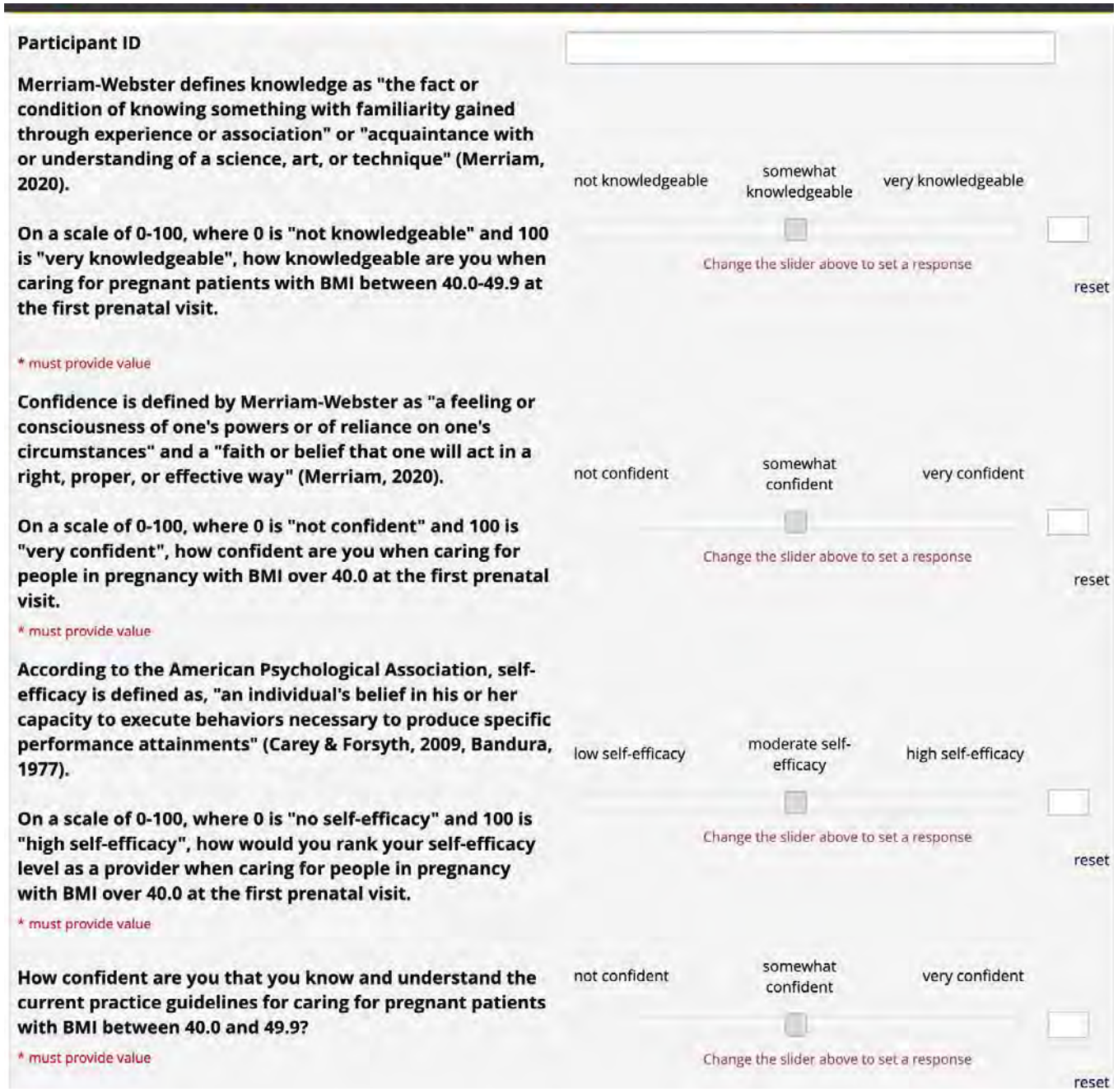
One Redcap survey was used to implement the intervention

There were three steps to implementing the Redcap survey

- Pre-test
- Module
- Post-test

For the convenience of the participants, which I was hoping would boost participation, these steps were all located in one survey

Methods: Pre-Post Test



Participant ID

Merriam-Webster defines knowledge as "the fact or condition of knowing something with familiarity gained through experience or association" or "acquaintance with or understanding of a science, art, or technique" (Merriam, 2020).

On a scale of 0-100, where 0 is "not knowledgeable" and 100 is "very knowledgeable", how knowledgeable are you when caring for pregnant patients with BMI between 40.0-49.9 at the first prenatal visit.

* must provide value

not knowledgeable | somewhat knowledgeable | very knowledgeable

Change the slider above to set a response

reset

Confidence is defined by Merriam-Webster as "a feeling or consciousness of one's powers or of reliance on one's circumstances" and a "faith or belief that one will act in a right, proper, or effective way" (Merriam, 2020).

On a scale of 0-100, where 0 is "not confident" and 100 is "very confident", how confident are you when caring for people in pregnancy with BMI over 40.0 at the first prenatal visit.

* must provide value

not confident | somewhat confident | very confident

Change the slider above to set a response

reset

According to the American Psychological Association, self-efficacy is defined as, "an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments" (Carey & Forsyth, 2009, Bandura, 1977).

On a scale of 0-100, where 0 is "no self-efficacy" and 100 is "high self-efficacy", how would you rank your self-efficacy level as a provider when caring for people in pregnancy with BMI over 40.0 at the first prenatal visit.

* must provide value

low self-efficacy | moderate self-efficacy | high self-efficacy

Change the slider above to set a response

reset

How confident are you that you know and understand the current practice guidelines for caring for pregnant patients with BMI between 40.0 and 49.9?

* must provide value

not confident | somewhat confident | very confident

Change the slider above to set a response

reset

Methods: Pre-Post Test

reset

It is recommended that pregnant people with BMI of 40.0 or higher should be screened at the first prenatal visit for:

- ○ Arthritis
- ○ Food allergies
- ○ UTI
- ○ Sleep apnea

reset

A pregnant person with a BMI over 40.0 is at increased risk for all of the following except:

* must provide value

- ○ Preeclampsia
- ○ Sleep Apnea
- ○ Stillbirth
- ○ UTI

reset

According to ACOG's bulletin (156), the long term negative effects for pregnant patients of size include which of the following? (choose all that apply)

* must provide value

- ☐ depression
- ☐ early termination of breast feeding
- ☐ postpartum anemia
- ☐ postpartum weight retention
- ☐ none of these

What would be an appropriate weight gain goal during pregnancy for someone with a BMI between 40.0-49.9?

* must provide value

- ○ Weight loss during pregnancy is recommended
- ○ Weight gain of 11-15 pounds is recommended
- ○ Weight gain of 16-20 pounds is recommended
- ○ Weight gain of 21-35 pounds is recommended

reset

The hallmarks of the Midwifery Model of Care include all of the following except:

* must provide value

- ○ Advocacy of non-intervention in normal processes in the absence of complications
- ○ Belief that pre-pregnancy weight dictates the outcome of the pregnancy
- ○ Care to vulnerable populations
- ○ Empowerment of women as partners in healthcare

reset

Negativity obesity bias is present in the healthcare visit when:

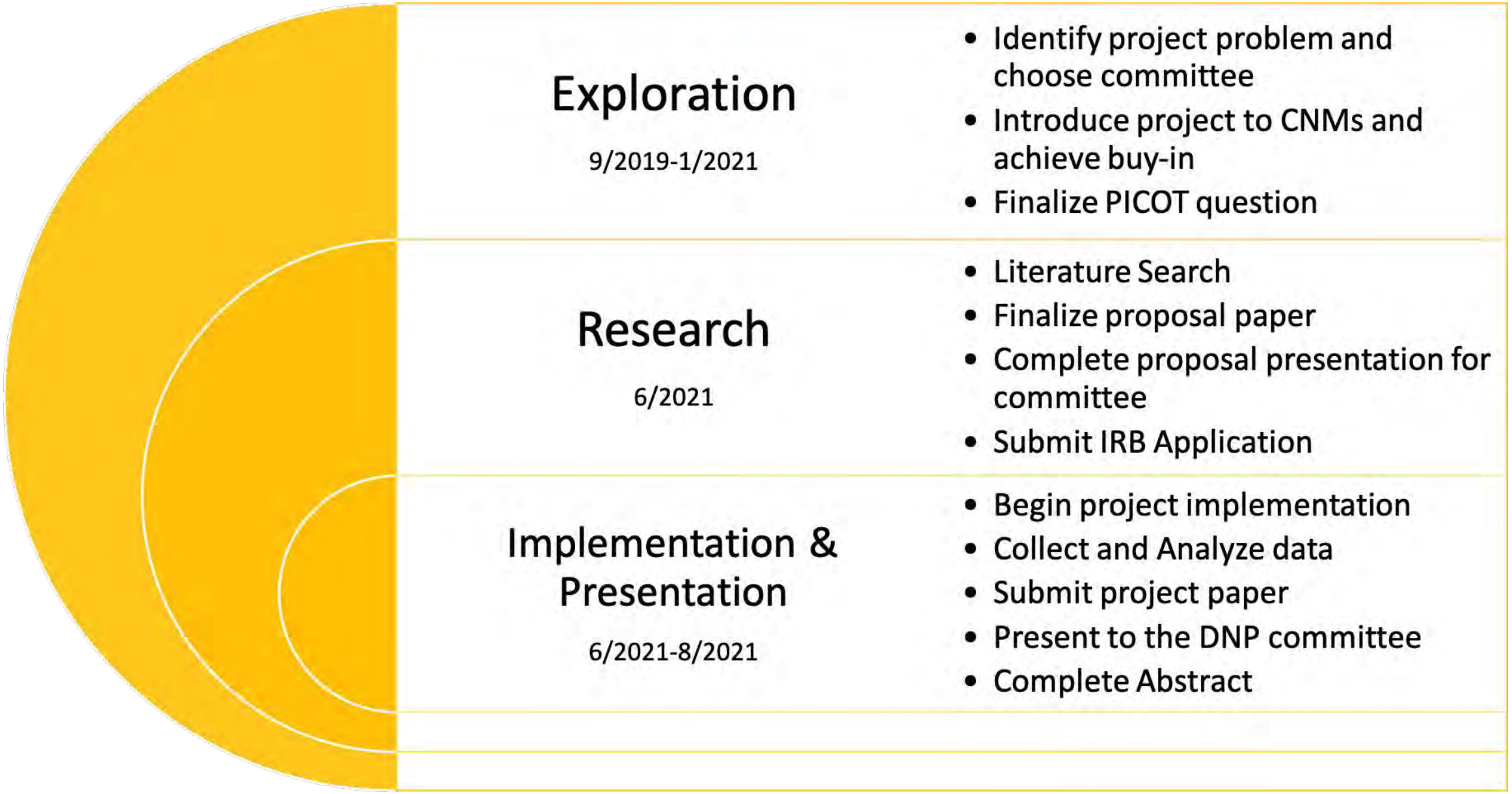
* must provide value

- ○ The medical assistant rooms the patient in a room that has ample space and chairs without armrests
- ○ The patient is not provided with a gown of appropriate size for their body habitus
- ○ The patient's weight is collected at the beginning of the visit
- ○ The provider respectfully acknowledges the patient's BMI when discussing risk factors to be aware of during pregnancy

reset

Educational Module

Project Timeline Recap



Analysis: Steps for Project Implementation

- The CNMs were introduced to the project at their January staff meeting and there was a review of the project timeline. Completed January, 7, 2021.
- The project went “live” on June 21, 2021 and participants were alerted of this via email.
- The module and pre-post tests remained open for 17 days.
- The participants received reminder emails encouraging them to complete the module.

Analysis

- Electronic Survey distributed to participants via email containing the RedCap survey link
  - Initial response rate was lower than desired at the two-week mark with only 41.18% of CNMs completing the survey (n=14).
  - After this three-day extension, six more participants completed the survey and the response rate rose to 58.82% (n=20).
- Each participant included in the reported results completed the survey in full.
- The data from participants who did not complete the entire survey were excluded.

Analysis

- **Data downloaded from Redcap to a password protected Excel spreadsheets**

- **Evaluated the data collected from the sliding scale questions using the ABC scale formatting as continuous data.**
  - Calculated descriptive statistics for the data set, including central tendency measures (mean) and variability (standard deviation).
    - This was important to show the significance of the change in provider confidence, knowledge, and self-efficacy scores.

- **Questions answered:**
  - a. What was the overall change in mean confidence scores from pre- to post-test?
  - b. What was the overall change in mean knowledge scores from pre- to post-test?
  - c. What was the overall change in mean self-efficacy scores from pre- to post-test?
  - d. What was the change in the confidence the CNMs felt related to the clinical guideline and implementing those steps from pre- to post-test?
  - e. What was the change in scores on the knowledge test from pre- to post-test?

Analysis

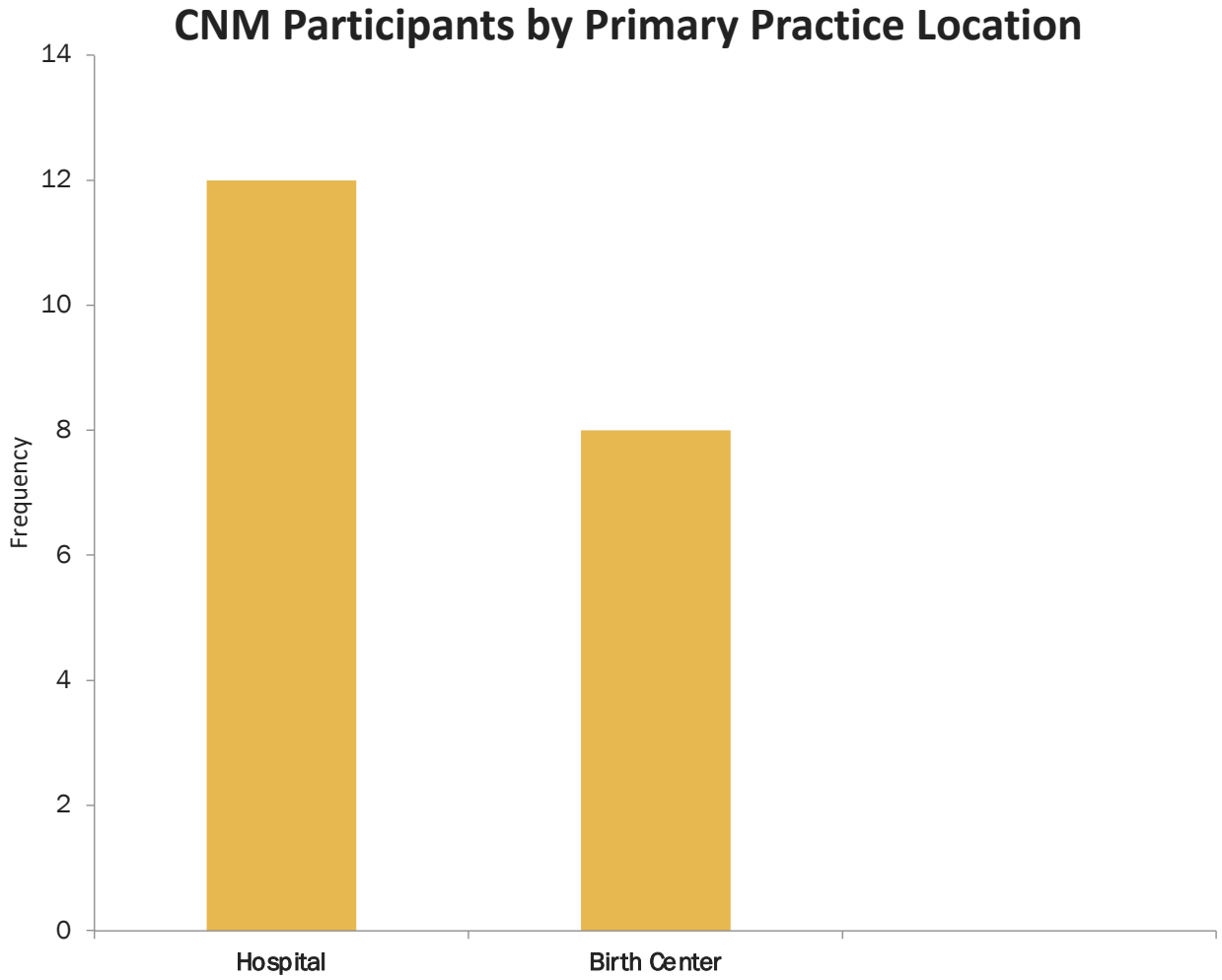
- The data was analyzed in Excel first.
- Descriptive Statistics were calculated in Excel and histograms were created for each variable
- An online statistics calculator approved by the statistician was used to calculate the Wilcoxon Signed-Rank Tests and find the p-values and z-scores
  - to know statistical significance of any changes

Results

- Twenty out of a total of 34 (58.2%) CNMs completed all components of the project implementation.
- Three CNMs started the pre-test but did not complete it or continue to the module video component of the project.
  - were not included in the reported participation rate noted above and their data was excluded for not meeting completion criteria.
- Six participants completed the post-test several days after viewing the module and completing the pre-test
  - their data was included.
- The survey contained practice-specific information questions including length of time in practice and practice site.
  - Identifying information, such as age and exact years of practice, was not included in the survey

Results

Participants were also asked to select their primary practice location and selected either primarily hospital-based (n=12; 60%) or primarily practicing at the birth center (n=8; 40%).



Results

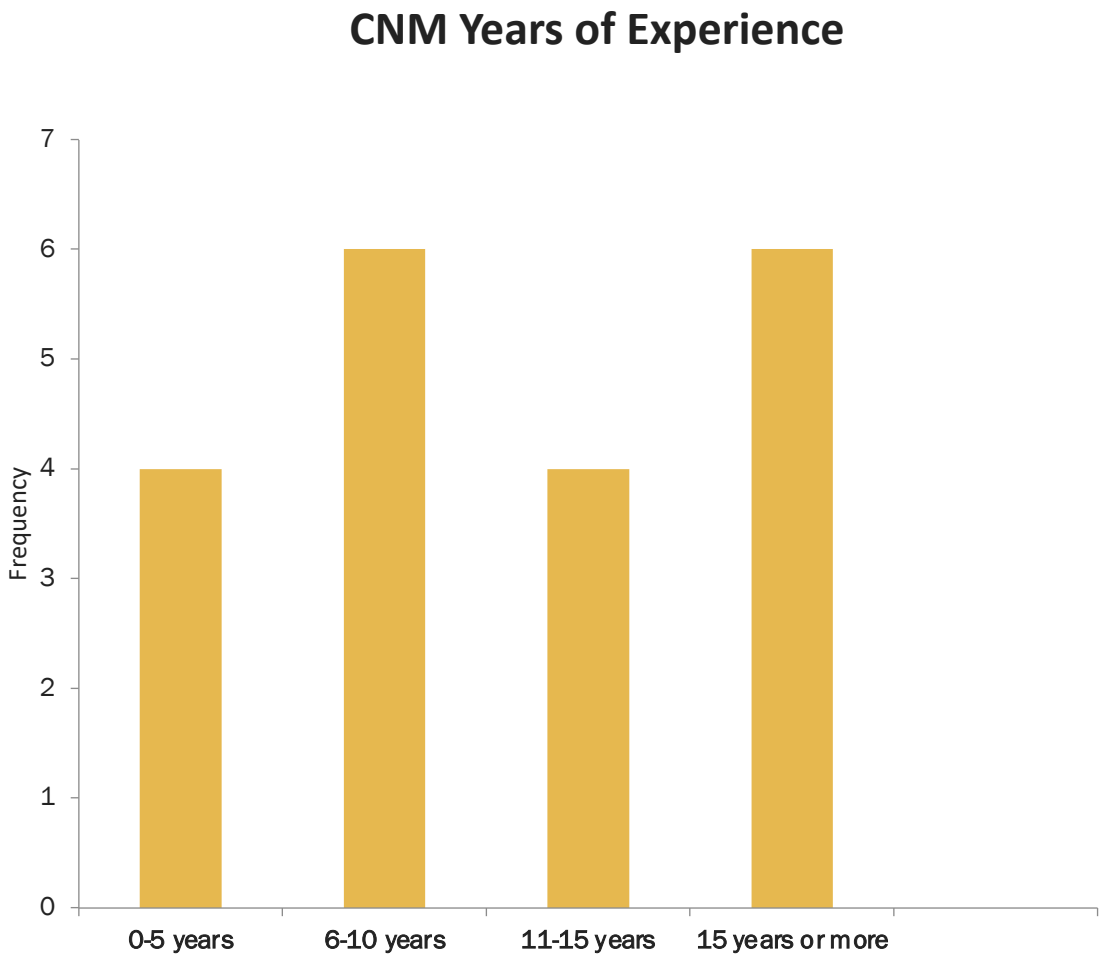
The years of experience question provided ranges:

0-5 years of practice (n= 4)

6-10 years of practice (n=6)

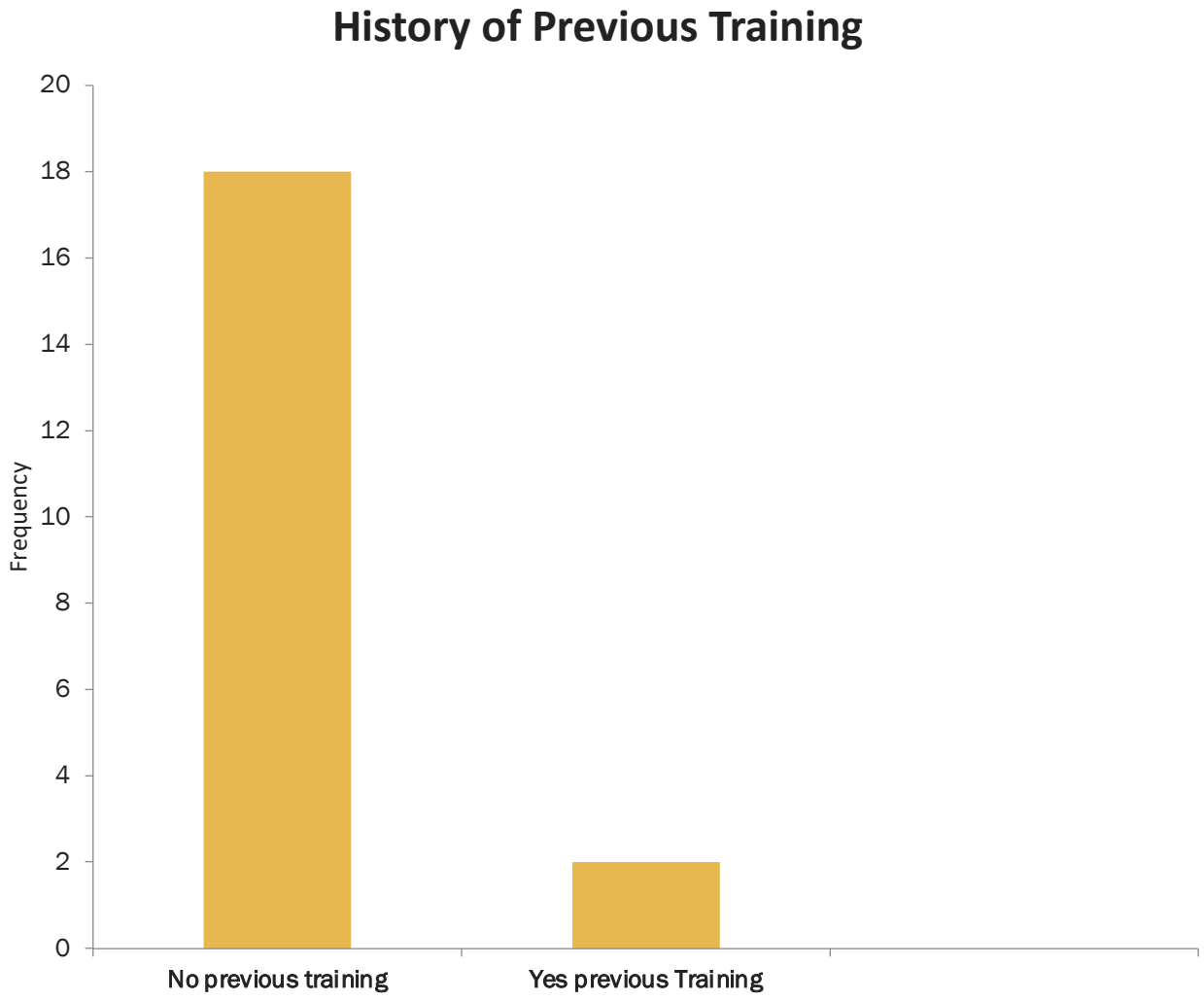
11-15 years of practice (n=4)

15 or more years of practice (n=6).



Results

The participants' previous exposure to a specific training on pregnancy and obesity was also reported in the survey.



Results

- All participants were female
- Demographic questions that could have revealed the participants' identities were not asked in the survey

Results

Perceived Confidence

The participants were asked the following question:

“Confidence is defined by Merriam-Webster as:

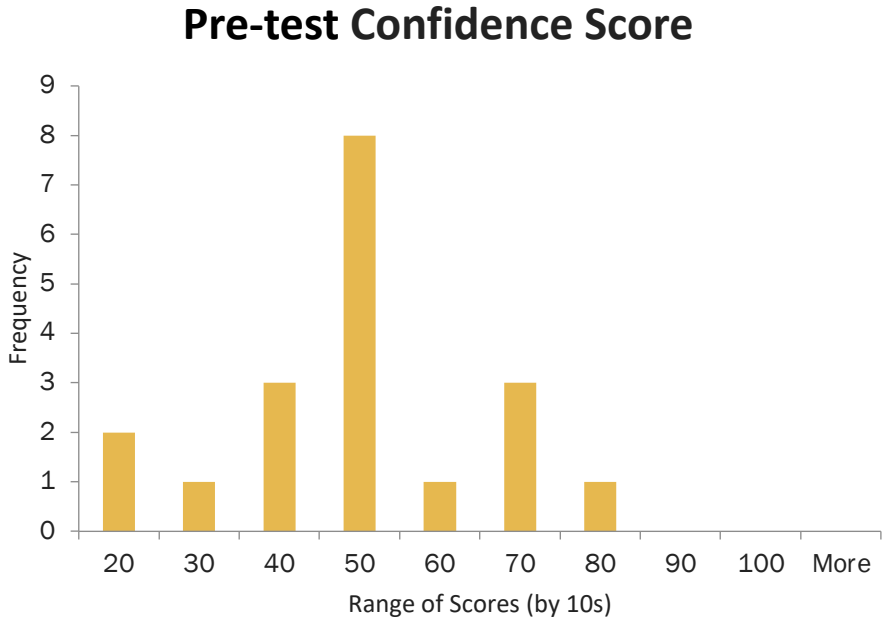
‘a feeling or consciousness of one's powers or of reliance on one's circumstances' and a 'faith or belief that one will act in a right, proper, or effective way' (Merriam, 2020).

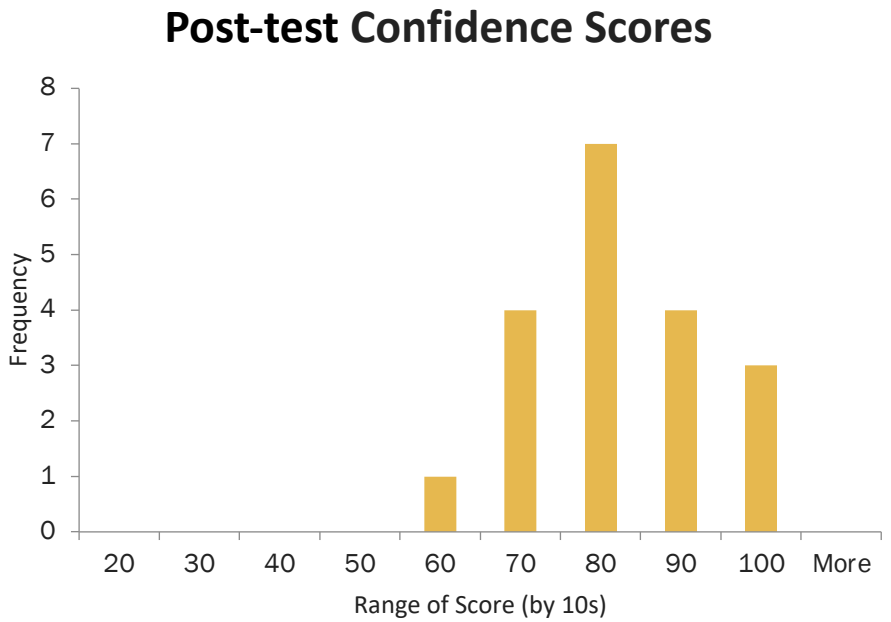
On a scale of 0-100, where 0 is 'not confident' and 100 is 'very confident', how confident are you when caring for people in pregnancy with BMI over 40.0 at the first prenatal visit?”

- A sliding scale was used and the participants selected their scores, from 1-100. This was evaluated as continuous data

Results

Perceived Confidence





The mean pre-test score for the perception of confidence by the CNM was 47.65 (SD=18.80) with a range of scores from 2-75. The mean score for the post-test increased to 79.95 (SD=10.59), which is a 67.79% increase from the pre-test score. In the post-test, participant scores ranged from 60-97.

p=0.000008; z=3.9199; meeting project objective

Results

Perceived Confidence

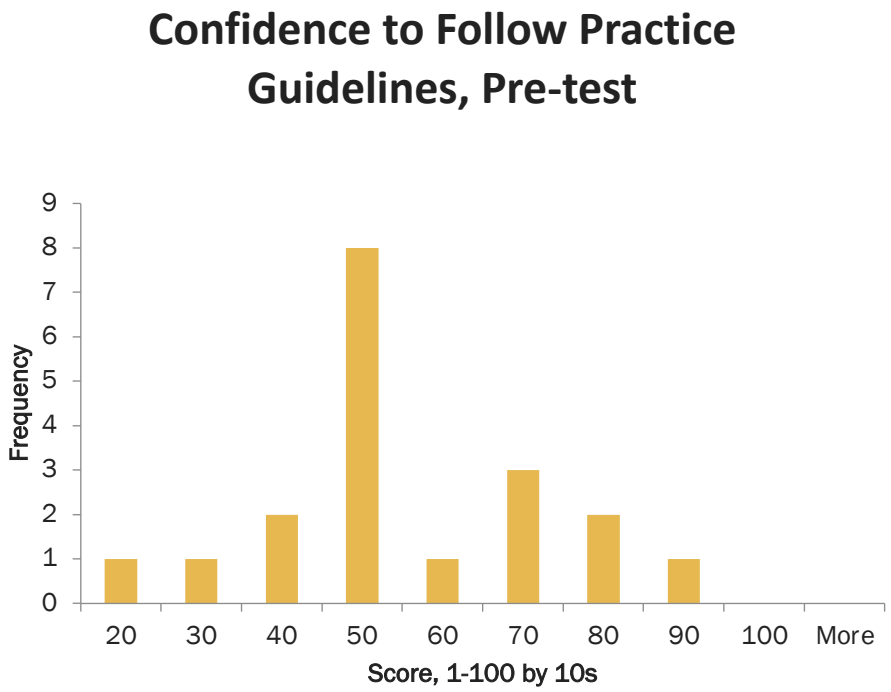
The CNMs were asked the following question:

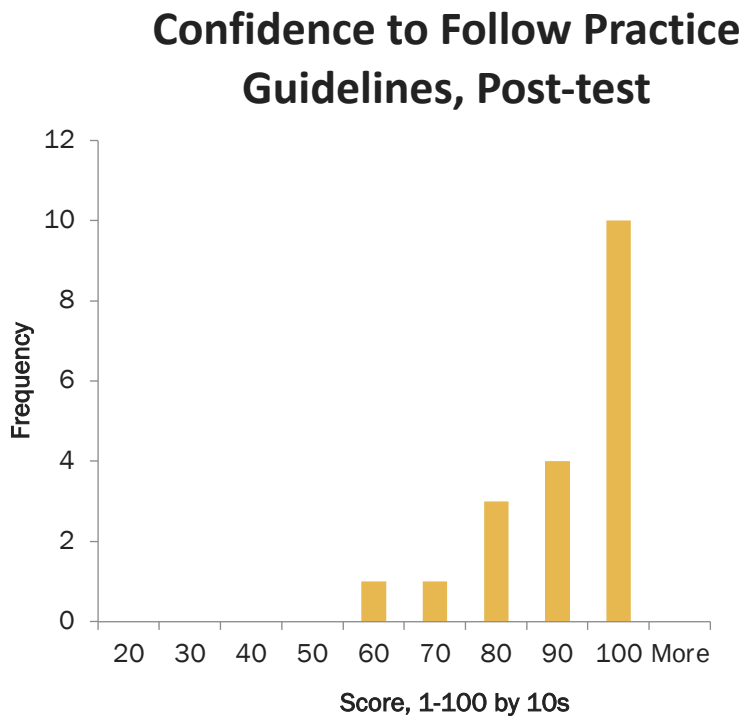
“How confident are you that you know and understand the current practice guidelines for caring for pregnant patients with BMI between 40.0 and 49.9?”

The selected their answers on a sliding scale numbered from 1-100, and the results were analyzed as continuous data.

Results

Perceived Confidence





The mean score of the CNMs' confidence to follow the guidelines for the first prenatal visit for patients with BMI > 40.0 increased from 54.25(SD=19.94) to 87.75 (SD=12.27) between the pretest and posttest scores.

P=0.0001, which means this change in mean score is statistically significant and suggests that the intervention was successful in increasing this score rather than the increase being by chance. The project goal for this variable was met.

Results

Perceived Knowledge

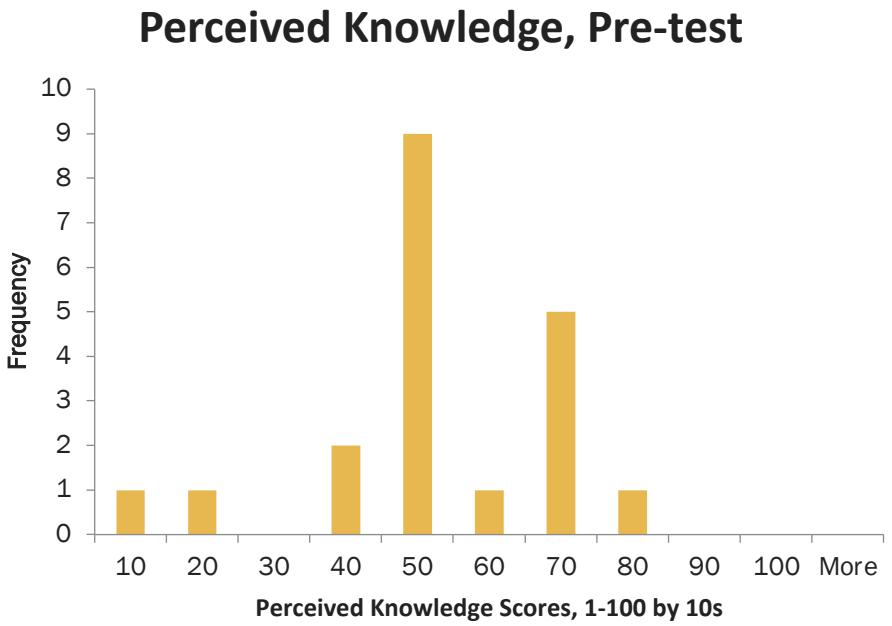
The CNMs were asked the following question:

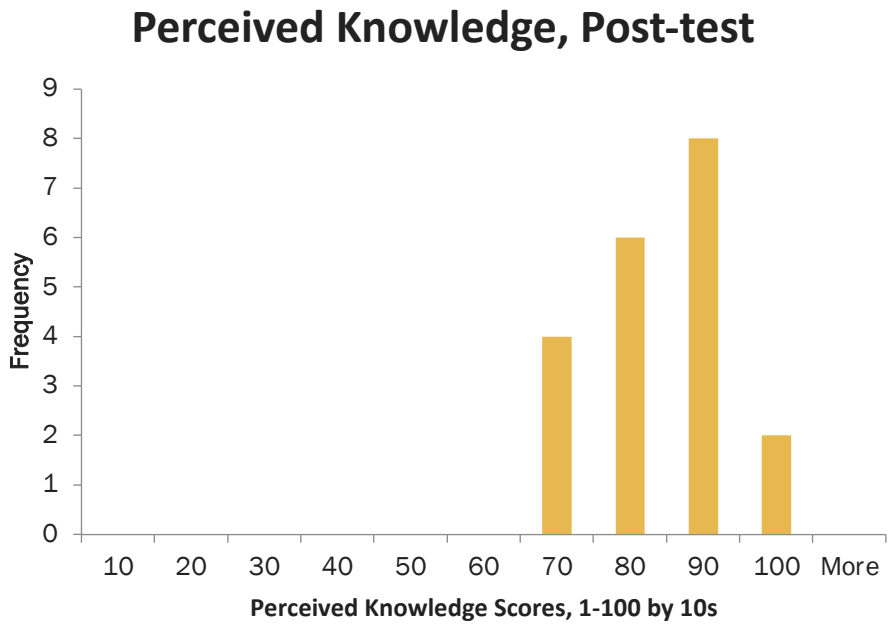
Merriam-Webster defines knowledge as 'the fact or condition of knowing something with familiarity gained through experience or association' or 'acquaintance with or understanding of a science, art, or technique' (Merriam, 2020).

On a scale of 0-100, where 0 is 'not knowledgeable' and 100 is 'very knowledgeable', how knowledgeable are you when caring for pregnant patients with BMI between 40.0-49.9 at the first prenatal visit.

Results

Perceived Knowledge



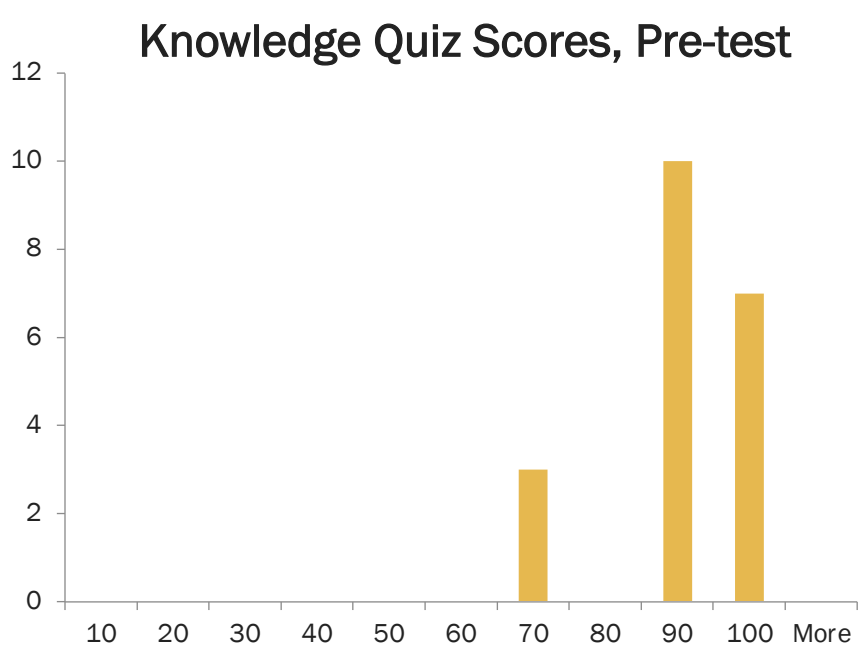


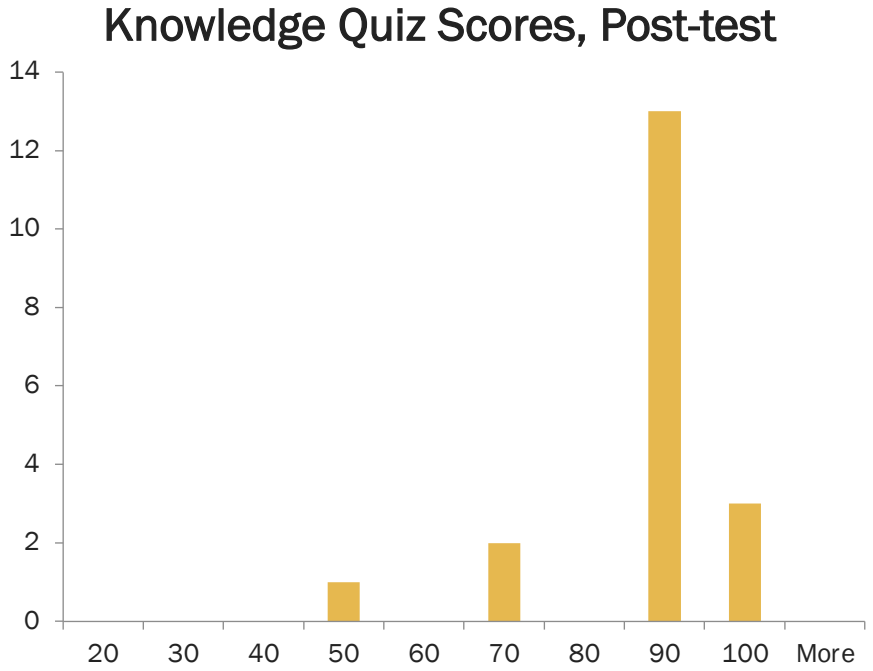
The mean score for the perceived knowledge of the CNM from pretest (50.0, SD=17.69) to post-test (80.7, SD=10.61) was 30.7 points, which is a 61.4% increase in the posttest score when compared to the pretest score.

This statistically significant change (p=0.00008) suggests the intervention was successful in improving the perception of knowledge among CNMs when caring for this patient population. The project objective for this variable was met.

Results

Knowledge Quiz



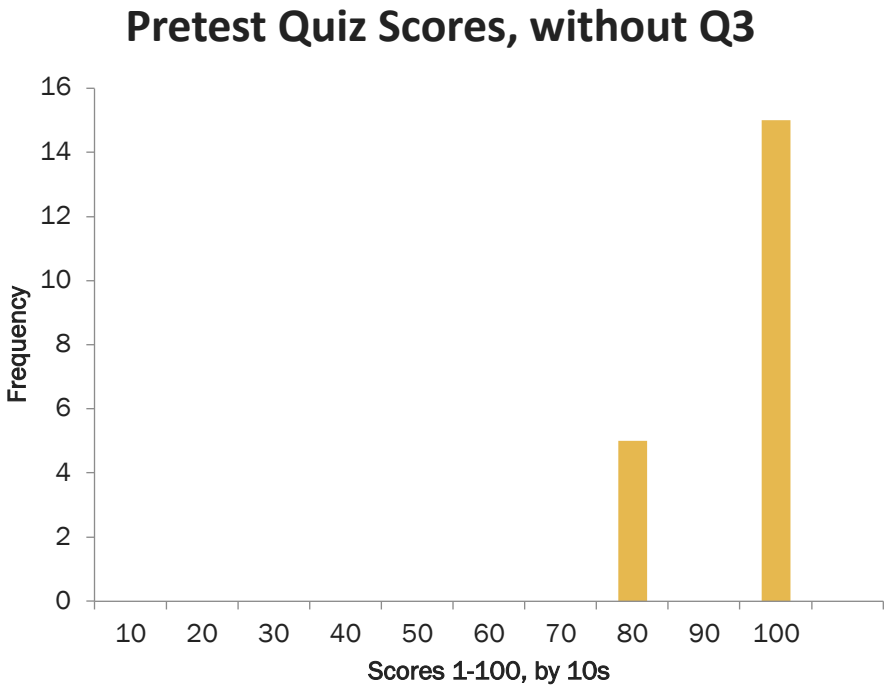


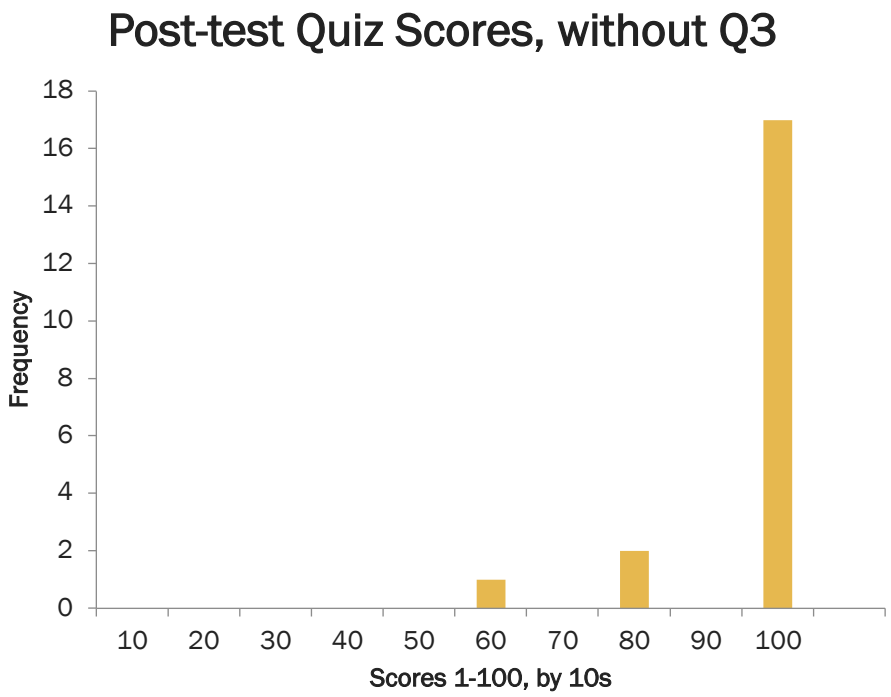
The descriptive statistics for the pre-test knowledge scores were calculated and the mean pre-test knowledge scores from the quiz was 86.67% (SD=11.60).

The post-test knowledge scores were also analyzed, and the mean post-test knowledge score was 82.50% (SD=11.44). The change in the pre- and post-test knowledge scores was -4.17 and represented a -4.8% decrease from the pre-test score.

Results

Knowledge Quiz





Mean Score= 95, SD=8.89

Mean Score= 96, SD= 10.46

When question 3 was omitted, which was of a higher difficulty and required higher test-taking skills, the mean knowledge score for the CNMs **increased slightly, though not thought to be in a statistically significant manner.**

Results

Self-Efficacy

The CNMs were asked the following question:

“According to the American Psychological Association, self-efficacy is defined as, 'an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments' (Carey & Forsyth, 2009, Bandura, 1977).

On a scale of 0-100, where 0 is 'no self-efficacy' and 100 is 'high self-efficacy', how would you rank your self-efficacy level as a provider when caring for people in pregnancy with BMI over 40.0 at the first prenatal visit.

Results

Self-efficacy

The mean score for the change in self-efficacy perceived by the CNM from pretest (56.75, SD=18.23) to postest (78.9, SD=12.51) was 22.15 points, which is a 39.0% increase in the posttest score when compared to the pretest score. This is a statistically significant change in this score (p=0.00008) and suggests the intervention was successful in improving self-efficacy rates in the CNMs when caring for the patient population.

Discussion

The results support the creation of tailored educational interventions for CNMs to increase positive associations when caring for pregnant patients of size, and therefore the intervention used in this practice-improvement initiative met the aims of the overall project.

This educational intervention with specific recommendations about caring for pregnant people of size improved CNM levels of confidence, perceived knowledge, and self-efficacy.

Discussion

The results of this practice improvement project also reflect those found in the initial literature review where educational interventions about diverse topics such as perinatal mood disorders (Phoosuwan & Lundberg), providing breastfeeding support (Antoñanzas-Baztan, et al.), physiologic childbirth (Thompson, et al.), obesity management (Sturgiss, et al.) and evidence-based practice (Moore, et al.) were found to increase participant knowledge, confidence, and self-efficacy.

Discussion: Project Strengths

- Statistically significant increases in the key variables were seen from pre- to post-test for confidence, perceived knowledge, and self-efficacy.
- The educational intervention was effective in increasing positive feelings of the CNMs associated with caring for this patient population.
- Their improved confidence, knowledge, and self-efficacy could later lead to a “trickle-down” effect, potentially improving patient outcomes.

Discussion: Project Limitations

- Participation Rate
  - number of participants and the response rate was low (n=20; 58.82%).
  - This could have been due to the timing of implementation over the summer holidays, when CNMs are on vacation.

- The educational intervention was created specifically for this project and has not yet been tested further and the individual questions on the pre- and post-test may not have been similar in difficulty level.

Future Implications

- Lack of validated, midwifery-specific educational resource (such as a professional statement from the ACNM) was not available to include in the project.
  - The only widely available resource on pregnancy complicated by obesity is from ACOG, and is a tool shaped in the Medical Model of Care.
- In the future, it would benefit CNMs to have their own written educational resource for caring for pregnancy people of size that is created using the Midwifery Model of Care.
  - This document would need to include the components of care, such as shared decision making and other patient-centered information, incorporating bias-informed language.

Future Implications: Next Steps

The next iteration of this project should include educational information on the following information topics:

- management differences for pregnant patients of size in the second and third trimesters
- information for intrapartum and postpartum care specific to this population
- a patient-centered educational module for the pregnant patient of size

- The CNM practice should consider pulling data about the number of patients who are referred out of care due to BMI cut-offs.

Conclusion

- This practice improvement project sought to increase the confidence, knowledge, and self-efficacy of Certified Nurse-Midwives when caring for pregnant people of size at the first prenatal visit.
  - These concepts are important components of adult learning theory that have been widely applied across healthcare fields, including nursing.
- An educational module for CNMs, including a pre- and post-test survey, was implemented via Redcap, which provided evidence-based recommendations for the first prenatal visit specific to pregnant patients of size.
- The module was developed in alignment with key components of the Midwifery Model of Care and bias-informed education was highlighted throughout.
- The outcomes of this educational intervention included a statistically significant increase in the mean scores for confidence, perceived knowledge, and self-efficacy from the pre- to post-test.
- Though the participant numbers were low (n=20), the results of this project demonstrate that provider confidence, perceived knowledge, and self-efficacy can be improved with brief educational interventions and could potentially positively affect patient outcomes.
- Further research is needed to demonstrate the relationships between the variables explored in this project and patient outcomes.

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