

**NURSING PRESENCE ENHANCEMENT USING THE CALM SCALE FOR PAIN
ASSESSMENT IN LABORING WOMEN**

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Dedication and Acknowledgments

Thank you to my parents, who have continued to support me throughout this endeavor. I would not be where I am without your unconditional love and guidance. Thank you to my siblings, who have always been a source of inspiration.

Abstract

Background: Pain is associated with negative patient outcomes and dissatisfaction. The use of the Numerical Rating Scale (NRS) has not improved patient outcomes in laboring women. The NRS fails to account for several factors that influence pain. Nursing presence is defined as being physically available, emotionally supportive, and advocating for the woman during childbirth. Nursing presence positively influences the pain experience of laboring women. The Coping Assessment in Laboring Moms (CALM) scale was created to address the multifaceted aspects of labor pain and promote nurse presence.

Purpose: To implement a change in practice for assessing pain during labor in a labor and delivery unit in a southeastern U.S. Women's Hospital. The project aims to identify the need for change in practice using the CALM scale.

Methods: The CALM scale was implemented in the Labor and Delivery Unit after an educational intervention was presented. HCAHPS scores for nurse care were compared during the NRS scale use and during the use of the CALM scale. A survey given to nurses assessed their perceived nursing presence after using the CALM scale.

Results: Although patient HCAHPS surveys did not identify a significant difference in nursing presence between the two pain assessments, nursing presence surveys administered to the labor and delivery nurses revealed 64.29% found the CALM scale enhanced nursing presence.

Recommendations and Conclusion: Differences in the HCAHPS survey results were not significant. Future studies may consider another instrument to assess nursing presence or a longer period for data collection. The nurse survey results demonstrated evidence of increased nursing presence when the CALM scale was used supporting results from previous studies.

Keywords: labor pain, nontraditional pain scale, CALM scale, nursing presence

Background and Significance

Pain leads to poor patient outcomes and is a source of patient dissatisfaction. The Joint Commission enacted standards requiring accredited hospitals to include mandatory pain assessments as a component of regular assessments. The Joint Commission standards were meant to positively influence measurable patient outcomes including, but not limited to pain management and care given by nurses. Improved outcomes would lead to increased patient satisfaction as evidenced by scores on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surveys. To meet these standards, hospitals accredited by the Joint Commission adopted the use of the Numerical Rating Scale (NRS), a relatively simple and easy-to-use assessment tool. The NRS has not been shown to improve patient outcomes or increase patient satisfaction (Vila et al., 2005).

The NRS assessment tool has faced criticism from laboring women and labor and delivery nurses. Pain is expected during childbirth and differs from one laboring woman to another. The NRS is a one-dimensional screening tool that fails to assess the physiological, psychological, and sociocultural aspects unique to labor pain (Vila et al., 2005). The NRS pain assessment tool does not promote nurse presence in labor. According to The Association of Women's Health, Obstetric, and Neonatal Nurses (2011) nursing presence is one of the primary variables influencing a woman's childbirth experience. In response to the shortcomings of the NRS for pain assessment in laboring women, Horn and D'Angelo (2017) developed The Coping Assessment in Laboring Moms (CALM) scale.

The CALM scale meets the Joint Commission standards while assessing the multidimensional aspects of labor pain. The CALM scale recommends nursing presence-associated interventions to address the analgesic needs of laboring women. The implementation

of the CALM scale in the original study by Horn and D'Angelo (2017) was associated with increased satisfaction for the labor and delivery nurses and laboring women. The Women's Hospital has low overall patient HCAHPS scores and scores reflective of nursing care for labor and delivery. The use of the CALM scale has the potential to increase overall patient satisfaction, nurse presence, nurse care, and nurse satisfaction during the delivery process.

Purpose

This project was a quality improvement initiative. The purpose was to substitute the CALM scale to assess pain in laboring women in place of the traditional NRS. The project implemented the CALM scale at a Women's Hospital in the southeast United States in order to enhance nursing presence during childbirth. The tool assessed pain multidimensionally and suggested nurse presence interventions across four categories for pain management. Implementing a tool to promote nursing presence is fundamental to improving the overall experience of labor for the patient. Nursing presence is also a variable assessed by the Joint Commission and is reflected by HCAHPS scores, which affects both the reputation of the hospital and the hospital's reimbursement. Nurse perception of nurse presence may also improve with the use of the CALM scale. Survey questions were asked to assess the nurse perspective. The project results were examined in order to determine the need for practice change on the unit from the NRS to the CALM scale.

Review of Current Evidence

Literature Search

Databases PubMed, JSTORE, and ScienceDirect were searched using the keywords and phrases "CALM scale", "alternate pain scales for laboring women", "Joint Commission pain standards", "pain as the fifth vital sign", "causes of labor pain", and "nursing presence during

childbirth”. Twenty-four articles were found and eighteen were included in the review. Articles were included if they were either a landmark, qualitative, mixed-methods, quantitative, or quality improvement study. Studies were not included if they were opinion pieces rather than research articles.

Pain, The Joint Commission, and the NRS

Pain is a major source of patient dissatisfaction. Increased recovery time and healthcare costs are two examples of negative patient outcomes associated with pain (Vila et al., 2005). In the 1990s, the American Pain Society created an initiative advocating pain as the fifth vital sign (Baker, 2017). The Joint Commission responded by instituting standards of care regarding pain assessment and management. These standards require pain assessments as part of regular health assessments for hospitals accredited by The Joint Commission. Improved patient outcomes and increased patient satisfaction were the goals of these mandates. Evidence for meeting these goals would come from HCAHPS patient satisfaction surveys. Higher satisfaction ratings would indicate better patient outcomes and satisfaction. The Numerical Rating Scale (NRS) was quickly adopted across many healthcare entities to swiftly adhere to the Joint Commission mandates for routine pain assessments. The NRS assesses pain on a scale from 0 to 10, with 0 indicating no pain and 10 indicating the highest severity of pain (Baker, 2017). The use of the NRS has not improved patient outcomes. The scale is associated with increased narcotic use and associated patient dissatisfaction (Vila et al., 2005). The NRS scale fails to assess the non-physiological elements of pain. It is a one-dimensional screening tool ascribing a number to pain when pain is a subjective, complex, and multifaceted process (Lowe, 2002).

Labor Pain

Labor pain is a pain unlike any other assessed by healthcare professionals. Pain is a natural component of labor (American College of Obstetricians and Gynecologists, 2019). The severity of pain during labor impacts the pharmacological interventions used, with increased pain severity resulting in increased narcotic administration. Increased opioid interventions increase possible risks and complications, which have been linked to decreased patient satisfaction (Westergren et al., 2019). Physiological, psychological, and sociocultural factors are major influences on the experience and severity of labor pain (Aziato et al., 2017; Beigi et al., 2019; Lowe, 2002). The physical pain accompanying childbirth is usually greatest during the second stage of labor. Social and cultural norms heavily influence the expression of pain and requests for analgesia. Some norms encourage women to express pain and request intervention, while some emphasize laboring as a duty with pain tolerance as a sign of strength (Aziato et al., 2017). The expression of pain according to specific societal and cultural norms can lead to the development of racial or cultural bias and disparities in labor pain treatment by providers (Mathur et al., 2020). Maternal expectations and beliefs regarding pain during labor have been strongly linked to the perception of labor pain. Maternal acceptance of labor pain helps women cope (Aziato et al, 2017). Women less prepared or those giving birth for the first time may have less desirable labor outcomes. These outcomes include increased pharmacological interventions and longer durations of the first and second stages of labor. Prenatal education is correlated with enhanced maternal expectations and realistic expectations regarding labor pain (Lally et al., 2008). The psychological support a woman receives during labor is strongly associated with the expression of pain during childbirth. Support during labor may come from either family members or healthcare providers (Beigi et al., 2010). Reassuring and comforting support aids

women with coping during labor compared to women without support. The physiological, psychological, and sociocultural facets of labor pain are important factors to assess to effectively intervene and mitigate the severity of labor pain. Reducing the severity of pain can reduce the need for interventions leading to increased patient satisfaction.

Nursing Presence

Nursing presence in labor is defined as being physically available, emotionally supportive, and advocating for the woman during childbirth (The Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN, 2011). Nursing presence during childbirth has been identified as a major positive influence on the mitigation of pain during childbirth. The AWHONN (2011) published an official position statement declaring nursing support during labor a vital component of care in achieving superior outcomes during labor. Effective nursing presence and support during labor have a positive impact on the labor experience and pain relief for the laboring woman (Aziato et al., 2017; Ghaderi et al., 2021). Nursing presence improves the patient's involvement in decision making, expectations of pain during birth, and ability to cope particularly during the second stage of labor (Bergstrom et al., 2011; Bradfield et al., 2017; Lally et al., 2008). Nursing presence is strongly affected by facility standards and protocols, such as the NRS or CALM scale (MacKinnon et al., 2005).

The CALM Scale

Women giving birth, and labor and delivery nurses, have voiced dissatisfaction with the NRS assessment of pain during labor. These complaints led to the development and implementation of the Coping Assessment for Laboring Mom's (CALM) scale by Horn and D'Angelo (2017). The CALM scale meets the Joint Commission's revised standards of care for pain assessment and management while addressing the multidimensional aspects of labor pain. It

was created using concepts derived from the novel Coping with Labor Algorithm developed by Roberts (2011) and findings from Bergstrom et al. (2010). With the CALM scale, labor pain is assessed by the ability of the woman to cope during childbirth not with a numerical pain scale (Lowe, 2002). The CALM scale assesses pain in the laboring woman by rating the face, behavior, psychosocial, vocalization, and verbal expressions (Appendix A). Following the assessment, the score is used to guide interventions rooted in the concept of nursing presence. Nursing presence interventions are categorized by physical comfort. Categories include nonpharmacological measures, emotional support with sociocultural considerations, informational support, and advocacy (Horn and D'Angelo, 2017).

Gaps in Literature

Quality improvement projects conducted at several hospitals across the nation used the Coping with Labor Algorithm, a nontraditional pain assessment for laboring women. Nurses and laboring women expressed increased satisfaction with the utilization of the alternate pain scale (Fairchild et al., 2017; Gulliver et al., 2008; Roberts et al., 2010; Tussey, 2016). These projects failed to account for cultural and socioeconomic diversity among laboring women, an important component of the perception and expression of labor pain (Fairchild et al., 2017; Gulliver et al., 2008; Horn & D'Angelo, 2017; Roberts et al., 2010; Tussey, 2016). Horn and D'Angelo (2017) accounted for such cultural and socioeconomic diversity differences when they developed the CALM scale. Similarly, nurses and laboring women favored the CALM scale over the NRS. Evidence supporting the use of the CALM scale outside of the original project by Horn and D'Angelo (2017) has not been published.

Theoretical Model

Lewin's Model of Change is the theoretical framework selected for this project. Lewin's Model of Change is comprised of three stages, unfreeze, change, and refreeze (Appendix B). The unfreezing stage refers to the dismantling of current practice. This stage involves introducing not only the need for change but also the reason new practice is superior to current practice. The second stage, change, refers to the period where practice change occurs. It may take time for the change to be accepted. The third and final stage is the refreeze stage in which the practice change has now become a part of the organization's culture and its use is readily accepted without resistance (Lewin, 1951).

Educating the nurses about the CALM scale and its benefits in comparison to the traditional pain scale is part of the unfreezing stage. To unfreeze or change current practice, the reason or purpose for such change must be clear. The purpose for this change is the common dissatisfaction with the traditional pain scale as noted by nurses and some of the laboring women. The numerical pain scale is difficult to effectively implement for laboring women because it fails to account for expected pain and the ebbs and flows of pain between and during contractions. The CALM scale focuses on how the laboring woman is coping with pain. The scale also fosters nursing presence and promotes holistic pain control. Both nurses and laboring women have expressed support for nursing presence interventions over typical administration of narcotics for pain control (Fairchild et al., 2017; Gulliver et al., 2008; Horn & D'Angelo, 2017; Roberts et al., 2010; Tussey, 2016). The change stage of Lewin's Model is reflected by the actual implementation of the CALM scale, which would occur over the two months proposed after the nursing educational intervention. The final refreeze stage of Lewin's Model would occur if the

CALM scale was accepted and implemented by the labor and delivery nurses at the project site and ultimately became a part of the unit culture (Lewin, 1951).

Methods

Design

This was a quality improvement project. An educational intervention on the CALM scale and its use was presented to labor and delivery nurses in a Women's Health hospital in the Southeastern United States. The nurses were asked to implement the CALM scale rather than the traditional NRS currently in use to assess pain in laboring women. Data was collected and analyzed from nurse surveys and patient HCAHPS scores. Data were analyzed to identify a significant difference between HCAHPS mean ratings for nursing presence when the NRS was used compared to mean ratings when the CALM scale was implemented. Nurse survey results were also examined to identify if the nurses felt their presence was enhanced when assessing pain with the CALM scale in comparison to their assessment with the NRS. If the project resulted in data that support an increased nursing presence using the CALM scale, a policy change would be instituted. The clinical research coordinator for the hospital would help the unit permanently transition to using the CALM scale for pain assessment in laboring women.

Translational Framework

The Johns Hopkins Nursing Evidence-Based Practice Model was used for this project. This model is comprised of three phases (Appendix C). The first phase involves a question regarding nurse practice about a particular issue. The second phase entails reviewing the evidence regarding the current or best practice of the issue in question. The final phase involves a change in practice where the published evidence unearthed in phase two is translated into practice (Johns Hopkins Medicine, 2017). This DNP project fits the Johns Hopkins Evidence-

Based Practice Model because an initial question regarding the best practice for assessing pain in laboring women developed. There was interest in improving pain assessment in this population in the unit implementing the CALM tool. The project transitioned to the second phase of the model when the current evidence was gathered and critically examined in an extensive literature review and presented to the nursing staff. The project began the third phase of the model when the CALM scale was implemented.

Permissions

Permission for the project was granted by The University of North Carolina at Greensboro Nurse Anesthesia faculty advisor. The faculty advisor approved the project idea and development. Once the study met the qualifications for a doctor of nursing practice project, approval from the UNCG IRB and the study site IRB was obtained. The project was deemed not to be human research after review and was exempt from IRB approval. An official letter of support from the study site was received by the hospital Nursing Research Council Director. The CALM scale is accessible online with use granted for research purposes.

Setting

The project took place in an urban hospital in the southeastern United States. The hospital serves women and children. The labor and delivery unit has 18 beds out of a total of 97 adult beds in the hospital. Out of 350 registered nurses working in the hospital, 150 are trained labor and delivery nurses. The hospital reports between 300 to 400 births each month.

Sample

The HCAHPS scores of women delivering vaginally were examined. HCAHPS scores from women unable to speak English, younger than 18 years, prisoners, cognitively impaired, or those choosing a planned cesarean section were excluded. The demographics of these women,

such as age and ethnicity, were voluntarily disclosed on the anonymous HCAHPS surveys. The labor and delivery nurses implemented the CALM scale during labor for women meeting the project criteria. Nurses participated and provided nurse perspectives on nurse presence through the submission of voluntary surveys.

Project Implementation

The DNP Project was implemented after an educational session for the CALM scale was presented to the labor and delivery nurses. The clinical research coordinator conducted the presentation on the unit. The presentation detailed the need for change and the shortcomings of the current pain assessment tool. The presentation provided a thorough explanation of the CALM scale including how to document the assessment. After the education session, the labor and delivery nurses transitioned to assessing pain with the CALM scale in the EPIC medical record. The scale assesses how well the patient is coping during labor. Using the coping assessment, the CALM scale provides suggestions for nurse interventions. The unit implemented the CALM tool for a minimum trial period of two months for data collection.

A potential barrier to implementation included difficulty in learning how to use the CALM scale. The traditional pain scale is simple and instructions for its use are easy to understand. The CALM scale is detailed, requires greater instruction for use, and is charted differently. The clinical research coordinator, clinical nurse specialist, and charge nurses were designated as resources for nurses needing assistance in using the scale and charting. This barrier, difficulty in use compared to the NRS, was addressed by reiterating the benefits of using the CALM scale, which includes increased nurse satisfaction. Potential facilitators for implementation include education regarding the need for practice change. Highlighting the

positive outcomes associated with alternate pain assessment tools in laboring women can motivate participants to invest in the practice change.

Instruments

The HCAHPS survey was used to obtain data regarding the patient's satisfaction related to care from nurses during the hospital stay. The HCAHPS survey is a federally mandated, valid, and reliable patient survey containing a total of 29 questions with the first 4 addressing care from nurses (Appendix D). Patients must answer using Likert scale responses for all questions except the last seven, which ask for demographic information (Centers for Medicaid and Medicare Services, 2021). The survey scores related to nurse care or nursing presence before and after the implementation of the CALM scale were examined.

A nursing presence survey for the labor and delivery nurses was administered in this project. The survey assessed nurse perception of nursing presence with the CALM tool (Appendix E). The survey was created for this project using similar questions asked on nurse surveys in previous studies after the implementation of a nontraditional pain scale in laboring women (Gulliver et al. 2008; Roberts, 2011; Roberts et al., 2010). Yes, no, or unsure were the response choices following each question. All data collected and examined from the instruments utilized in this project were deidentified.

Data collection

The data was collected from two sources, patient HCAHPS surveys and nursing staff pre and post-implementation surveys. The Centers for Medicare and Medicaid publish HCAHPS survey scores publicly on their website. These survey scores are obtained from data collected during two months. Scores analyzed in this project were collected for the years 2020 and 2021 during June and July. HCAHPS survey scores from 2020 correspond to scores obtained when the

NRS was used. The survey scores from 2021 reflect scores during the CALM tool implementation. The laboring women voluntarily and anonymously fill out the HCAHPS surveys.

The second source of data, the nursing presence survey given to labor and delivery nurses, was distributed by the clinical coordinator through email. The email contained a request to fill out the survey with a survey link. The survey website collected and stored the responses anonymously. The data is only accessible through a password-protected account. Labor and delivery nurses voluntarily filled out the surveys. The survey was administered following the CALM scale implementation assessing pain in the unit.

Data Analysis

The HCAHPS scores specific to nursing care were examined before the implementation of the CALM scale. These scores reflect patient satisfaction with nursing care when the NRS was used. Nursing care HCAHPS scores received during the period when the CALM scale was implemented were also analyzed. These scores reflect patient satisfaction with nursing care when pain was assessed with the CALM scale. The survey scores were reported by CMS to the hospital as summarized data. The summarized data were analyzed in order to compare differences or trends in scores when different pain scales were utilized by the labor and delivery nurses. The responses from the nursing presence survey given to the nurses were also analyzed. Descriptive statistical analysis was used for quantitative data. Descriptive statistical analysis included the calculation of percentages and means. Inferential statistical analysis included t-tests. A statistical advisor assigned by the UNCG Nursing program provided guidance regarding the applicability of statistical analysis tools in relation to the project data collected.

Budget, Time, and Resources

Financial resources were not required. The CALM scale was utilized in the labor and delivery unit for two months. The proposed deadline to complete the implementation of the study by July 31st, 2021, was met.

Results

Nursing presence as perceived by the patient was assessed by HCAHPS scores for nursing care. These scores were evaluated in the same months from 2020 and 2021. The scores in 2020 were reflective of patient perception of nursing presence with the use of the NRS. Scores in 2021 were reflective of patient perception of nursing presence with the use of the CALM tool. Scores for labor and delivery nurses were compared to scores for all hospital nurses for the respective timeframes. The summarized survey scores are presented in Table 1 for 2020 and 2021 HCAHPS scores for OB Nurse Scores only and Table 2 for 2020 and 2021 HCAHPS scores for OB staff care in general including OB nurses. The sample size of respondents in 2020 and 2021 was similar for each of the HCAHPS questions. None of the questions differentiated by more than one patient response when comparing the number of responses submitted from 2020 to 2021. Table 1 identifies the July 2020 sample size was 6 patient scores for the communication with nurses HCAHPS question, whereas in July 2021 there was 7 patient scores. The mean rating from July 2020 when the NRS was utilized was 77.8 compared to 90.0 for ratings submitted during July 2021 when the CALM scale was implemented.

The results are similar and the sample size of patients too small to conclude any statistically significant difference in nursing presence regarding communication with nurses from the use of different pain assessments. Using independent t-tests to compare the 2020 ratings to the 2021 ratings for each question confirmed there was no statistically significant difference

between ratings. The two-sided p-values computed were greater than .05, indicating the two means are not significantly different. The p-value for the comparison of ratings for communication with nurses in 2020 to 2021 was .93. The remaining p-values are found in Table 3 for OB Nurse Scores only and OB staff care in general, which does include OB nurses in addition to other staff on the unit. The data illustrates there is no statistically significant difference or improvement in nursing presence from the patient's perspective when the CALM tool is used in comparison to the NRS.

The most recent CDC report regarding rates of vaginal delivery states that the average rate of vaginal delivery was 68.3% in the United States (Martin et al., 2021). A rough estimate of the population size of women in the project was determined by applying this rate to the upper and lower limits of average births reported by the hospital for two months. This estimated population size was used to determine the ideal sample size or number of responses to HCAHPS surveys to ensure enough data was collected for 95% statistical significance. The ideal sample size ranged from 199 to 226 based on the estimated population size of women having vaginal births (Qualtrics, 2022). The HCAHPS survey responses collected were much smaller than the ideal sample size calculations. The largest sample size over two months for a singular question on the survey was never greater than 13.

Table 1

2020 and 2021 HCAHPS Survey Scores for OB Nurses for June and July

HCAHPS Question	2020 OB Nurse Scores			2021 OB Nurse Scores		
	Survey Collected	Sample Size	Mean Rating	Survey Collected	Sample Size	Mean Rating
Communication with Nurses	6/1/20-6/30/20	6	66.7	6/1/21-6/30/21	6	61.1
	7/1/20-7/31/20	6	77.8	7/1/21-7/31/21	7	81.0
Nurses Treat with courtesy/respect	6/1/20-6/30/20	6	83.3	6/1/21-6/30/21	6	66.7
	7/1/20-7/31/20	6	66.7	7/1/21-7/31/21	7	85.7
Nurses listen carefully to you	6/1/20-6/30/20	6	50.0	6/1/21-6/30/21	6	66.7
	7/1/20-7/31/20	6	83.3	7/1/21-7/31/21	7	71.4
Nurses explained in way you understand	6/1/20-6/30/20	6	66.7	6/1/21-6/30/21	6	50.0
	7/1/20-7/31/20	6	83.3	7/1/21-7/31/21	7	85.7

Table 2

2020 and 2021 HCAHPS Survey Scores for OB Staff for June and July

HCAHPS Question	2020 OB Staff			2021 OB Staff		
	Survey Collected	Sample Size	Mean Rating	Survey Collected	Sample Size	Mean Rating
Response of Hospital Staff Domain Performance (OB)	6/1/20-6/30/20	6	65.0	6/1/21-6/30/21	6	56.7
	7/1/20-7/31/20	6	73.3	7/1/21-7/31/21	7	83.3
Call Button Help Soon as Wanted It	6/1/20-6/30/20	5	80.0	6/1/21-6/30/21	6	33.3
	7/1/20-7/31/20	6	66.7	7/1/21-7/31/21	6	66.7
Help Toileting Soon as You Wanted	6/1/20-6/30/20	4	50.0	6/1/21-6/30/21	5	80.0
	7/1/20-7/31/20	5	80.0	7/1/21-7/31/21	4	100.0

Table 3

Independent t-tests and two-sided p values between 2020 to 2021

HCAHPS Question	Mean		Variance		Two-sided p value (significance level <.05)
	2020	2021	2020	2021	
Communication with Nurses	72.2	71.0	61.7	196.8	.93
Courtesy and Respect by Nurses	75.0	76.2	138.8	181.3	.93
Nurses Listen	66.7	69.1	555.4	11.3	.91
Nurses Explained	75.0	67.9	138.8	637.6	.78
Hospital Staff Response	69.2	70.0	34.7	355.4	.96
Call Button Help	73.3	50.0	88.8	555.8	.42
Help Toileting	65.0	90.0	450.0	200.0	.30

The nursing presence survey sent to labor and delivery nurses assessed nursing presence from their perspective. The survey consisted of seven questions regarding nursing presence with the use of the CALM scale compared to the NRS. The nurses had to choose amongst yes, no, or unsure. “Yes” answers indicated nursing presence was enhanced using the CALM tool. “No” and “Unsure” answers indicated nursing presence was not enhanced with the CALM scale compared to the NRS. A total of 28 labor and delivery nurses in the project completed the survey. The results of the survey are presented in Table 4. This table shows that 64.29% of respondents perceived the CALM tool enhanced nursing presence.

Table 4

Nursing Presence Survey Results

Questions	Yes Response	No Response	Unsure Response
Question 1: Do you feel you provided a greater number of appropriate nurse interventions for the laboring woman when using the CALM scale?	71.43%	14.29%	14.29%
Question 2: Did the CALM scale suggest nursing interventions you wouldn't have thought of otherwise?	42.86%	39.29%	17.86%
Question 3: Do you feel the CALM scale enhances communication with the patient?	78.57%	10.71%	10.71%
Question 4: Do you feel you are better able to advocate for and meet the patient's needs using the CALM tool?	78.57%	10.71%	10.71%
Question 5: Overall, did you perceive yourself as having an increased nursing presence during labor when assessing using the CALM scale?	64.29%	21.43%	14.29%
Question 6: If you perceived an increased nursing presence, do you think overall satisfaction during labor process was improved?	66.67%	18.52%	14.81%
Question 7: If you did not perceive to have an increased nursing presence, do you think overall satisfaction during the labor process was still improved using the tool?	69.23%	7.69%	23.08%

Discussion

The HCAHPS surveys used to indirectly assess nursing presence did not show considerable differences between the months the NRS was used compared to the months the CALM scale was implemented. Mean ratings for the HCAHPS survey questions specific to nurse care as well as mean ratings for labor and delivery staff overall did not significantly differ regardless of pain assessment.

The HCAHPS surveys had several limitations that affected the results. Not everyone was asked to complete the HCAHPS survey as the surveys are administered randomly. In addition, the completion percentage is unknown. Only the number of patients and the summarized scores between those patients are reported by the CMS. This proved to be a major limitation as the sample size for the HCAHPS surveys was low for the months of June and July for both years. In addition, the summarized scores were only available, not the raw data and individual patient scores for those completing the surveys. This limitation does not allow for the standard deviation to be calculated for each of the averages reported. The small sample size and lack of raw data make it difficult to draw any significant conclusions from the data.

The Nursing Presence Survey administered to the labor and delivery nurses illustrated nurse support for the use of the CALM scale as an alternative pain assessment tool. Over half (64.29%) of the nurses found the CALM scale to enhance nursing presence during labor. Nurses overwhelmingly responded favorably to questions of enhanced nursing presence from the use of the CALM scale. While less than half (42.86%) of respondents believed the CALM scale suggested unknown nurse interventions, 71.43% found that the number of nursing interventions did increase. The survey results are not unlike similar survey results from previous research, which showed nurses support an increased nursing presence using alternative pain assessment tools (Fairchild et al., 2017; Gulliver et al., 2008; Roberts et al., 2010; & Roberts, 2011).

A limitation of the nurse implementation survey was the low response rate. Not all the labor and delivery nurses on the unit submitted the survey. Only 28 out of the total 150 trained labor and delivery nurses working on the unit completed the survey. The instructions were also not clear regarding the last two questions of the survey. Question six and seven in the survey corresponded to question five. If a nurse perceived nursing presence was enhanced on the fifth

question, the nurse should have only answered question six. If a nurse perceived nursing presence was not enhanced, the nurse should have answered question seven. The response rates indicate many nurses answered both questions, rendering results for questions six and seven invalid.

Conclusion

While the HCAHPS patient survey results did not demonstrate enhanced nursing presence, the labor and delivery nurse surveys indicated nursing presence was enhanced using the CALM scale. The HCAHPS surveys were not entirely useful due to significant barriers to their distribution and completion, and limitations in data collection. Future projects should consider a longer time frame to collect data or alternative instruments for assessing nursing presence. Horn and D'Angelo (2017) created a new instrument to assess nursing presence in the original CALM scale study. The instrument, the Positive Presence Index, may offer a valid alternative to using HCAHPS surveys. Nursing presence surveys given to the labor and delivery nurses supported previous research favoring the use of a nontraditional pain assessment, such as the CALM scale, among nurses. Future projects should consider sending out multiple reminder emails to complete the survey to improve response rates. Instructions for the questions should be revised to ensure nurses respond appropriately. Future projects could also ask nurses to complete the survey again three months after the initial survey was administered. Comparisons between responses could then be made to see if opinions had changed after extended use of the CALM scale.

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Appendix A

The CALM Scale

TABLE 1
CALM Scale

Assessment every shift, PRN and with signs of change.

Observe for cues throughout labor. Ask, “How are you doing with your labor?”

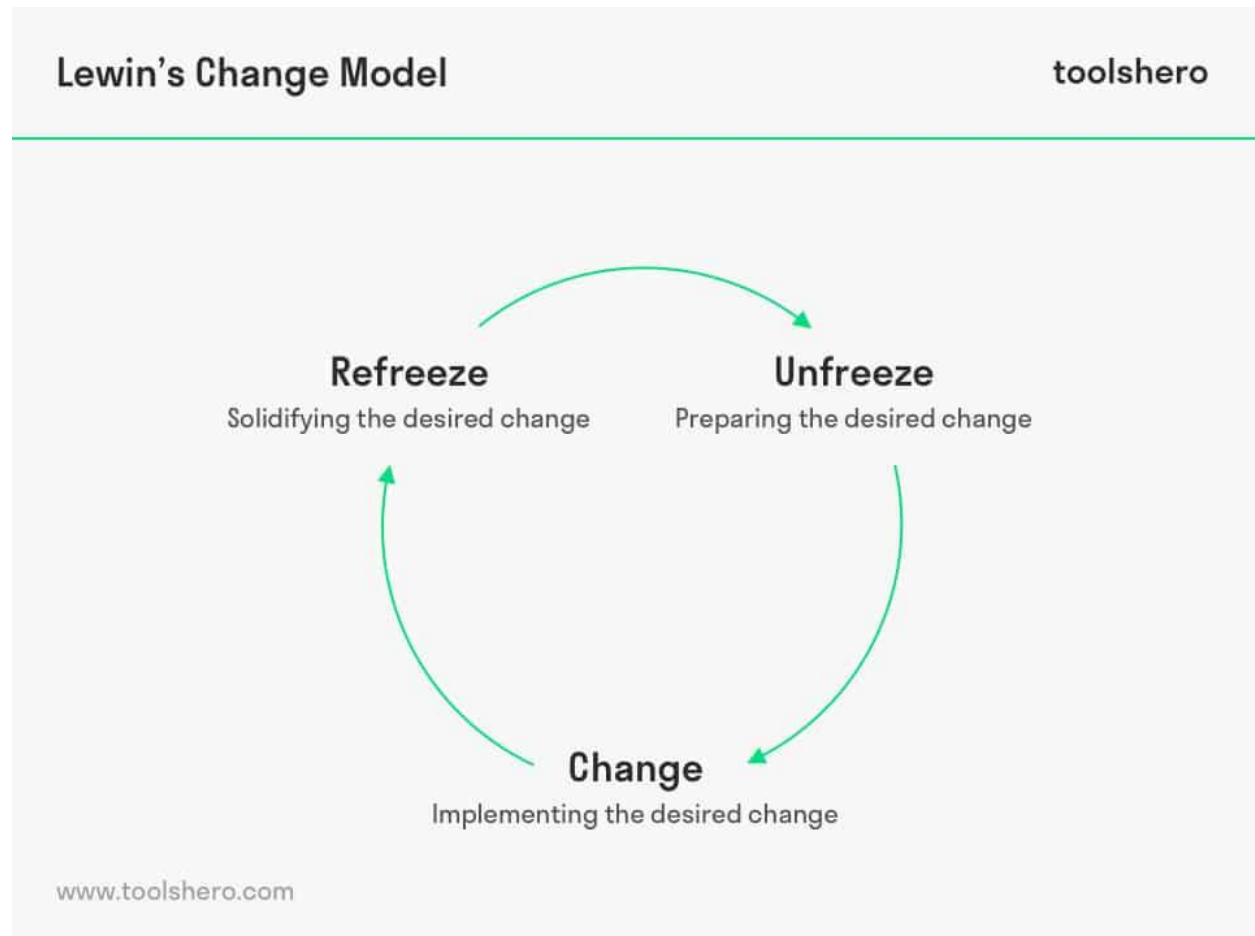
Component	0	1	2
FACE	No particular expression or smile. Facial muscles relaxed.	Facial muscles tense, grimacing, frowning.	Frequent to constant frown, clenched jaw, quivering chin.
BEHAVIOR	Resting quietly, or participating in social activity, body relaxed or ambulating.	Rhythmic activity: breathing, rocking, swaying. Able to relax between contractions.	Tense, grabbing hands or side of bed, thrashing, sweating.
PSYCHOSOCIAL	Focused, engaged in decision making.	Able to follow directions. Focused inward. Reassured by touch.	Panic, inappropriate decision making. Unable to be comforted or consoled.
VOCALIZATION (Objective)	Talking and interacting.	Moaning, chanting, or counting.	Tremulous voice. Crying, tearfulness, frequent moaning.
VERBAL EXPRESSIONS (Subjective)	“I am coping and I can do this.”	States “I am more uncomfortable yet I am coping and I can do this.”	“I am not coping.” “I don’t want to do this anymore.”
Total Score = 0–10			

Note. Source: Developed with information from Roberts, Gulliver, Fisher, and Cloyes (2010). CALM = Coping Assessment for Laboring Moms; PRN = as needed.

From Horn and D’Angelo’s (2017) Does the Coping Assessment for Laboring Moms (CALM) scale enhance perception of nursing presence? *Nursing for Women’s Health*, 21(5), 360-371. [https://nwhjournal.org/article/S1751-4851\(17\)30216-7/fulltext](https://nwhjournal.org/article/S1751-4851(17)30216-7/fulltext). Permission granted to use for education purposes.

Appendix B

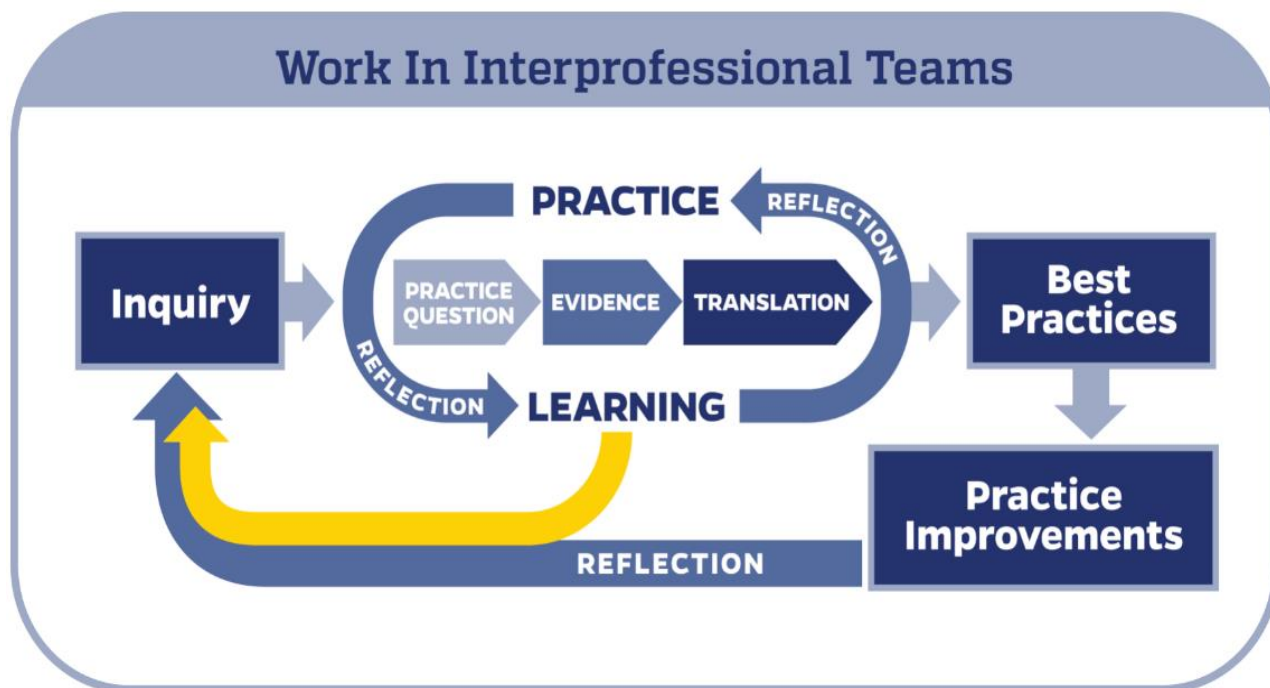
Lewin's Model of Change



From Mulder's (2012) *Lewin's Change Model*. ToolsHero. <https://www.toolshero.com/change-management/lewin-change-model/>. Permission granted to use for educational purposes.

Appendix C

John Hopkins Nursing Evidence-Based Practice Model



From Dang, D., Dearholt, S., Bissett, K., Ascenzi, J., & Whalen, M. (2022). *Johns Hopkins evidence-based practice for nurses and healthcare professionals: Model and guidelines*. https://www.hopkinsmedicine.org/evidence-based-practice/ijhn_2017_ebp.html. Permission to use for educational purposes.

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Appendix D

HCAHPS Survey Questions

HCAHPS Survey

SURVEY INSTRUCTIONS

- ◆ You should only fill out this survey if you were the patient during the hospital stay named in the cover letter. Do not fill out this survey if you were not the patient.
- ◆ Answer all the questions by checking the box to the left of your answer.
- ◆ You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next, like this:

- Yes
 No → *If No, Go to Question 1*

You may notice a number on the survey. This number is used to let us know if you returned your survey so we don't have to send you reminders.

Please note: Questions 1-29 in this survey are part of a national initiative to measure the quality of care in hospitals. OMB #0938-0981 (Expires November 30, 2021)

Please answer the questions in this survey about your stay at the hospital named on the cover letter. Do not include any other hospital stays in your answers.

YOUR CARE FROM NURSES

1. During this hospital stay, how often did nurses treat you with courtesy and respect?

- 1 Never
 2 Sometimes
 3 Usually
 4 Always

2. During this hospital stay, how often did nurses listen carefully to you?

- 1 Never
 2 Sometimes
 3 Usually
 4 Always

3. During this hospital stay, how often did nurses explain things in a way you could understand?

- 1 Never
 2 Sometimes
 3 Usually
 4 Always

4. During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?

- 1 Never
 2 Sometimes
 3 Usually
 4 Always
 9 I never pressed the call button

YOUR CARE FROM DOCTORS

5. During this hospital stay, how often did doctors treat you with courtesy and respect?
- 1 Never
 2 Sometimes
 3 Usually
 4 Always
6. During this hospital stay, how often did doctors listen carefully to you?
- 1 Never
 2 Sometimes
 3 Usually
 4 Always
7. During this hospital stay, how often did doctors explain things in a way you could understand?
- 1 Never
 2 Sometimes
 3 Usually
 4 Always

THE HOSPITAL ENVIRONMENT

8. During this hospital stay, how often were your room and bathroom kept clean?
- 1 Never
 2 Sometimes
 3 Usually
 4 Always
9. During this hospital stay, how often was the area around your room quiet at night?
- 1 Never
 2 Sometimes
 3 Usually
 4 Always

YOUR EXPERIENCES IN THIS HOSPITAL

10. During this hospital stay, did you need help from nurses or other hospital staff in getting to the bathroom or in using a bedpan?
- 1 Yes
 2 No → If No, Go to Question 12
11. How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?
- 1 Never
 2 Sometimes
 3 Usually
 4 Always
12. During this hospital stay, were you given any medicine that you had not taken before?
- 1 Yes
 2 No → If No, Go to Question 15
13. Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?
- 1 Never
 2 Sometimes
 3 Usually
 4 Always
14. Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?
- 1 Never
 2 Sometimes
 3 Usually
 4 Always

WHEN YOU LEFT THE HOSPITAL

15. After you left the hospital, did you go directly to your own home, to someone else's home, or to another health facility?
- 1 Own home
 2 Someone else's home
 3 Another health facility → If Another, Go to Question 18
16. During this hospital stay, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital?
- 1 Yes
 2 No
17. During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital?
- 1 Yes
 2 No

OVERALL RATING OF HOSPITAL

Please answer the following questions about your stay at the hospital named on the cover letter. Do not include any other hospital stays in your answers.

18. Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay?
- 0 0 Worst hospital possible
 1 1
 2 2
 3 3
 4 4
 5 5
 6 6
 7 7
 8 8
 9 9
 10 10 Best hospital possible
19. Would you recommend this hospital to your friends and family?
- 1 Definitely no
 2 Probably no
 3 Probably yes
 4 Definitely yes

UNDERSTANDING YOUR CARE WHEN YOU LEFT THE HOSPITAL

20. During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left.
- 1 Strongly disagree
 2 Disagree
 3 Agree
 4 Strongly agree

21. **When I left the hospital, I had a good understanding of the things I was responsible for in managing my health.**

- 1 Strongly disagree
 2 Disagree
 3 Agree
 4 Strongly agree

22. **When I left the hospital, I clearly understood the purpose for taking each of my medications.**

- 1 Strongly disagree
 2 Disagree
 3 Agree
 4 Strongly agree
 5 I was not given any medication when I left the hospital

ABOUT YOU

There are only a few remaining items left.

23. **During this hospital stay, were you admitted to this hospital through the Emergency Room?**

- 1 Yes
 2 No

24. **In general, how would you rate your overall health?**

- 1 Excellent
 2 Very good
 3 Good
 4 Fair
 5 Poor

25. **In general, how would you rate your overall mental or emotional health?**

- 1 Excellent
 2 Very good
 3 Good
 4 Fair
 5 Poor

26. **What is the highest grade or level of school that you have completed?**

- 1 8th grade or less
 2 Some high school, but did not graduate
 3 High school graduate or GED
 4 Some college or 2-year degree
 5 4-year college graduate
 6 More than 4-year college degree

27. **Are you of Spanish, Hispanic or Latino origin or descent?**

- 1 No, not Spanish/Hispanic/Latino
 2 Yes, Puerto Rican
 3 Yes, Mexican, Mexican American, Chicano
 4 Yes, Cuban
 5 Yes, other Spanish/Hispanic/Latino

28. **What is your race? Please choose one or more.**

- 1 White
 2 Black or African American
 3 Asian
 4 Native Hawaiian or other Pacific Islander
 5 American Indian or Alaska Native

29. What language do you mainly speak at home?

- 1 English
 2 Spanish
 3 Chinese
 4 Russian
 5 Vietnamese
 6 Portuguese
 7 German
 9 Some other language (please print):

NOTE: IF HOSPITAL-SPECIFIC SUPPLEMENTAL QUESTION(S) ARE ADDED, THE MANDATORY TRANSITION STATEMENT MUST BE PLACED IMMEDIATELY BEFORE THE SUPPLEMENTAL QUESTION(S).

THANK YOU

Please return the completed survey in the postage-paid envelope.

[NAME OF SURVEY VENDOR OR SELF-ADMINISTERING HOSPITAL]

[RETURN ADDRESS OF SURVEY VENDOR OR SELF-ADMINISTERING HOSPITAL]

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Appendix E

Nursing Presence Survey for Labor and Delivery Nurses

Nursing Presence Survey

Instructions: Please answer yes, no, or unsure for the following questions.

1. Do you feel you provided a greater number of appropriate nurse interventions for the laboring woman when using the CALM scale?

- Yes
- No
- Unsure

2. Did the CALM scale suggest nursing interventions you wouldn't have thought of otherwise?

- Yes
- No
- Unsure

3. Do you feel the CALM scale enhances communication with the patient?

- Yes
- No
- Unsure

4. Do you feel you are better able to advocate for and meet the patient's needs using the CALM tool?

- Yes
- No
- Unsure

5. Overall, did you perceive yourself as having an increased nursing presence during labor when assessing using the CALM scale?

- Yes
- No
- Unsure

6. If you perceived an increased nursing presence, do you think overall satisfaction during the labor process was improved?

- Yes
- No
- Unsure

7. If you did not perceive to have an increased nursing presence, do you think overall satisfaction during the labor process was still improved using the tool?

- Yes
- No
- Unsure

Administered through the link <https://www.surveymonkey.com/r/XMMJJW5>

Appendix F

DNP Poster Presentation



Nursing Presence Enhancement Using the Calm Scale for Pain Assessment in Laboring Women

Emily Marzbani, RN, BSN, SRNA

BACKGROUND

- The Joint Commission requires mandatory pain assessments since pain is associated with negative patient outcomes and dissatisfaction?
- The use of the Numerical Rating Scale (NRS) has not improved patient outcomes in laboring women?
- The NRS fails to account for factors that influence labor pain including nursing presence?
- Nursing presence is defined as being physically available, emotionally supportive, and advocating for the woman during childbirth?
- The CALM scale addresses several aspects of labor pain like nursing presence?

PURPOSE

- Improve nursing presence by using the CALM scale to assess labor pain
- Objective 1:** Replace the traditional NRS with the CALM scale
 - Objective 2:** Improve nursing presence as perceived by laboring women
 - Objective 3:** Improve nursing presence as perceived by labor and delivery nurses

SETTING & SAMPLE

- 18 bed labor and delivery unit in an urban hospital in the Southeast United States
- 150 labor and delivery nurses
- English speaking women at least 18 years of age delivering vaginally
- Convenience sampling

METHODS

- IRB approval given in February 2021
- Education provided on the CALM scale to labor and delivery nurses
- CALM scale implemented 6/1/21
- HCAHPS scores from 6/1/20 to 7/31/20 when the NRS was used, were compared to the HCAHPS scores from 6/1/21 to 7/31/21 during the use of the CALM scale
- Anonymous survey sent to labor and delivery nurses to assess nursing presence

TABLE 1
NRS vs CALM
Assessments were administered every 4 hours, 24/7 and with each sign of change. Outcomes for each throughout labor. Ask, "How are you doing with your labor?"

Components	0	1	2
FACE	No particular expression	Facial muscles tense, frowning, grimacing, squinting, or staring	Facial muscles relaxed, smiling, laughing, or appearing calm
BEHAVIOR	Not participating in usual activities, such as breathing, pushing, or ambulating	Participating in usual activities, such as breathing, pushing, or ambulating	Participating in usual activities, such as breathing, pushing, or ambulating
PSYCHOSOCIAL (Observed)	Not participating in usual activities, such as breathing, pushing, or ambulating	Participating in usual activities, such as breathing, pushing, or ambulating	Participating in usual activities, such as breathing, pushing, or ambulating
VOCALIZATION (Observed)	Not participating in usual activities, such as breathing, pushing, or ambulating	Participating in usual activities, such as breathing, pushing, or ambulating	Participating in usual activities, such as breathing, pushing, or ambulating
EXPRESSIONS (Self-Reported)	Not participating in usual activities, such as breathing, pushing, or ambulating	Participating in usual activities, such as breathing, pushing, or ambulating	Participating in usual activities, such as breathing, pushing, or ambulating

Legend: 0 = Not participating in usual activities, such as breathing, pushing, or ambulating. 1 = Participating in usual activities, such as breathing, pushing, or ambulating. 2 = Participating in usual activities, such as breathing, pushing, or ambulating.

RESULTS

- HCAHPS scores did not identify significant differences for nursing presence between the two pain scales, two-sided p-values were greater than 0.05
- Sample size for survey responses were small
- Nursing presence surveys showed over half (64.29%) of labor and delivery nurses found the CALM scale enhanced nursing presence

Nursing Survey "Yes" Response Rates

Question	Yes
Question 1: Do you feel you provided a greater number of appropriate nurse interventions for the laboring women when using the CALM scale?	71.43%
Question 2: Did the CALM scale suggest nursing interventions you wouldn't have thought of otherwise?	42.86%
Question 3: Do you feel the CALM scale enhances communication with the patient?	78.57%
Question 4: Do you feel you are better able to advocate for and meet the patient's needs using the CALM scale?	78.57%
Question 5: Overall, did you perceive yourself as having an increased nursing presence during labor when assessing using the CALM scale?	64.29%
Question 6: If you perceived an increased nursing presence, do you think overall satisfaction during labor during the labor process was still improved using the tool?	66.67%
Question 7: If you did not perceive to have an increased nursing presence, do you think overall satisfaction during the labor process was still improved using the tool?	69.23%

CONCLUSIONS

- HCAHPS scores did not identify increased nursing presence using the CALM scale
- Needed a larger sample size for HCAHPS scores
- Future studies may consider another instrument to assess nursing presence or a longer period of data collection if using HCAHPS scores
- The nurse survey results demonstrated evidence for increased nursing presence when the CALM scale was used, supporting results from previous studies

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