

Understanding Research Articles/ Cleveland Clinic WOC Nursing Education

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Points criteria:

Criteria	Under performance <3 points per criteria	Basic 3 - 3.9 points per criteria	Proficient 4.0 - 4.4 points per criteria	Distinguished 4.5 - 5 points per criteria
Required content objectives	Content objectives are missing or sparsely covered.	Content objectives are not consistently addressed. Demonstrates minimal understanding of content.	Content objectives consistently addressed. Demonstrates understanding of content.	Content objectives consistently addressed. Demonstrates mastery of content.
Academic writing standards	Writing lacks scholarly tone & focus. Sparse content. Multiple grammatical, spelling, & factual errors. Reliance on bullet points rather than effective writing in speaker notes. 4 or more direct quotes per project.	Writing is unclear and/or disorganized. Inconsistent scholarly tone. Inadequate depth of content. Grammatical and spelling errors. No more than 3 direct quote of less than 40 words per project.	Writing demonstrates general exploration of content. Responses are clearly written using scholarly tone. Few grammatical and/or spelling errors. No more than 2 direct quote of less than 40 words per project.	Writing demonstrates comprehensive exploration of content. Responses are clearly written using scholarly tone. Rare grammatical and/or spelling errors. No more than 1 direct quote of less than 40 words per project.
APA formatting	References and citations have multiple errors or are missing.	References and citations have errors.	References and citations have few errors.	References and citations have rare errors.

Carefully review the above rubric and the directions for each of the following pages. Select from **one** of the two articles provided in the course discussions area. Based on the type of research selected, respond to the questions on the following pages.

References: See the course syllabus for specific requirements on references for all assignments.

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Part A: Select just one (not both) of the articles from the week two DQ assignment thread. Determine whether the article is qualitative or quantitative research, then, using an academic voice & APA formatted citations/references, formulate a 150-300 word response to each of the following sections and enter your responses into the textboxes below.

1. Using APA format, enter the reference for the article you reviewed. Explain the rationale for selecting this research article and how it relates to your own practice.

Dai, T., Lv, L., Liu, X., Chen, J., & Xu, L. (2022, October 7). Nasal pressure injuries among newborns caused by nasal CPAP: An incidence study. *Journal of Neonatal Nursing*. <https://www.sciencedirect.com/science/article/pii/S1355184122001879>

Nasal pressure injuries, also known as nasal pressure ulcers or nasal breakdowns, typically occur due to prolonged use of medical devices that apply pressure to the nose. These injuries often affect individuals who require respiratory support through devices like oxygen masks, nasal cannulas, or CPAP (Continuous Positive Airway Pressure) masks. Many injuries may result from nasal pressure injuries like pain, infection, or damage to the nasal structure, say Dai et al. (2020). Nasal pressure injuries range from mild redness and irritation to more severe tissue damage. As a family nurse practitioner, I was trained to provide various healthcare services, including assessment, diagnosis, treatment, and management of different health conditions. I work in a Federally Qualified Health Care center (FQHC), and I have the duty of keeping my patients free from skin pressure injuries. Considering the consequences of pressure ulcers on people's life this article has retained my intention for many reasons, such as:

Patient Care and Education: In a federally assisted healthcare center, FNPs like myself may encounter patients with various health conditions, including those who require respiratory support. Suppose patients are using devices that can potentially cause nasal pressure injuries. In that case, my role is to educate them or their family members about proper device usage, skincare, and prevention of pressure. **Assessment and Management:** I am skilled in assessing and managing various health issues. Whenever a patient presents with a nasal pressure injury, I have to assess the severity of the injury, provide appropriate wound care, and monitor the healing process. **Preventive Measures:** I can proactively educate patients or family members at risk of developing nasal pressure injuries, especially those who require prolonged respiratory support. This education could involve teaching patients about proper fit, regular repositioning, and using protective barriers to reduce the risk of injury.

Finally, it provides an accurate interpretation of and reports the collected data. Correct interpretation involves understanding the data collected about pressure injury rates and making sense of what those numbers represent, says McNichol, et. Al (2022). Interpretation includes recognizing trends, patterns and changes over time. This understanding is essential for healthcare professionals, administrators, and policymakers to make informed decisions about patient care, resource allocation, and quality improvement initiatives.

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2. Describe how you determined whether the selected research article is qualitative or quantitative.

I reviewed the article's content and structure to determine whether the selected research article is qualitative or quantitative. The report presents a systematic investigation involving data collection, analysis, and statistical measures, indicating that it falls under the category of quantitative research. The paper employs a prospective observational study design conducted in a Neonatal Intensive Care Unit (NICU), involving collecting and analyzing numerical data related to newborns receiving Nasal Continuous Positive Airway Pressure (NCPAP) treatment. The study evaluates the incidence, severity, and risk factors associated with nasal pressure injuries in newborns managed by NCPAP using nasal prongs or masks. The research utilizes statistical analyses, such as descriptive statistics, χ^2 tests, Spearman correlation analyses, and logistic regressions, to analyze associations and conclusions. The article provides numerical data such as percentages, incidence rates, mean intervals, and odds ratios to quantify the outcomes and relationships observed in the study. These data support the authors' conclusions and recommendations for preventive measures.

In summary, the article's quantitative nature is evident through its systematic collection, analysis, and presentation of numerical data to address specific research objectives. Therefore, the selected research article can be characterized as a quantitative study.

Part B: Based on the selected research, formulate a response to each of the following 8 questions associated with the selected research type (qualitative or quantitative). Enter your thoughtful responses to the textboxes below. Each response should be 150 - 300 words and cited using APA style from your reference list.

1. Why is IRB/informed consent an essential part of research? Determine if Institutional Review Board (IRB) approval/informed consent was obtained. If the study was done outside of the United States, the review body may go under a different name.

“The main goal of implementing an IRB is to protect the rights and welfare of human and animal participants “(DiGiacinto, 2019). In research, the involvement of human participants necessitates ethical considerations to ensure their rights, safety, and well-being. This is where Institutional Review Board (IRB) approval and informed consent play a pivotal role. IRB approval is crucial as it involves an independent committee's assessment of the research design, methods, and potential risks to participants. It ensures that the research meets ethical standards and safeguards participants from physical and psychological harm.

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Informed consent is equally important as it demonstrates respect for participants' autonomy and ensures they are well informed about the research's purpose, procedures, potential risks, benefits, and their right to withdraw at any point without repercussions. The process of obtaining informed consent, says Pugh (2020), empowers individuals to make autonomous decisions about their healthcare. Informed consent respects this autonomy by ensuring patients have the necessary information to make informed decisions about their medical care.

The selected research article conducted in a Neonatal Intensive Care Unit (NICU) in China acknowledges the significance of ethical considerations. The report indicates that study procedures were reviewed and approved by the First Affiliated Hospital Ethics Committee of Xiamen University (approval number is KYX-2017-010). Additionally, the article mentions that each patient's parents or legal guardians provided consent for study participation. This highlights the ethical commitment of the researchers to obtain informed consent from the participants' legal representatives.

2. Describe (based on selected research type)
 - a. **Qualitative article:** the purpose statement - or -
 - b. **Quantitative article:** the problem and purpose of the research

The research article under consideration addresses the issue of medical device-related pressure injuries in neonates undergoing treatment with Nasal Continuous Positive Airway Pressure (NCPAP). The problem lies in the potential harm caused to newborns due to pressure injuries from using devices like nasal prongs or masks during NCPAP treatment. The fragile and immature skin of newborns' noses makes them susceptible to pressure injuries, leading to pain and infection and even necessitating plastic surgery. The research aims to comprehensively investigate the incidence, severity, and risk factors associated with nasal pressure injuries caused by NCPAP treatment in a Neonatal Intensive Care Unit (NICU). The researchers aim to identify the extent of the problem, understand its severity, and uncover factors contributing to its occurrence. By evaluating a range of parameters, including gestational age, birth weight, and NCPAP treatment duration, the study seeks to uncover associations and provide insights into the risk factors associated with these injuries. The research article thus aims to provide a deeper understanding of the problem of medical device-related pressure injuries in neonates undergoing NCPAP treatment. Through quantitative analysis of data collected from a NICU in China, the researchers aim to contribute valuable insights into the incidence, severity, and factors that influence these injuries, thereby paving the way for improved preventive measures and enhanced care for vulnerable newborns.

3. Describe (based on selected research type)
 - a. **Qualitative article:** research design - or -
 - b. **Quantitative article:** the research questions

The article addresses interconnected research questions to investigate the prevalence, severity, and associated risk factors of nasal pressure injuries caused by Nasal Continuous Positive Airway Pressure (NCPAP) treatment in neonates. While the article does not explicitly enumerate a list of research questions, the primary inquiries can be inferred from the study's objectives and the subsequent analyses.

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The primary research questions revolve around the following:

Incidence and Prevalence: What is the cumulative incidence and prevalence of nasal pressure injuries among neonates receiving NCPAP treatment in the Neonatal Intensive Care Unit (NICU)?

Severity and Classification: What are the different stages of nasal pressure injuries observed in neonates (e.g., nonblanchable erythema, partial-thickness skin loss, full-thickness skin loss), and how do these injuries progress over time?

Risk Factors: What factors, such as gestational age, birth weight, and NCPAP treatment duration, are associated with an increased likelihood of developing nasal pressure injuries? How do these factors influence the severity of injuries?

Comparative Analysis: Are there differences in the incidence and severity of nasal pressure injuries among different gestational age and birth weight subgroups?

The research questions are rooted in quantitative analysis and involve calculating incidence rates, odds ratios, and correlations to explore the relationships between variables such as gestational age, birth weight, and the occurrence of nasal pressure injuries. By addressing these questions, the study aims to provide valuable insights into the extent of the problem, potential risk factors, and the clinical implications for neonates undergoing NCPAP treatment.

4. Explain in your own words a summary of the literature review used in the selected article.

The selected research article's literature review provides a comprehensive overview of the context, significance, and existing knowledge related to medical device-related pressure injuries in neonates receiving Nasal Continuous Positive Airway Pressure (NCPAP) treatment. The review encompasses studies investigating the occurrence and consequences of these pressure injuries, highlighting the vulnerability of neonates' fragile skin to the forces exerted by nasal prongs or masks during respiratory support. The literature review introduces various research findings that suggest a wide-ranging incidence of nasal pressure injuries in newborns undergoing NCPAP treatment, with reported rates ranging from 20% to as high as 100%. The review attributes the variability in incidence to the absence of a standardized definition and classification system for nasal pressure injuries rather than genuine variation in occurrences. To address this, the review highlights adopting a classification system based on the standardized Pressure Ulcer Advisory Panel (NPUAP) categories to classify nasal pressure injuries. The review also references studies that delve into specific cases and occurrences of nasal pressure injuries in various neonatal populations. It highlights studies reporting differing rates of nasal pressure injuries based on factors such as birth weight, gestational age, and treatment duration. Additionally, the review discusses studies that postulate the underlying mechanisms of these injuries, such as skin compression against the cannula.

In essence, the literature review in the selected article underscores the existing gaps in understanding medical device-related pressure injuries in neonates undergoing NCPAP treatment. By synthesizing relevant studies and highlighting the lack of standardized classification, the review sets the stage for the current study's investigation into the incidence, severity, and risk factors associated with nasal pressure injuries in neonates within a specific Neonatal Intensive Care Unit (NICU) setting.

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5. Identify (based on selected research type)
 - a. **Qualitative:** the data collection method(s) – or –
 - b. **Quantitative:** the study design, including sample, setting, & data collection methods.

The research article employs a quantitative study design to investigate the incidence, severity, and associated risk factors of nasal pressure injuries in neonates undergoing Nasal Continuous Positive Airway Pressure (NCPAP) treatment. The study is conducted in a Neonatal Intensive Care Unit (NICU) affiliated with Xiamen University, situated on the southeastern coast of China. The sample consists of 429 neonates admitted to the NICU between March 20, 2017, and February 28, 2018. Among these neonates, 461 were treated with NCPAP, with 32 excluded due to receiving treatment for less than 24 hours.

The final sample of 429 neonates comprised 5536.7 patient observation days of NCPAP treatments. Data collection involves a prospective observational approach. Neonates' demographic and clinical data, including gestational age, birth weight, NCPAP treatment days, NICU stay days, and occurrence of nasal pressure injuries, are extracted from electronic medical records by computer engineers. This anonymized data collection is conducted twice a week by a research nurse. Nasal pressure injuries are classified based on the Pressure Ulcer Advisory Panel (NPUAP) classification system, categorizing injuries as Stage 1 (nonblanchable erythema), Stage 2 (partial-thickness skin loss), and deep tissue injury. The cumulative incidence and incidence density of pressure injuries are calculated using appropriate formulas.

Overall, the study design encompasses a quantitative approach with a well-defined sample, a NICU setting, and systematic data collection methods, utilizing electronic medical records and adherence to standardized classification systems to address the research objectives.

6. Analyze (based on selected research type)
 - a. **Qualitative:** the results of the research study – or –
 - b. **Quantitative:** the data collection tool used; is the tool validated?

The research article utilizes a data collection tool to extract demographic and clinical data from electronic medical records. While the article doesn't explicitly mention the name of the data collection tool, it's implied that the tool involves extracting numerical information related to neonates' gestational age, birth weight, NCPAP treatment days, NICU stay days, and the occurrence of nasal pressure injuries. Given the quantitative nature of the study, the data collection tool's primary purpose is to systematically gather numerical data necessary for statistical analysis. The tool captures information about the participants' characteristics, treatment duration, and outcomes, enabling researchers to calculate incidence rates, odds ratios, correlations, and other statistical measures. The article does not explicitly state whether the data collection tool was validated. Since the tool involves extracting objective, numerical data from electronic medical records, it is more likely that its validity rests in the accuracy of the medical records themselves. These records are maintained within the clinical context and adhere to standard medical practices, which should enhance the credibility of the collected data. However, without explicitly mentioning validation, it's essential to consider the limitations of using data extracted from medical records. Factors such as data entry errors, inconsistent documentation practices, or missing information could potentially impact the accuracy and reliability of the collected data.

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7. Summarize (based on selected research type)
 - a. **Qualitative:** conclusions and implications for further research - **or** -
 - b. **Quantitative:** study results, including strengths & limitations.

The study's results provide insights into the prevalence, severity, and associated risk factors of nasal pressure injuries in neonates undergoing Nasal Continuous Positive Airway Pressure (NCPAP) treatment. Of the 429 neonates in the study, 149 (34.7%) developed nasal pressure injuries. Most of these injuries were categorized as Stage 1 (nonblanchable erythema), while a smaller proportion fell into Stage 2 (partial-thickness skin loss) or deep tissue injury categories. The incidence rates were calculated, with 27 cases of nasal pressure injury per 1000 days of NCPAP treatment.

The study's strengths are its quantitative approach, large sample size, and systematic data collection from electronic medical records. The use of well-defined incidence rates and odds ratios enables the quantification of associations between variables such as gestational age, birth weight, NCPAP duration, and the likelihood of nasal pressure injuries. The study contributes valuable insights into the risk factors influencing these injuries in a NICU setting. However, the study also has limitations. The data collection method relies on electronic medical records, which might suffer from errors, inconsistencies, or missing information. The study's single-center design in a specific NICU may limit generalizability to other neonatal populations or settings using different NCPAP devices. Additionally, the study's focus on quantitative data leaves out contextual information that could provide a deeper understanding of the experiences of neonates and healthcare professionals.

In conclusion, the study's quantitative results shed light on the prevalence and risk factors of nasal pressure injuries in neonates undergoing NCPAP treatment. Its strengths include a rigorous quantitative approach and a substantial sample size. Nonetheless, limitations such as reliance on medical records and a single-center design underscore the need for future research to incorporate qualitative elements and explore a broader range of neonatal populations.

8. Discuss why is this research important to the body of WOC nursing knowledge

This research holds significant importance within the field of Wound, Ostomy, and Continence (WOC) nursing knowledge due to its contribution to understanding and addressing medical device-related pressure injuries in neonates receiving Nasal Continuous Positive Airway Pressure (NCPAP) treatment. These injuries pose unique challenges in caring for newborns, warranting specialized attention from WOC nurses who play a crucial role in preventing, managing, and treating wounds. The study's findings shed light on the prevalence, severity, and risk factors of nasal pressure injuries in a Neonatal Intensive Care Unit (NICU) setting. This information is invaluable for WOC nurses, allowing them to better anticipate and prevent these injuries. By identifying risk factors such as gestational age and NCPAP treatment duration, WOC nurses can tailor their interventions and patient assessments to mitigate these injuries' likelihood. Moreover, the study's quantitative approach provides empirical evidence to guide evidence-based practice in WOC nursing. Calculating incidence rates and odds ratios enables WOC nurses to make

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informed decisions when caring for neonates undergoing NCPAP treatment. The study's emphasis on standardized classification systems for nasal pressure injuries aligns with WOC nursing's commitment to evidence-based care that is consistent with established best practices.

Overall, this research is vital to the body of WOC nursing knowledge as it equips WOC nurses with evidence-based insights to address a specific and critical issue in neonatal care. The study's quantitative results, identification of risk factors, and standardized classification contribute to advancing the quality of care provided by WOC nurses, ultimately improving outcomes for neonates undergoing NCPAP treatment.

9. Use APA format to list your references for this assignment:

Dai, T., Lv, L., Liu, X., Chen, J., & Xu, L. (2022, October 7). Nasal pressure injuries among newborns caused by nasal CPAP: An incidence study. *Journal of Neonatal Nursing*. <https://www.sciencedirect.com/science/article/pii/S1355184122001879>

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Pugh, J. (2020). Informed consent, autonomy, and beliefs - autonomy, rationality. *National*

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