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Developmental Interventions Used for Premature Infants in the NICU

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Developmental Interventions Used for Premature Infants in the NICU

Macy Swanager
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Background
- Each year 15 million infants are born premature
- Though infants born between 24 and 37 weeks have the capability of surviving in a neonatal intensive care unit (NICU), they grow and develop in an environment much different than their mother’s womb
- Exposure to repetitive stressful situations that occur within this new environment can lead to an increased risk of morbidity and mortality.
- Various developmental interventions have been used to promote premature infants’ health in the NICU, but there has been limited research on which of these interventions leads to the best outcomes in reducing stress-based symptoms in the premature infant.

Purpose
- Determine what the current trends are in developmental interventions used in the NICU that lead to positive outcomes in premature infants.
- Physiological symptoms, such as heart rate, respiration rate, and oxygen saturation will be analyzed
- Research Question
  - What are the current trends in developmental interventions used in the NICU that result in positive outcomes in premature infants?

Methods
- Research Design
  - Integrative Literature Review
  - 8 articles reviewed containing qualitative and quantitative studies

- Literature Search Strategies
  - Databases used: CINAHL, Proquest Nursing and Allied Health, and Cochrane Library
  - Keywords used: premature infants, premature babies, neonatal intensive care unit, developmental interventions, developmental strategies, therapeutic positioning, fetal positioning, containment, noise reduction, light reduction, physiological response, and adaptation

- Inclusion/Exclusion Criteria
  - A patient population that included premature infants born between 24 and 37 weeks of gestation
  - Published between 2007 and 2017
  - Available in English language
  - Full text available
  - Discussion of a developmental interventions role in decreasing a physiological symptom

Results
- Three developmental interventions were found to reduce stress-based symptoms as measured by physiological responses: 1) therapeutic positioning, 2) noise reduction, and 3) light reduction

<table>
<thead>
<tr>
<th>Developmental Intervention</th>
<th>Outcome Improvement</th>
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<tbody>
<tr>
<td></td>
<td>HR</td>
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<tr>
<td>Therapeutic Positioning</td>
<td>X</td>
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<tr>
<td>Noise Reduction</td>
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<td>Light Reduction</td>
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</tbody>
</table>

Research Limitations
- Difficult to compare and contrast each developmental intervention as each study measured positive outcomes in varying ways
- Small sample sizes within each study
- Future study should be done to evaluate the effects of all three interventions and determine which is the most effective at stabilizing premature infants’ symptoms

Nursing Implications
- NICU nurses have the ability to limit stressful situations by using developmental interventions thus leading to positive outcomes in the premature infant
- Because many different healthcare providers care for premature infants during their stay, nurses should encourage all staff members to utilize these interventions as well

Conclusion
- Therapeutic positioning was shown to have the most positive outcomes compared to other developmental interventions
- Noise reduction plays a role in improving premature infants’ long-term neurodevelopment, but strategies to decrease noise level in the NICU need to be further researched
- Light reduction was found to have the least substantial effect on the premature infants’ outcomes