Capstone Purpose Statement: The purpose of this Capstone

Author & Year of publication
List author names (use et al. if 3 or more authors) and year of publication. Provide full references in a separate Word document.

Cong et al., 2017

Craig et al., 2018

Esser et al., 2018

Urbina et al., 2024

Vicente et al., 2017

Isaksson et al., (2022)

Type of report/Study design	**Participant characteristics & selection**
If the article was a research report, describe the research design (e.g., RCT); if it was some other form of report, describe in a few words (e.g., US Govt. survey).	*If a resarch study, report standard details; if some other kind of source, describe the subjects of the report, survey, etc.*
Prospective longitudinal research study examining cumulative early life pain/stress exposure in preterm infants and its relationship to later neurobehavioral outcomes.	Participants were stable preterm infants born between 28 0/7 and 32 6/7 weeks gestational age. Infants were recruited using convenience sampling within the first 0–3 days of life while admitted to the NICU. Exclusion criteria included: Congenital anomalies Severe intraventricular hemorrhage (Grade III or higher) Infants requiring major surgery Prenatal illicit drug exposure Parents had to be ≥18 years old to provide consent.

Professional practice statement / official guidelines document (non-research)	Not a research study; subjects of the report are occupational therapists practicing in the NICU and the infants and families they serve.
Narrative/general review article (non-research); expert consensus with PubMed literature search	Not a research study; subjects are NICU infants (particularly preterm) and their caregivers/families; literature reviewed focuses on premature and hospitalized neonates.

Narrative review / clinical perspective article discussing family-centered care and trauma-informed care in NICU settings.	Not an original research study; the article synthesizes existing literature regarding NICU infants and their families, particularly parents experiencing neonatal intensive care hospitalization.
Study design: Longitudinal, non-randomized control trial Participants: 194 mother-infant dyads.	Non-randomized control trial

Qualitative Interview-Based Study	9 child healthcare nurses (6 district nurses, 2 pediatric nurses, 1 district/pediatric nurse).

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ssage intervention deliverable to caregivers. The p

Site/context of study
State whether data are from US and if so what region; if outside US, identify country. Include other important context variables that may affect application to your situation (e.g., inpatient unit; public school).

The study occurred in the United States at two NICU sites within Connecticut Children's Medical Center:

Hartford (Level IV NICU)
Farmington (Level III NICU)

The context was hospital-based neonatal intensive care units caring for premature infants.

United States (national scope); hospital-based NICU settings; applies broadly across US NICUs.

United States (multi-site perspectives); one author from Canada (McMaster University). Hospital-based NICU settings. Note: authors disclose membership on the Huggies Nursing Advisory Council — potential industry bias.

Primarily United States neonatal intensive care unit (NICU) settings, with discussion applicable to pediatric and neonatal clinical environments.

US

US

LITERATURE REVIEW TABLE

ental health. This project will focus on examining current r
project also seeks to deepen my clinical competencies in ma

Variables & measures
Describe the variables studied or reported on that are relevant to your question and how they were measured.

1. Early Life Pain/Stress Exposure
Measured using the NICU Infant Stressor Scale (NISS)
Instrument includes 47 acute procedures (e.g., heel stick, chest tube insertion) and 23 chronic events (e.g., nasogastric tube placement).
Events were assigned severity weights (2–5) based on stress/pain intensity.

2. Parent Contact
Measured through chart review of interactions including:
Skin-to-skin contact
Breastfeeding
Holding/cuddling
Touch/swaddling
Talking or reading
Duration recorded in minutes.

3. Neurobehavioral Outcomes
Measured using the Neonatal Intensive Care Unit Network Neurobehavioral Scale (NNNS) at 36–37 weeks post-menstrual age

OT role in NICU: evaluation domains, intervention types, caregiver-infant co-occupations, family-centered care, neurodevelopmental support, caregiver mental health, and discharge planning.

Five core developmental care measures applied to diapering: (1) protected sleep, (2) healing environment, (3) stress and pain assessment, (4) developmental ADLs including positioning and skin care, (5) family-centered care. Touch, skin-to-skin contact, and gentle handling are discussed as stress-reduction and bonding variables.

Family-centered care (FCC) practices
Trauma-informed care principles (safety, collaboration, empowerment, trust, choice)
Parent mental health outcomes (anxiety, depression, PTSD)
Family integration in infant care (e.g., skin-to-skin care, developmental care)
Peer support and discharge preparation practices

Evidence is drawn from previously published research studies and systematic reviews rather than original measurements.

Intervention: (n = 97) 2 classes per week for 8 weeks. Control: No participation in postnatal/infant massage classes (n = 97)

See "key findings" for thematic analysis

research, evaluating caregiver perspectives, and identifying best practices— including the selectio
aternal-infant mental health, pediatric care, and evidence-informed practice.

Procedures	Key findings
If a research report, report basic details about what was done; if some other source, describe how information was obtained. Note: describe <u>essential</u> features of procedures, not all.	*Give brief summary of findings relevant to your question.*
After parental consent, infants were enrolled upon NICU admission. Procedures included: Daily recording of painful and stressful events during the first 28 days of life using the modified NISS. Recording of parent-infant contact durations through chart review. Neurobehavioral assessment using the NNNS conducted by a trained neonatal specialist when infants reached 36–37 weeks post-menstrual age or prior to discharge.	Key findings relevant to infant development: Preterm infants experienced very high levels of cumulative pain and stress during NICU hospitalization. Greater exposure to acute and chronic pain/stress was significantly associated with worse neurobehavioral outcomes, including increased stress responses and poorer habituation. Skin-to-skin contact and direct breastfeeding were associated with better neurobehavioral outcomes, suggesting protective effects.

Developed by AOTA Commission on Practice through expert consensus, review of relevant theories (synactive theory, dynamic systems theory, family-centered care), and prior NANT (2014) core scope of practice documents. Revised from a 2006 original.	OTs in the NICU address infant neurodevelopment, sensory systems, feeding, positioning, and caregiver-infant bonding. Caregiver/parent mental health (including PTSD risk) is explicitly named as a knowledge domain. Touch, skin-to-skin contact, and handling are listed among early parenting co-occupations. The infant-caregiver dyad is central to OT practice goals.
Exploratory PubMed search; peer-reviewed articles from the prior 5 years prioritized; seminal historical papers also included. Authors applied five core developmental care measures (Coughlin et al., 2009) as an organizing framework for reviewing diapering practices. No primary data collected.	Skin-to-skin contact and gentle touch during diapering reduce infant stress. Family involvement in diapering fosters parental confidence and infant-parent attachment. After diapering, gentle massage is specifically recommended as a positive sensory experience caregivers can provide. Cumulative NICU stress negatively affects brain development; developmental care practices during routine tasks can mitigate this.

Authors conducted a literature-based review and clinical discussion outlining: Trauma-informed approaches for supporting NICU families Strategies for integrating families into infant care Discharge preparation practices Palliative/bereavement support and peer-support programs The article synthesizes research findings and clinical recommendations to guide NICU practice.	Family-centered care in NICU settings improves both infant outcomes and parental well-being by increasing parental involvement, promoting bonding, and reducing stress and trauma associated with NICU hospitalization. Key practices such as skin-to-skin care, peer support, trauma-informed communication, and structured discharge planning support infant neurodevelopment and improve parental mental health and preparedness for caregiving after discharge
Intervention: (n = 97) 2 classes per week for 8 weeks: Class 1: One-hour infant-massage class once per week with physical therapist (PT demonstrated technique on a doll). Class 2: one-hour long class once per week about strengthening mother's pelvic and abdominal muscles with physical therapist	Demonstrates that infant massage can positively impact maternal outcomes (e.g., self-confidence, perception of caregiving), which supports the inclusion of infant massage interventions in NICU settings (E factor) to foster maternal-infant bonding and maternal well-being.

Interview of participants on their experience delivering infant massage education to caregivers	Five categories from this study were identified, and three of these are relevant: 1. Infant massage can promote attachment Between parents/guardians and their children. 2. The infant massage can have a calming impact. 3. Stress and lack of time can be challenging (potential negative result).

ɔn of appropriate massage oils within hospital guidelines—to inform the development of a

Application	Appraisal
Briefly describe the application of this evidence to your question. Be sure to include any limitation or cautions related to application.	*Describe strengths, limitations, or other comments related to your appraisal of the source.*
This evidence supports the importance of reducing painful/stressful NICU procedures when possible and increasing parent-infant contact, such as skin-to-skin care. These strategies may improve early neurobehavioral development in premature infants. However, application should consider that NICU environments differ across hospitals and infant medical stability may limit parental contact opportunities early in life.	Strengths Prospective longitudinal design Use of validated assessment tools (NISS and NNNS) Direct measurement of both stress exposure and neurobehavioral outcomes Limitations Small sample size Convenience sampling limits generalizability Pain/stress and parent contact data were partly obtained through chart review, which may underestimate actual exposures.

Directly supports capstone rationale for OT-delivered infant massage as a NICU intervention. Touch and handling are listed as early parenting co-occupations, and caregiver mental health is identified as a key OT concern. Provides the professional and ethical framework for OT involvement. Limitation: does not address infant massage specifically or provide empirical outcome data.	Strength: authoritative, national professional organization guidance document; comprehensive and well-organized. Limitation: non-research, consensus-based; no primary data or effect sizes. Appraisal: high relevance as foundational support for OT scope of practice in the NICU; should be paired with empirical studies on infant massage outcomes.
Supports infant massage as a natural extension of family-centered developmental care in the NICU. The recommendation that neonatal nurses encourage parents to provide gentle massage following diapering directly aligns with the capstone's intervention rationale. Caution: this is a narrative review with industry ties (Huggies); findings should be corroborated with primary research.	Strength: multidisciplinary authorship (NNP, OT, RN, PhD); grounded in established developmental care framework. Limitation: non-systematic review; industry conflict of interest (Huggies Advisory Council) may introduce bias; limited data specifically on diapering outcomes. Relevant as contextual support for embedding massage into routine NICU caregiving.

This evidence supports implementing family-centered, trauma-informed care approaches in neonatal and pediatric healthcare settings to improve outcomes for both infants and parents. For practice, it highlights the importance of involving families in caregiving activities, providing emotional support resources, and preparing families for discharge. Because this article is a narrative review rather than primary research, findings should be applied alongside empirical studies.	Strengths: Comprehensive overview of family-centered NICU care Integrates multiple research sources and clinical guidelines Provides practical recommendations for clinicians Limitations: Not an empirical research study No primary data collection or statistical analysis Conclusions depend on the quality of previously published studies
Although this study is not NICU-based, its findings suggest benefits that are transferable to high-stress environments like the NICU, which is highly relevant to my capstone that I want to complete in the NICU.	Researchers interacted with mothers frequently over the course of the 8-week intervention, which reduced chances of transfer of bias and maintained 14-15% dropout rate. Risk of selection bias – control and intervention groups were formed according to where data was collected (not randomized). However, both groups were similar in terms of demographic variables. Study has large sample size (n = 194).

This study provides important qualitative insights into the benefits and challenges of infant massage from the perspective of experienced healthcare nurses, which directly informs where and who I complete my capstone with. This qualitative evidence complements experimental studies by emphasizing the relational and contextual factors (E factors) critical to the success of infant massage as an intervention.