

FEASIBILITY AND MEASUREMENT OF BEDSIDE PUMPING IN THE NICU

A MIXED METHODS STUDY

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Disclosures

None

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Objectives

Describe	the significance of Mother’s Own Milk (MOM) for preterm infants in the NICU.
Identify	barriers and facilitators to bedside pumping from maternal, infant, and environmental perspectives.
Explain	the mixed methods approach used to evaluate feasibility and maternal experiences.
Interpret	the impact of maternal coping as a moderator in breastfeeding outcomes.
Discuss	clinical implications and future research directions to improve NICU breastfeeding support.

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Background



2nd
Prematurity is the 2nd leading cause of Infant death in US¹



\$ 25.2 Billion
Annual Health Care Costs Related to Preterm Birth³



383,373 Babies
10.23% of Annual US Births are Born Preterm (<37 weeks)²

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Significance



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Barriers to Holistic Breastfeeding in NICU



Emotional⁶⁻⁹

- Stress
- Fear
- Permission
- Participation



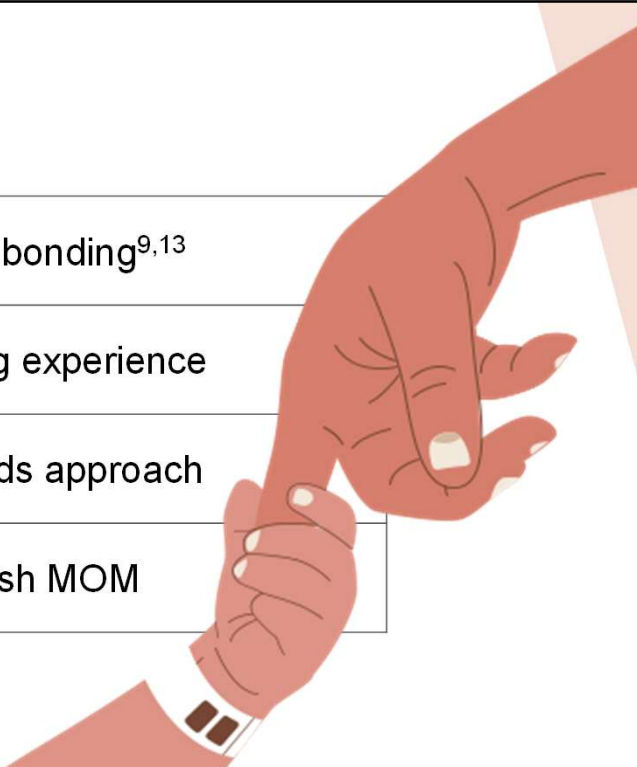
Physical¹⁰⁻¹²

- Separation
- Decreased hormone exposure
- Delayed initiation
- Delayed secretory activation

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Innovation

Proximity	Important for bonding ^{9,13}
Improve	Breastfeeding experience
Design	mixed methods approach
Provides	Access to fresh MOM

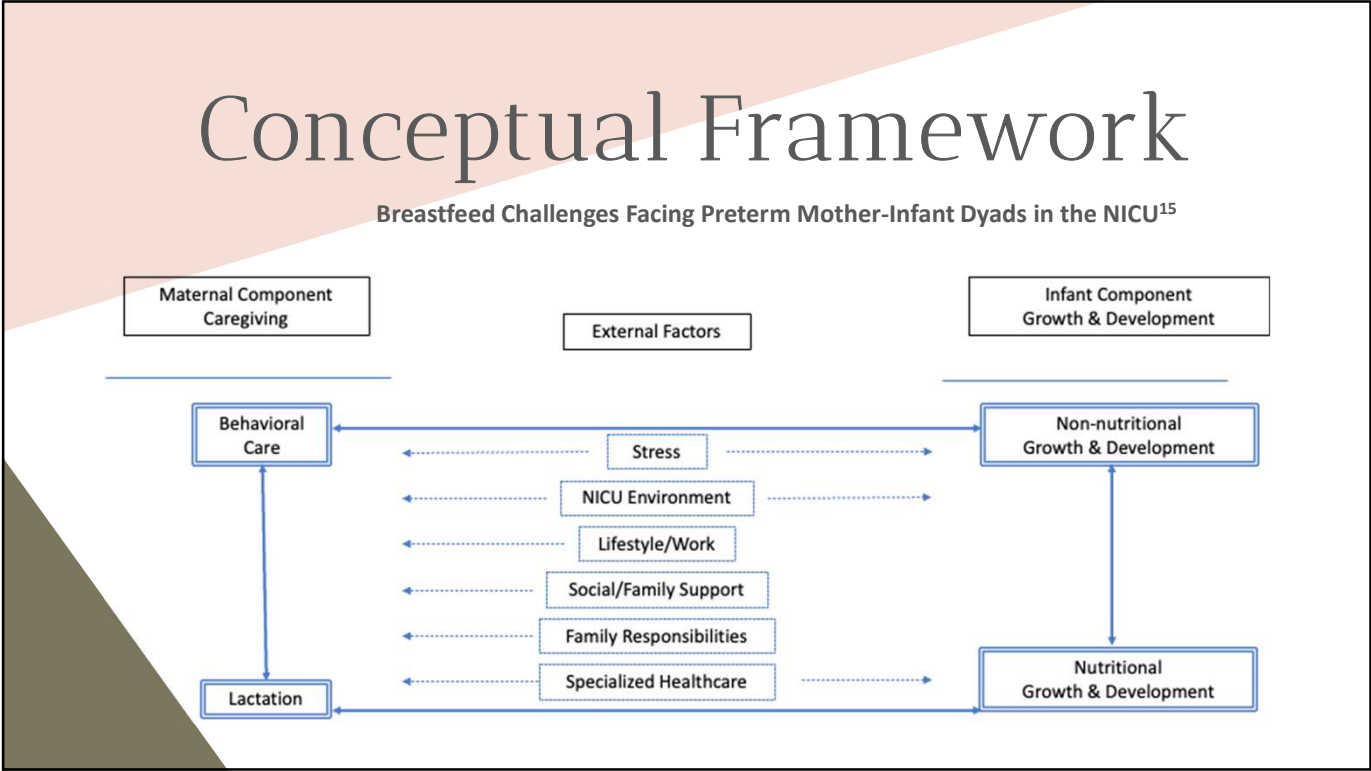


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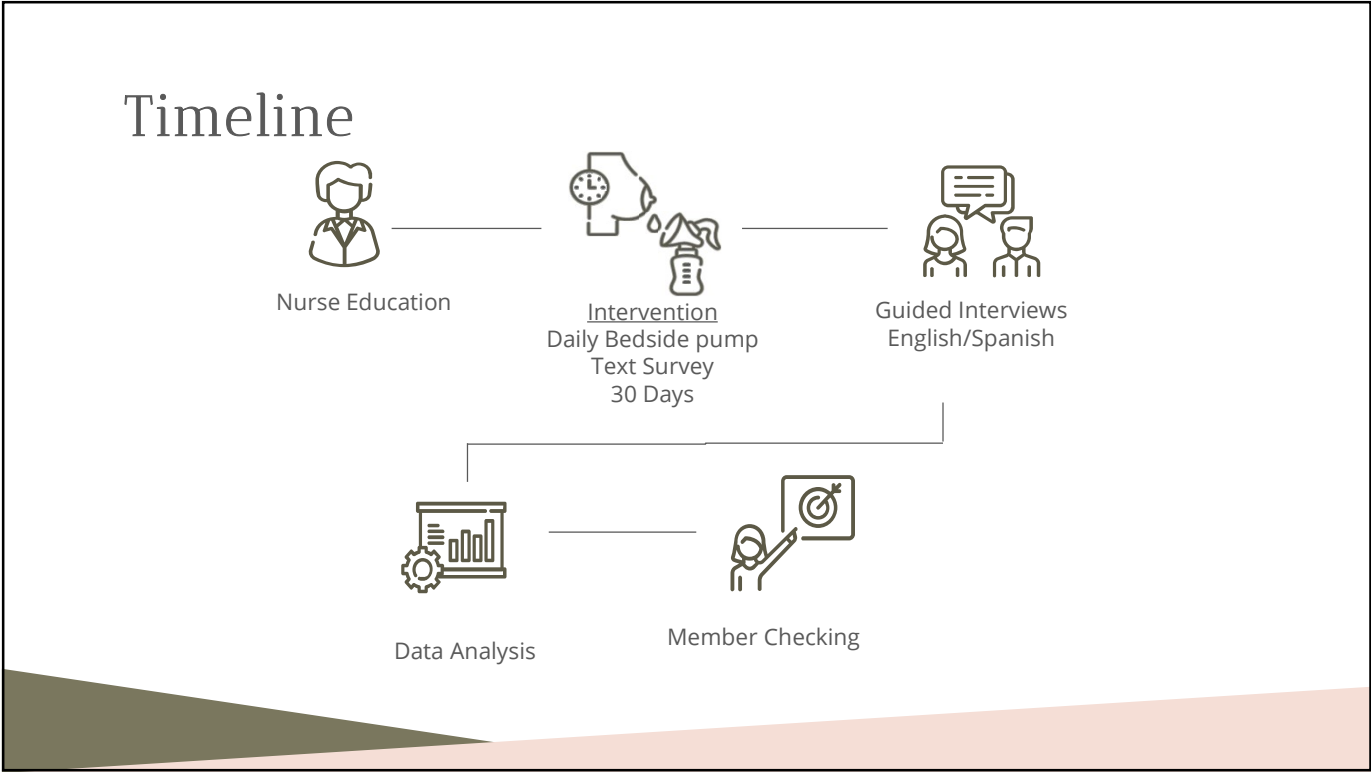
Specific Aims

- 1. Evaluate the feasibility of frequent bedside pumping for mothers of infants born ≤ 32 weeks in the NICU by measuring enrollment rate, retention rate, adherence to daily pumping, and percent of Mother’s milk in the total infant diet at one month or infant discharge.
- 2. Explore the lived experiences of mothers pumping at the bedside for their infant born ≤ 32 weeks in the NICU

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Methodology



Convergent Mixed Methods


Daily bedside pumps + text surveys

- Number and location of pumps last 24 hours
- Which location less stressful?
- Any problems?




Recruitment

Convenience sample
48-hours postpartum
2-month period
28 Mothers



Inclusion

Mother ≥ 18 years
Infants ≤ 32 Weeks
Read/Write Spanish or English
No contraindications to Mother's Milk
Cell phone access



Exclusion

Cannot read/write
Mother does not wish to provide milk
Infant with life-limiting diagnosis

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Where & Who

Setting

- Level 4 NICU
- Average daily census 120.6 (Range 107-136)
- Diverse population
- >50% Medicaid
- Lactation consultants daily
- Pumps available for use in unit

Table 1: Mother and Infant Demographics		N = 28
Characteristics	n (%)	
Race		
Black/AA	10	(35.7)
White/Non-Hispanic	1	(3.6)
White/Hispanic	16	(57.1)
Asian	1	(3.6)
Education Level		
<High School	8	(28.6)
High School Graduate	3	(10.7)
Associates/Some College	7	(25.0)
Bachelor's	8	(28.6)
Master's	2	(7.1)
Insurance		
Medicaid	21	(75.0)
Private Insurance	7	(25.0%)
Previous Breastfed	10	(35.7)
	Mean (SD)	
Maternal age	30.57	(6.17)
Gestational age at birth	29.15	(2.73)
Percent of MOM received to date at 30 days	55.41	(38.44)
Last day MOM fed	21.95	(11.53)

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Results

Recruitment

Goal > 70% of eligible mothers

Achieved 90%

Adherence

- Goal > 70%
- initiate within 5 days
 - pump weekly
 - text survey 3x/week

Achieved 28.6

Retention

Goal > 70% complete final interview

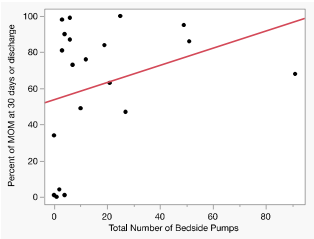
Achieved 100%

Text Survey

- 31.67% returned
- 94 typed responses
- Few related to bedside pumping

- 23 bedside pump >1
- 8 adhered
- 15 MOM at 30 days
- 14 MOM at discharge
- 5 no surveys, affirmed bedside pump in interview

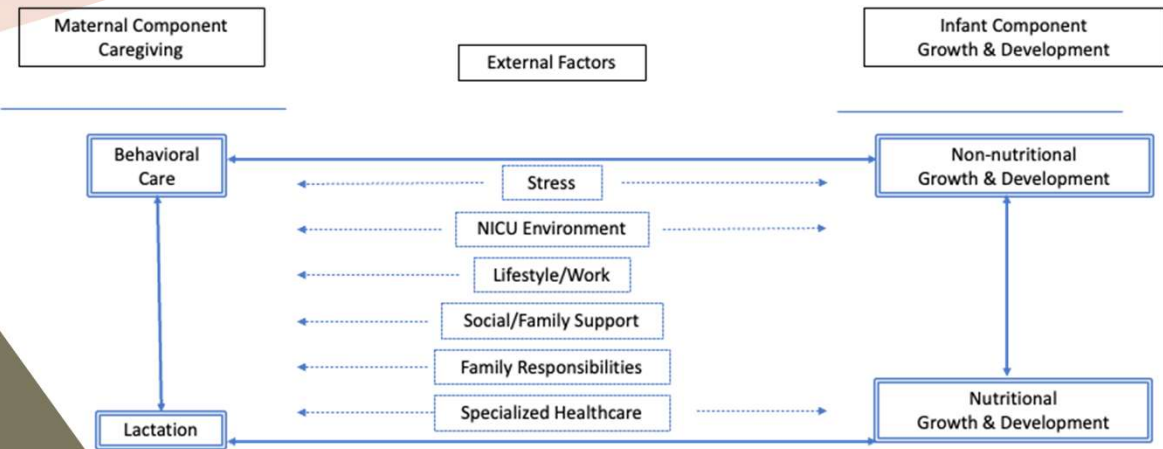
No difference p = 0.1886



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Conceptual Framework

Breastfeed Challenges Facing Preterm Mother-Infant Dyads in the NICU¹⁵



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Infant Component

Facilitators

- Feeling of more milk near infant
- Visualizing infant when not pumping at bedside

"When she (my daughter) is here, I can pump a lot more. Like her scent, ...the smell of her skin, it produces more milk..."
- Rose



Barriers

- Health

Daisy described her infant's health as "poor, he was breathing too fast." His health cause her stress to be "extremely high" and although she partially breastfed other children, she was not able to produce much milk.

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Maternal Component

Facilitators

- Motivation when pumping at the bedside
- Decreased Stress
- Bonding

"...At home, I don't see the point of it. I get - I get tired. I don't want to do it (pump) because it's like they're (infants) not here." - Orchid
"...I was complete with them there...I felt more relaxed."
- Gladiolus

Barriers

- Low supply
- Physical discomfort

"Because I had a C-section...I was already uncomfortable...and it was like the thoughts...I want to pick her up, I want her to latch on. So all of that just made me a bit uncomfortable." - Lily

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External Factors

Facilitators

- Staff support
- Spousal support
- Family support

"Everybody here has been super great...the nurses, lactation, doctors, my husband, my kids...they all understood the assignment." - Azalea

Barriers

- Stress
- Privacy
- Distraction
- Family obligations
- Transportation/Parking

"I did not like it because I just felt exposed." - Violet

"It was kind of hard at the bedside...because his monitor kept going off and I kept having to stop and go check on him." - Iris

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Coping as a Moderator

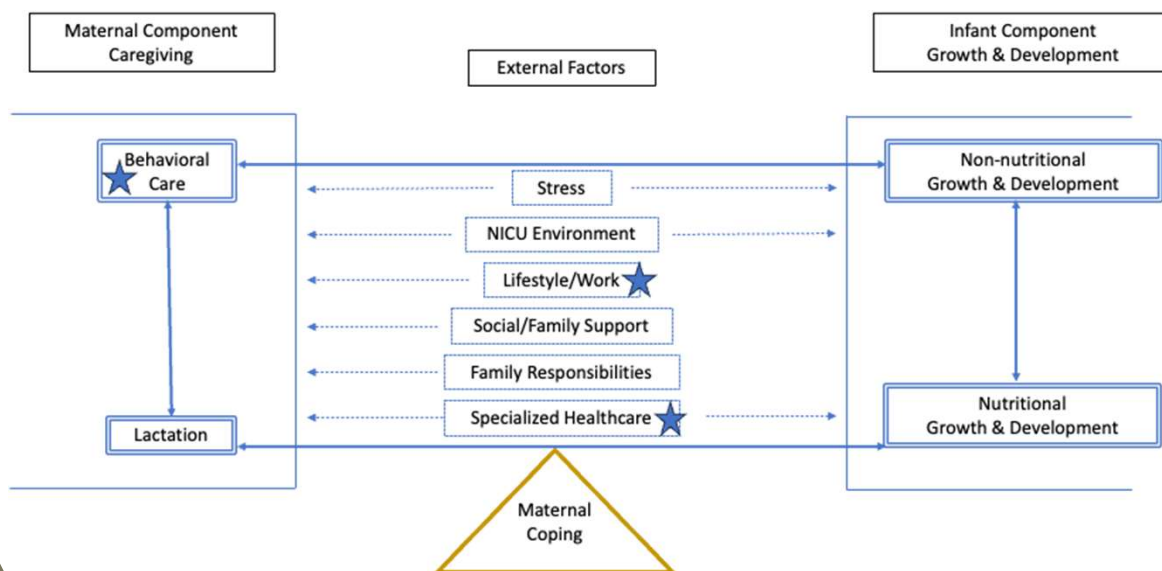
Moderator is a variable that changes the strength or direction between the independent and dependent variables.¹⁷

Coping is cognitive and behavioral efforts of the mother that alter the mother's ability to manage external or internal demands that are appraised as taxing or exceeding the resources of the mother.¹⁸

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Modified Conceptual Model of Breastfeeding Challenges Facing Preterm Mother-infant Dyads

Adapted from the Conceptual Model of Breastfeeding Challenges Facing Preterm Mother-infant Dyads¹⁵



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Coping Moderated Barriers and Facilitators

Petunia

- From out of state – little social support
- Major surgery first 30 day
- “Producing something for him”
- NICU environment
 - 49 bedside pumps
 - 95% MOM in first 30 days

Fuchsia

- Lived nearby
- “Health is pretty good”
- Extended family support
- Privacy concerns
- “Pretty Stressful”
- “Pumping for nothing”
 - 0 bedside pumps
 - 34% MOM in first 30 days

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Limitations

- Small sample
- Mostly Black/AA or Hispanic/White
- Text surveys poorly measured bedside pumping activities

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Conclusions

- Did not meet all feasibility criteria
 - Text survey response poor 31.67% vs >50%¹⁹
- Subjective feelings of bonding, motivation & milk increase
 - Acuña-Muga et al. compared 623 pumps near and 743 pumps far²⁰
 - Pumps nearby were often after skin-to-skin holding²¹
- Coping moderated barriers/facilitators >> adapted model

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Clinical Implications

Decrease barriers for pumping mothers
<ul style="list-style-type: none">Increased access to pumping supplies and pumpsSupport for transportation/parking i.e. ReDiMOM²⁶Improve coping skills
Text model for communication tool
<ul style="list-style-type: none">Fill in boxes of text surveys often asking for supplies, help, troubleshooting
Improve NICU Environment
<ul style="list-style-type: none">Music therapy, singing, readingPrivate roomsImproved acoustical parameters of alarms
Promote parental presence in NICU
<ul style="list-style-type: none">Support for transportation/parking i.e. ReDiMOM²⁶Provide privacy, screens, nursing cover

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Questions

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