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HUMAN MILK INTAKE IN PRETERM INFANTS: CORRELATION OF THE PRETERM INFANT BREASTFEEDING BEHAVIOR SCALE (PIBBS) AND TEST WEIGHING



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Background

The PIBBS (Nyqvist et al., 1996) evaluates preterm infants' breastfeeding behaviors. High PIBBS scores often are assumed to imply sufficient milk intake.

Purpose

This study tested the concurrent validity of the PIBBS against the criterion of volume of milk intake consumed by the preterm infant during breastfeeding as measured by test weighing.

Research Questions

Using a preterm infant population:

- 1a. Determine interrater agreement between investigator (PI) and individual lactation specialists using the PIBBS.
- 1b. Determine interrater agreement between PI and preterm infant's mother using PIBBS.
- 1c. Determine interrater agreement between individual lactation specialists and preterm infant's mother using PIBBS.

Using test weighing with a preterm infant population:

2. Determine correlation between score achieved by preterm infant on PIBBS and volume of human milk intake at breast.
3. Controlling for post menstrual age (PMA) and breastfeeding experience (BFE) at time of observation, determine the relationship between PIBBS score and human milk intake volume.

Method

PI and one of two trained lactation specialists observed 50 breastfeeding mother-preterm infant dyads at single breastfeeding sessions. PI, lactation specialist, and the mother scored the session using the PIBBS. Infants were test weighed before and after breastfeeding using an infant scale.

PIBBS Score Items

PIBBS Item	Score Range
Rooting	0-2
Areolar Grasp	0-3
Latched-on	0-3
Sucking	0-4
Longest Sucking Burst	0-6
Swallowing	0-2
Total Score	0-20

Hedberg Nyqvist K, Ewald U, Rubertsson C, Sjöden, PO. Development of the Preterm Infant Breastfeeding Behavior Scale (PIBBS): A study of nurse-mother agreement. *Journal of Human Lactation* 1996;12(3):207-219

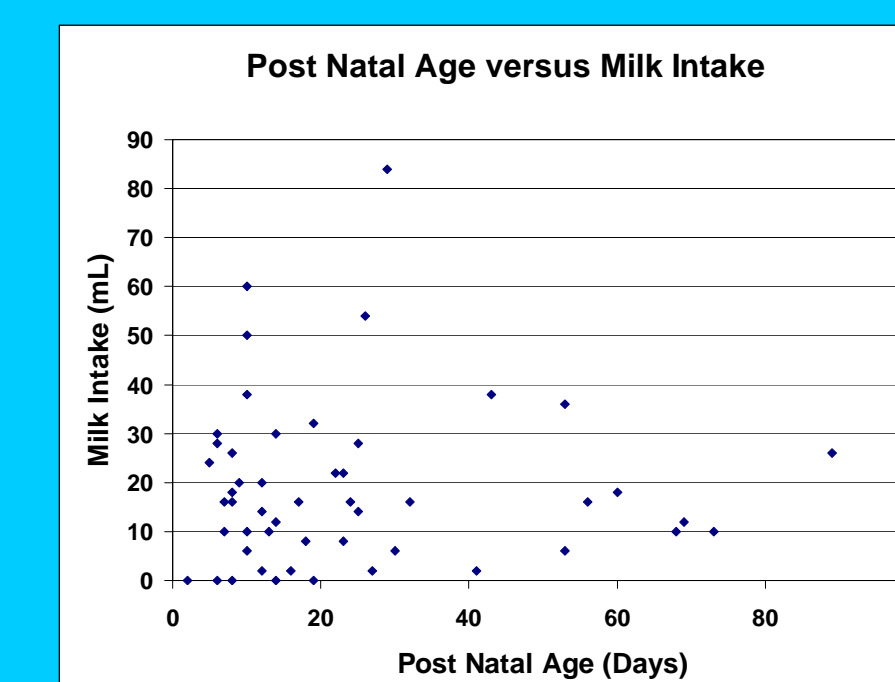
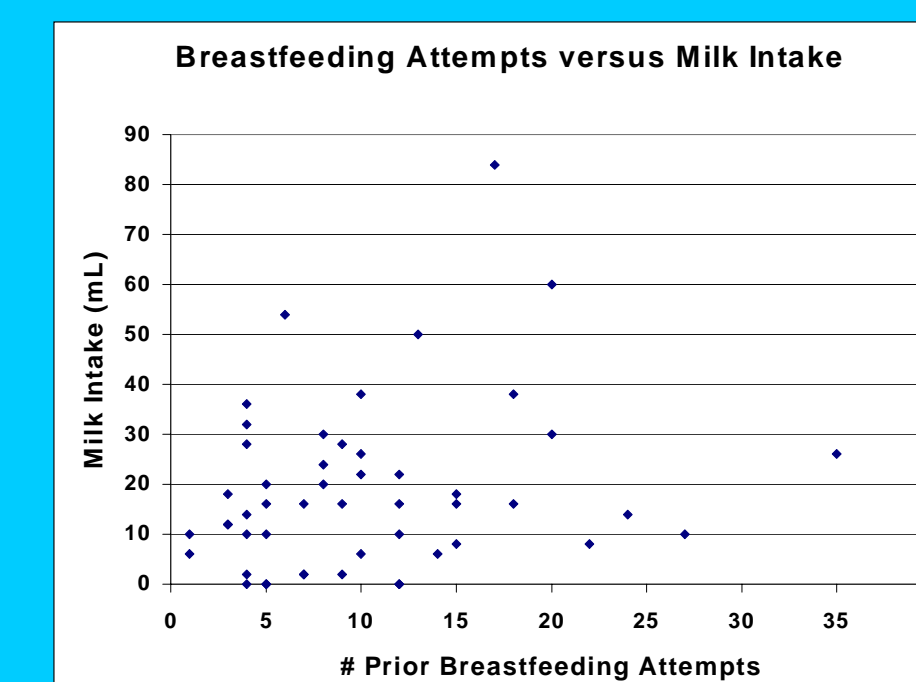
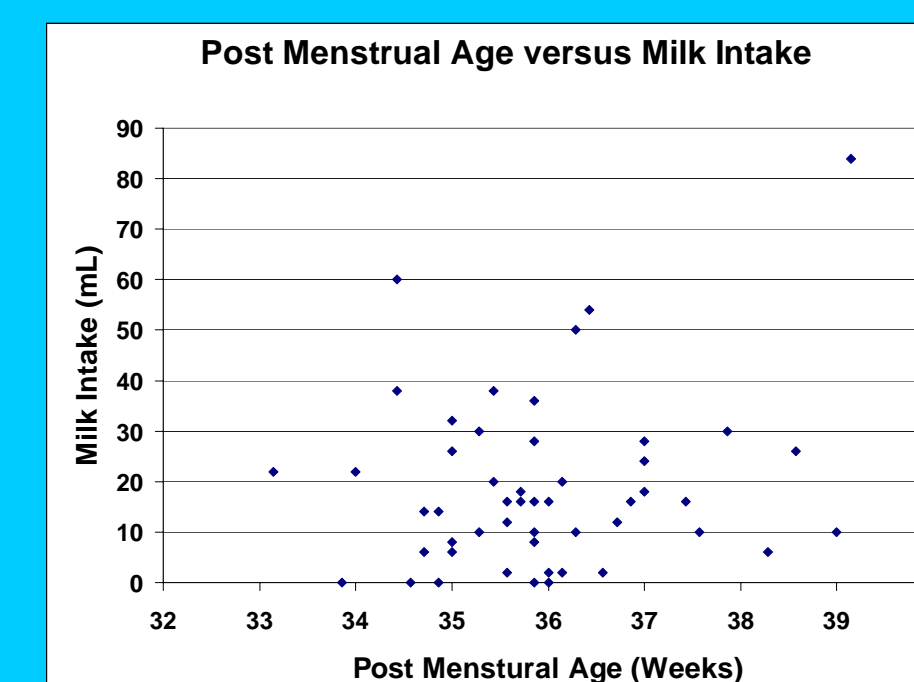
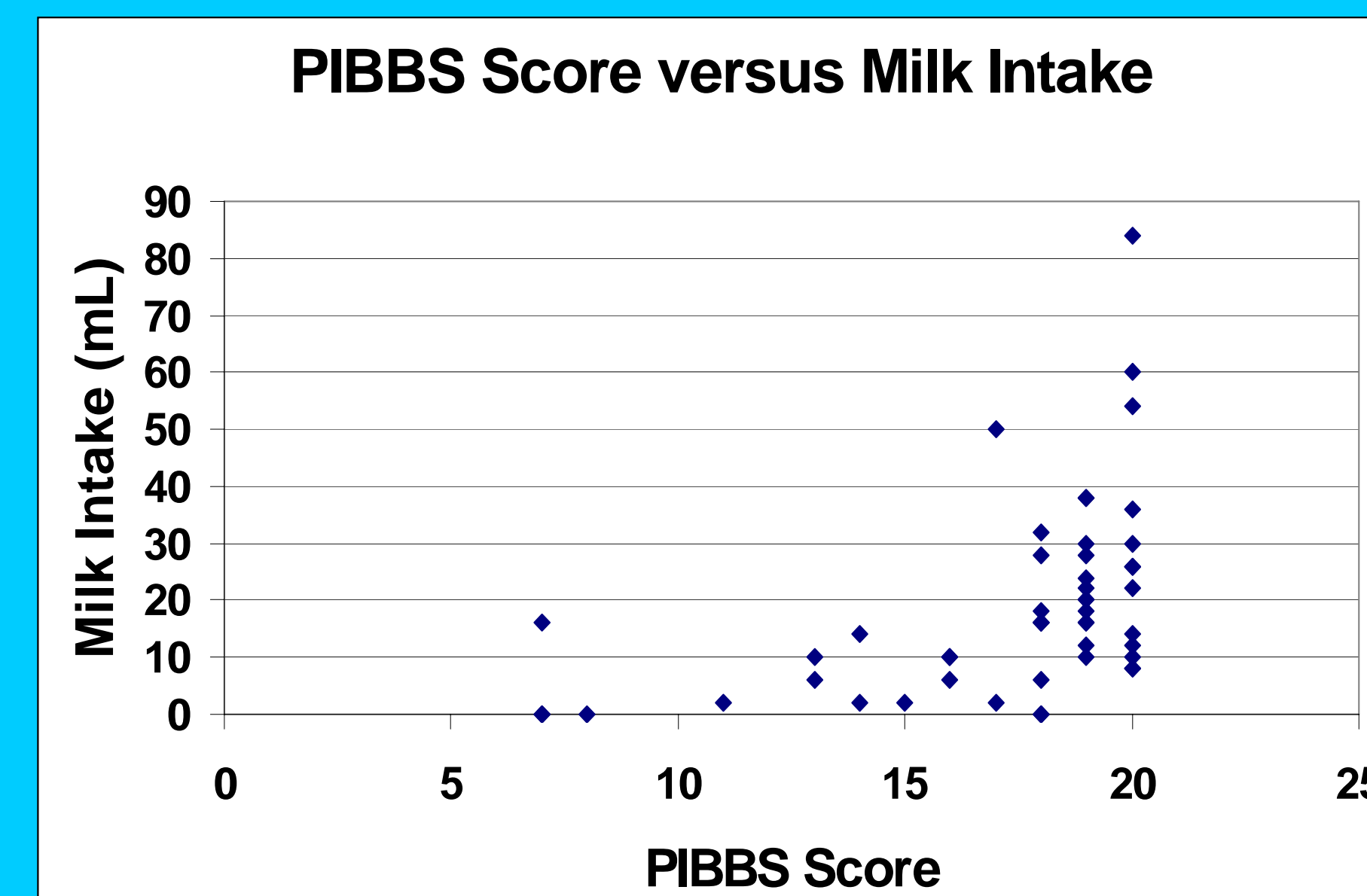
Sample

- Nonprobability convenience sample
- Two tertiary NICUs
- Studied 50 Mother-Infant Dyads
 - Twins eligible but 1 twin per pair studied
 - 64% Females
 - 92% AGA
 - Birth Weight Mean: 1,880 g (737-2,824)
 - Gestational Age Mean: 32.5 weeks (25.9-36.9)
- Health of preterm infants was typical

Breastfeeding History

History	M	SD	Range
BF Attempts Prior to Observation (BFE)	10.3	7.13	1-35
Observation PMA	36	1.27	33.1 -39.1
Observation PNA	24	12.9	2-89
Milk Intake With Outlier (mL) (N=50)	18.88	16.99	0-84
Milk Intake Without Outlier (mL) (n=49)	17.55	14.30	0-60
Days to Discharge after Observation	4.33	4.00	0-18
Nipple Shield Used n(%)	23(46%)		

Results



Results

1a. Substantial interrater agreement was found between PI (A) and lactation specialists (B & C).

Interrater Agreement:	A/B	A/C
Average ($p=.01$)	.71	.75
n	28	22

Note: kappa: 0.00-0.20 slight agreement; 0.21-0.40 fair; 0.41-0.60 moderate; 0.61-0.80 substantial; >.81 almost perfect

1b & 1c. Chance to slight interrater agreement was found between mothers and PI/lactation specialists.

2. Correlation between PIBBS scores and Milk Intake:

- Statistically significant but low magnitude
- Not clinically significant

Observer A (n = 49)	Pearson Coefficient	Significance
Milk Intake	.477	.001

Note: Pearson's Coefficient: 0.26-0.49 is low, 0.50-0.69 is moderate, 0.70+ is high.

3. No significant relationship was found between Milk Intake and PMA, BFE, or PNA.

Milk Intake (n = 48)	Pearson Coefficient	Significance
PMA	-.050	.367
BFE	.166	.129
PNA	-.059	.346

Note: Pearson's Coefficient: 0.26-0.49 is low, 0.50-0.69 is moderate, 0.70+ is high.

Conclusions

- Direct observation and the use of observational instruments are not clinically useful in predicting milk intake in preterm infants.
- PMA, PNA, and BFE should not be used arbitrarily as predictor variables for the volume of milk intake in preterm infants.
- Test weighing is the most reliable method to measure milk intake.
- The PIBBS is a reliable instrument when used by trained lactation specialists but not predictive of milk intake in preterm infants.