Impact of Integrated Substance Use and Obstetric Care on Delivery Outcomes

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Introduction

- Substance use during pregnancy places the maternal-infant dyad at high risk of adverse health outcomes
- Pregnancy offers a unique opportunity to provide substance use treatment alongside recommended obstetric
- However, little is known about the incremental impact of combining substance use and obstetric care (i.e., integrated care)
- **The objective of this study was to determine whether integrated care improves preterm birth, birthweight, and other maternal-neonatal outcomes over non-integrated care approaches**

Methods

- Survey of postpartum individuals
  - Adult (18+)
  - Self-reported opioid use (with or without diagnosis of opioid use disorder [OUD])
  - Residing in western North Carolina (WNC) region
- Exposure group defined on self-reported locus of prenatal care (integrated vs non-integrated)
- Survey questions designed to gather information on the following:
  - Prenatal and substance use care
  - Gestational age, birthweight, delivery mode, neonatal intensive care unit (NICU) admission, treatment for neonatal opioid withdrawal syndrome (NOWS)
- Descriptive statistics characterized the survey participants and their responses
- Chi-square and Mann-Whitney U tests determined whether there were significant differences between the two groups
- This study was deemed exempt by the Mission Hospital Institutional Review Board

Results

- We had 79 respondents, 48 (61%) received prenatal/substance care from an integrated setting and 31 (39 %) from a non-integrated setting

Exhibit 1. Demographic characteristics of survey respondents, stratified by exposure group

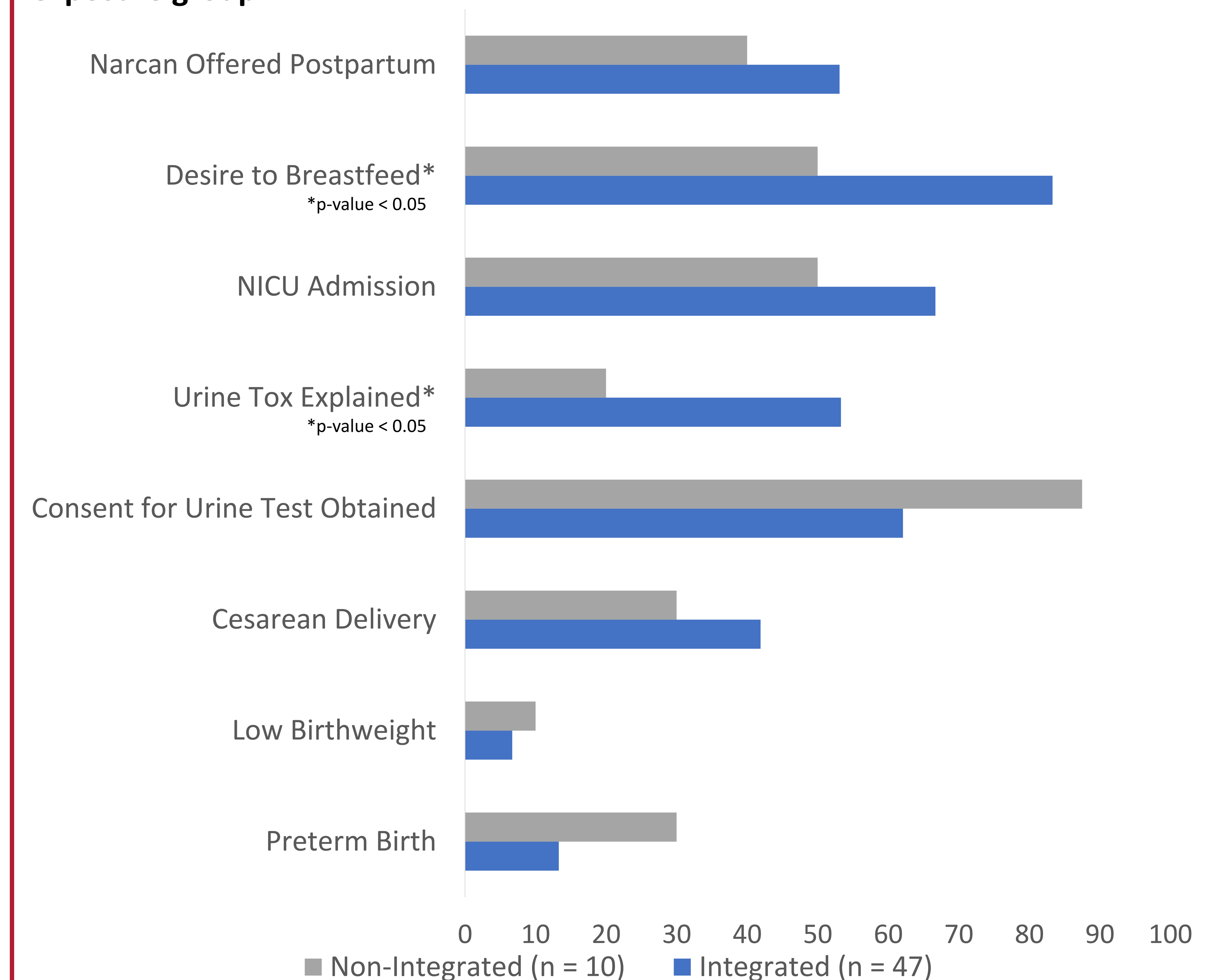
Variable	Integrated	Non-Integrated	p-value
Total Number of Respondents	48	31	
Age Group			0.11
18 to 20 Years	0 (0%)	1 (3.2%)	
21 to 24 Years	11 (22.9%)	3 (9.7%)	
25 to 29 Years	19 (39.6%)	20 (64.5%)	
30 to 34 Years	15 (31.3%)	6 (19.4%)	
35+ Years	3 (6.3%)	1 (3.2%)	
Geographic Setting of Residence			0.12
Mostly Urban	16 (33.3%)	15 (48.4%)	
Mixed Rural-Urban	7 (14.6%)	7 (22.6%)	
Mostly Rural	25 (52.1%)	9 (29.0%)	
Self-Reported Diagnoses			
Opioid Use Disorder	25 (52.1%)	22 (70.9%)	0.03
Other Substance Use Disorder	21 (43.8%)	12 (38.7%)	0.02
Anxiety	40 (83.3%)	13 (41.9%)	<0.01
Depression	36 (75.0%)	14 (45.2%)	<0.01

Exhibit 2. Receipt and timing of prenatal and substance use care, stratified by exposure group

Variable	Integrated	Non-Integrated	p-value
Trimester of initiating prenatal care	N = 29	N = 32	0.03
First Trimester	24 (82.8%)	17 (53.1%)	
Second Trimester	5 (17.2%)	12 (37.5%)	
Third Trimester	0 (0%)	3 (9.4%)	
Received substance use tx during pregnancy	28 (96.6%)	19 (59.4%)	<0.01
Trimester of initiating substance use tx			0.27
First Trimester	4 (14.3%)	3 (15.8%)	
Second Trimester	7 (25.0%)	5 (26.3%)	
Third Trimester	1 (3.6%)	4 (21.1%)	
Before Pregnancy	16 (57.1%)	7 (36.8%)	

tx = treatment

Exhibit 3. Rates of maternal, neonatal, and delivery outcomes, stratified by exposure group



- Of the individuals 20 individuals who reported breastfeeding duration postpartum, 11 (55%) breastfed for < 1 month, 7 (35%) breastfed between 1 and 3 months, and 2 (10%) breastfed for 4+ months

Exhibit 4. Delivery outcomes, stratified by exposure group

Variable	Integrated	Non-Integrated	p-value
	N = 30	N = 10	
Days Hospitalized (Infant)	4.9 (2.2)	4.6 (3.5)	0.56
Days Hospitalized (Parent)	11.5 (6.9)	8.4 (6.6)	0.63
Days NICU	12.2 (7.3)	10.2 (7.5)	0.67
Birthweight (in grams)	3250 (502)	3030 (613)	0.03
Gestation (in weeks)	37.9 (2.8)	37.6 (2.7)	0.85

Conclusions and Limitations

- Integrated substance use and obstetric care may offer some incremental benefits to the maternal-infant dyad over non-integrated care, particularly as it relates to preventing low-birthweight, improving patient education and understanding of upcoming procedures, and promoting breastfeeding initiation.
- The data presented are limited as they represent one region in North Carolina. The findings may also be impacted by the reliance on self-reports and the limited responses for non-integrated care.

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