

Background

- Immigrants and their US-born children make up 61 million of the US population.¹
- Unique stressors negatively impact their NICU experience and family well-being.²⁻⁴
- Infants of immigrant mothers are an extremely vulnerable population that is often ignored.

Objective

- To evaluate the effect of maternal immigrant status on perceptions of discharge readiness in mothers of preterm infants (gestational age <37 weeks).
- To identify the impact of primary language in the household, maternal birthplace, and years in US on discharge readiness.

Methods

- Study sample: immigrant mothers (172) and native mothers (560) of preterm infants cared for in the NICU for >5 days between 2012 and 2015.
- The mothers completed the Fragile Infant Parent Readiness Evaluation™ (FIPRE) which was used as a discharge readiness questionnaire.
- The FIPRE is comprised of 5 primary scores which are converted to a standard 0-100 metric with greater scores being more favorable (scores <75 were evaluated).

Statistical Analyses

- Group comparisons were made based on maternal immigrant status.
- For maternal characteristics, chi-square tests were used for the categorical data, and t-test and Wilcoxon were used for the continuous data.
- For infant characteristics, bivariate regressions with GEE adjustment were used for the categorical data, and mixed models were used for the continuous data.
- Regression models were run on the total population and on the immigrant mothers to examine the effect of maternal immigrant status, primary language, maternal birthplace, and years in US on discharge readiness.

Results

Maternal characteristics of immigrant and native mothers.

Characteristics	Immigrant Mothers	Native Mothers	P value
N(%)	172(23)	560(77)	
Age, y	30.7±6	29.1±6	0.004
Gravida >1	131(76)	362(65)	0.005
Prenatal care	197(99)	656(99)	0.70
Race/ethnicity			
White	15(9)	394(70)	
Black	32(19)	54(10)	<0.0001
Hispanic	93(54)	71(13)	
Mixed/other	32(19)	41(7)	
Unmarried	93(56)	295(3)	0.61
Non-English primary language	105(61)	32(6)	<0.0001
Less than high school	33(20)	70(13)	0.02
Medicaid	120(70)	279(50)	<0.0001
Child protective services	6(3)	70(13)	0.0007
Domestic abuse	12(7)	53(10)	0.33
Substance abuse	6(4)	80(14)	0.0001
Adverse mental health	34(20)	232(42)	<0.0001

Maternal characteristics of immigrant mothers.

Characteristics	Immigrant Mothers
Maternal birthplace	
Developed	8(5)
Africa	33(20)
Latin America	42(25)
Caribbean	60(36)
Asia & Oceania	23(14)
Years in US	
<5	33(22)
5-9	40(26)
10-14	29(19)
15+	49(32)
Primary language reported	
English	55(32)
Spanish	86(51)
Other	29(17)

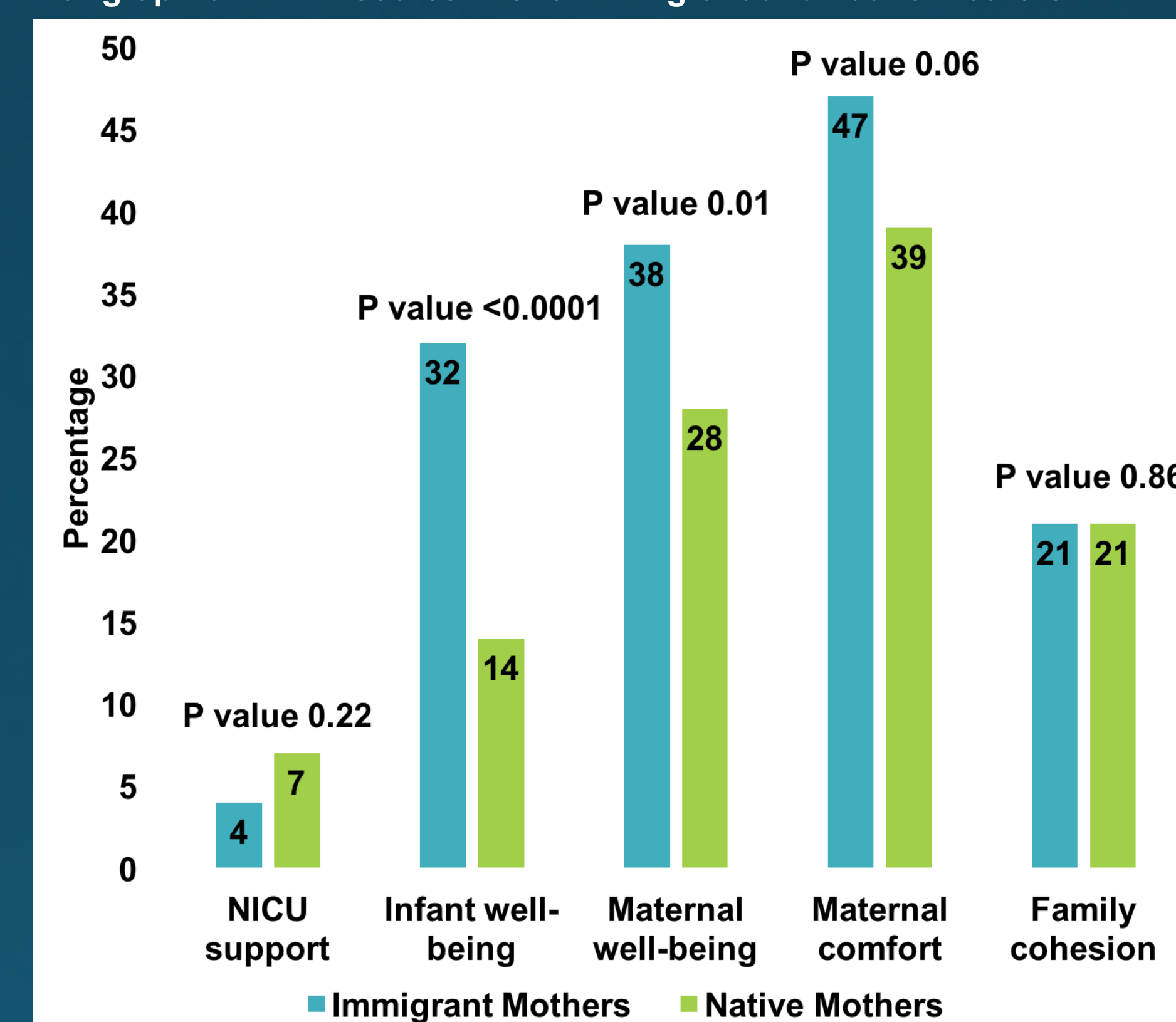
Infant characteristics of infants of immigrant and native mothers.

Characteristics	Infants of Immigrant Mothers	Infants of Native Mothers	P value
N(%)	199(23)	667(77)	
Preterm group			
Early	65(33)	199(3)	
Moderate	42(21)	143(21)	0.52
Late	92(46)	325(49)	
Birth weight, g	1784±639	1885±658	0.10
Gest. age, wk	32.1±3	32.2±3	0.78
Days in hospital	37.2±37	35.2±36	0.65
Multiple	54(27)	207(31)	0.25
Male	108(54)	349(52)	0.76
Intraventricular hemorrhage (III-IV)	8(4)	8(1)	0.02
Necrotizing enterocolitis	7(4)	13(2)	0.20
Sepsis	8(4)	20(3)	0.46
Bronchopulmonary dysplasia	22(11)	64(10)	0.60
Any breast milk at discharge	155(78)	435(65)	0.003
Oxygen at discharge	11(6)	21(5)	0.55

FIPRE scales of immigrant and native mothers.

Scales	Immigrant Mothers	Native Mothers	P value
NICU support	93.7±10(100)	93.0%±12(100)	0.75
Score < 75	7(4)	37(7)	0.22
Infant well-being	77.2±32(100)	88.8±17(100)	0.004
Score < 75	55(32)	78(14)	<0.0001
Maternal well-being	77.6±16(79.4)	80.7±16(84.8)	0.01
Score < 75	66(38)	157(28)	0.01
Maternal comfort	68.0±28(76.2)	75.1±23(81)	0.01
Score < 75	80(47)	219(39)	0.06
Family cohesion	84.6±21(85)	83.1±21(85)	0.20
Score < 75	35(21)	119(21)	0.86
Time impact			
A lot	51(30)	107(19)	
Some	39(23)	131(24)	
A little	40(24)	191(34)	0.008
None	39(23)	128(23)	

Bar graph of FIPRE scores <75 for immigrant and native mothers.



Logistic regressions for FIPRE scores <75 of total population.

Characteristics	NICU support OR (95%CI)	Infant well-being OR (95%CI)	Maternal well-being OR (95%CI)	Maternal comfort OR (95%CI)	Family cohesion OR (95%CI)
Immigrant mother	0.99 (0.37-2.64)	1.87 (1.11-3.15)	1.54 (0.96-2.46)	1.35 (0.86-2.10)	0.85 (0.49-1.47)
Days in NICU	0.98 (0.97-1.00)	1.00 (1.00-1.01)	1.01 (1.00-1.01)	1.01 (1.00-1.01)	1.01 (1.01-1.01)
Non-English speaking	0.39 (0.11-1.31)	2.04 (1.18-3.53)	1.59 (0.95-2.66)	1.31 (0.80-2.13)	1.27 (0.71-2.27)
Medicaid	1.54 (0.73-3.26)	1.20 (0.74-1.93)	0.44 (0.30-0.67)	0.57 (0.40-0.83)	1.32 (0.84-2.08)
Social risk* factors	1.20 (0.94-1.52)	1.01 (0.86-1.20)	1.18 (1.02-1.36)	1.02 (0.89-1.16)	1.18 (1.01-1.38)

Logistic regressions for FIPRE scores <75 of immigrant mothers.

Characteristics	NICU support OR (95%CI)	Infant well-being OR (95%CI)	Maternal well-being OR (95%CI)	Maternal comfort OR (95%CI)	Family cohesion OR (95%CI)
Years in US	1.11 (1.02-1.20)	0.97 (0.93-1.01)	1.02 (0.98-1.06)	0.96 (0.93-1.00)	1.03 (0.99-1.08)
Medicaid	1.99 (0.33-11.86)	1.51 (0.67-3.43)	0.60 (0.29-1.26)	1.19 (0.57-2.51)	1.52 (0.62-3.76)

Summary Results

- Immigrant mothers were **more likely** to be **older, gravida >1, non-white, non-English speaking, less than high school education, and have Medicaid.**
- Immigrant mothers were **less likely** to have **child protective services involvement, substance abuse, and adverse mental health.**
- Infants of immigrant mothers were **more likely** to have **intraventricular hemorrhage (III-IV), and any breast milk at discharge.**
- Immigrant mothers were **more likely** to score **unfavorably** on **infant well-being, maternal well-being, maternal comfort and time impact.**
- In the total population, **immigrant mother, days in NICU, non-English speaking, and social risk factors** predicted **unfavorable FIPRE scores.**
- In the total population, **Medicaid** predicted **favorable FIPRE scores.**
- In the immigrant mother population, **increased years in US** was associated with an **increased** perception of **poor NICU support.**

Conclusions

- Nearly a quarter of the mothers were immigrants.
- Immigrant mothers perceived less discharge readiness in comparison to native mothers.
- Non-English speaking and increased social risk factors contributed to risk.
- Our findings highlight the need for culturally competent care and enhanced discharge readiness services to help this extremely vulnerable population.

*Social risk includes less than high school education, single, child protective services involvement, domestic abuse, substance abuse, and adverse maternal mental health.

- National Vital Statistics Reports 2015.
- Miguel-Verges F, et al. Discharge of infants from NICU to Latino families with limited English proficiency.
- Nicholas DB, et al. Connection versus disconnection: examining culturally competent care in the neonatal intensive care unit.
- Enlow E, et al. Neonatal intensive care unit to home: the transition from parent and pediatrician perspectives, a prospective cohort study.