

Introduction

- Low birthweight (< 2,500 g), which is primarily caused by premature birth (delivery prior to 37 weeks gestation), is a key predictor of infant mortality.¹
- Indigenous American women experience higher rates of low birthweight, premature birth, and infant mortality compared to non-Hispanic white women (Table 1).
- Maternal stress during pregnancy, including experiences of racism and culturally relevant stressors (i.e., historical loss), has been associated with adverse birth outcomes (i.e., low birthweight, premature birth, infant mortality, etc.).^{2, 8}

Table 1. Indigenous American Birth Outcomes by Location

Location	Outcome	Indigenous Americans	Population Average
United States	Preterm Birth ⁴	15.5%	11.1%
	Low Birth Weight ⁴	8.6%	8.5%
	Infant Mortality ⁴	1.6	5.6
North Dakota	Preterm Birth ⁴	14.6%	9.4%
	Low Birth Weight ⁴	9.3%	7.1%
	Infant Mortality ⁷	17.6	6.1
South Dakota	Preterm Birth ⁴	13.9%	11.2%
	Low Birth Weight ⁵⁻⁶	9.3%	7.1%
	Infant Mortality ⁵⁻⁶	10.5	6.8
Minnesota	Preterm Birth ⁴	14.3%	9.7%
	Low Birth Weight ⁴	8.5%	7.5%
	Infant Mortality ⁴	13.0	4.7

Note: Based on most recently available data; 2022-2024,⁴ 2024,⁵ 2015-2024,⁶ 2018.⁷ Preterm birth and low birth weight are measured as percentage of all live births. Infant mortality is measured per 1000 live births.

Methods

- We recruited 57 Indigenous American pregnant women from ND, SD, and MN to complete surveys of stress, historical loss, and racism between 23 – 28 weeks' gestation.
- Historical Loss Scale & Historical Loss Associated Symptoms Scale** measure how often individuals think about historical losses (i.e. the impacts of colonization) and the psychophysiological responses/symptoms (i.e. anxious or depressive thoughts, anger, etc.) to thinking about these losses.⁹⁻¹⁰
- Lifetime Racism Measure** assesses individuals' experiences of racism and discrimination across their lifespan.¹¹
- Maternal health and birth outcome data (i.e. birthweight, parity) were abstracted from electronic medical records following delivery.
- Participant demographics were quantified using descriptive statistics (Table 2).
- Bi-variate correlations were used to assess relationships between variables.
- Linear regression was used to model the relationships between historical loss (HL), historical loss symptoms (HLS), lifetime racism (LR), birthweight and gestational length separately.

Table 2. Participant Demographics

Variable	Mean (SD) or Count (%)
Maternal Age (years)	30 (4.12)
Nulliparous	7 (21.2%)
Income (USD)	\$ 27,110.40 (\$29,558)
Birth Weight (grams)	3367.55 (447.74)
Gestational Age at birth (days)	267.85 (10.02)
Preterm Births (< 259 days)	3 (9.1%)
Low Birth Weight (< 2500 g)	0 (0%)
Historical Loss Total Score	39.57 (18.24)
Historical Loss Associated Symptoms Score	26.75 (9.99)
Lifetime Racism Score	1.94 (1.73)

Preliminary Results

There were significant associations between:

- Birth Weight and
 - Historical Loss ($r = -.532$, $p = .004$)
 - Historical Loss Symptoms ($r = -.417$, $p = .030$)
 - Lifetime Racism ($r = -.587$, $p = .002$)

Results

Historical Loss and Birth Weight

After controlling for maternal age and parity, historical loss was significantly associated with infant birth weight. Specifically, higher levels of historical loss were related to lower birth weight, indicating that participants who reported more frequent thoughts and experiences related to historical loss were more likely to deliver infants with lower birth weights (Table 3, Fig 1).

Table 3. Historical Loss & Birth Weight

	B	Std. Error	Beta	Sig.
Constant	3974.41	512.05		< .001
Age	1.64	17.73	0.017	.930
Parity	-36.56	33.24	-0.210	.283
Historical Loss	-11.54	3.60	-0.570	.004

$F(3/23) = 3.577$, $p = .030$, Adj R sq = .229



Combined Effects

When historical loss and lifetime racism were entered into the same regression model, neither predictor remained independently associated with birth weight after controlling for maternal age and parity. This finding likely reflects the substantial overlap between the two constructs, as historical loss and lifetime racism were significantly correlated. Consequently, their shared variance may have reduced the ability to detect unique effects for either predictor in the combined model.

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References



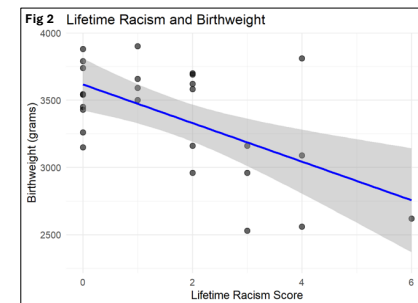
Lifetime Racism and Birth Weight

After controlling for maternal age and parity, lifetime racism was significantly associated with infant birth weight. Participants reporting greater lifetime exposure to racism gave birth to infants with lower birth weights, suggesting that cumulative experiences of racism may adversely affect birth outcomes (Table 4, Fig 2).

Table 4. Lifetime Racism & Birth Weight

	B	Std. Error	Beta	Sig.
Constant	3329.80	533.67		< .001
Age	13.05	18.96	0.135	.500
Parity	-277.71	32.83	-0.164	.408
Lifetime Racism	-146.35	42.24	-0.600	.002

$F(3/21) = 4.253$, $p = .017$, Adj. R sq = .289



Discussion

This study was limited by a small sample size, which reduced statistical power. Continued data collection will allow for more robust evaluation of these relationships.

The findings suggest that both historical loss and lifetime racism may contribute to disparities in birth outcomes among Indigenous American communities. The overlap between these constructs may indicate that experiences of racism are closely linked to thoughts and feelings related to historical loss.

Lifetime racism was associated with lower infant birth weight in this sample, highlighting the potential health impact of cumulative racism across the life course. Future research should further examine these effects and identify cultural strengths and resilience factors that may help protect against adverse birth outcomes.