

# The effects of adulthood social determinants of health on psychological stress during pregnancy: The role of mindfulness and social support to improve health equity

Shelby Alsup,<sup>1\*</sup> Hannah Dugoni,<sup>1\*</sup> Olivia Doyle,<sup>2</sup> Alice Graham,<sup>2</sup> Kristen Mackiewicz Seghete<sup>2</sup>

*\*These authors contributed equally to this project*

<sup>1</sup>Pacific University, Hillsboro, OR, United States; <sup>2</sup>Oregon Health & Science University, Portland, OR, United States

## BACKGROUND

- Pregnant individuals are at heightened risk of experiencing **psychological stress**, contributing to long-term poor health outcomes for maternal and offspring health<sup>1-12</sup>
  - Poor psychological health during pregnancy is the strongest risk factor for psychological health postpartum<sup>13</sup>
- Well-known contributors to psychological stress include **health disparities** and **social determinants of health (SDoH)**<sup>14</sup>
  - SDoH are defined as the environmental circumstances that affect health and help explain health outcome disparities<sup>15</sup>
- Potential buffers against psychological stress during pregnancy include mindfulness-based interventions (MBIs) and high levels of social support<sup>16, 17</sup>

### Significance of Research

- Given the high prevalence of maternal stress among pregnant populations, research is needed to understand contributors to psychological stress during pregnancy in order to reduce health disparities across generations
- Research is also needed to understand the role of specific modifiable factors that may act as buffers against psychological stress in order to promote the implementation of preventive measures throughout the perinatal period

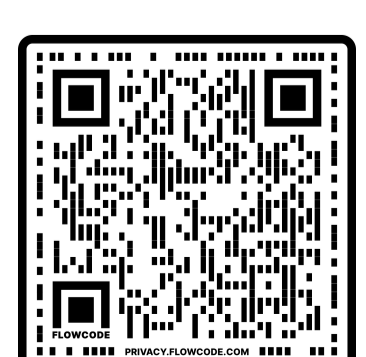
## Social Determinants of Health<sup>18</sup>



## AIMS & HYPOTHESES

- Aim:** Examine whether protective practices improve the prediction of psychological stress during pregnancy
- Hypothesis: Mindfulness and social support will improve the prediction of psychological stress during pregnancy beyond gestational age, body mass index (BMI), and adulthood SDoH

## REFERENCES



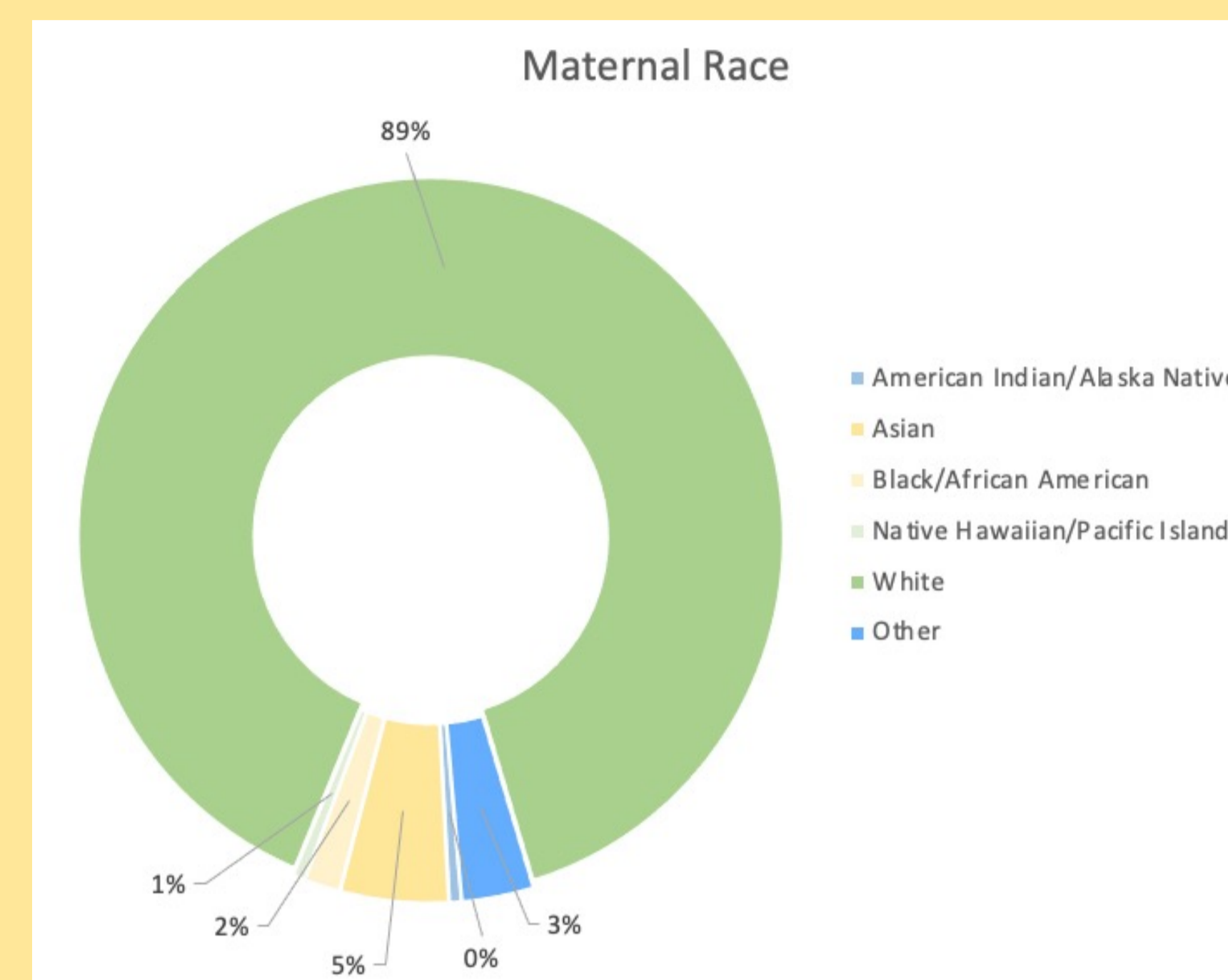
## CONTACT INFORMATION

**Student Principal Investigators**  
Shelby Alsup [alsup@ohsu.edu](mailto:alsup@ohsu.edu) Hannah Dugoni [dugoni@ohsu.edu](mailto:dugoni@ohsu.edu)

## METHOD

### Participants

- 182 pregnant individuals 4.4–22 weeks gestational age enrolled in an ongoing longitudinal study examining the effects of a Mindfulness-Based Cognitive Therapy on maternal and offspring outcomes
- Maternal age ranged from 22–44 years ( $M = 32.8$ ,  $SD = 4.37$ )
- Participants were primarily White (89%) and college educated (84.1%)

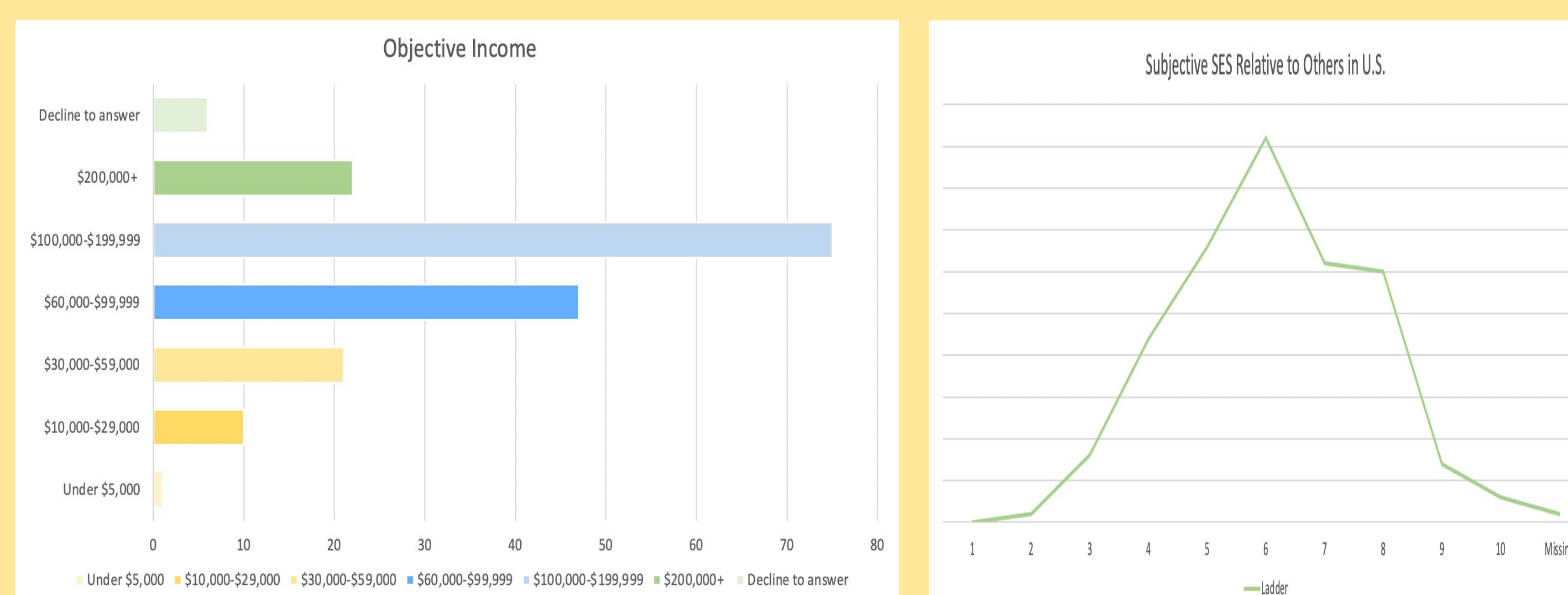
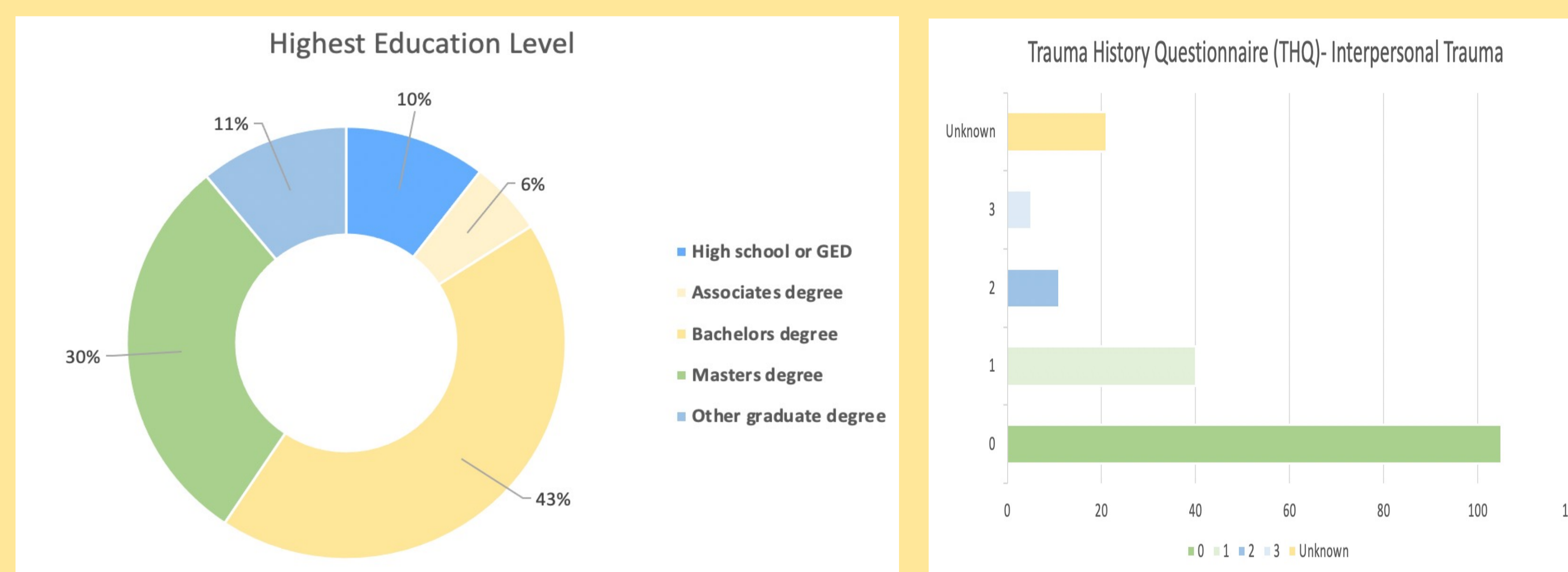


### Procedures

- Diagnostic interviewing, neurocognitive testing, and questionnaires were completed

### Self-Report Measures

- Covariates:**
  - Gestational age
  - Self-reported weight and height were used to calculate Body Mass Index (BMI)
- Psychological Stress:** a composite score was created using scores from the Perceived Stress Scale (PSS),<sup>19</sup> Center for Epidemiologic Studies of Depression Scale Revised (CESD-R),<sup>20</sup> and Beck Anxiety Index (BAI)<sup>21</sup>
- The **Adulthood SDoH** included: race; objective and subjective<sup>22</sup> income; education level; likelihood of food insecurity; and Trauma History Questionnaire (THQ)<sup>23</sup>
  - THQ was computed using only interpersonal traumas > 18 years of age
- Five Facet Mindfulness Questionnaire (FFMQ)**<sup>24</sup>
- Social Support Questionnaire**<sup>25</sup>



## RESULTS

*Hierarchical Multiple Regression Predicting Psychological Stress From Adulthood Social Determinants of Health (SDoH), Mindfulness, and Social Support During Pregnancy*

Variable	B	95% CI for B		SE B	$\beta$	$R^2$	$\Delta R^2$
		LL	UL				
<b>Model 1</b>							
Constant	-1.61*	-3.00	-0.22	0.70		.05	.05*
Gestational Age	0.03	-0.03	0.10	0.03	.08		
Body Mass Index	0.04**	0.01	0.97	0.01	.22		
<b>Model 2</b>							
Constant	0.81	-1.50	3.11	1.17		.25	.21*
Gestational Age	0.02	-0.05	0.07	0.03	.04		
Body Mass Index	0.01	-0.02	0.03	0.01	.03		
Race <sup>a</sup>	-0.03	-0.23	0.17	0.10	-.02		
Objective Income	-0.01	-0.09	0.07	0.04	-.03		
Subjective Income	-0.09	-0.21	0.30	0.06	-.14		
Educational Level	-0.15	-0.30	0.00	0.07	-.16		
Food Insecurity	0.50***	0.22	0.78	0.14	.33		
Trauma <sup>b</sup>	0.05	-0.14	0.25	0.10	.04		
<b>Model 3</b>							
Constant	3.84***	1.66	6.01	1.10		.45	.20*
Gestational Age	0.01	-0.05	0.06	0.02	.02		
Body Mass Index	0.02	-0.01	0.04	0.01	.11		
Race	0.02	-0.16	0.19	0.09	.01		
Objective Income	-0.01	-0.08	0.05	0.04	-.04		
Subjective Income	-0.02	-0.12	0.09	0.05	-.03		
Educational Level	-0.17***	-0.31	-0.04	0.07	-.19		
Food Insecurity	0.39**	0.15	0.64	0.12	.26		
Trauma	0.80	-0.09	0.25	0.09	.06		
Mindfulness	-0.02***	-0.03	-0.01	0.01	-.37		
Social Support	-0.25**	-0.47	-0.04	0.11	-.17		

Note. CI = confidence interval; LL = lower limit; UL = upper limit.

<sup>a</sup>American Indian/Alaskan Native = 1, Asian = 2, Black/African American = 3, Native Hawaiian/Pacific Islander = 4, White = 5, Other = 6, I Don't Know = 7.

<sup>b</sup>Sum of interpersonal trauma experiences in adulthood.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

- The addition of mindfulness and social support accounted for 45% of the variance and significantly contributed to the model beyond adulthood SDoH
- Semi-partial correlations suggested that mindfulness uniquely explained the greatest variance when controlling for all other variables and further, the likelihood of food insecurity uniquely explained the greatest variance for the SDoH

## DISCUSSION

- The addition of mindfulness and social support to the prediction of maternal psychological stress further explained variance in the model, beyond adulthood SDoH
- Findings indicate that as mindfulness and social support increase, maternal psychological stress during pregnancy decreases
- Better understanding common factors that affect psychological health during the sensitive period of pregnancy will help support maternal postpartum health, infant development, and improved generational health, particularly for individuals with marginalized identities<sup>26</sup>

## LIMITATIONS & FUTURE DIRECTIONS

- Limitations: homogenous sample lacking variability in diversity and trauma exposure (low endorsement of trauma on the THQ); questionnaire data
- Future analyses will examine childhood SDoH, such as childhood trauma and food insecurity in childhood
- Future analyses will examine the mediating and moderating role of mindfulness and social support on the effects of childhood and adulthood SDoH and psychological stress, with the goal of using SDoH to inform interventions that improve the health of pregnant individuals and their offspring