

# Health Outcomes Associated with Post-Traumatic Stress Disorder and Depressive Symptoms among Indigenous Adults with Type 2 Diabetes

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### Background

- Indigenous communities are differentially impacted by diabetes, trauma, and posttraumatic stress disorder (PTSD) compared to the general population<sup>1-3</sup>
- Prior literature has demonstrated worse diabetes outcomes for those with mental health conditions,<sup>4-8</sup> but there is a paucity of literature surrounding the impact of PTSD and comorbid depression for Indigenous individuals

## **Objective**

To examine the prevalence, associated trauma, and health outcomes associated with PTSD and depressive symptoms among Indigenous adults with type 2 diabetes

### **Methods**

### **Data Source**

- Data is from the Mino Giizhigad (A Good Day) study, a community based participatory research collaboration between two tribal communities and a university research team
- Indigenous adults with type 2 diabetes (*n*=218) were randomly sampled from clinic records and completed interviewer administered surveys and a selfreport booklet for sensitive items

### Measures & Analyses

- PTSD assessed using the four-item Primary Care PTSD screen (PC-PTSD), a cutoff score of 3 or higher indicating probable PTSD
- Depressive symptoms assed using the PHQ-9, a cutoff score of 10 or higher indicating presence of depressive symptoms
- Hyperglycemia in the past 30 days, hospitalization in the past year, and selfrated health status were assessed with self-report
- Descriptive statistics and multivariate logistic regression models were used to analyze the data

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### Results

Logistic Regression Analyses of Health Outcomes by Mental Health Status						
	Hyperglycemia		Hospitalization		Low self-rated health status	
	OR	95% CI	OR	95% CI	OR	95% CI
	0.96*	0.94-0.99	1.01	0.98-1.04	1.00	0.98-1.02
er (female = 1)	1.18	0.64-2.15	1.06	0.50-2.24	0.96	0.51-1.78
reservation (on = 1)	1.19	0.56-2.55	0.88	0.36-2.15	1.13	0.52-2.49
location	1.16	0.61-2.18	3.49*	1.52-8.04	1.62	0.85-3.09
with diabetes	1.01	0.99-1.04	1.01	0.98-1.04	1.01	0.98-1.04
pita income	0.99	0.96-1.02	0.99	0.95-1.03	0.97	0.94-1.01
l health status						
either						
SD alone	1.37	0.52-3.66	2.74	0.87-8.60	0.95	0.35-2.60
epressive symptoms alone	1.53	0.46-5.06	3.55	1.00-12.66	5.03*	1.44-17.61
oth	2.80	0.84-9.38	6.33*	2.06-19.47	5.33*	1.72-16.47
ant	7.10		0.06		0.44	
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### Discussion

• We found a relatively high rate of screened PTSD among a sample of Indigenous adults with diabetes, 21.8% of our sample compared to:

- 4.8% among United Kingdom military personnel serving in 2003 Iraq War<sup>9</sup>
- 10% for newly diagnosed breast cancer patients<sup>10</sup>
- 13% for United States soldiers returning from Operation Iraqi Freedom<sup>11</sup>
- 36% for a clinic sample of depressed patients<sup>12</sup>
- It is important to consider the separate and potentially cumulative negative impacts of PTSD and depressive symptoms on health outcomes
- Findings underscore the potential impact of integrated care initiatives that consider social, psychological, and physical health in concert rather than isolation
- Public health efforts to prevent, identify, and treat trauma through skill-building,
- education, and trauma-informed services may have immeasurable impact for reducing associated mental and physical health comorbidities/complications

### References

- Blackwell, Lucas, & Clarke, 2014; 260: 1-171.
- Manson, Beals, Klein, & Croy, 2005; 95(5): 851-859.
- Beals, Novins, Whitesell, Mitchell, Manson, 2005; 162(9): 1723-1732. Sahota, Knowler, Looker, 2008; 69(5): 800-809
- Walls, Aronson, Soper, Johnson-Jennings, 2014; 40(3): 319-328.
- Knaster, Fretts, Phillips, 2015; 25(1): 83-89.

- Miller et al., 2011; 33(2): 116-122.
- Trief, Ouimette, Wade, Shanahan, Weinstock, 2006; 29(5): 411-418.
- Iversen et al., 2009; 9(1): 68.
- 10. Hegel et al., 2006; 107(12): 2924-2931. 11. Maguen et al., 2010; 23(1): 86-90
- 12. Campbell et al., 2007; 22(6): 711-718.