

# Active transportation and anxiety disorders in Canadian youth population: Findings from the Canadian Community Healthy Survey, 2017-2018

Pisolkar Vaidehi, Kaur Amanjot, Yoon Jiwon, Pahwa Punam, Janzen Bonnie

Department of Community Health and Epidemiology, University of Saskatchewan

## BACKGROUND

In recent years, increasing prevalence of anxiety disorders among youth around the world, including Canada, is becoming an urgent public health concern. It is therefore important to identify the risk factors for anxiety disorders among youth. Although active transportation is progressively being recognized as an effective way to improve mental health, there is limited information on the role of active transportation in anxiety disorders.

## OBJECTIVE

The objective of this study was to investigate the association between using active transportation and having an anxiety disorder among the Canadian youth population.

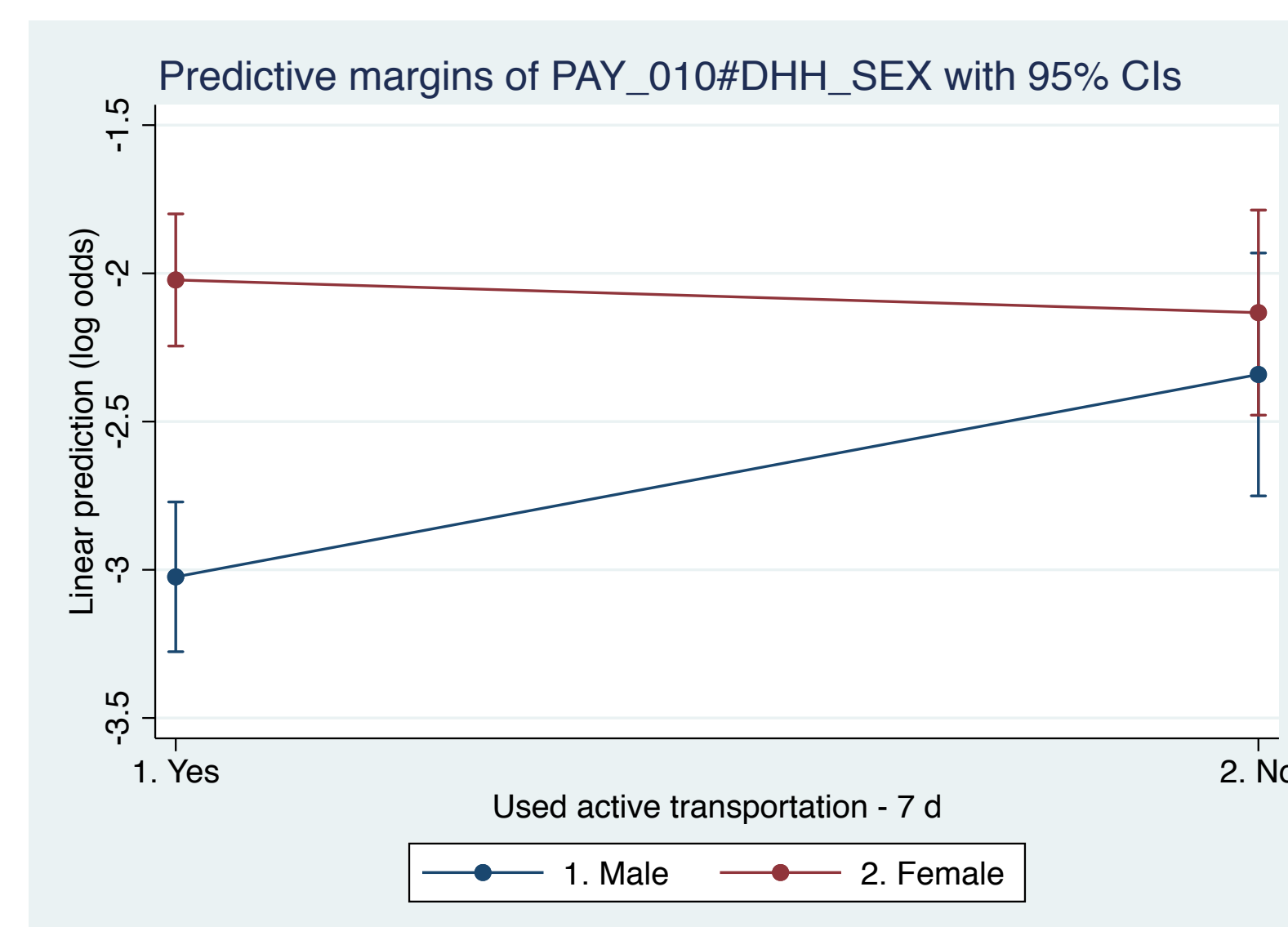
## METHODS

- We analyzed 2017-2018 Canadian Community Healthy Survey (CCHS) cross-sectional data for the youth population (n=5,245) aged 12-17 years from all provinces and territories of Canada.
- The dependent variable was self-reported diagnosis of an anxiety disorder (i.e., phobia, obsessive compulsive disorder, or panic). The primary exposure was active transportation (i.e., biking, walking, etc.).
- Other covariates included sociodemographic characteristics, forms of physical activity, and smoking behaviors.
- A multivariable weighted logistic regression model accounting for (i) unequal probability of selection via sampling weights and, (ii) design effects via Taylor linearization method was fitted.
- Strength of association was presented by odds ratio estimates and 95% confidence intervals.
- Some potential interactions were also tested.
- STATA 17 was used to conduct the analysis.

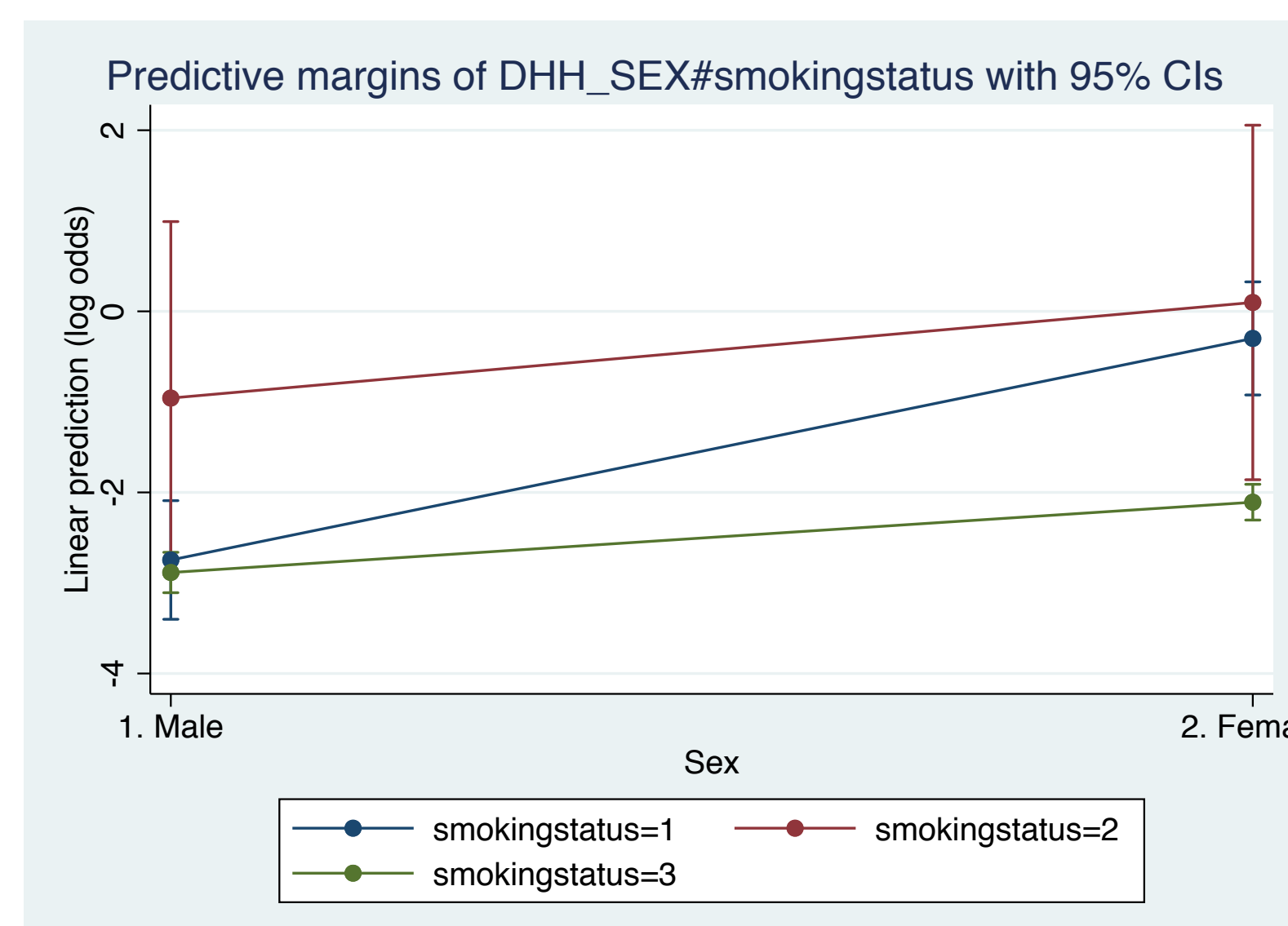
## RESULTS

**Table 1 - Adjusted odds ratios (95% CIs) of anxiety disorders among the Canadian youth population associated with selected risk factors**

Variables	Adjusted odds ratio (95% CI)
<b>Sex</b>	
Male	1
Female	<b>13.75(5.52-34.26)</b>
<b>Active transportation</b>	
Yes	1
No	<b>1.98(1.22-3.20)</b>
<b>Did sports/fitness/recreational physical activities - 7 days</b>	
Yes	1
No	<b>6.17(1.90-20)</b>
<b>Smoking status</b>	
Current smoker	1
Ex-smoker	5.97(0.77-46.67)
Never smoker	0.87(0.44-1.73)
<b>Significant interactions</b>	
<b>Active transportation # Sex</b>	
No active transportation and Male	1
No active transportation and Female	<b>0.45(0.24-0.85)</b>
<b>Sex # smoking status</b>	
Female and current smoker	1
Female and ex-smoker	0.25(0.01-4.55)
Female and never smoker	<b>0.18(0.07-0.48)</b>



**Figure 1 - Association between use of active transportation and risk of anxiety disorders stratified by sex**



**Figure 2 - Association between sex and risk of anxiety disorders stratified by smoking status**

## MAJOR FINDINGS

- Approximately 11% of the Canadian youth reported having an anxiety disorder.
- Those who did not do sports/fitness/recreational physical activities in the last seven days at school/camp had higher odds of anxiety disorders as compared to those who did (OR<sub>adj</sub> (95% CI): 6.17 (1.90-20)).
- The graph of log odds (representing interaction on multiplicative scale) of anxiety disorders are presented in Figure 1 and Figure 2.
- The relationship between smoking and active transportation was dependent upon sex of youth. Relative to never smokers, the likelihood of anxiety disorders increased for current smoker and ex-smokers (highest for ex-smokers). Females who were ex-smokers had higher odds of anxiety as compared to males.
- Active transportation was not associated with anxiety in girls, but it was for boys (i.e., using active transportation was associated with lower anxiety).

## CONCLUSION

Active transportation is associated with anxiety disorders in Canadian youth. Males who did not use active transportation had a higher odds of anxiety disorder than those who did use. Policy and decision makers should focus on developing and promoting effective behavioral/lifestyle interventions that have shown to significantly predict anxiety disorders in youth.

## KEY REFERENCES

Statistics Canada. (2020). Canadian Health Survey on Children and Youth, 2019. Retrieved from <https://www150.statcan.gc.ca/n1/daily-quotidien/200723/dq200723a-eng.htm>