

# Adolescent Depression Before and After the Healthy Relationships Plus Program

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## ABSTRACT

**Statement of the problem:** During adolescence, depression symptoms can follow different developmental trajectories, depending on a variety of risk and protective factors (Ferro, Gorter, & Boyle, 2015; Kessler et al., 2012). As part of evaluation of the Healthy Relationships Plus Program (HRPP) in Canada, this study sought to examine the dynamics of adolescent depression and associated risk factors in a sample of youth enrolled in the program. We expected to identify at least two distinct latent classes in adolescent depression, and that proposed predictors would differentiate between these classes.

**Method:** A total of 750 adolescents ages 14-21 ( $M = 15.03$ ,  $SD = 2.03$ ) participated in the nation-wide 15 week program in 2014/2015 academic year within various classroom or community settings. In small groups, they discussed mental health issues and how to build healthy relationships with their peers and engaged in interactive, skill-building activities. Youth completed pre- and post-program questionnaires to assess their demographics, socioeconomic status, attitudes and behaviors related to violence, bullying, drug use, and mental health. Depression was assessed by the Depression subscale of DASS-21 scale. The results were analyzed using Latent Class Growth Analysis (LCGA) with Maximum Likelihood Robust estimation.

**Results:** We identified three distinct classes of youth sharing a common depression trajectory. The first class (51.38%) represented youth with low depression which did not change over the course of the program. The second class (30.53%) included youth with moderate depression, which again stayed stable from pre- to post-evaluation. Finally, youth in the third class (18.09%) reported high depression before the program start and a significant decline after the program ended. Among covariates that distinguished between classes, compared to youth in the lowest trajectory class, females and older youth were more likely to belong to moderate and high trajectories. Moreover, youth with more bullying experiences and those who reported higher anxiety at pre-test had more chances to get into the moderate and high depression trajectories.

**Implications:** As part of the Healthy Relationships Plus program evaluation, identification of distinct classes and developmental pathways of depression as measured before and after the program will help to determine for whom the program is most effective, thus providing a foundation for further program modifications.

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## INTRODUCTION

**Objectives:** This study examined latent class trajectories of depression in a sample of youth who participated in the Healthy Relationships Plus Program in Canada. It also explored risk factors associated with these developmental trajectories.

**Hypothesis:** At least two distinct trajectories of depression will be identified, and proposed predictors (gender, age, cumulative bullying, anxiety) will differentiate between these trajectories.

## METHODS AND MATERIALS

### Participants and Design:

- $N = 750$  youth (53.3% female).
- Age at pre-test :  $M = 15.03$ ,  $SD = 2.03$
- Recruited from 75 groups at public schools and community agencies in Canada.
- In groups, youth discussed mental health issues and how to build healthy relationships with their peers and engaged in interactive, skill-building activities.
- Youth completed pre- and post-program questionnaires to assess their demographics, socioeconomic status, attitudes and behaviors related to violence, bullying, drug use, and mental health.

Measures	Range	Cronbach's $\alpha$
<b>Pre-test:</b>		
• Age (years)	11-21	
• Gender (male, female)	1-2	
• Anxiety - Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995) 7 items	0-21	Pre-test: .833
• Mental Health Continuum – Short Form (MHC-SF; Keyes, 2009) 14 items	0-70	Pre-test: .927
• Cumulative Bullying – sum of f physical, verbal, social, cyberbullying (0- no, 1- yes)	0-4	
<b>Pre- and post-test:</b>		
• Depression – (DASS-21; Lovibond & Lovibond, 1995) 7 items	0-21	Pre-test: .914 Post-test: .929

## ANALYSES

### Latent Class Growth Analysis (LCGA):

- Mixture Complex type of analysis- controls for clustering
- Maximum Likelihood Robust estimation
- Chi-square tests and ANOVAs with Bonferroni correction

## RESULTS

Table 1. Bivariate Correlations between Predictor and Outcome Variables

Variable	1	2	3	4	5
1. Age	-				
2. Depression at Pre-test	.16***	-			
3. Depression at Post-test	.11*	.71***	-		
4. Anxiety at Pre-test	.16***	.75***	.57***	-	
5. MHC at Pre-test	-.19***	-.68***	-.58***	-.51***	-

Notes:  
\*  $p < .05$ , \*\*\*  $p < .001$  (2-tailed)

Figure 1. Class Trajectories of Depression

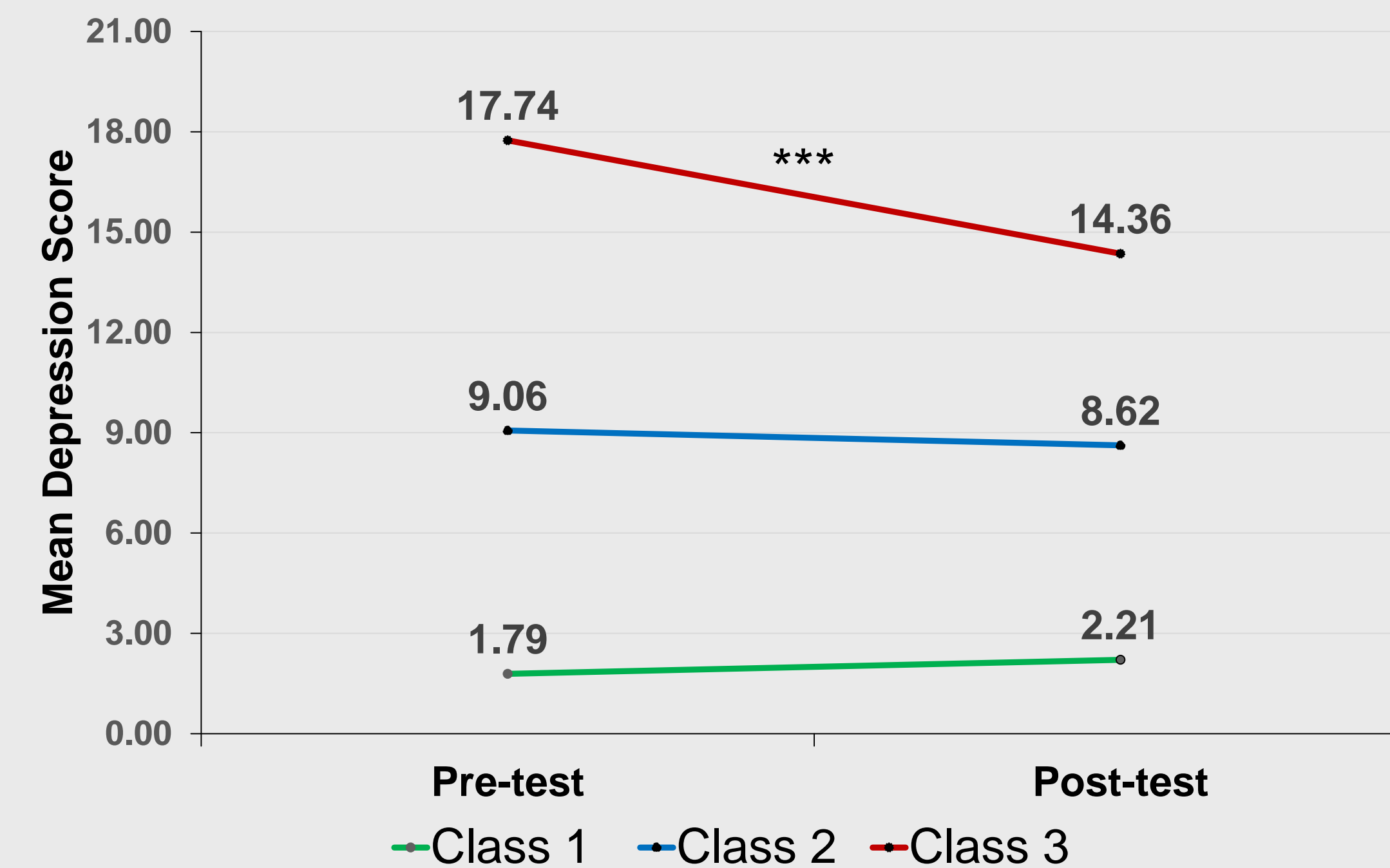


Table 2. Predictors of Class Membership and Related Trajectories of Depression

	Estimate	SE	p
<b>Class 2<sup>1</sup></b>			
Gender	0.722	0.229	0.002
Age	0.149	0.066	0.024
Cumulative Bullying	0.283	0.087	0.001
Anxiety at pre-test	0.341	0.043	<.0001
<b>Class 3<sup>1</sup></b>			
Gender (female)	0.695	0.319	0.030
Age	0.199	0.074	0.007
Cumulative Bullying	0.366	0.130	0.005
Anxiety at pre-test	0.592	0.057	<.0001

Notes:  
<sup>1</sup> Parametrization using reference class 1  
Higher scores for depression, anxiety and cumulative bullying reflect higher endorsement of measured constructs

## RESULTS

Figure 2. Gender Composition by Class Trajectory

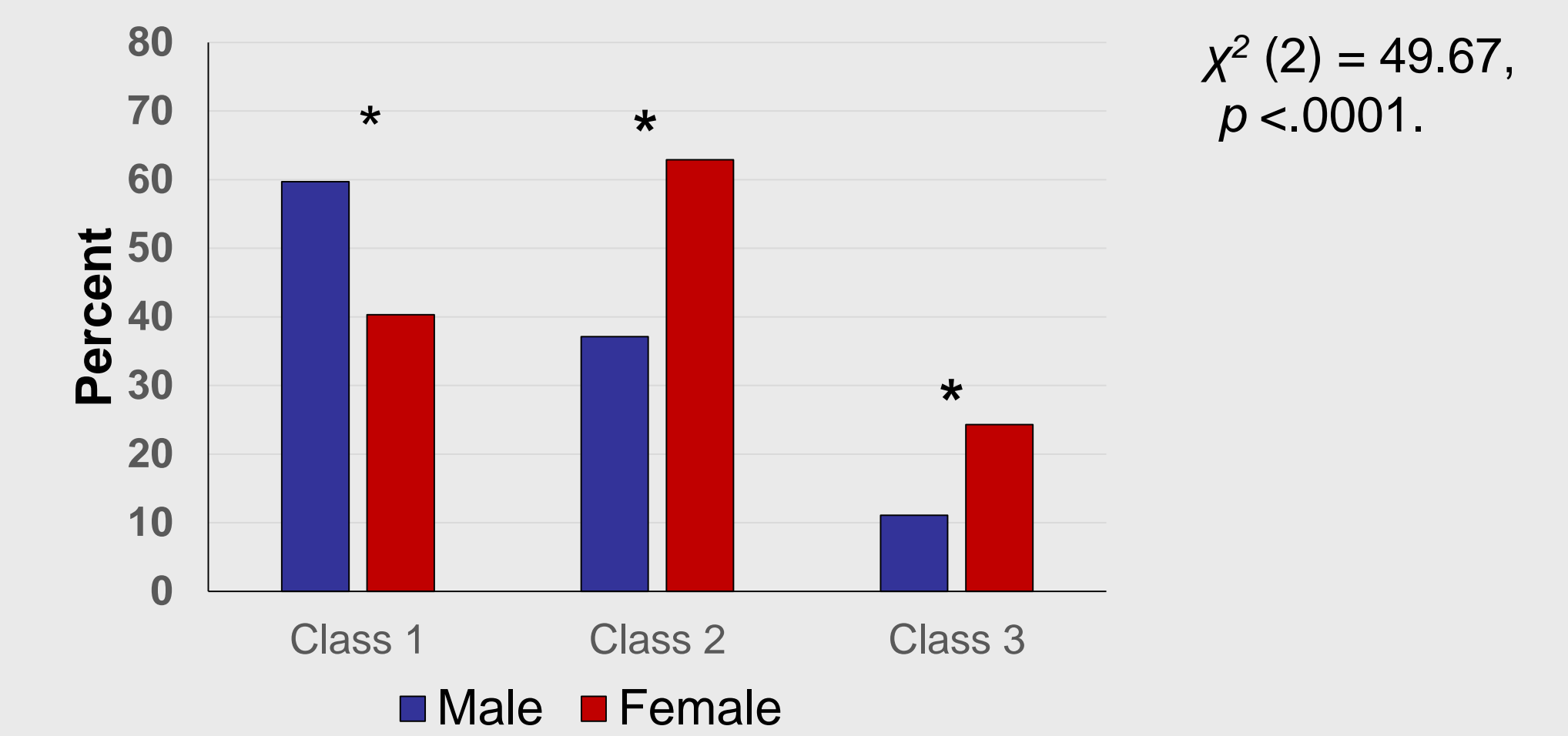


Table 3. Participant Characteristics and Related Outcomes by Depression Class Trajectory

Dependent Variable	Class 1	Class 2	Class 3	F	$\eta^2$
Age <sup>1</sup> M (SD)	14.71 <sub>b</sub> (1.96)	15.29 <sub>a</sub> (2.06)	15.61 <sub>a</sub> (1.96)	12.12***	.033
MHC <sup>1,2</sup> M (SD)	50.59 <sub>b</sub> (10.93)	39.93 <sub>a</sub> (11.68)	24.36 <sub>c</sub> (11.95)	242.27***	.429

Notes:  
\*\*\*  $p < .0001$  (2-tailed)  
<sup>1</sup> Measured at pre-test  
<sup>2</sup>  $N = 647$ , Class 1  $N = 192$ , Class 2  $N = 336$ , Class 3  $N = 119$

## CONCLUSIONS

### Summary of Results:

- Identified 3 class trajectories of depression: *low stable* (51.38%), *moderate stable* (30.53%), and *high decreasing* (18.09%), with 88% of cases classified accurately.
- Significant predictors of moderate and high class membership and associated trajectories included: females, youth with higher levels of anxiety, more cumulative bullying experiences, and older in age.
- The low-stable class contained more males.
- To validate our findings, youth in the low-stable class reported higher mental well-being scores at pre-test, compared to moderate and high classes, and were younger in age.

### Implications:

The results demonstrate that youth who participate in the Healthy Relationships Plus Program are not a homogeneous group with respect to experiencing depression. This may impact their participation in the program and program delivery. The project was funded by Health Canada.

## REFERENCES

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