



GEORGE & FAY YEE  
Centre for Healthcare Innovation



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# EVALUATION OF PAX PROGRAM IN MANITOBA: INDIGENOUS VS. NON-INDIGENOUS

Depeng Jiang • Teresa Mayer • Leanne Boyd

# Overview

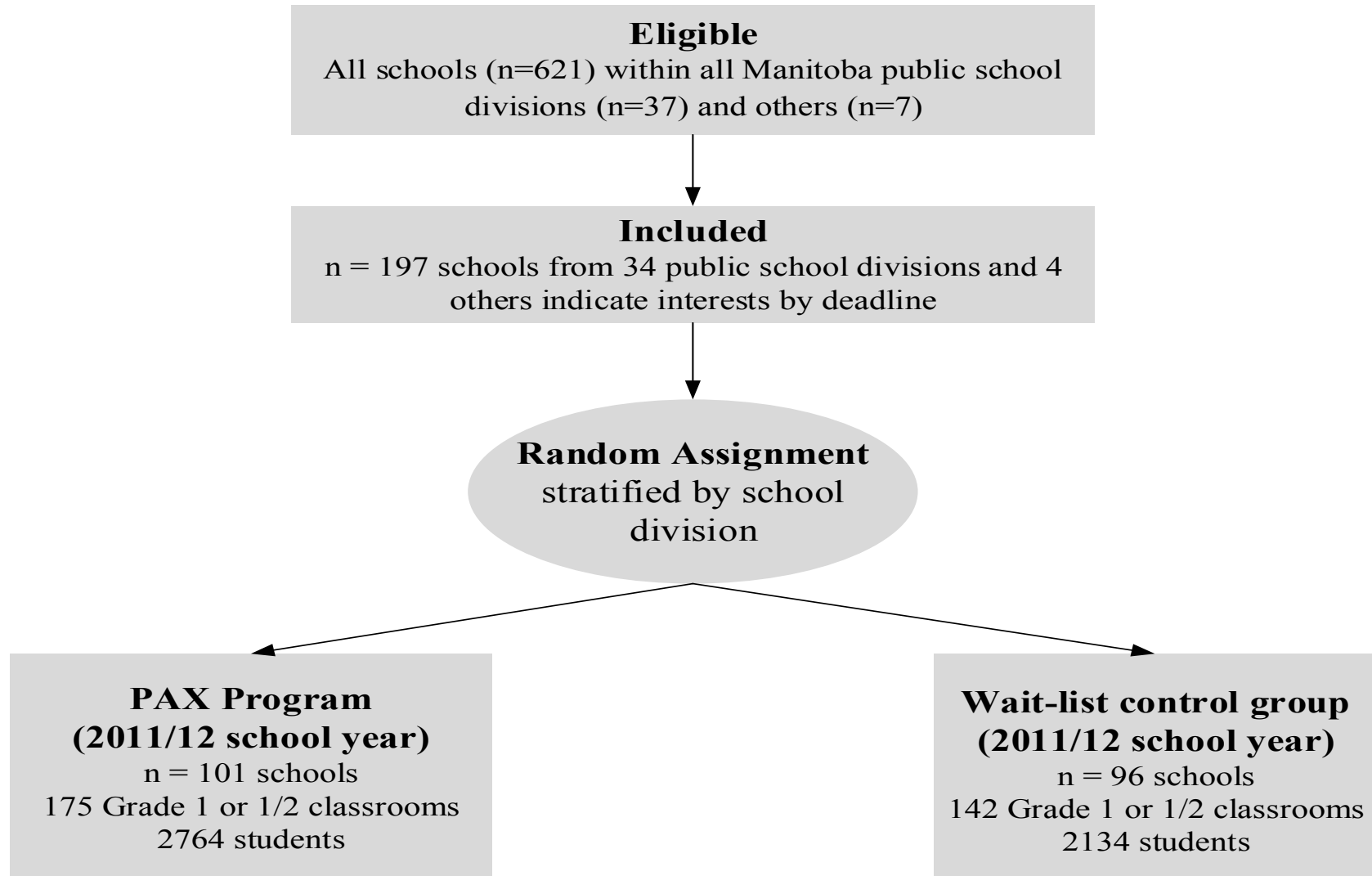


- Introduction: PAX Good Behaviour Game
- Evaluation of Manitoba PAX RCT
  - Overall effect and comparison between Indigenous and non-Indigenous status
  - Findings from variable-oriented approach
    - Whether the intervention works or not
    - How the intervention work (mediation)
  - Findings from person-oriented approach
    - For whom the intervention works and through which way

PAX Good Behaviour Game (PAX; Embry, 2002)

# **PAX PROGRAM IN MANITOBA**

# PAX RCT Study in Manitoba (2011-12)

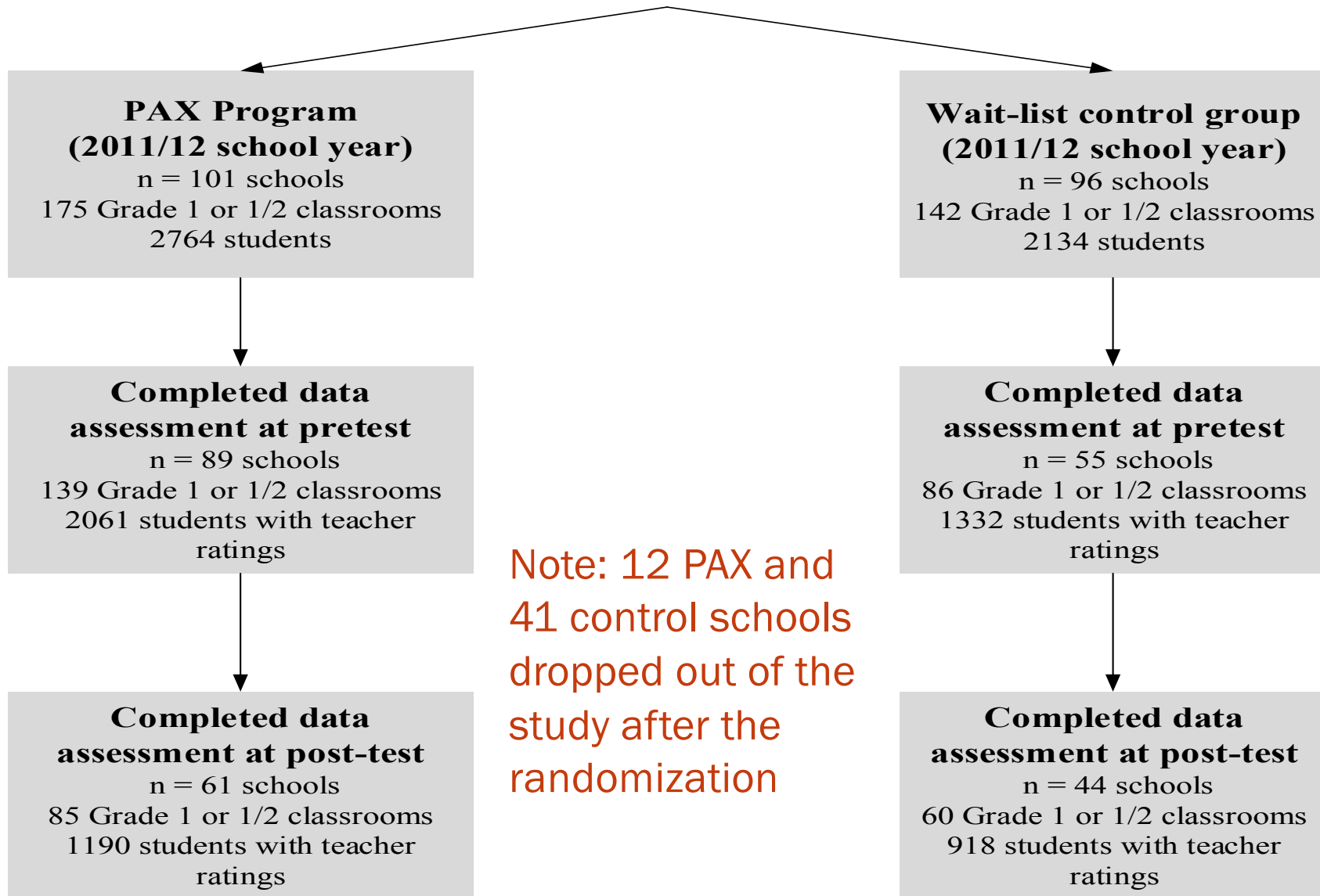


# Methods



- Strengths and Difficulties Questionnaire (SDQ, Goodman, 2001):
  - Emotional symptoms
  - Conduct problems
  - Hyperactivity/Inattention
  - Peer relationship problems
  - Prosocial behaviour
- The SDQ was completed by teachers and collected before and after PAX

## Continued



# Sample used for analysis (N = 3393)



## PAX

- n=2061 Students
  - 50.4% are females
  - 41.7% are from high SES
  - 40.8% are Indigenous

## Control

- n = 1332 Students.
  - 50.4% are females
  - 60.0% are from high SES
  - 30.5% are Indigenous

# Published evaluation results of PAX in Manitoba



- Paper provides overall evaluation of PAX effectiveness as well as gender difference and moderation of SES

Prevention Science

<https://doi.org/10.1007/s11121-018-0881-x>

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## A Comparison of Variable- and Person-Oriented Approaches in Evaluating a Universal Preventive Intervention

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# Summary of Findings

- Students in the PAX schools showed significantly greater **increases** in prosocial behavior and **decreases** in difficulties from pretest to posttest than students in the control schools.
  - small effect size
- Most students do not have difficulties
  - a reduction in difficulties would be impossible for the 60% of students without any difficulties
  - this information helps us understand the overall small effect size
- Moderate-risk children who benefited even more from the PAX program than highest at-risk children
  - the highest at-risk children may have additional problems that require more extended exposure to PAX or additional support.

Results not reported in the Prevention  
Science paper

Indigenous vs. Non-indigenous

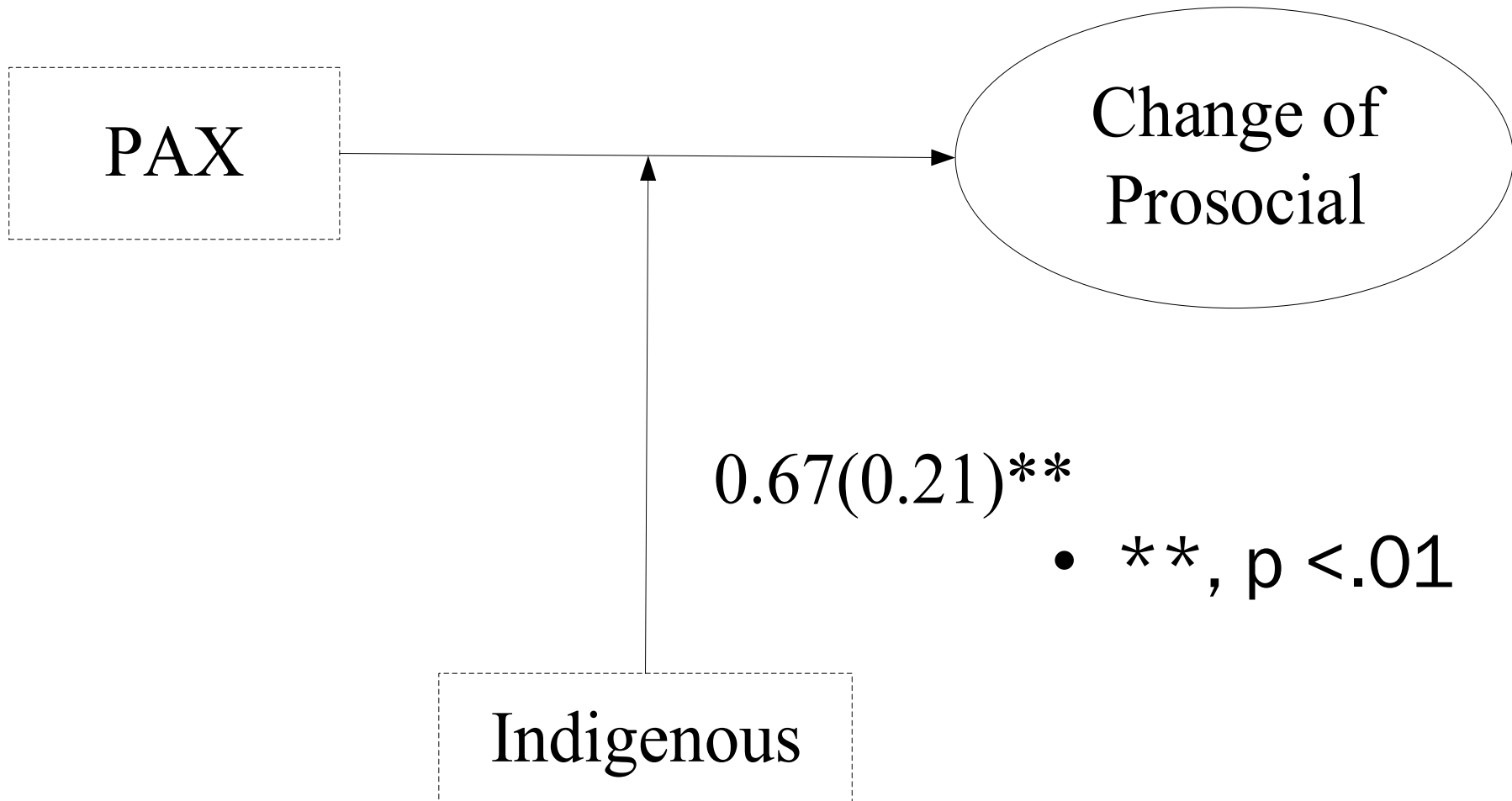
**PAX PROGRAM EFFECT**

# Moderation Role of Indigenous Status

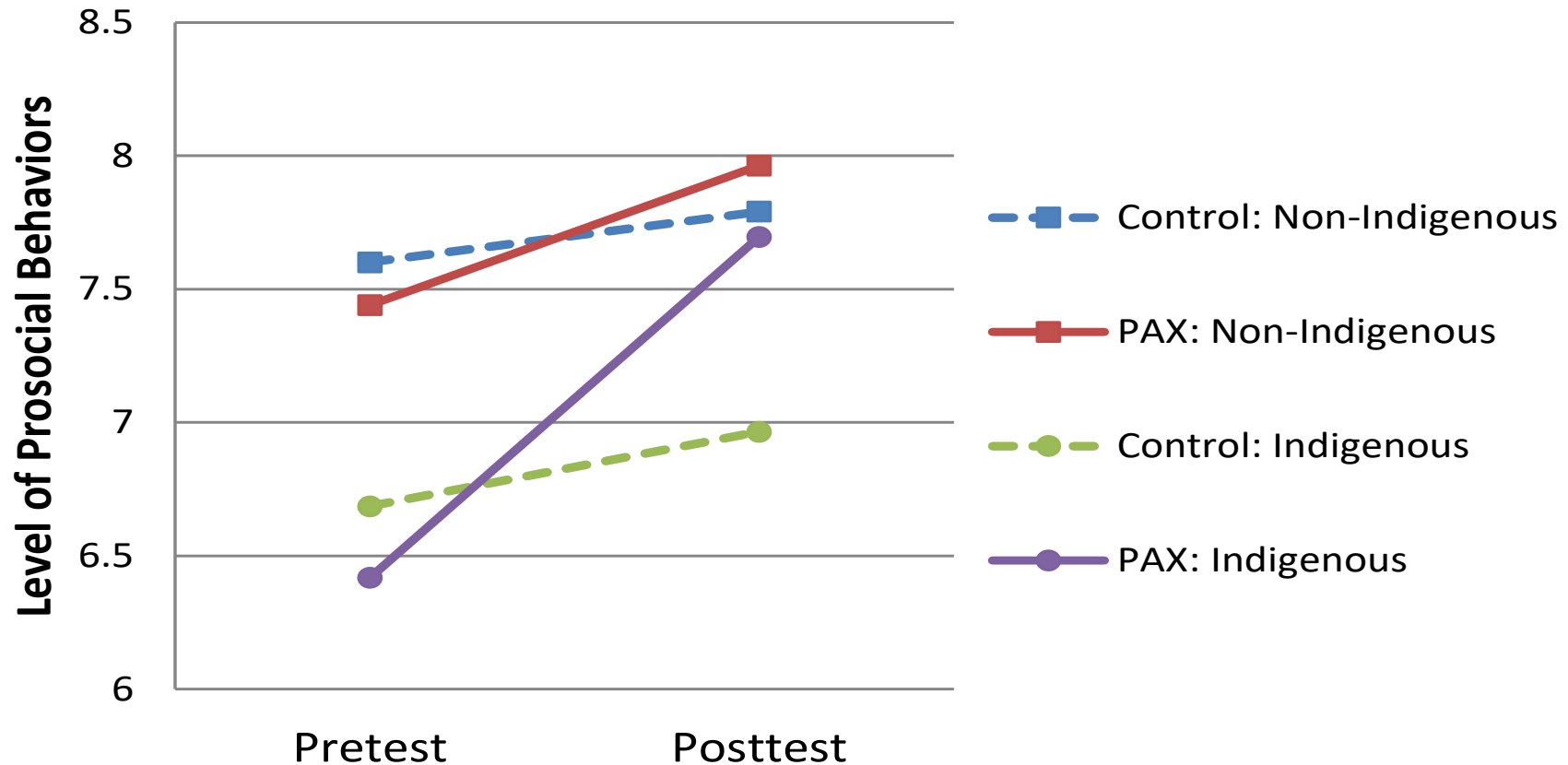


- Multilevel Linear Model (MLM) for each outcome variable separately
  - We conducted additional MLM regression analyses by including the three way interaction of indigenous status with time and PAX program indicator, as well as all two way interactions and main effects of these variables.
  - **Significant moderation effects** of Indigenous status on Prosocial behavior and Hyperactivity

# Significant three way interaction for Prosocial behavior

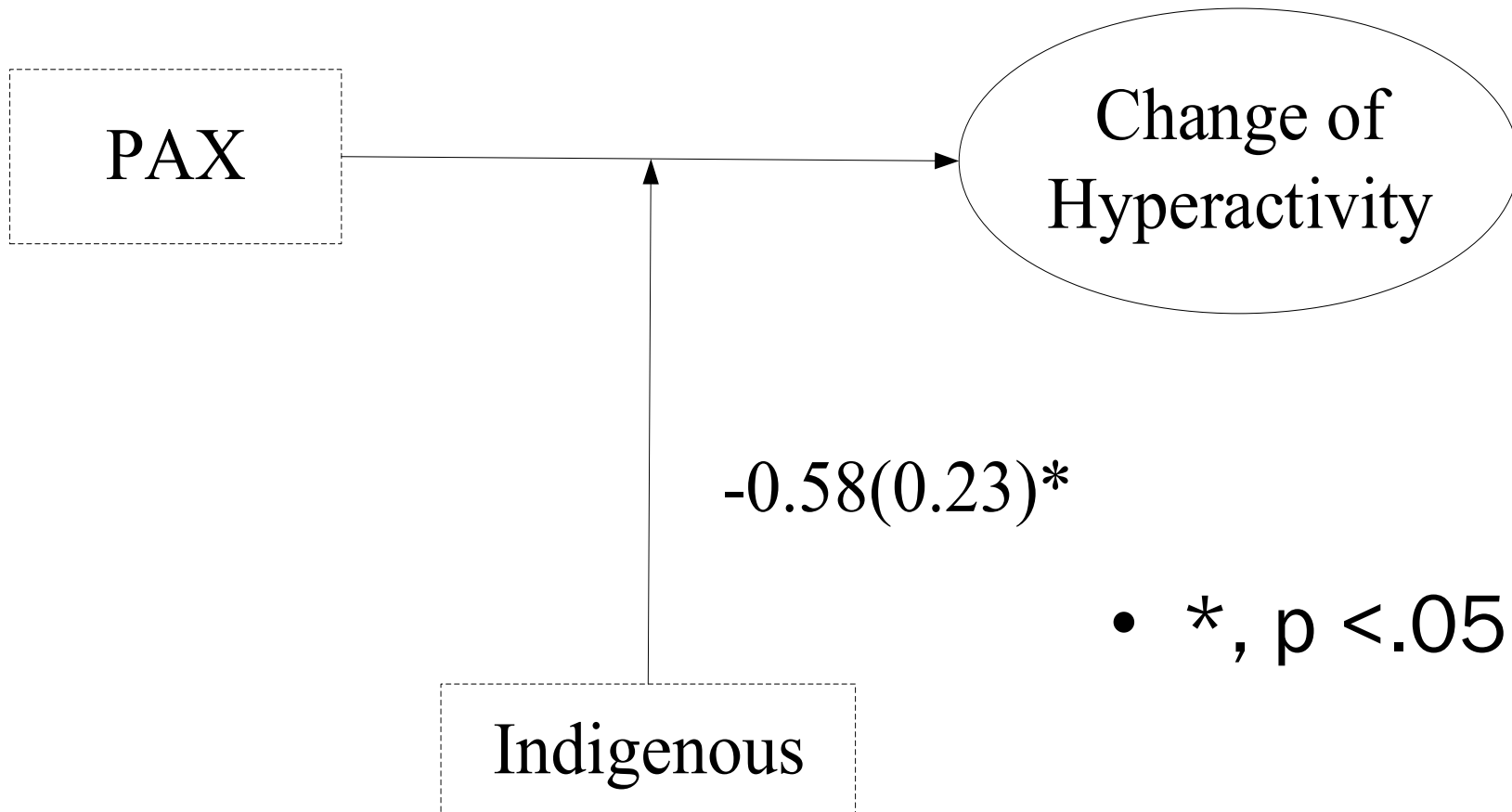


# Indigenous vs. Non-indigenous

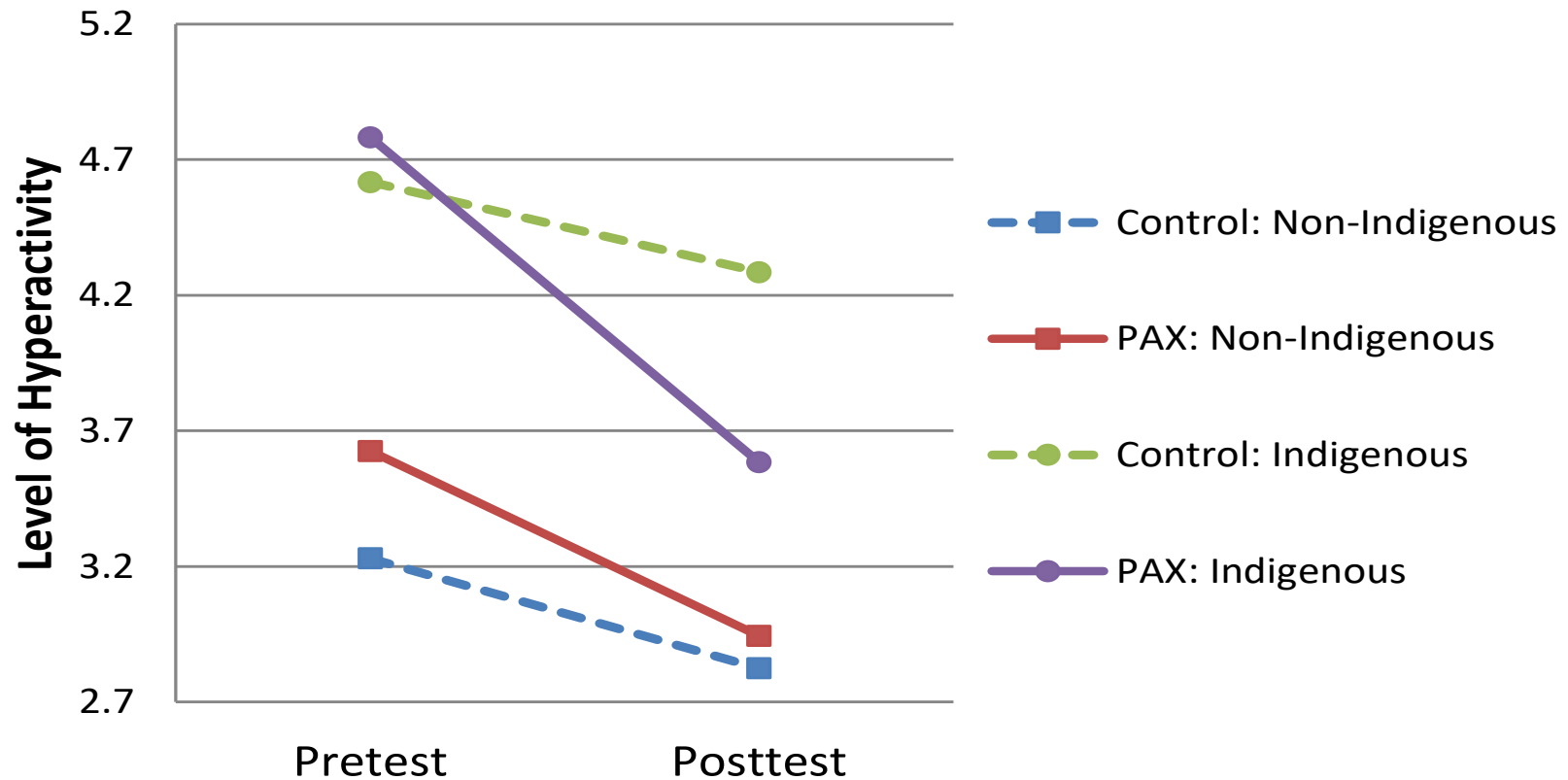


Indigenous children showed lower level of prosocial behaviors at pretest, but greater increase in the prosocial behaviors through the PAX program than non-Indigenous children.

# Significant three way interaction for Hyperactivity



# Hyperactivity



Indigenous children were reported to have higher levels of hyperactivity at pretest, but showed greater decrease in hyperactivity than non-Indigenous children following PAX program.

# Transition Probabilities for Indigenous



	Post PAX					
	PAX (n=811)			Control (n=626)		
Pre PAX	Low	Moderate	High	Low	Moderate	High
Low	1.00	0	0	.963	.037	0
Moderate	<b>.435</b>	.518	.047	<b>.190</b>	.721	.089
High	<b>.059</b>	<b>.473</b>	.468	<b>.021</b>	<b>.304</b>	.675

# Transition Probabilities for Non-Indigenous

	Post PAX					
	PAX (n=824)			Control (n=637)		
Pretest	Low	Moderate	High	Low	Moderate	High
Low	.972	.028	0	.996	.004	0
Moderate	<b>.388</b>	.547	.064	<b>.014</b>	.937	.049
High	<b>.102</b>	<b>.333</b>	.565	<b>0</b>	<b>.232</b>	.768



# Indigenous Status in PAX Effect

## Indigenous Children

- Moderate-risk class
  - Net beneficial effects: .245
  - Significant: Yes
- High-risk class
  - Net beneficial effects: .207
  - Significant? Yes

## Non-Indigenous

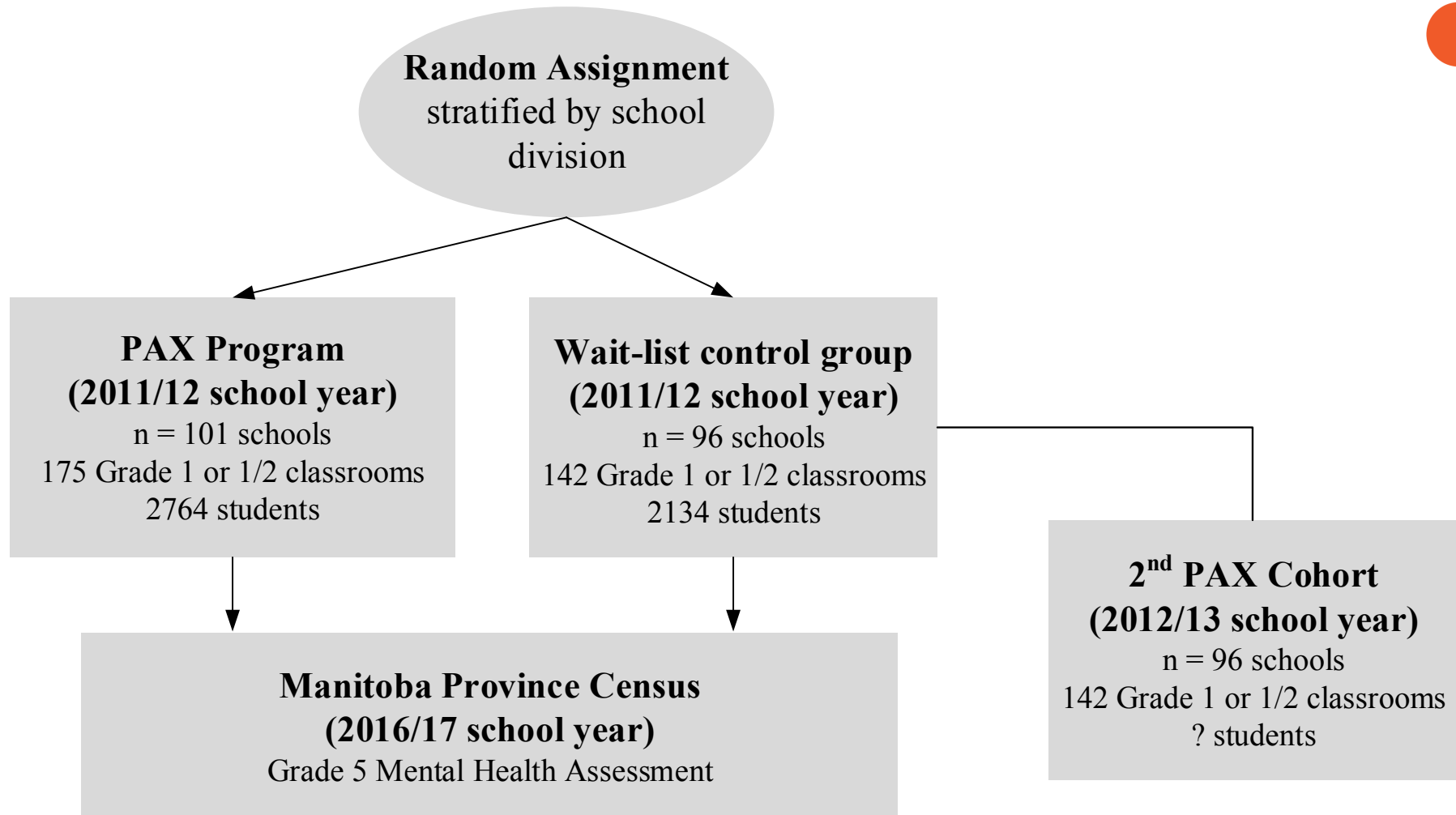
- Moderate-risk class
  - Net beneficial effects: .374
  - Significant? Yes
- High-risk class
  - Net beneficial effects: .203
  - Significant? Yes

- The net effect of PAX for moderate-risk children show larger improvements for non-Indigenous children
- The net effect of PAX for the high-risk children are similar between Indigenous and non-Indigenous children

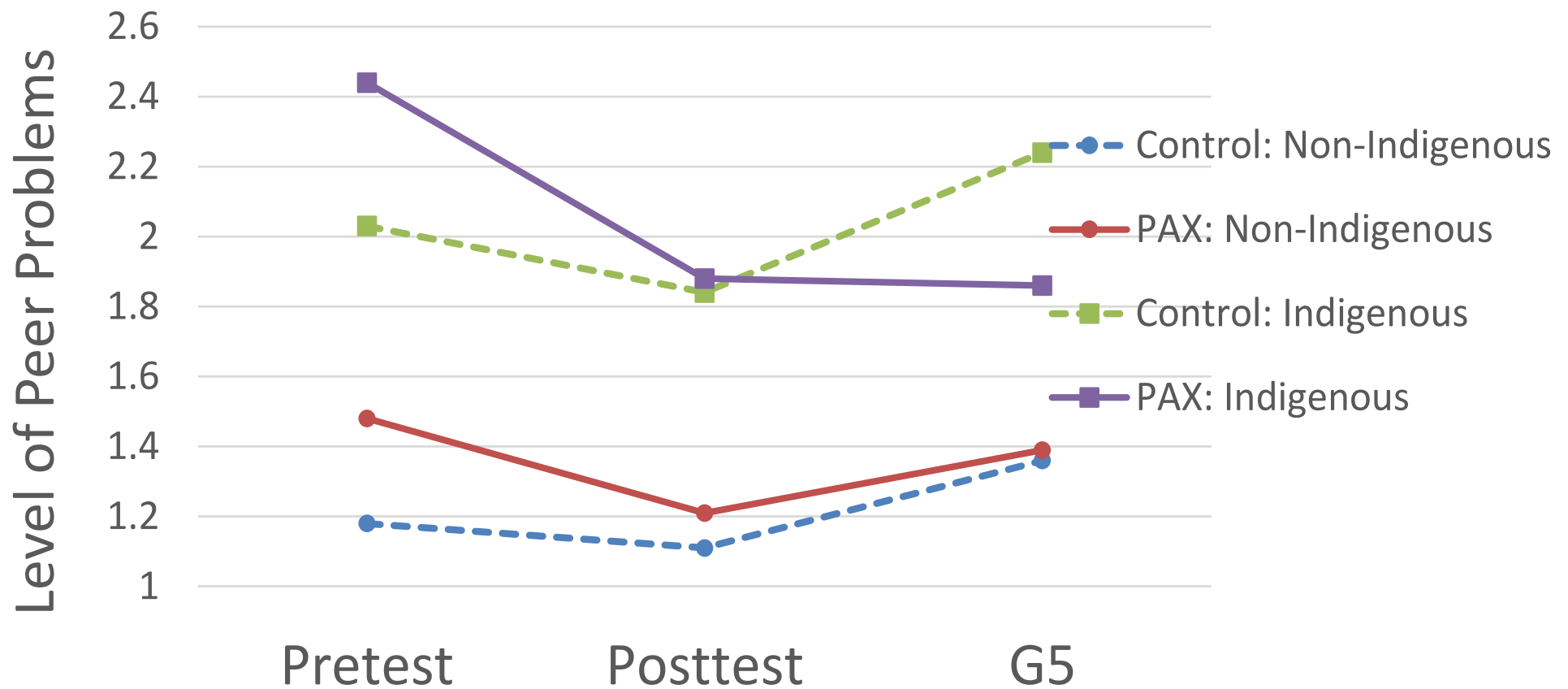
Ongoing work for

# **PAX PROGRAM EVALUATION**

# PAX Cohorts in Manitoba after 2012



# Preliminary Results: Peer Relationship Problems



## Future work

- Assess the PAX effects on educational, use of healthcare service and social outcome using linked data.
- Validation of SDQ for measuring child mental health. Cutoffs for SDQ scales in Canada (abnormal, borderline, normal).
- Latent growth model for semi-continuous longitudinal outcomes.
- Multilevel LTA for longitudinal data.
- Growth mixture model or trajectory model.



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**COLLABORATION INNOVATION TRANSFORMATION**



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