

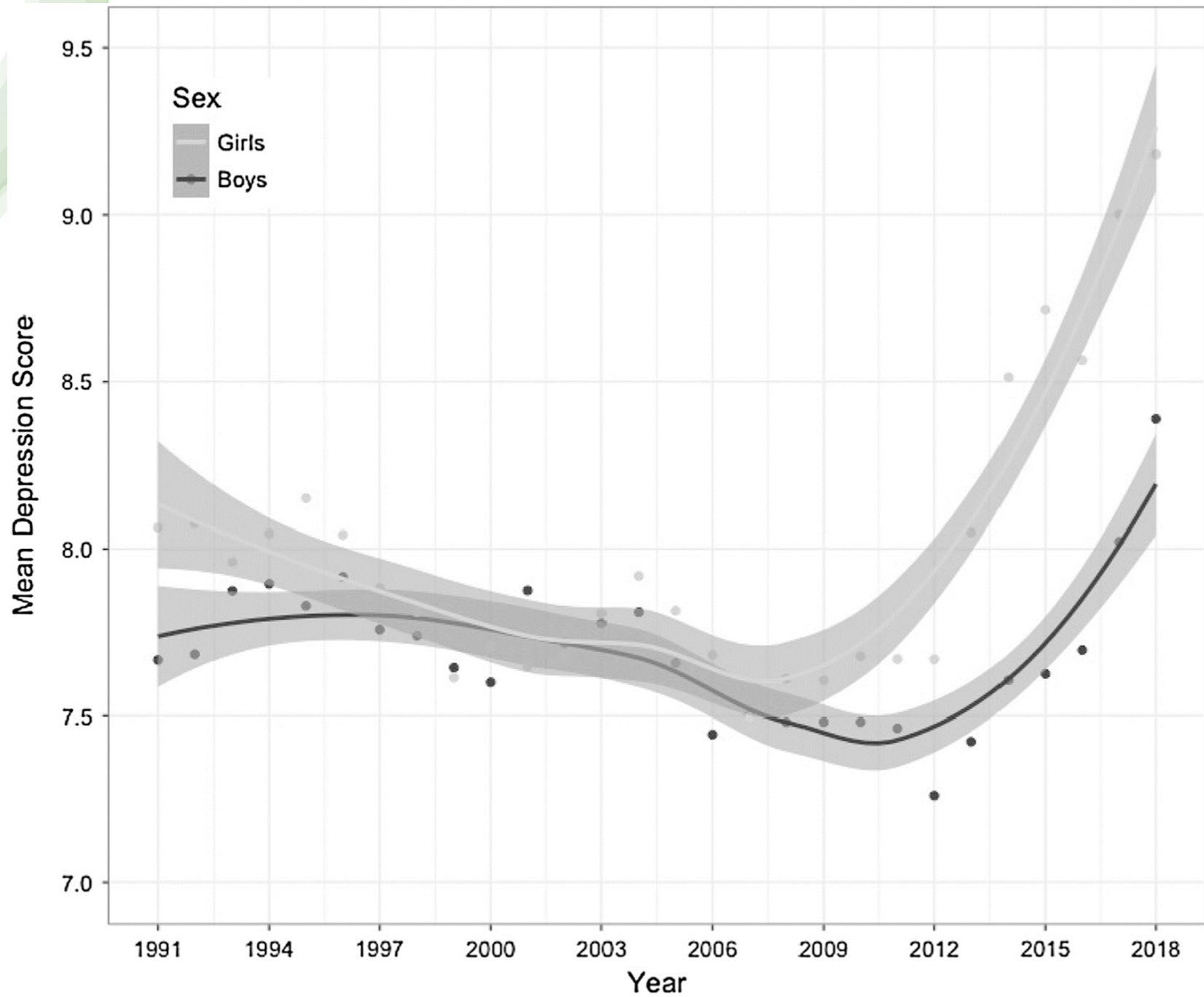
School connectedness as a moderator for the associations between internet use and depression in teenage girls

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Depression

- 1.1% of adolescents aged 10-14 years
- 2.8% of 15-19-year-olds
- Severe cases can lead to suicide, the 4th most frequent cause of death among adolescents and young adults
- Adolescent girls are more likely to experience depression than boys (2.7 times higher)
- Recently, depressive symptoms are increasing among adolescents





Keyes et al., 2019

Having more depressive symptoms in adolescence is associated with...

- Academic difficulties
- Suicidal self-harm
- Substance abuse
- Increased risk of MDD
- Later functional impairment
- Lower achievement

Minority - remission of symptoms

Depression risk factors

- Genetics (.37 - .7 heritability)
- Environment
 - Negative life events
 - Poor parental relationships
 - Social context
 - School context

(Shochet et al., 2006; Bond et al., 2007; Kraaij et al., 2003; Knopik et al., 2017)



A recently discovered possible risk factor

- Effect of screen media use on depression for adolescents
- More pronounced for internet use, particularly social media
- More pronounced in girls
- Meta-analysis/Reviews
- Relationship: increased adoption of screens coincides with spike in depressive symptoms

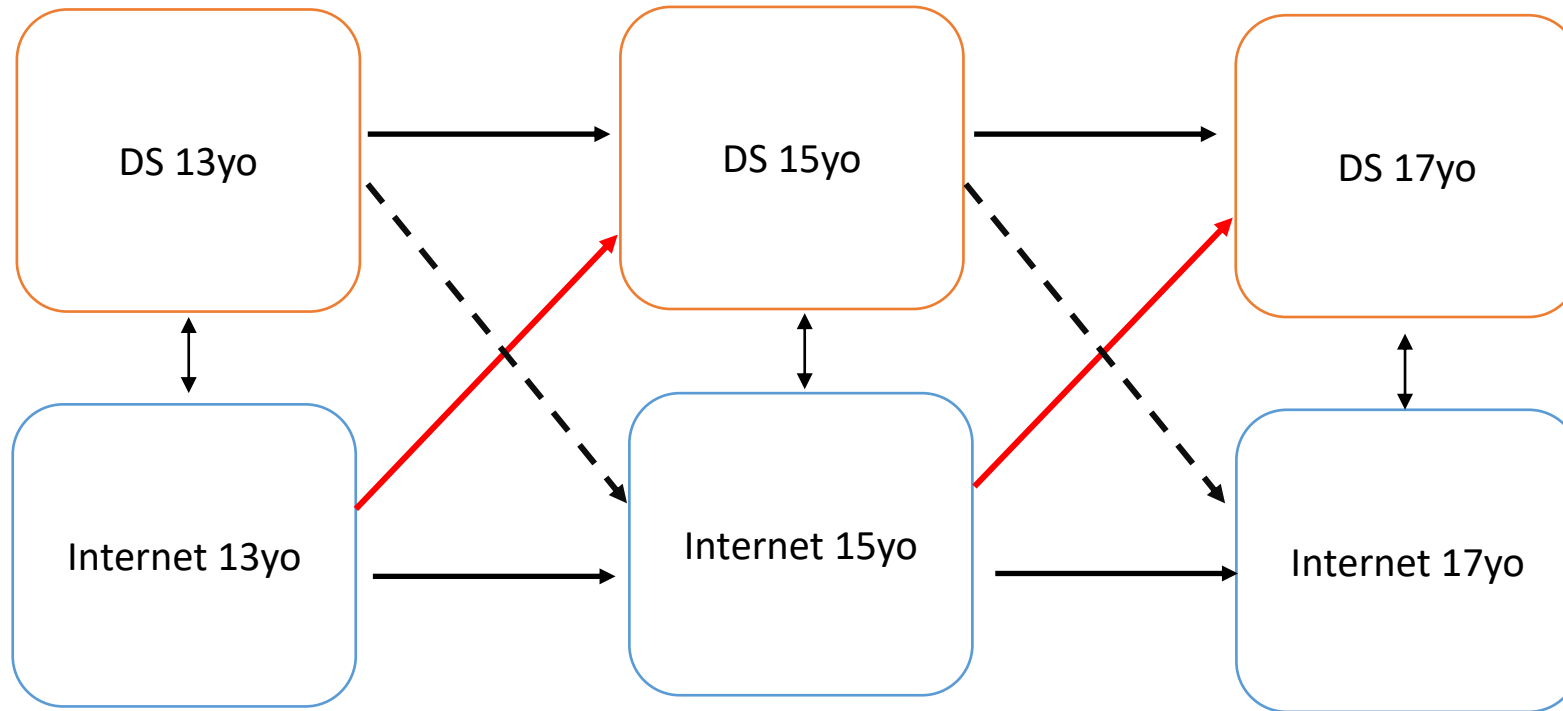
(Boers et al., 2019; Ivie et al., 2020; Keles et al., 2020; Twenge & Farley, 2021)

Our research group

Effect on girls, direction of association



Link to paper



Fitzpatrick C, Lemieux A, Smith J, West GL, Bohbot V, Asbridge M (2023). Is adolescent internet use a risk factor for the development of depression symptoms or vice-versa? *Psychological Medicine*

Concern in
general
population

School district sues social media giants for 'creating a youth mental health crisis'

The suit targets Facebook, Instagram, SnapChat, TikTok and YouTube.

By [Yi-Jin Yu](#) [GMA](#)

January 9, 2023, 4:07 PM



Teenagers addicted to new technology concept

[Link to article](#)



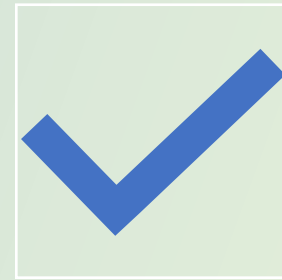
Beyond the simple effect



What can be done?



What could mitigate
this effect?



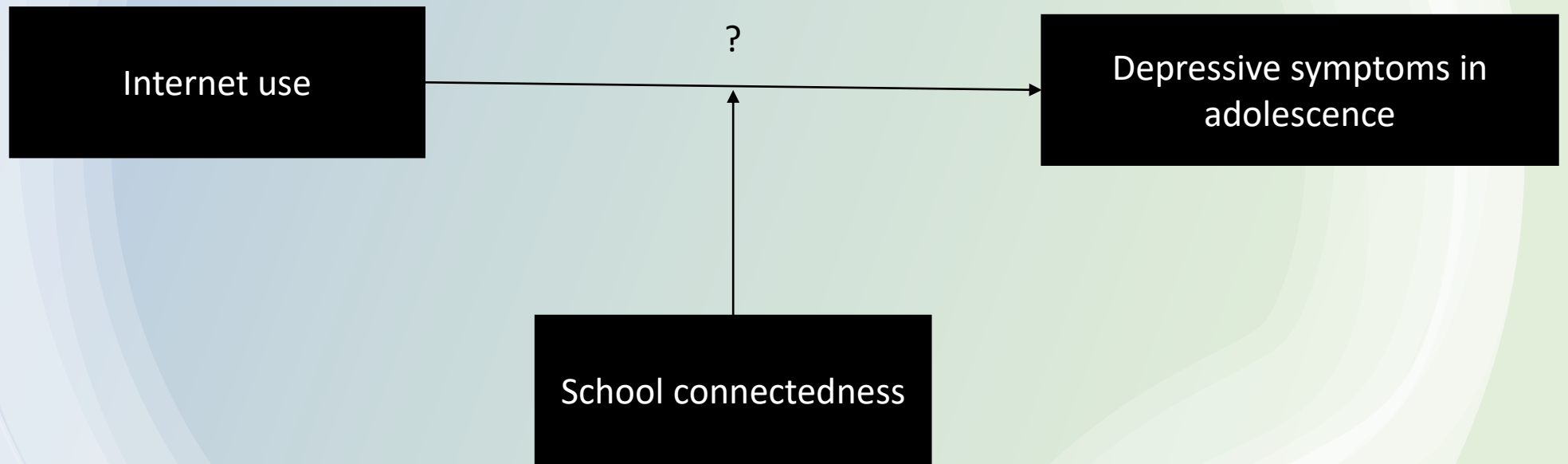
What could be a
protective factor?



School connectedness

- It is a belief by students that adults and peers from school care about their learning as well as about them as individuals
- “feeling accepted, respected, included, and supported in the school environment” (Goodenow, 1993)
- Associated with increased self-esteem
- Negatively associated with emotional distress and suicidal thinking
- Protective factor against adolescent depression
- Negatively associated with internet use

Research question



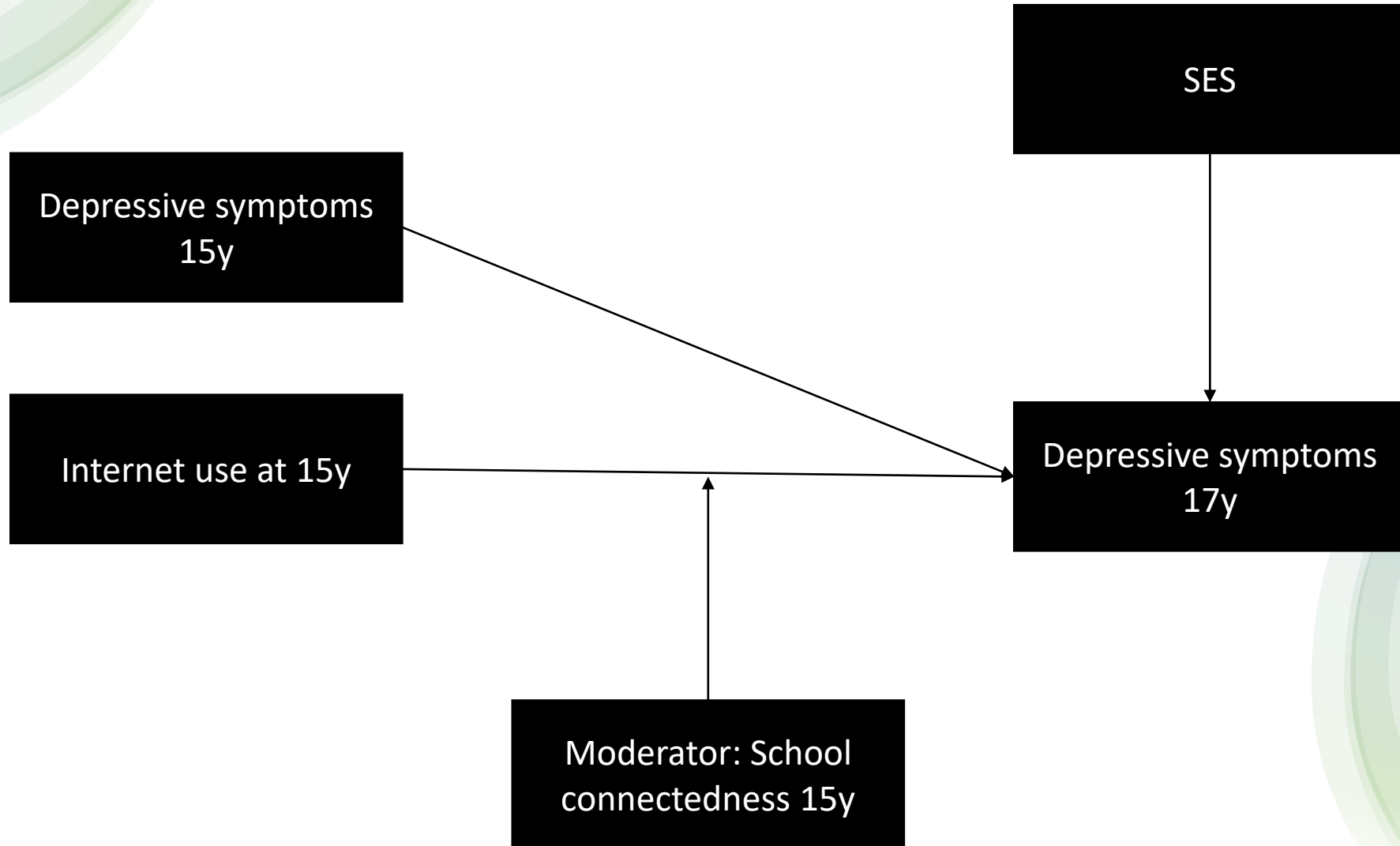


Methodology

Method

- Multiple linear regression analysis with observational data
- Outcome: Depressive symptoms at age 17
- Predictor: Internet use at age 15
- Controls:
 - Depressive symptoms at age 15
 - SES
- Moderator: School connectedness
- Separate models boys and girls
- $\alpha = 0.05$

Statistical Model



Method

- Québec Longitudinal Study of Child Development (N = 2,120)
- Total sample for this study: n = 1120
- 54% were girls (n = 613)
- 46% were boys (n = 507)
- Age 15 = 2013
- Age 17 = 2015

Method – Internet use

- Adolescent self-report of their time spent per week accessing the internet on a computer to play games, do searches, chat or go on Facebook (not for school).
- Age 15
- (1) None; (2) Less than an hour; (3) 1 to 2 hours; (4) 3 to 5 hours; (5) 6 to 10 hours; (6) 11 to 14 hours; (7) 15 to 20 hours; or (8) more than 20 hours.
- Converted to continuous using the midpoint value

Method – Depressive symptoms

- Self-report depressive symptoms over the past 12 months
- Ages 15 and 17
- 8 items scale (e.g., Nothing was fun for me; I wasn't interested in anything)
- Scores converted to a scale from 0 to 10 (+ symptoms)
- Cronbach's alpha = 0.84

Method – School connectedness

- Self-reported connection to school
- Measured at age 15
- 5-item scale (e.g., I am proud/happy to go to school)
- Scores transformed to a scale from 0 to 10 (high connectedness)
- Cronbach's alpha = 0.87

Results

Descriptive statistics

Variables	Boys		Girls		p-values
	Mean	SD	Mean	SD	
Depressive symptoms at age 17	3.01	2.09	4.44	2.27	< .001
Depressive symptoms at age 15	2.58	1.91	4.24	2.23	< .001
SES	0.09	0.92	0.05	1.03	0.51
School connectedness	6.90	1.97	7.05	2.06	0.21
Time spent on internet	6.95	6.18	7.43	6.04	0.19

Note. Internet use is measured in hours/week. Data were compiled from the final master file of the Québec Longitudinal Study of Child Development (2013-2015), ©Gouvernement du Québec, Institut de la statistique du Québec.



Other statistics

- Boys and Girls significantly increased their depression symptoms from age 15 to age 17 ($p < .001$)
- R^2 for the boys' model was 0.315 (31.5% of the variance)
- R^2 for the girls' model was 0.324 (32.4% of the variance)

Results for boys

Outcome – Depressive symptoms at age 17

Variable	B	β	p-value
Internet use age 15	0.11	0.05	0.128
School connectedness age 15	- 0.09	-0.04	0.267
Interaction (SC * Internet)	- 0.02	- 0.01	0.726
Depressive symptoms age 15	0.58	0.53	< 0.001
SES	- 0.12	- 0.05	0.141

Note. Internet use is measured in hours/week. Data were compiled from the final master file of the Québec Longitudinal Study of Child Development (2013-2015), ©Gouvernement du Québec, Institut de la statistique du Québec.

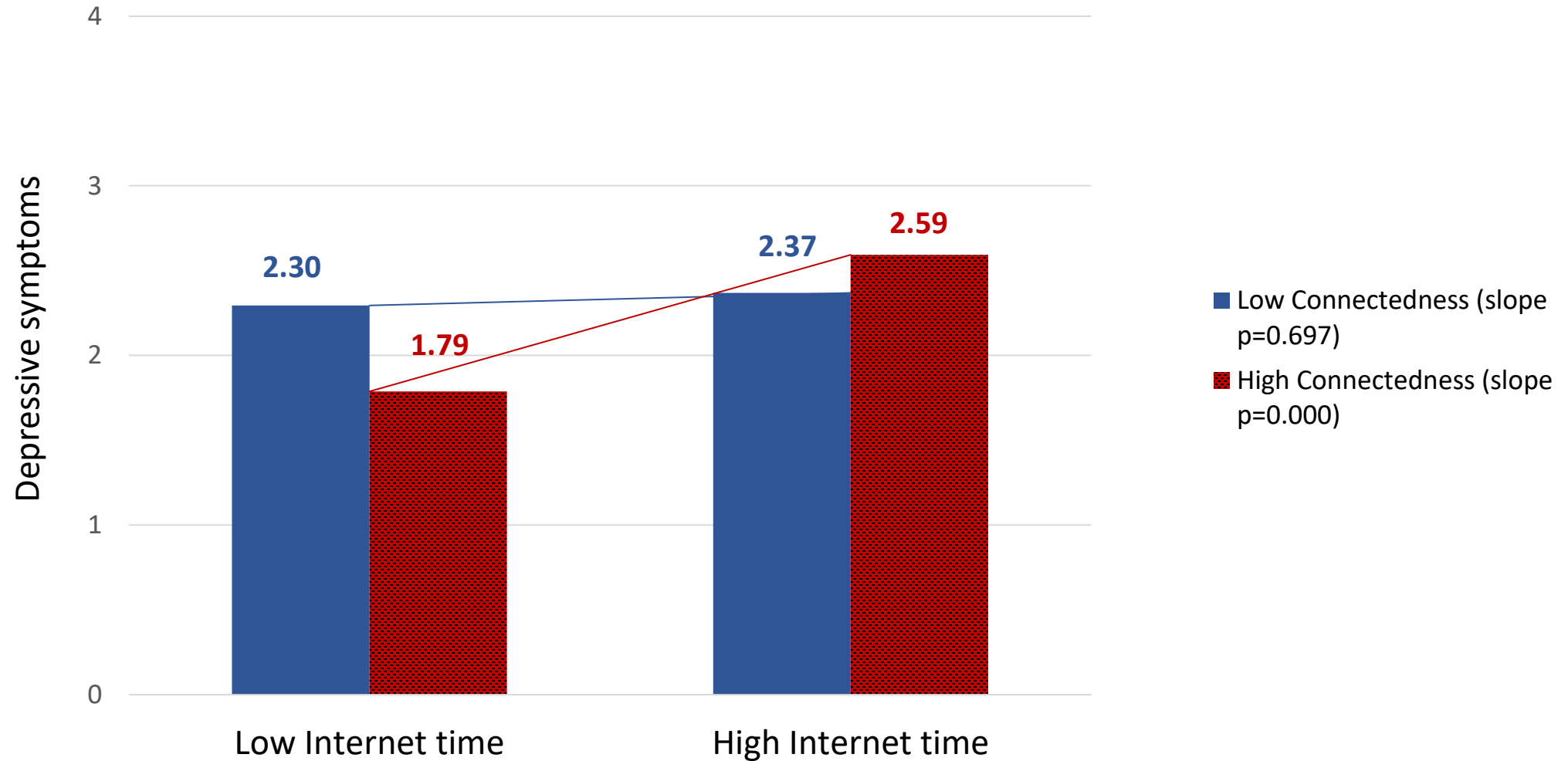
Results for girls

Outcome – Depressive symptoms at age 17

Variable	B	β	p-value
Internet use age 15	0.22	0.09	0.006
School connectedness age 15	- 0.07	- 0.03	0.394
Interaction (SC * Internet)	0.18	0.08	0.010
Depressive symptoms age 15	0.52	0.51	< 0.001
SES	- 0.20	- 0.09	0.007

Note. Internet use is measured in hours/week. Data were compiled from the final master file of the Québec Longitudinal Study of Child Development (2013-2015), ©Gouvernement du Québec, Institut de la statistique du Québec.

Moderation effect



Discussion

Discussion

Corroborates the literature:

- Effect of internet use on depressive symptoms in adolescence
- In girls but not boys
- Effect size is small (scale is hours per week)

Adds to the literature:

- No effect of school connectedness on depression
- **School connectedness moderates the effect of internet use in girls**

Discussion

- How school connectedness can be a protective factor?
 - Internet use can be associated with: Negative social comparisons, FoMO, loneliness, feeling rejected
 - School connectedness improves self-esteem and improves health behaviours
 - School connectedness provides social support
- How to improve school connectedness:
 - Improving teaching methods that foster a positive learning
 - Enabling families' involvement in school life
 - Creating a caring environment for students and teachers in the school

Limitations and strengths

- Observational and correlational study
- Data from 2013-2015
- Self-reported questionnaires
- No details on specific online activities
- Large sample
- Population-based
- Longitudinal study
- Adds novel info to the literature



Image acquired on Google Images

Thanks!



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References

