

Temporal trends in adherence to non-pharmaceutical interventions among children and parents in the Greater Toronto Area

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Introduction

Individual-level non-pharmaceutical interventions (NPIs) and community-level measures have played an important role in preventing COVID-19 transmission. While public health units have documented each vaccination event in Ontario, no such monitoring exists for individual adherence to NPIs. Reports of 'pandemic fatigue,' defined as behavioural fatigue associated with noncompliance to public health measures, emerged as early as fall 2020.¹

Objective

The objectives of this study were to:

- 1) Investigate how adherence to NPIs among parents and children in the Greater Toronto Area changed over time
- 2) Determine if school closures and provincial lockdowns were associated with higher NPI adherence among children and parents respectively.

Methods

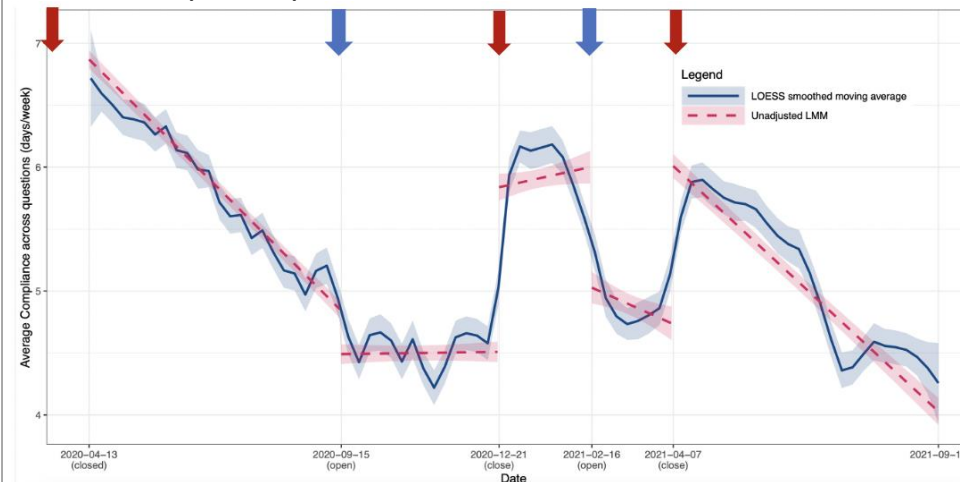
A longitudinal study was conducted in children aged 0-10 years and their parents through the TARGet Kids! COVID-19 Study of Children and Families in the Greater Toronto Area (April 2020 - June 2021). We conducted a descriptive analysis of adherence to 5 NPIs (staying home, limiting visitors, avoiding contact with others, social distancing and handwashing, measured as number of adherent days practicing per week). Temporal trends were assessed using LOESS. The impact of school closures, lockdowns, and reopenings on adherence to NPIs were assessed using interrupted time series analysis.

Results

Figure 1. Demographic characteristics of study sample (n=819)

Characteristic	
Child age (years), mean(SD)	5.61 (2.72)
Child female sex, n (%)	373 (45.54)
Self-reported income	
\$0 to \$39,999	39 (5.45%)
\$40,000 to \$79,999	88 (12.29%)
\$80,000 to \$149,999	217 (30.31%)
\$150,000+	372 (51.96%)
Essential worker status	273 (35.14%)
Hotspot FSA	254 (35.03%)
House dwelling type	532 (82.48%)
Unemployment due to Covid-19	164 (20.02%)

Figure 2. Child adherence to non-pharmaceutical interventions over time (n=819)*



*Red arrows represent school closure; blue arrows represent school re-opening

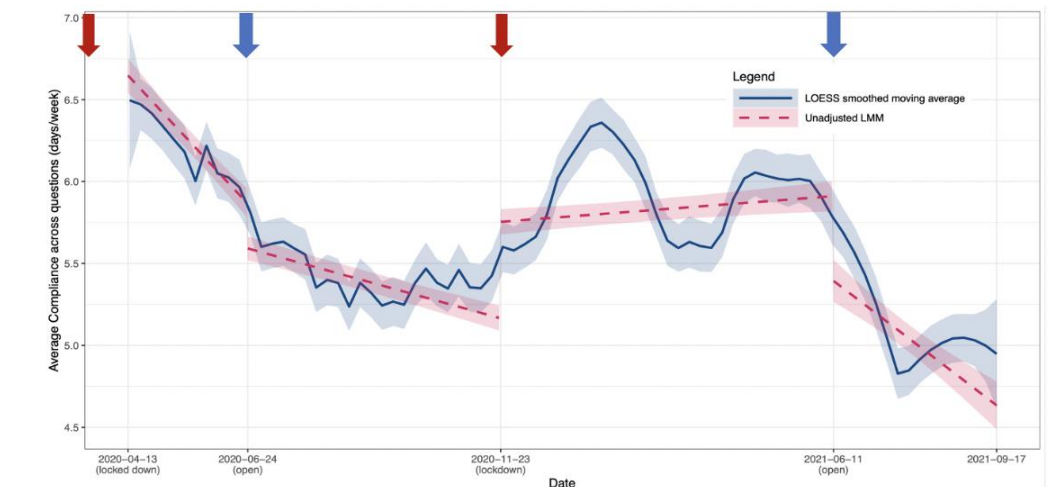
Conclusions

Adherence to individual-level NPIs varied according to community-level measures in place. During this period, school closures and lockdowns were an effective way to increase individual adherence to NPIs.

Figure 2 cont'd. Child adherence to non-pharmaceutical interventions over time (n=819), model estimates

Date range	Slope	Slope CI	Jump at the end of period	Jump CI
13 Apr 2020 - 14 Sep 2020 (closed)	-0.013	(-0.014 to -0.013)	-0.36	(-0.44, -0.29)
15 Sep 2020 - 20 Dec 2020 (open)	0.00019	(-0.00093 to 0.0013)	1.33	(1.22, 1.44)
21 Dec 2020 - 15 Feb 2021 (closed)	0.0029	(-0.00044 to 0.0062)	-0.97	(-1.14, -0.80)
16 Feb 2021 - 06 Apr 2021 (open)	-0.0059	(-0.010 to -0.0017)	1.27	(1.12, 1.42)
07 Apr 2021 - study end (closed)	-0.012	(-0.013 to -0.011)	---	

Figure 3. Parent adherence to non-pharmaceutical interventions over time (n=819)**



Date range	Slope	Slope CI	Jump at the end of period	Jump CI
13 Apr 2020 - 23 Jun 2020 (closed)	-0.011	(-0.013 to -0.0089)	-0.28	(-0.37, -0.20)
24 Jun 2020 - 22 Nov 2020 (open)	-0.0028	(-0.0034 to -0.0023)	0.59	(0.52, 0.66)
23 Nov 2020 - 10 Jun 2021 (closed)	0.00078	(0.00025 to 0.0013)	-0.52	(-0.65, -0.38)
11 Jun 2021+ (open)	-0.0078	(-0.010 to -0.0055)	---	

**Red arrows represent lockdown; blue arrows represent re-opening

References

¹World Health Organization. Regional Office for Europe. *Pandemic Fatigue: Reinvigorating the Public to Prevent COVID-19: Policy Framework for Supporting Pandemic Prevention and Management: Revised Version November 2020*. World Health Organization. Regional Office for Europe; 2020. Accessed January 7, 2022. <https://apps.who.int/iris/handle/10665/337574>

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