

# Factors associated with COVID-19 vaccination in young children: A cohort study

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## Introduction

- Vaccinating children against COVID-19 is important to protect them against severe illness and achieve herd immunity.
- COVID-19 vaccination rate among **children** has been **lower than expected** in many jurisdictions.
- Understanding the factors associated with COVID-19 vaccination in children may help to **identify strategies to increase vaccine uptake** in this age group.

## Objective

To examine sociodemographic factors, child and parent health characteristics, and parent beliefs about COVID-19 vaccination associated with COVID-19 vaccination among healthy young children participating in primary healthcare.

## Methods

A cohort study was conducted between November 2021 and September 2022 in children 0-13 years through the TARGet Kids! primary care research network in Toronto, Canada.

Sociodemographic information, child and parent health characteristics, parental vaccine beliefs, and child COVID-19 vaccine uptake were collected through parent-reported questionnaires.

**Primary outcome:** Time to child COVID-19 vaccination, measured as the time between vaccine availability date in Canada and parent-reported child COVID-19 vaccination date.

**Secondary outcome:** Parent-reported child COVID-19 vaccination status, measured as a binary variable.

**Statistical analysis:** Interval-censored proportional hazard models and generalized estimating equations were used.

## Results

**Table 1.** Participant characteristics.

		N (%) or Mean (SD)		
		Total N	Unvaccinated	Vaccinated
		267	85 (31.8)	182 (68.2)
<b>Child age</b>	Years	7.63 (2.50)	6.40 (2.42)	8.21 (2.32)
<b>Child sex</b>	Female	126 (47.2)	41 (48.2)	85 (46.7)
	Male	141 (52.8)	44 (51.8)	97 (53.3)
<b>Maternal ethnicity</b>	European	141 (66.5)	49 (77.8)	92 (61.7)
	East Asian	20 (9.4)	2 (3.2)	18 (12.1)
	South Asian	10 (4.7)	1 (1.6)	9 (6.0)
	Southeast Asian	8 (3.8)	2 (3.2)	6 (4.0)
	African	6 (2.8)	2 (3.2)	4 (2.7)
	Latin American	9 (4.2)	3 (4.8)	6 (4.0)
	Mixed ethnicity	18 (8.5)	4 (6.3)	14 (9.4)
<b>Maternal education</b>	College	27 (10.8)	14 (18.9)	13 (7.3)
	High school/ Apprenticeship/Trades	14 (5.6)	5 (6.8)	9 (5.1)
	University	210 (83.7)	55 (74.3)	155 (87.6)
<b>Family income</b>	less than \$39,999	13 (5.2)	7 (9.6)	6 (3.4)
	\$40, 000 to \$79, 999	34 (13.6)	11 (15.1)	23 (13.0)
	\$80, 000 to \$149, 999	91 (36.4)	25 (34.2)	66 (37.3)
	\$150, 000 or more	112 (44.8)	30 (41.1)	82 (46.3)
<b>Maternal age</b>	Years	42.91 (5.00)	41.46 (5.09)	43.59 (4.83)

**Table 2.** Parent COVID-19 vaccination status and vaccine beliefs.

		N (%) or Mean (SD)		
		Total N	Unvaccinated	Vaccinated
		267	85 (31.8)	182 (68.2)
<b>Parent COVID-19 vaccination status</b>	Unvaccinated	9 (3.4)	9 (10.6)	0 (0.0)
	Vaccinated	258 (96.6)	76 (89.4)	182 (100.0)
<b>Beliefs about the importance of child COVID-19 vaccine</b>	Positive	193 (73.9)	30 (37.0)	163 (90.6)
	Negative	68 (26.1)	51 (63.0)	17 (9.4)
<b>Beliefs about the safety of child COVID-19 vaccine</b>	Positive	166 (63.4)	25 (30.9)	141 (77.9)
	Negative	96 (36.6)	56 (69.1)	40 (22.1)

The rate of vaccination for children was 2 percent **higher** with each 1 month **older child age** (HR=1.02, 95%CI=1.01-1.03, p<.001).

Compared to children whose parents had negative beliefs, those whose parents had **positive beliefs about the importance and safety of COVID-19 vaccination** for their children had **higher** rates of vaccination (HR=8.29, 95%CI=4.25-16.17, p<.001; HR=5.09, 95%CI=3.17-8.17, p<.001).

**Lower maternal education** was associated with **lower** odds of COVID-19 vaccination in children (college: OR=0.29, 95%CI= 0.11-0.72; high school/ apprenticeship/ trades: OR=0.38, 95%CI= 0.13-1.14; p=0.01, relative to university education).

## Conclusions

- Older child age, parental COVID-19 vaccination, and positive parental beliefs about COVID-19 vaccination were associated with COVID-19 vaccination among young children.
- Our findings may help to inform policies which aim to strengthen parental vaccine confidence and promote child COVID-19 vaccination.

## References

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