Social and racial/ethnic differences in parental willingness to vaccinate children against COVID-19 in Montreal, Canada

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Abstract: Little is known about the extent of social or racial/ethnic differences in parental hesitancy around COVID-19 vaccination for their children. Using cross-sectional data from an ongoing cohort study in Montreal, Canada, we examined willingness to vaccinate children according to level of education, neighbourhood, and visible minority status. Parents of children aged 2-17 completed a vaccine hesitancy module of an online questionnaire and we used logistic regression to estimate associations between vaccine willingness and education, neighbourhood, and visible minority status. Of the 380 parents who completed the module, 61% were very likely, 25% somewhat likely, 9.2% somewhat unlikely, and 4.5% very unlikely to have their child vaccinated against COVID-19. Visible minority status was strongly associated with willingness to vaccinate, while neighbourhood and level of education were not significantly associated. Further research is needed to quantify these differences on a larger scale and to better understand why certain communities have lower vaccination intention in order to develop tailored strategies to promote vaccine acceptance and uptake.

NOTE: This preprint reports new research that has not been certified by peer review and should not be used to guide clinical practice.
**Introduction:** On May 5, 2021, Pfizer-BioNTech’s COVID-19 vaccine was approved for use among children age 12 and older in Canada.\(^1\) The success of prospective vaccination campaigns for youth will in part depend on the willingness of parents to accept the vaccine, particularly as complications of COVID-19 among young people remain rare.\(^2\) Socioeconomic and racial/ethnic differences in COVID-19 vaccine hesitancy have been documented among adults in high-income countries, including Canada,\(^3,4\) yet little is known about group differences in parental hesitancy around vaccination for their children. We examined willingness to vaccinate children according to level of education, neighbourhood, and visible minority status within a cohort of parents in Montreal, Canada.

**Methods:** We used cross-sectional data from an ongoing longitudinal COVID-19 seroprevalence study.\(^5\) Parents or guardians (hereafter referred to as parents) of children aged 2-17 attending one of 51 participating schools or daycares who completed the vaccine hesitancy module of an online questionnaire between January 22 and April 1, 2021 were included. All participants provided informed consent for the survey and ethics approval was received from the research ethics boards of the Université de Montréal and the Centre Hospitalier Universitaire Sainte-Justine. The questionnaire collected information on parents’ willingness to vaccinate their child against COVID-19, as well as reasons for intending or not intending to vaccinate. We estimated differences by parental education level, neighbourhood, and visible minority status (based on 2016 Canadian Census categorization: South Asian, Chinese, Black, Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean, Japanese, other, and not a visible minority). To estimate associations between vaccine willingness and education, neighbourhood, and visible minority status, we calculated average marginal effects from ordinal logistic regression models that accounted for clustering by school.

**Results:** Of the 380 parents who completed the module, 61% were very likely, 25% somewhat likely, 9.2% somewhat unlikely, and 4.5% very unlikely to have their child vaccinated against COVID-19. The most
common reason parents were unlikely to vaccinate was concern over the lack of information about the vaccine’s safety and possible side effects (48%). Only 4% of parents unwilling to get the vaccine reported distrust of vaccines in general. Table 1 presents adjusted prevalence differences (PD) for the likelihood to vaccinate by education, visible minority status and neighbourhood. Visible minority status (comprised of Black (10%), Latin American (42%), Arab (30%), Southeast Asian (12%), and other (6%)) was strongly associated with willingness to vaccinate, while neighbourhood and level of education were not significantly associated. Comparing visible minority to non-visible minority parents, 30.3% vs. 66.6% were very likely, 36.8% vs. 23.9% were somewhat likely, and 32.9% vs. 9.5% were unlikely to vaccinate, respectively (Figure 1). The adjusted PD for being unlikely to vaccinate was 23.5 percentage points (95% CI: 9.8-37.2) for visible minority vs. non-visible minority parents.

**Discussion:** This study identified potentially important racial/ethnic differences in the willingness of parents to vaccinate their children against COVID-19, driven by concerns about the vaccine’s safety and adverse events. Our results should, however, be interpreted in light of the limited sample size, which resulted in imprecise estimates and did not permit a more granular examination of differences by specific racial and ethnic groups. Further research is needed to quantify these differences on a larger scale and to better understand why these communities have lower vaccination intention in order to develop tailored strategies to promote vaccine acceptance and uptake. This should be a priority in order to avoid exacerbating existing COVID-19 inequities among racialized populations in Canada.6
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**Table 1:** Parents’ likelihood of accepting a potential COVID-19 vaccine and prevalence difference for being unlikely to accept a vaccine, by education, race/ethnicity, and neighbourhood

| No. (%) | Adjusted prevalence difference (95% CI) for parents’ likelihood to vaccinate |
|---------|--------------------------------------------------------------------------------|
|         | Very likely | Somewhat likely | Unlikely |
| **Education level** | | | |
| Less than bachelor’s degree | 122 (32.2) | ref | ref | ref |
| Bachelor’s degree | 134 (35.4) | 5.7 (-5.4, 16.9) | -2.9 (-8.4, 2.6) | -2.8 (-0.9, 2.9) |
| Master’s degree or higher | 123 (32.4) | 9.5 (-2.7, 21.8) | -5.0 (-11.3, 1.4) | -4.6 (-10.6, 1.4) |
| **Race/ethnicity** | | | |
| Not a visible minority | 326 (86.8) | ref | ref | ref |
| Visible minority | 50 (13.2) | -36.3 (-51.2, -21.4) | 12.9 (8.6, 17.2) | 23.4 (8.7, 38.1) |
| **Neighbourhood** | | | |
| Mercier-Hochelaga-Maisonneuve | 186 (49.0) | ref | ref | ref |
| Montreal North | 100 (26.3) | -0.2 (-14.5, 14.2) | 0.1 (-7.6, 7.8) | 0.1 (-6.6, 6.7) |
| Plateau | 94 (24.7) | -8.4 (-19.5, 2.7) | 4.2 (-1.4, 9.7) | 4.2 (-1.5, 9.9) |

a Numbers do not sum to group totals for education (1 prefer not to answer), race/ethnicity (4 prefer not to answer) and gender (1 non-binary gender)

b Estimated from a multivariable ordinal logistic regression model that included neighbourhood, education level, gender, visible minority status, and child’s age and sex as independent variables.

**Figure 1:** Parents’ likelihood of accepting a potential COVID-19 vaccine for their children by visible minority status

Figure 1 footnote: Adjusted prevalence estimated from a multivariable ordinal logistic regression model that conditioned on neighbourhood, education level, gender, and child’s age and sex.