

COMMENTARY



## Impact of a focus education in Zoom on COVID-19 vaccine hesitancy in Hong Kong parents of the preschoolers

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### ABSTRACT

Parental vaccine hesitancy is a major barrier to achieving high vaccination uptake among children, particularly in young children during the coronavirus disease 2019 (COVID-19) pandemic. Developing herd immunity is a critical concept for overcoming the current pandemic. The purpose of this study is to reduce parental vaccine hesitancy through a focused educational seminar in ZOOM and to empower parents who are concerned about vaccinating their children to communicate with medical experts during live seminars. Parents of preschoolers, teachers, and kindergarten principals from three local pre-school education and services associations attended live seminars. After attending seminars, parental willingness to vaccinate their children increased by 65%. The live Zoom seminar led by medical experts resulted in a decrease in vaccine hesitancy. Our findings support the creation of seminars that allow clients and medical specialists to communicate directly with one another. Offering an open and honest forum for people to express their concerns to medical experts could be a useful strategy for dealing with not only vaccination apprehension, but also other health-related emergencies.

### ARTICLE HISTORY

Received 21 April 2022  
Revised 12 May 2022  
Accepted 20 May 2022

### KEYWORDS





Focus education; Zoom; COVID-19 vaccine; hesitancy; vaccine hesitancy; Hong Kong; parents; preschoolers

Coronavirus disease 2019 (COVID-19) vaccine hesitancy is a worldwide problem. Despite COVID-19 vaccine being available in Hong Kong for preschoolers aged 3 years old and above since February 2022,<sup>1</sup> parental vaccine hesitancy is a major barrier to achieve high vaccination uptake.<sup>2</sup> The COVID-19 death rate in Hong Kong has surpassed the worst day in the United States, standing at 2.32 per 100,000 people on 1 March 2022.<sup>3</sup> Although, the COVID-19 infection in children is generally mild, preschoolers should be vaccinated during the fifth wave of the COVID-19 in Hong Kong as soon as possible to reduce complications such as multisystem inflammatory syndrome in children (MIS-C) and mortality especially in children with co-morbidities.<sup>4</sup> Although vaccine hesitancy is difficult to overcome, focus education has been found to be effective in raising vaccine uptake in adults when they come from health care professionals.<sup>5</sup> This study aims to reduce the parental vaccine hesitancy through focus educational seminar in ZOOM and to empower parents who are concerned about vaccinating their children to communicate with medical experts during live seminars.

It is a prospective study using an expert-led curriculum approach to counteract parental vaccine hesitancy. The intervention consisted of a live PowerPoint presentation in ZOOM followed by question and answer (Q&A) during a seminar led by YLL and MYWK. Three one-and-half-hour live seminars were given to the parents of preschoolers, teachers, and principals of the kindergartens from 3 local associations of pre-school education and services in February 2022, one month after the onset of the

fifth wave of the COVID-19 in Hong Kong. The seminars were announced to all participants via e-mail and advertisements from their respective associations. The PowerPoint presentation covered the impact of COVID-19 on young children, including information on the vaccine's mode of action, clinical trial data, ingredients, adverse events, and other prevalent beliefs and concerns. To dispel common myths and concerns, various news, social media, and internet sources were used. These myths/concerns included allergies, vaccine safety, perceived benefits of the vaccine, the importance of childhood vaccination, and the risk of acute myocarditis/pericarditis following Comirnaty vaccination. Participants were encouraged to ask questions during the seminars. Questions could be submitted anonymously either before the seminar or through their school teachers. The video of these seminars can be viewed at the official website of OneClick (<https://oneclick.hku.hk/>). At the beginning and the end of the seminar, a yes/no question was used to collect anonymous data on parents' intentions to vaccinate their children against COVID-19 (Table 1). This study did not have any exclusion criteria. Ethics approval was obtained from the Institutional Review Board of the University of Hong Kong/Hospital Authority Hong Kong West Cluster (IRB No: UW 21-157).

Odd ratios were used to compare the differences of willingness of parents get their children vaccinated before and after seminars. Data were analyzed using environment R (R Development Core Team 2018). A *p*-value <0.05 was considered to be statistically significant.

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**Table 1.** Questionnaire.

Will you allow your child to be vaccinated with COVID-19 vaccine?
Yes
No

A total of 619 parents of the preschoolers attended the 3 live seminars. Eighty eight percent (545/619) of the parents provided response both before and after the seminar. During the Q&A session, the main concern about the COVID-19 vaccine was its safety in preschoolers. Among those respondents, overall 40% (220/545) agreed for their preschoolers to be vaccinated at the beginning of the seminar, and overall 66% (362/545) agreed to vaccinate their children at the end of the seminar. That means the rate of willingness to vaccinate their children rose by 26% (142/545) after the seminar (Table 2). The rate of willing to vaccinate their children at the beginning of the seminar increased along the time of the fifth wave of COVID-19 pandemic but not significant (Table 2). Overall, parental willingness to vaccinate their children was increased by 65% after attending seminars. The odds of parents wanting to vaccinate their children were increased by factors of 2.952, 3.567, and 2.641 after attending seminars 1–3 respectively.

The live seminar in Zoom led by medical experts resulted in a reduction in vaccine hesitancy. Although vaccine intent may not always transfer into vaccinations, however intent is most likely a substantial predictor of vaccination. There is no validated education model for addressing the parental vaccine hesitancy due to the newness of COVID-19 and the speedy development allowing emergency use of its vaccines. A community-based randomized controlled trial found that a physician-targeted communication intervention did not diminish vaccine reluctance.<sup>6</sup> However, previous population-based education that focuses on specific communities improves knowledge, raises awareness, and increases vaccine uptake significantly.<sup>7,8</sup> Furthermore, people are more likely to accept the COVID-19 vaccine if their doctors recommend it.<sup>9</sup> Hence, good communication between the parents and pediatricians is very important. The present study supports expert-led live seminar with parents to reduce vaccine hesitancy among the preschoolers' parents in Hong Kong.

**Table 2.** Intend to vaccinate their children with pre- and post-seminar.

	Pre	Post	Odds ratio	95% CI	p-values
Overall	40% (220/545)	66% (362/545)	2.930	(2.229, 3.851)	<.001
Seminar 1 (18 Feb 2022)	34% (50/146)	60% (88/146)	2.952	(1.761, 4.950)	<.001
Seminar 2 (22 Feb 2022)	37% (66/179)	68% (122/179)	3.657	(2.142, 6.243)	<.001
Seminar 3 (24 Feb 2022)	46% (101/220)	70% (154/220)	2.641	(1.751, 3.983)	<.001

Odds ratios were used to compare the differences of willingness of parents to let their children vaccinated at the beginning and the end of seminars.

Immunity can be obtained through natural infection or vaccination, however the latter has a considerably lower rate of morbidity, mortality, and health-care expenses than the former.<sup>10</sup> Long-COVID is also evident in the children,<sup>11–13</sup> with estimates of the prevalence of persistent symptoms ranging from 0%<sup>12</sup> to 27%<sup>11</sup> based on limited data.

Currently, the Hong Kong Government's Vaccination Programme has approved two COVID-19 vaccines: the CoronaVac (age equal or above 3) from Sinovac Biotech (Hong Kong) Limited and the Comirnaty vaccine (BNT162b2) (age equal or above 5) from Fosun-BioNTech.<sup>1</sup> Hong Kong has a comprehensive childhood immunization program with high uptake, and vaccine hesitancy is not commonly regarded as a problem in the city.<sup>14</sup> COVID-19 vaccination coverage in Hong Kong children, however, remains low, with two-dose coverage at 17% and 75% in 3–11 and 12–19 year olds, respectively, as of 27 March 2022.<sup>15</sup> Long-term social isolation practices imposed as a result of the epidemic have had significant psychosocial consequences for community children and families.<sup>16</sup> Massive efforts have been made to limit the virus's spread through universal vaccination in order to gain herd immunity and restore some semblance of normalcy.

The present study was carried out on a small scale, and no rigorous test instrument validation was carried out. The questionnaire was simple and straightforward, and the results had no dubious interpretations. Furthermore, the vaccine hesitancy seminar sessions for the parents and teachers of the preschoolers were first-time occurrences with no prior history of evaluation and improvement. Since the survey consisted of responders to publicity, there is selection bias in the participants toward those more willing to vaccinate. Our findings support the establishment of seminars that allow clients and medical specialists to communicate directly. Offering an open, honest forum for people to express their concerns to medical experts could be a useful strategy for dealing with not only vaccination hesitancy, but also other health-related emergencies.

## Acknowledgements

We thank the school principals, teachers, parents and students who participated in the study.

## Author contributions

Wong has full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Tso, Jaime, and Chong are the members of the Q&A panel.

Concept and design: Wong, Kwan, Lau, So.

Acquisition, analysis, or interpretation of data: Wong, Kwan, Lau, So, Tso, Jaime, and Chong

Drafting of the manuscript: Wong and So under supervision of Lau

Supervision: Kwan and Lau

Concept and design: Wong, Kwan, Lau, So.

## Disclosure statement

Prof Lau is the Chairman of the Scientific Committee on Vaccine Preventable Diseases of the Department of Health, the Government Hong Kong SAR which is set up to provide science-based advice on

vaccine use at the population level. The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this study.

## Funding


This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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