

## **Project Title**

Endorsing Concepts On COVID-19 Vaccination: A Cross-Sectional Study On the Role of Trust and Beliefs Amongst Older Adults in Singapore

## **Project Lead and Members**

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## **Organisation(s) Involved**

Geriatric Education & Research Institute

Tan Tock Seng Hospital

Khoo Teck Puat Hospital

## **Healthcare Family Group(s) Involved in this Project**

Medical

## **Applicable Specialty or Discipline**

Department of Geriatric Medicine

## **Project Period**

Start date: 1<sup>st</sup> Dec 2021

Completed date: In progress

## **Aims**

To use the Theoretical Domain Framework (TDF) to understand the effects of different conceptions older adults have on the overall support in Singapore's vaccination program.

## **Background**

See poster appended/ below

## **Methods**

See poster appended/ below

## **Results**

See poster appended/ below

## **Lessons Learnt**

1. It was difficult reaching out to those who were unvaccinated, at times due to the sensitivity of the topic. Perhaps an online survey conveniently sent to a wider group of participants, instead of an interviewer administered questionnaire, could have helped in increasing the participation rate of the unvaccinated.
2. We might have missed recruiting frail older adults due to the practical constraints of data collection.
3. We find it useful to incorporate some open-ended questions into the quantitative survey to capture some reasoning for the responses provided.

## **Conclusion**

See poster appended/ below

## **Additional Information**

Singapore Health & Biomedical Congress (SHBC) 2022: COVID-19: Our response to a new challenge (Oral category) – (Gold Award)

## **Project Category**

Care Continuum

Population health, Preventive Care, Community Health

**Keywords**

COVID-19 Vaccination Amongst Older Adults

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# Endorsing concepts on COVID-19 vaccination: A cross-sectional study on the role of trust and beliefs amongst older adults in Singapore

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**Background** A decision for vaccine uptake is often complex and encompasses various conceptions that older adults may have about vaccinations. Some conceptions are positive, in favour of vaccination whereas others are negative and are opposing in nature. This study examined the predictive roles of trust and beliefs in predicting endorsement of different conceptions about COVID-19 vaccination.

**Methods** A door-to-door survey was administered to a representative sample of 600 older adults, using stratified random sampling, between March-May 2022. Data collected was analysed using multiple regression analysis and Welch *t*-test. Internal reliability of all the composite measures ranged from 0.70-0.89.

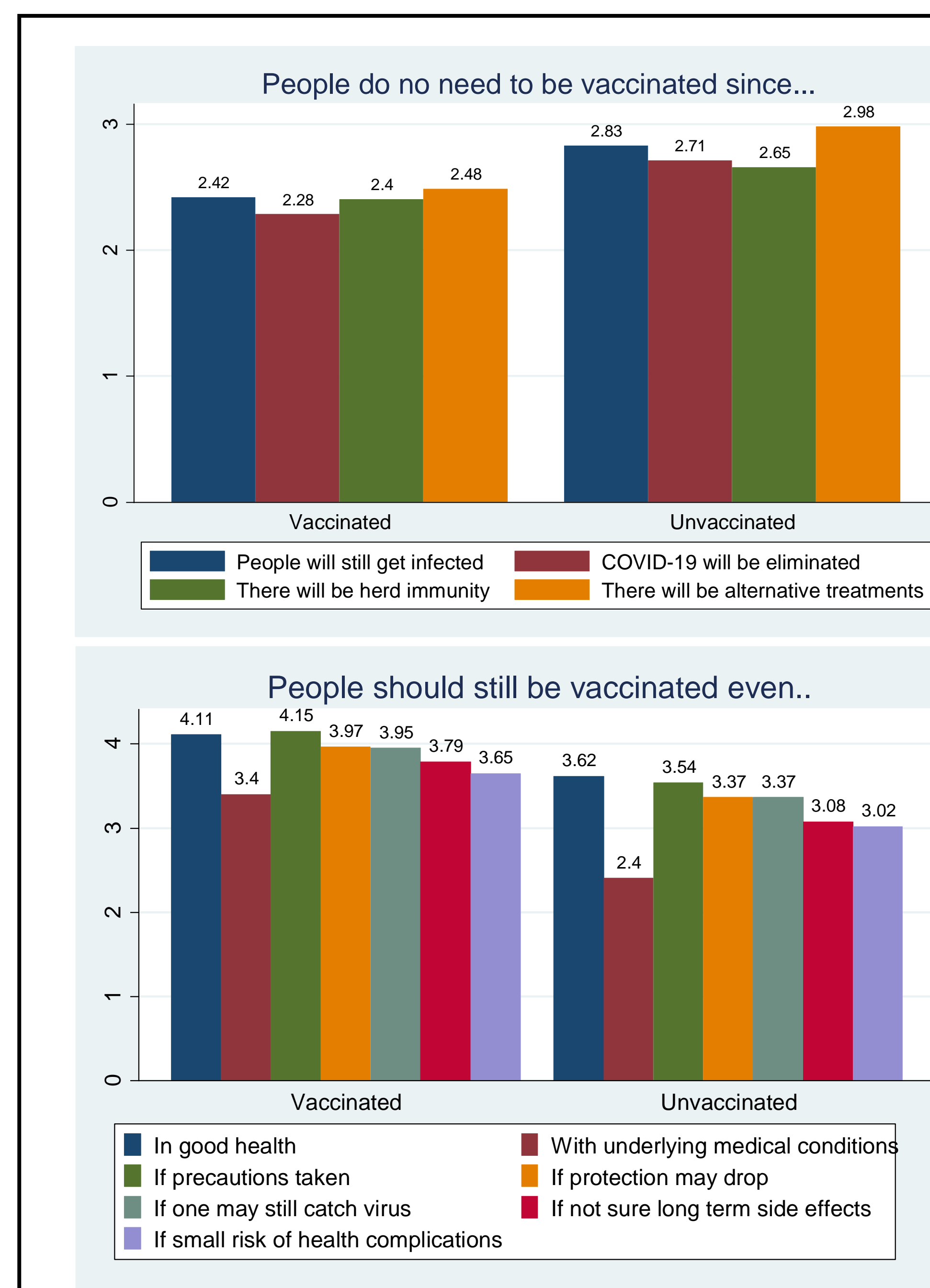
## Results

Response rate (total number of units approached: 3207)

- 19% successful interviews completed
- 51% not-in-cases
- 31% refused interviewers

Sociodemographic variables		n=600
Age in years, n (%)		
60-69	315	(52.5%)
70-79	170	(28.3%)
80 & above	115	(19.2%)
Gender, n (%)		
Female	309	(51.5%)
Male	291	(48.5%)
Marital Status, n (%)		
Married	385	(64.2%)
Single/Widowed/etc.	215	(35.8%)
Ethnicity, n (%)		
Chinese	491	(81.8%)
Malay	64	(10.7%)
Indian	37	(6.2%)
Others	8	(1.3%)
Education, n (%)		
No formal education	101	(16.8%)
Primary education	174	(29%)
Secondary education	206	(34.3%)
Post-secondary and above	119	(19.8%)
Household size, n (%)		
Living alone	67	(11.2%)
Living with others	533	(88.8%)

**Participant Characteristic:** Participants were proportionally sampled from all regions in Singapore. The mean age is 71 years old. 29% staying HDB 1-3 rm and 54% staying HDB 4-5 rm. Majority (92%) were not frail with CFS scores 3 and below. 91.3% (n = 548) of them were vaccinated (see table for more details).



**t-test findings:** Unvaccinated older adults had significantly higher scores for endorsing negative conceptions ( $M = 2.79, SD = 1.04$ ) compared to vaccinated older adults ( $M = 2.40, SD = 0.82$ ), Welch  $t(57.45) = -2.68, p < 0.01, d = -0.47$ . Conversely unvaccinated older adults had lower scores for endorsing positive conceptions on vaccination ( $M = 3.20, SD = 1.00$ ) compared to vaccinated older adults ( $M = 3.86, SD = 0.62$ ), Welch  $t(54.94) = 4.70, p < 0.01, d = 1.00$  (refer to figure to breakdown of mean scores of individual items).

- Negative conceptions: Vaccinated older adults were on the whole ambivalent about negative conceptions ( $M = 2.40, SD = 0.82$ ) whereas unvaccinated adults were more supportive of such conceptions ( $M = 2.79, SD = 1.04$ ).
- Positive conceptions: In general, older adults endorse positive conceptions on vaccination although there is less agreement when it comes those with underlying medical conditions especially for the unvaccinated ( $M = 2.40, SD = 0.85$ ).

Positive Conceptions	Model 1		Model 2 <sup>a</sup>	
	$\beta$ (95% CI)	<i>p</i>	$\beta$ (95% CI)	<i>p</i>
Age	0.002	0.388	0.003	0.216
Male	-0.018	0.601	-0.029	<b>0.400</b>
Health conditions (good)	0.026	0.485	0.014	0.700
Beliefs on importance of vaccination	0.569	<b>&lt;0.001</b>	0.543	<b>&lt;0.001</b>
Beliefs in vaccine safety	0.12	<b>&lt;0.001</b>	0.108	<b>&lt;0.001</b>
Understanding on vaccination	0.042	0.206	0.039	0.236
Trust in Government	0.229	<b>&lt;0.001</b>	0.235	<b>&lt;0.001</b>

Negative Conceptions	Model 3		Model 4 <sup>a</sup>	
	$\beta$ (95% CI)	<i>p</i>	$\beta$ (95% CI)	<i>p</i>
Age	0.005	0.176	0.005	0.187
Male	0.084	0.15	0.086	0.144
Health conditions (good)	-0.115	0.071	-0.113	0.076
Beliefs on importance of vaccination	-0.358	<b>&lt;0.001</b>	-0.354	<b>&lt;0.001</b>
Beliefs in vaccine safety	-0.365	<b>&lt;0.001</b>	-0.364	<b>&lt;0.001</b>
Understanding on vaccination	0.075	0.183	0.075	0.181
Trust in Government	-0.184	<b>&lt;0.001</b>	-0.185	<b>&lt;0.001</b>

**Regression findings:** Regression modelling examined the predictors of conceptions adults adhered to. Findings showed that (i) trust in government, (ii) beliefs in vaccine safety, and (iii) beliefs in importance of vaccination for self positively predicted positive conceptions about the need for vaccinations and negatively predicted conceptions against vaccination.

- Regression model 1 was statistically significant,  $F(7, 592) = 141.27, p < 0.001$  and the model explained 62% of the variance in explaining endorsement of positive conceptions about vaccination. Findings showed that (i) beliefs in importance of vaccination for self (ii) trust in government, and (iii) beliefs in vaccine safety positively predicted accurate conceptions about the need for vaccinations and standardised regression coefficients, demonstrating relative effect sizes, were 0.56, 0.25 and 0.12 respectively. Model 2 showed that these predictors remained significant despite controlling for vaccination status.
- Regression model 3 was statistically significant,  $F(7, 592) = 37.41, p < 0.001$  and the model explained 31% of the variance in negative conceptions about vaccination. Findings showed that (i) beliefs in importance of vaccination for self, (ii) beliefs in vaccine safety and (iii) trust in government negatively predicted negative conceptions about vaccinations and standardised regression coefficients, demonstrating relative effect sizes, were -0.29, -0.29 and -0.16 respectively. Model 4 showed that these predictors remained significant despite controlling for vaccination status.

**Discussion and Conclusion** Common conceptions opposing COVID-19 vaccines continued to persist amongst some older adults in Singapore and this study suggests that beyond doubts about the safety and importance of vaccination, the lack of trust in the information provided by government are important predictors of such negative conceptions. These beliefs and trust place in Government are also found as important predictors of endorsement of positive conceptions regarding vaccination.

**Government a trusted source. The following important:**

- Interventions to enhance population-wide positive conceptions concerning vaccination
- Development and dissemination of effective messages around vaccines
- Identifying and evaluation interventions that build trust

**Limitations:** Given the high vaccination rate in Singapore, we expected only a small number of participants to be unvaccinated and this was reflected in the data. Attempts at boosting the numbers was difficult. Welch's *t*-test accounted for the assumption that variances were not equal.