



UWI  
ST. AUGUSTINE  
CAMPUS

FACULTY OF  
MEDICAL SCIENCES

# EXPLORING THE FACTORS INFLUENCING COVID-19 VACCINE HESITANCY AMONG THE ADULT POPULATION OF TRINIDAD AND TOBAGO

Adrienne La Bastide<sup>1</sup>, Alexandra Kong<sup>1</sup>, Deonne Lamont<sup>1</sup>, Jonathan Lochan<sup>1</sup>, Rae-Jean La Foucade<sup>1</sup>, Reynard Lal<sup>1</sup>, Valini Latchmepersad<sup>1</sup>, Vashti Latchman<sup>1</sup>, Junette Mohan<sup>2</sup>.

<sup>1</sup>Department of Para-Clinical Sciences, Faculty of Medical Sciences, UWI, St. Augustine; <sup>2</sup>Department of Pre-Clinical Sciences, Faculty of Medical Sciences, UWI, St. Augustine.

Email: Deonne.Lamont@my.uwi.edu Junette.Mohan@sta.uwi.edu



## Introduction

- Vaccine hesitancy refers to the delay in acceptance or refusal of vaccination despite availability of vaccination services. <sup>1</sup>
- Vaccine hesitancy globally is not new; the emergence of the COVID-19 virus and subsequent vaccine rollout has exacerbated this phenomenon.
- Globally, COVID-19 is responsible for 6.55M deaths. <sup>2</sup> Trinidad and Tobago has recorded high mortality rates due to the SARS-CoV-2 virus. 182,181 total positive cases have been reported; 4,207 cases resulted in a death. <sup>3</sup>
- The country's vaccination rate is 51.2%; 716,991 persons have a completed vaccine regime. <sup>3</sup>
- Understanding why persons are hesitant toward the COVID-19 vaccine can aid in increasing vaccination rates in an attempt to acquire herd immunity.

## Objectives

- To examine the sociodemographic, individual, social/organisational, and vaccine-specific factors influencing public attitudes towards the COVID-19 vaccine among the adult population of Trinidad and Tobago.
- To provide new information and recommendations for adjusting current public health measures addressing COVID-19 vaccine hesitancy.

## Methodology

- Study design- Observational, cross-sectional online survey.
- Study population- Adults ≥ 18 years residing in Trinidad and Tobago, who had an awareness of the COVID-19 pandemic.
- Study sample- Convenience sampling.
- Study size- Sample size of 385 individuals.
- Data collection- Online questionnaire on Google forms dispersed via social media (WhatsApp, Instagram & Facebook)
- Data analysis- Descriptive statistics (frequencies, percentages, standard deviations) as well as logistic regressions.
- Ethical approval- Granted by the Campus Research Ethics Committee, UWI St. Augustine and the Ministry of Health of Government of Trinidad and Tobago.

## Results

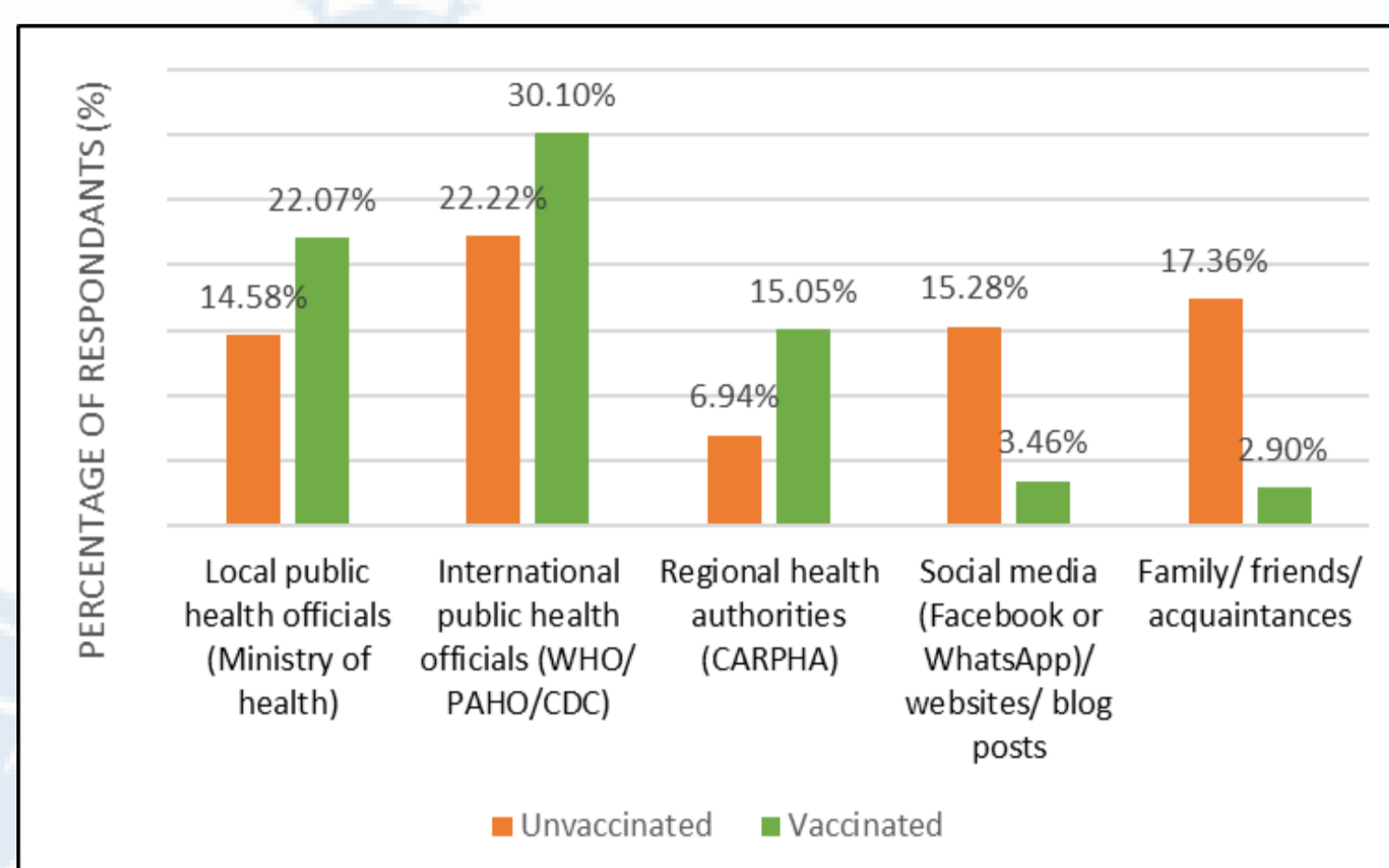


FIGURE 1: PARTICIPANT'S TRUSTED SOURCES FOR GENERAL COVID-19 AND VACCINE INFORMATION

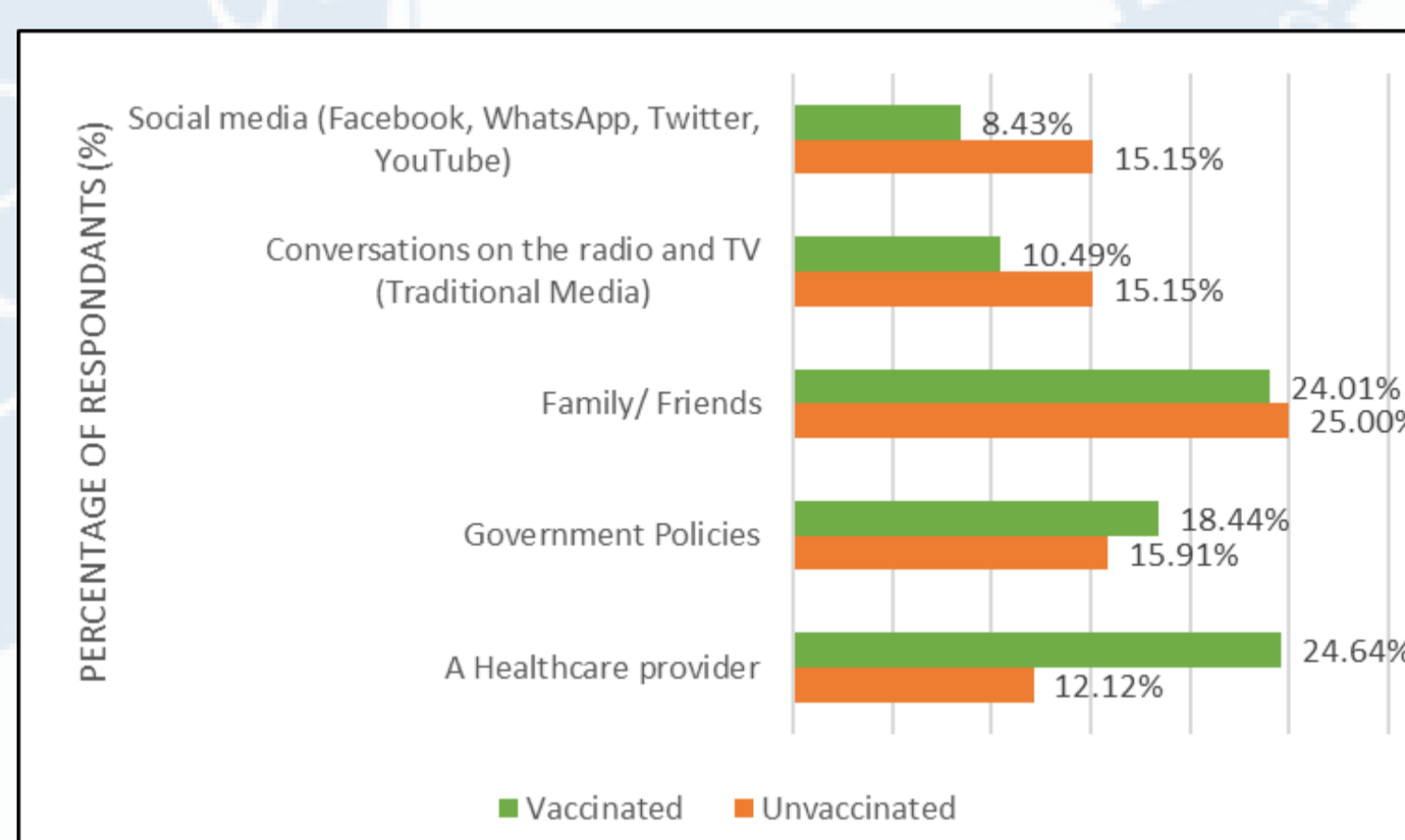


FIGURE 3: SOCIAL FACTORS THAT INFLUENCED COVID-19 VACCINATION DECISION

TABLE 1: LOGISTIC REGRESSION ANALYSIS SHOWING SIGNIFICANT RELATIONSHIP BETWEEN SOCIODEMOGRAPHIC, INDIVIDUAL, SOCIAL AND VACCINE-SPECIFIC FACTORS AND ACCEPTANCE OF THE COVID-19 VACCINE (OR>1)

Variable	Odds Ratio	p-value
<b>SOCIODEMOGRAPHIC</b>		
Indo-Trinidadian/Tobagonian	2.7	<0.001
Hinduism	2.49	0.035
Post-graduate degree	7.43	0.028
Associates/ Bachelor's degree	6.07	0.032
Student	4.53	<0.001
San Fernando	4.09	0.023
Reside in Single parent/Nuclear Family	4.31	<0.001
<b>INDIVIDUAL</b>		
Government supplied sufficient information on vaccine safety & efficacy	7.63	<0.001
Trusted Government COVID-19 decisions	13.61	<0.001
Policies regarding Covid-19 motivated vaccination choice	18.69	0.004
Belief that pharmaceutical companies produce vaccines in their best interest	8.66	<0.001
<b>SOCIAL</b>		
Influenced by family and friends to vaccinate	13.08	<0.001

Table 1 shows the sociodemographic individual and social factors that were significantly more likely to be vaccinated.

TABLE 2: LOGISTIC REGRESSION ANALYSIS SHOWING SIGNIFICANT RELATIONSHIP BETWEEN SOCIODEMOGRAPHIC, INDIVIDUAL, SOCIAL AND VACCINE-SPECIFIC FACTORS AND ACCEPTANCE OF THE COVID-19 VACCINE (OR<1)

Variable	Odds Ratio	p-value
<b>SOCIODEMOGRAPHIC</b>		
Age 50-59 Years	0.38	0.021
Sector of Occupation		
Business	0.19	<0.001
Agriculture	0.11	0.009
Tourism	0.17	0.024
Education	0.18	<0.001
<b>INDIVIDUAL</b>		
Covid-19 policies	0.03	<0.001
<b>SOCIAL</b>		
Family/friends influenced my vaccine decision	0.14	<0.001

Table 2 shows the sociodemographic individual and social factors that were significantly least likely to be vaccinated.

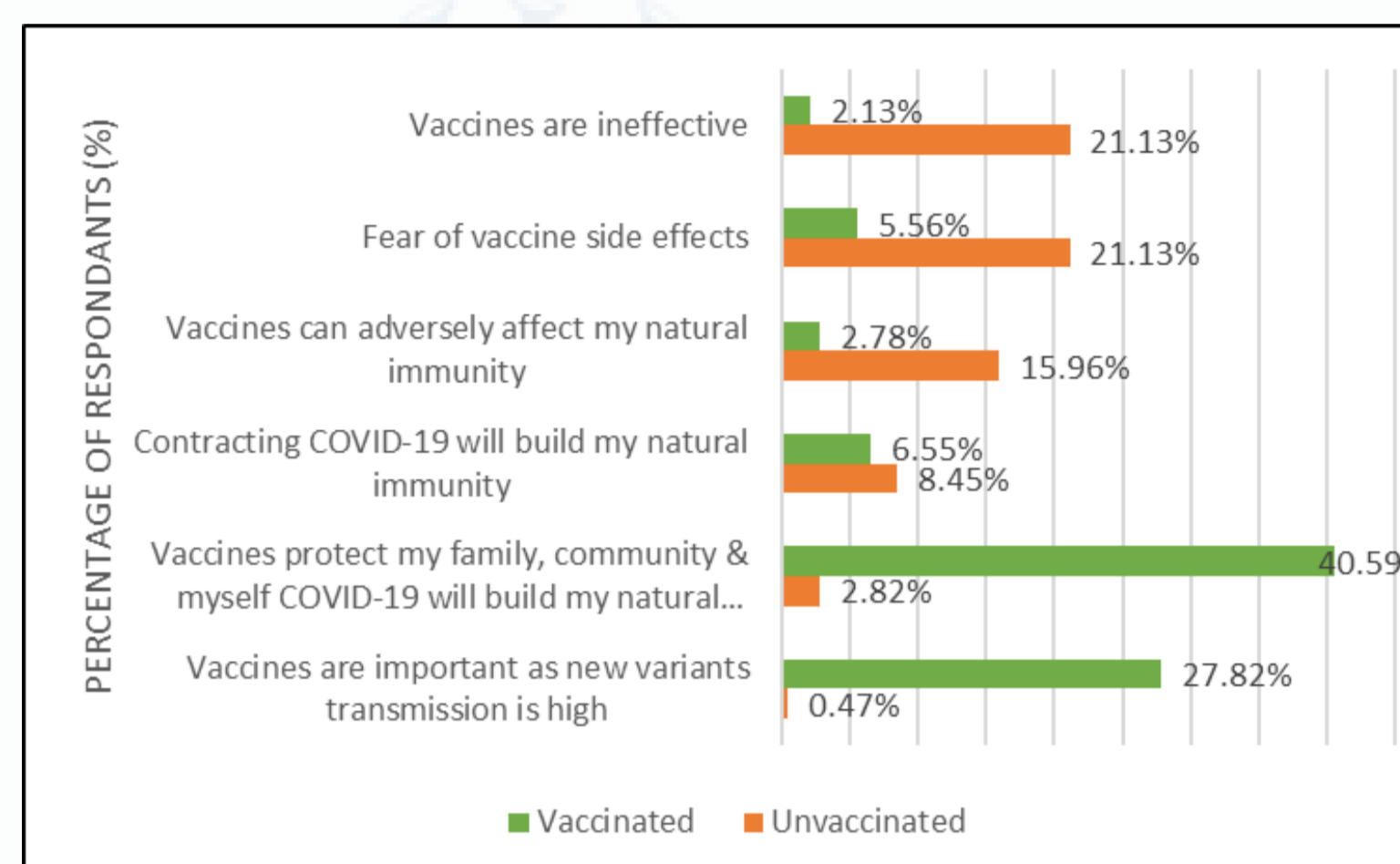


FIGURE 2: INDIVIDUAL BELIEFS AND VIEWS ON COVID-19 VACCINATION

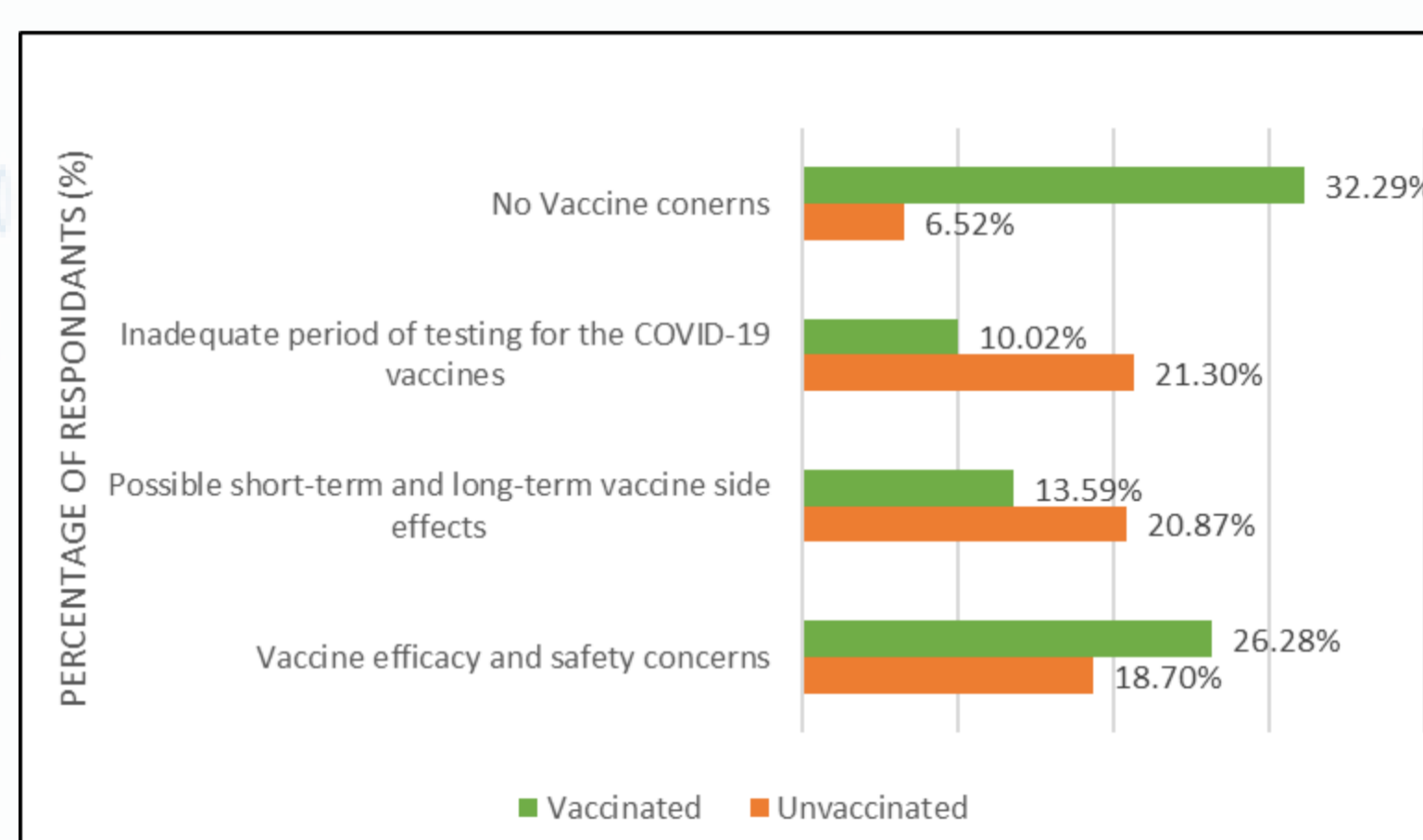


FIGURE 4: VACCINE-SPECIFIC FACTORS THAT INFLUENCED COVID-19 VACCINATION DECISION

A total of 406 responses were collected using an online survey; of these 79.6% were vaccinated and 20.4% were not vaccinated

Participants who were ages 50-59 years, compared with the 18-29 age group

Participants who worked in the Business Agriculture, Tourism and Education [sectors], compared with those in the Health sector

The influence of COVID-19 policies e.g. mask mandate and safe zones on participants' vaccine decision

The influence of family and friends on participants' vaccine decision

Trusted sources of information that influenced participant's vaccine decision were International public health officials (22.22%), family/friends/ acquaintances (17.36%) and social media (15.28%)

Participant's views on vaccine effectiveness (21.13%), fear of side effects (21.13%) and adverse effects (15.96%) contributed to vaccine hesitancy.

## Discussion

- Factors affecting COVID-19 vaccine hesitancy were similar to the study conducted by Al-Jayoussi *et al.* (2021); a scoping review of 331 studies categorized into sociodemographic, individual, social and vaccine-specific factors. <sup>4</sup>
- The sociodemographic findings associated with lower vaccination were similar to studies done in the Caribbean; non-healthcare workers, in the business and education sectors, are least likely to vaccinate. <sup>7</sup> However, the finding of 50-59 age group contrasts a study by Fisher *et al.* (2020). <sup>6</sup>
- One individual factor that was associated with lower likelihood to vaccinate was COVID-19 policies; participants indicated that the policies motivated them to postpone or decline the vaccine. The perception of benefits or drawbacks of the vaccine <sup>5,7-9</sup> influenced hesitancy.
- The social factor associated with a lower likelihood of being vaccinated was the influence of family and friends Indra *et al.* (2021). <sup>7</sup> Additionally, knowing someone who experienced an adverse reaction to the COVID-19 vaccine or any vaccine promoted vaccine hesitancy. Unvaccinated participants also reported traditional and social media influenced their vaccine decision.

- Unvaccinated participants indicated that concerns about inadequate testing of the vaccine, fear of side effects, its safety and efficacy coincided with other studies. <sup>4,5,8</sup>

## Conclusions

- Adults aged 50-59 and persons working in the business, agriculture, tourism and education sectors were less likely to be vaccinated.
- An individual's COVID-19 vaccine beliefs, influence of COVID-19 policies, family and friends, others' negative vaccine experiences, as well as fear of side effects, vaccine efficacy and safety concerns were major factors contributing towards COVID-19 vaccine hesitancy in Trinidad and Tobago.
- Communication strategies and platforms specifically targeting these sociodemographic launched by the government and public health sector to provide the public with more information on the vaccine would help to address concerns and encourage COVID-19 vaccine uptake.

## References

- MacDonald NE, the SAGE Working Group on Vaccine Hesitancy. Vaccine hesitancy: definition, scope and determinants. *Vaccines* [Internet]. 2015 Aug [cited 2022 Sep 27]; 33(34):4161-4164. Available from: <https://www.sciencedirect.com/science/article/pii/S0264410X15005097?via%3Dihub> doi: <https://doi.org/10.1016/j.vaccine.2015.04.036>
- Ritchie H, Mathieu E, Rodés-Guirao L, Appel C, Giattino C, Ortiz-Ospina E, et al. Coronavirus (COVID-19) Vaccinations [Internet]. Oxford, London: Our World in Data; 2020 [updated 2022 Sep 27; cited 2022 Sep 27]. Available from: <https://ourworldindata.org/covidvaccinations?country=TT>
- Government of the Republic of Trinidad and Tobago. COVID-19 Update - Tuesday 27 September, 2022 [Internet]. Port of Spain: Ministry of Health; 2020 [updated 2022 Sep 27; cited 2022 Sep 27]. Available from: <https://health.gov.tt/covid-19-update-tuesday-27-september-2022>
- Al-Jayoussi GF, Sherbash MAM, Ali LA, El-Heneidy A, Alhussaini NW, Elhassan, ME, et al. Factors Influencing Public Attitudes towards COVID-19 Vaccinations: A Scoping Review Informed by the Socio-Ecological Model. *Vaccines (Basel)* [Internet]. 2021 Jun [cited 2022 Sep 27]; 9(6):548. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8225013/>. doi:10.3390/vaccines9060548
- Chew NW, Cheong C, Kong G, Phua K, Ngiam JN, Tan BY, et al. An Asia-Pacific study on healthcare workers' perception of, and willingness to receive, the COVID-19 vaccination. *Int J Infect Dis* [Internet]. 2021 Mar [cited 2022 Sep 27]; 106:52-60. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7997703/> doi: 10.1016/j.ijid.2021.03.069
- Fisher KA, Bloomstone SJ, Walder J, Crawford S, Fouayzi H, Mazor KM. Attitudes toward a potential SARS-CoV-2 vaccine: a survey of U.S. adults. *Ann Intern Med* [Internet]. 2020 Sep [cited 2022 Sep 27]; M20-3569. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7505019/> doi: 10.7326/M20-3569
- Caribbean Public Health Agency. COVID-19 Vaccine Acceptance Among Active Social Media Users in the Caribbean [Internet]. Port of Spain, Trinidad and Tobago: CARPHA; 2021 [cited 2022 Sep 27]. 23p Available from: <https://carpha.org/Portals/0/Publications/Summary%20Results%20of%20COVID-19%20Vaccine%20Acceptance%20Survey.pdf>
- Callaghan T, Moghtaderi A, Lueck JA, Hotez P, Strych U, Dor A, et al. Correlates and disparities of intention to vaccinate against COVID-19. *Soc Sci Med* [Internet]. 2021 Jan [cited 2022 Sep 27]; 272:113638. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7834845/> doi: 10.1016/j.socscimed.2020.113638
- Truong J, Bakshi S, Wasim A, Ahmad M, Majid U. What factors promote vaccine hesitancy or acceptance during pandemics? A systematic review and thematic analysis. *Health Promot Int* [Internet]. 2021 Jul [cited 2022 Sep 27]; 37(1):105. Available from: <https://academic.oup.com/heapro/advance-article/doi/10.1093/heapro/daab105/6318107> doi: <https://doi.org/10.1093/heapro/daab105>

## Acknowledgments

We are most grateful to the study participants for generously giving of their time to participate in our study. We would like to thank our supervisor Dr. Junette Mohan and Mr. Brendon Bhagwandeem for his guidance with statistical analysis.