

## Correlation between Parental Vaccine Hesitancy, Socio-demographic Factors, and Novel SARS-CoV-2 Vaccination P R Health Sci J 2022;41(4):185-191

Dear Editor,

We would like to discuss our article entitled “Correlation between Parental Vaccine Hesitancy, Socio-demographic Factors, and Novel SARS-CoV-2 Vaccination in Puerto Rico (1).” Alemán-Reyes et al. used the Parent Attitudes about Childhood Vaccines survey to measure vaccine hesitancy in Puerto Rican parents and legal guardians who were at least 18 years old, as well as their views on a potential SARS-CoV-2 vaccine and the relationship between vaccine hesitancy and socio-demographic factors (1). The findings, according to Alemán-Reyes et al., show the necessity for more effective vaccine education efforts in Puerto Rico and the difficulties that concerns about the SARS-CoV-2 vaccine present for the effective management of the COVID-19 pandemic (1). It should be emphasized that a COVID-19 vaccination hadn't yet been created at the time of the poll mentioned here (1).

Public trust in authorities, professionals, and scientists must rise in order to raise immunization rates and win over skeptics. For instance, a number of studies have discovered a link between anti-vaccine beliefs and a lack of trust in the local healthcare system. Public trust in authorities, professionals, and scientists must increase in order to increase immunization rates and convert doubters. For instance, anti-vaccine attitudes have been linked to low faith in the community healthcare system (2). One's level of readiness depends on how confident they are in their ability to carry out public health measures in the event of a catastrophe. Last but not least, it is important to recognize that trends in vaccination uptake may vary over time. As epidemic conditions vary, so does the vaccination pattern. Last but not least, it is important to recognize that trends in vaccination uptake may vary over time. The pattern of vaccine use frequently shifts as epidemic conditions change and new knowledge about immunizations becomes available (3).

The present uptake rate of the COVID-19 immunization is the main cause for concern. Providing vaccines continues to pose substantial difficulties for public health institutions all around the world. According to one study, people who oppose vaccinations usually have little faith in their community's healthcare system (2). Depending on their level of faith in them, people may employ public health solutions more or less frequently during a crisis. Depending on how much they trust their local public health administration, people may resort to public health remedies more or less frequently during a crisis. The public's trust in their local public health crisis response will have a significant impact on the effectiveness of public health initiatives during the COVID-19 pandemic (3).

**Pathum Sookaromdee**, Private Academic Consultant, Bangkok Thailand. Email: pathumsook@gmail.com

Viroj Wiwanitkit, Adjunct professor, Joseph Ayobabalola University, Ikeji-Arakeji, Nigeria; Honorary professor, Dr. DY Patil Medical College - Dr. D. Y. Patil Vidyapeeth, Pune, India

### References

1. Alemán-Reyes AG, Díaz-Rivera E, Rodríguez-Quñones AJ, Molina-Pérez XS, Oquendo-Claudio GI, Vega A, Colón-Díaz M. Correlation between Parental Vaccine Hesitancy, Socio-demographic Factors, and Novel SARS-CoV-2 Vaccination in Puerto Rico. *P R Health Sci J*. 2022 Dec;41(4):185-191.
2. Mungmunpantip R, Wiwanitkit V. COVID-19 vaccination hesitancy. *Recent Prog Med*. 2021 Sep;112(9):596.
3. Xiao J, Cheung JK, Wu P, Ni MY, Cowling BJ, Liao Q. Temporal changes in factors associated with COVID-19 vaccine hesitancy and uptake among adults in Hong Kong: serial cross-sectional surveys. *Lancet Reg Health West Pac*. 2022;23:100441.

### REPLY

Dear Editor:

We are writing in response to a Letter to the Editor from Dr. Pathum Sookaromdee, Bangkok Thailand, regarding our article entitled: “Correlation Between Parental Vaccine Hesitancy, Socio-demographic Factors, and novel SARS-CoV-2 vaccination in Puerto Rico” (1). We appreciate and acknowledge Dr. Sookaromdee's comments on the need to increase public trust in healthcare authorities, professionals, and scientists to raise immunization rates. The main aim of our study was to survey parental attitudes toward vaccination, correlate parental vaccine hesitancy with socio-demographics, and determine the potential SARS-CoV-2 vaccine hesitancy in the Puerto Rican population.

Vaccination against COVID-19 has been proven to be one of the most effective ways to control the virus's spread and save lives. However, vaccine hesitancy remains a significant obstacle to achieving herd immunity. Our research has shown that vaccine hesitancy is prevalent among parents in Puerto Rico, particularly those with lower incomes and non-parental legal guardians (1). Vaccine hesitancy is multifactorial, complex and may be driven by factors such as complacency, convenience, and confidence (2). Since the

earliest days of the COVID-19 pandemic, it will be evident that readying a vaccine will be just the starting point on a journey for immunization acceptance among the public. Survey data from several sources suggest that willingness to be vaccinated with a novel COVID-19 vaccine was low in the general population and in some socio-demographic groups such as Black or Hispanic communities, those with lower educational levels, and those who live in rural areas (3-8). Studies prior to the availability and distribution of the vaccine reported that factors such as safety and speed of the vaccine developed under emergency conditions, efficacy, and low trust in its equitable distribution were also some of the reasons for COVID-19 vaccine hesitancy which correlated with our findings in the Puerto Rican population (3,4,8,9). Therefore, interventions to decrease vaccine hesitancy among these groups are necessary.

The interplay between health literacy, healthcare mistrust, and individual attitudes can interact and contribute to vaccine hesitancy, potentially impacting people's decision to get vaccinated against COVID-19. For example, individuals with low health literacy may struggle to understand the benefits of vaccination and the risks associated with vaccine-preventable diseases. Additionally, individuals with a high level of government distrust may be less likely to believe in the safety and efficacy of vaccines and may be more likely to believe misinformation about vaccines. In the context of COVID-19, these factors have been particularly relevant, as vaccine hesitancy has been identified as a major barrier to achieving herd immunity and ending the pandemic.

To address these issues, healthcare providers and public health officials must work to improve health literacy and increase trust in the healthcare system by providing clear, accurate information about the safety and effectiveness of COVID-19 vaccines and addressing concerns and questions that people may have. An effective approach to these issues is using educational materials such as fotonovela booklets to increase vaccination awareness and attitudes. A study conducted in Puerto Rico showed that exposure to the fotonovela increased awareness of HPV susceptibility and positive attitudes towards vaccination among participants, particularly Hispanic individuals (10). The results suggest that such materials could effectively improve vaccination rates among minority groups in the United States. Additionally, efforts to increase vaccine access, such as offering vaccines at convenient locations and times, may also help to increase vaccination rates among hesitant individuals.

In conclusion, educational interventions such as fotonovela booklets and other educational tools could be effective in increasing vaccination awareness and attitudes among minority groups, while targeted interventions are necessary to address vaccine hesitancy among parents with lower incomes and non-parental legal guardians. Public health authorities must continue to address vaccine hesitancy to ensure high levels of vaccine coverage and prevent outbreaks of vaccine-preventable diseases. Therefore, it is essential to address vaccine hesitancy by providing clear, accurate, and accessible information about vaccines and their benefits. Building trust between individuals, healthcare providers, and government officials is also important to increase vaccine confidence and uptake.

**Maricarmen Colon-Diaz**, PhD; Grisel Burgos-Barreto, MS; Perla Elosegui-Rodríguez, BS  
Department of Physiology and Pathology, San Juan Bautista School of Medicine,  
Caguas, Puerto Rico. Email: mcolondiaz@sanjuanbautista.edu

## References

1. Alemán-Reyes AG, Díaz-Rivera E, Rodríguez-Quinones AJ, Molina-Pérez XS, Oquendo-Claudio GI, Vega A, Colón-Díaz M. Correlation between Parental Vaccine Hesitancy, Socio-demographic Factors, and Novel SARS-CoV-2 Vaccination in Puerto Rico. *P R Health Sci J*. 2022 Dec;41(4):185-191. PMID: 36516202.
2. Salmon DA, Dudley MZ, Glanz JM, Omer SB. Vaccine hesitancy: Causes, consequences, and a call to action. *Vaccine*. 2015 Nov 27;33 Suppl 4:D66-71. doi: 10.1016/j.vaccine.2015.09.035. PMID: 26615171.
3. 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*. 2020 Dec 15;173(12):964-973. doi: 10.7326/M20-3569. Epub 2020 Sep 4. PMID: 32886525; PMCID: PMC7505019.
4. National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Population Health and Public Health Practice; Board on Health Sciences Policy; Committee on Equitable Allocation of Vaccine for the Novel Coronavirus; Kahn B, Brown L, Foege W, et al., editors. *Framework for Equitable Allocation of COVID-19 Vaccine*. Washington (DC): National Academies Press (US); 2020 Oct 2. 7, Achieving Acceptance of COVID-19 Vaccine. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK564098/> Accessed April 13, 2023.
5. Kamisar B, Holzberg M. NBC News. 2020. [August 18, 2020]. Poll: Less than half of Americans say they'll get a coronavirus vaccine. <https://www.nbcnews.com/politics/2020-election/poll-less-half-americans-say-they-ll-get-coronavirus-vaccine-n1236971>. Accessed April 15, 2023.
6. Mullen O'Keefe S. Gallup News. 2020. [August 7, 2020]. One in three Americans would not get COVID-19 vaccine. <https://news.gallup.com/poll/317018/one-three-americans-not-covid-vaccine.aspx>. Accessed April 13, 2023.
7. Resnick B. Vox. 2020. [September 10, 2020]. A third of Americans might refuse a COVID-19 vaccine. How screwed are we? <https://www.vox.com/science-and-health/21364099/covid-19-vaccine-hesitancy-research-herd-immunity>. Accessed April 15, 2023.
8. Thigpen CL, Funk C. Pew Research Center Fact Tank. 2020. [May 21, 2020]. Most Americans expect a COVID-19 vaccine within a year; 72% say they would get vaccinated. <https://www.pewresearch.org/fact-tank/2020/05/21/most-americans-expect-a-covid-19-vaccine-within-a-year-72-say-they-would-get-vaccinated>. Accessed April 17, 2023.
9. Silverman E. STAT News. 2020. [August 31, 2020]. Poll: Most Americans believe the COVID-19 vaccine approval process is driven by politics, not science. <https://www.statnews.com/pharmalot/2020/08/31/most-americans-believe-the-covid-19-vaccine-approval-process-is-driven-by-politics-not-science>. Accessed April 27, 2023.
10. Burgos G, Martinez E, Virella B. Fotonovela as an Educational Tool to Increase Human Papilloma Virus Vaccination in Puerto Rico. *Clinics Mother Child Health*. 2021 Jun; 18:386. doi: 10.35248/2090-7214.21.18.386.