INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY: APPLIED BUSINESS AND EDUCATION RESEARCH
2025, Vol. 6, No. 2, 546 – 553
http://dx.doi.org/10.11594/ijmaber.06.02.10

Research Article

Socio-Demographic and Parental Acceptability of Covid-19 Pediatric Vaccination of Children with Co-Morbidities

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Article history:
Submission 31 January 2025
Revised 07 February 2025
Accepted 23 February 2025

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ABSTRACT

The COVID-19 pandemic has significantly impacted public health worldwide, with children being a particularly vulnerable population due to their developing immune systems. Children with co-morbidities, such as asthma, diabetes, and other chronic conditions, are at a higher risk of severe outcomes from COVID-19 infection. The study aims to determine if the sociodemographic profile attributes may tend to have a relationship in accepting COVID-19 vaccination for parents with children with co-morbidities. Descriptive-correlational design was used in this study involving 46 participants either the mother or father of the child, Filipino residents near the declared research locale and have children who were 5 to 11 years of age situated in one municipality in Bataan, Philippines recruited using a purposive sampling technique. A self-made non-standardized instrument was used in this study (a=0.78). The gathered data was analyzed using descriptive mean and Spearman Rho. Results indicate that COVID-19 pediatric vaccination is highly acceptable among the respondents (M=3.42, SD=0.34). As such, sex as demographic profile (rs=.486, p=0.001) revealed significant findings regarding parent's acceptability of COVID-19 pediatric vaccination. The findings of this study indicated that sex-specific factors may influence vaccine acceptability, and public health strategies should consider tailoring interventions to address these factors to promote COVID-19 vaccination acceptance.

Keywords*: Pandemic, Vaccine, Co-morbidities, Acceptability*

Introduction

The COVID-19 pandemic has significantly impacted public health worldwide, with children being a particularly vulnerable population due to their developing immune systems. Children with co-morbidities, such as asthma, diabetes, and other chronic conditions, are at a higher risk of severe outcomes from COVID-19

How to cite:
Pagilagan, A. L. D., Ganzon, S. G., Orte, C. J. S., Morales, M. T. D., & Santos-Matibag, R. (2025). Socio-Demographic and Parental Acceptability of Covid-19 Pediatric Vaccination of Children with Co-Morbidities. *International Journal of Multidisciplinary: Applied Business and Education Research*. *6*(2), 546 – 553. doi: 10.11594/ijmaber.06.02.10

infection. Vaccination is a crucial tool in mitigating these risks, yet the acceptability of COVID-19 pediatric vaccination among parents of children with co-morbidities remains a critical concern (Khan et al., 2022). Understanding parent's attitudes is crucial for health policymakers and providers planning vaccination campaigns for young children (Shmueli, 2023). Parent's intentions to vaccinate their children against COVID-19 differ among parents who express negative child COVID-19 vaccine intention and those who express uncertain intention, indicating a need for tailored interventions (Miller & Metcalf, 2022). In particular, conservative leaders may play a significant role among parents who express child COVID-19 vaccine opposition as they can promote confidence in vaccine acceptance. Interventions must also focus on parents with positive intentions who have not yet vaccinated their children, as intentions may change over time (Dayton et al., 2022). Since the onset of the COVID-19 virus, many have been worried about their health, not only in the Philippines but also in the worldwide context, who are not prepared for this pandemic. Many have lost their loved ones and livelihoods which caused anxiety in the situation. It has also caused fear in people who are not able to move freely (Aclon et al., 2022) and as such, it also affected children with co-morbidities (Amit et al., 2022). For the COVID-19 pediatric vaccination covering ages 5 through 11 years old children with co-morbidities children are considered to have co-morbidities if they have the following conditions: medical complexity, genetic conditions, neurologic conditions, metabolic/endocrine diseases, obesity, HIV infection, Tuberculosis, chronic respiratory diseases, hepatobiliary diseases, and immunocompromised state due to diseases and treatment (Amit et al., 2022). Despite the initiatives in combating this disease, the researchers still wanted to seek the relationship between the sociodemographic profile attributes of the respondents to accepting COVID-19 vaccination for parents with children with co-morbidities. Interestingly, the result of the study may be considered as the basis for the policymakers to revisit the guidelines and protocols for COVID-19 vaccination for pediatric clients.

Methods

The descriptive-correlational design was utilized in this paper. This design is fit for this study to determine the relationships between the sociodemographic profile attributes of parents of children with co-morbidities and their acceptability of COVID-19 vaccination (Polit & Beck, 2022). The researcher conducted the study in Dinalupihan, Bataan, Philippines, specifically targeting 4 barangays (community) with reports of zero vaccinated children with co-morbidities. The data collection procedure was conducted between February to April 2023. The respondents in the study are parents of children with co-morbidities (n=46) and participated via purposive sampling technique. Purposive sampling was chosen in this study to select the participants with direct experience (Polit & Beckm 2022) in terms of COVID-19 vaccine hesitancy for parents with children with co-morbidities with the following inclusion criteria: 1) adult guardians, either mother or father of the child, Filipino residents near the declared research locale and have children who were 5 to 11 years of age, 2) the parents are seeking services for their children in their respective barangay health centers and fully accepting the procedure or just following the norms and the counsel of their children's attending physicians, 3) parent-respondents of this investigation can read the content of the research questionnaire, and 4) voluntarily participated in the study. Excluded are adult guardians without a prior schedule for vaccination. A self-made non-standardized instrument was utilized in this study grounded on a literature review denoting the assessment of the extent of acceptance of COVID-19 vaccination of the parents of children aged 5 to 11 years old with co-morbidities which eventually, upon formulation and scrutiny, had undergone pilot testing (30 respondents who had the same criteria but not included in the study) for content validation and reliability testing with a Cronbach Alpha result of 0.78. Ethical considerations were also employed in this study to ensure that this will not affect the rights of the human participants for participation in this study. Frequency, percentage, descriptive mean, standard deviation, and Spearman rho were used to analyze the data.

Results

Data in Table 1 indicates that from the total of 46 respondents, 33 or 71.74% ages between 26 to 45 years, while 9 or 19.57% ages between 46 to 60 years old, and 4 or 8.70% between 19 to 25 years old. As to the sex of the respondents, it can be gleaned that 42 or 91.30% are female, and 4 or 8.70% are male. In terms of occupation, 9 or 19.57% are farmers, 8 or 17.39% are utility workers, 4 or 8.70% are teachers, 4 or 8.70% are factory workers, 4 or 8.70% are construction workers, 4 or 8.70% are vendors, 3 or 6.52% are midwife, 3 or 6.52% are driver, 2 or 4.35% are basketball players, 2 or 4.35% are tutors, while 2 or 4.35% are BHW, and 1 or 2.17% is a Massager.

Table 1. Attributes of Parents In terms of Age, Sex, and Occupation

Profile	Frequency	Percentage
Age		
19 to 25 years old	4	8.70
26 to 45 years old	33	71.74
46 to 60 years old	9	19.57
Total	**46**	**100**
Sex		
Female	42	91.30
Male	4	8.70
Total	**46**	**100**
Occupation		
Teacher	4	8.70
Utility	8	17.39
Factory Worker	4	8.70
Midwife	3	6.52
Driver	3	6.52
basketball Referee	2	4.35
Tutor	2	4.35
Construction Worker	4	8.70
Farmer	9	19.57
Vendor	4	8.70
BHW	2	4.35
Massage	1	2.17
Total	**46**	**100**

Table 2. Socio-demographic Data of Parents in terms of Monthly Income, Employment Status, Educational Attainment, Religion, and Comorbidity of children

Profile	Frequency	Percentage
Monthly Income		
Poor	34	73.91
Low Income	6	13.04
Lower Middle Income	5	10.87
Middle Income	1	2.17
Total	**46**	**100**
Employment Status		
Employed	21	45.65
Unemployed	25	54.35
Total	**46**	**100**
Educational Attainment		

Profile	Frequency	Percentage
Elementary	13	28.26
Secondary	24	52.17
College	7	15.22
Postgraduate	2	4.35
Total	**46**	**100**
Religion		
Roman Catholic	34	73.91
Born Again Christian	10	21.74
Iglesia ni Cristo	2	4.35
Total	**46**	**100**
Comorbidity of children		
Asthma	10	21.74
Neuro	10	21.74
Kidney Problems	2	4.35
Others	2	4.35
G6PD	5	10.87
Obesity	6	13.04
Primary Complex	1	2.17
Clubfoot	1	2.17
Stunted	5	10.87
Intellectual Disability	2	4.35
Heart Problem	1	2.17
Autism	1	2.17
Total	46	100

At the table 2 indicates that in terms of family's monthly income, it can be gleaned that 34 or 73.91% are categorized as poor, 6 or 13.04% considered themselves as low income, 5 or 10.87% are lower middle income, while 1 or 2.17% categorized as middle income. As to the employment status of the respondents, data reveal that 21 or 45.65% are employed, while 25 or 54.35% are unemployed. On educational attainment, data reveals that 24 or 52.17% have acquired secondary education, 13 or 28.26% graduated from elementary, 7 or 15.22% have college degree, while 2 or 4.35% have acquired postgraduate degree. In terms of the religion, data shows that 34 or 73.91% are Roman Catholic, while 10 or 21.74% are Born Again Christian, and 2 or 4.35% are Iglesia ni Cristo. On comorbidity, it can be gleaned that 10 or 21.74% are with asthma, 10 or 21.74% are with Neuro, 6 or 13.04% with obesity, 5 or 10.87% with G6PD, 5 or 10.87% are stunted, 2 or 4.35% with Nephro, 2 or 4.35% with undeclared comorbidity, 2 or 4.35% with intellectual disability, 1 or 2.17% with primary complex, 1 or 2.17% with clubfoot, 1 or 2.17% with heart problem, and 1 or 2.17% with autism.

Table 3. Extent of Parental Acceptability on COVID-19 pediatric vaccination total of four indicators

Indicators	Mean	SD	DI	RANK
Perceived COVID-19 Susceptibility	3.60	0.37	Highly Accepted	2
Perceived COVID-19 Severity	3.30	0.49	Highly Accepted	3
Perceived Benefits of COVID 19 vaccines	3.05	0.70	Moderately Accepted	4
Perceived Barriers to COVID 19 vaccines	3.70	0.35	Highly Accepted	1
Overall	3.42	0.34	Highly Accepted	

The table 3 presents that the overall mean score of 3.42, with a standard deviation of 0.34, indicates that COVID-19 pediatric vaccination is highly acceptable among the respondents. This high level of acceptance suggests that the community largely recognizes the importance of vaccinating children against COVID-19.

The result of the analysis using Spearman Rho Correlation, which is a non-parametric test indicates that there exists not enough evidence to claim a significant relationship between Age (r_s=.229, p=0.216), Educational Attainment (r_s=.069, p=0.648), Occupation (r_s=.113, p=0.358), Family Income (r_s=.139, p=0.358), Employment Status (r_s=.049, p=0.744), Religion (r_s=.216, p=0.150), and Comorbidity (r_s=.024, p=0.875), since the p-values are greater than the alpha of .05; thus, failing to reject the null hypothesis. However, a significant relationship is present in terms of Sex (r_s=.486, p=0.001) since the p-value is lesser than the alpha of .05.

Table 4. Relationship Between the Attributes and Parent's Acceptability on COVID-19 Pediatric Vaccination

Variables	r_s	Sig.	Decision on H_o	Interpretation
Age → Acceptability	.229	0.126	Failed to Reject	Not Significant
Sex → Acceptability	.486	0.001	Reject	Significant
Educational Attainment → Acceptability	.069	0.648	Failed to Reject	Not Significant
Occupation → Acceptability	.113	0.376	Failed to Reject	Not Significant
Family Income → Acceptability	.139	0.358	Failed to Reject	Not Significant
Employment Status → Acceptability	.049	0.744	Failed to Reject	Not Significant
Religion → Acceptability	.216	0.150	Failed to Reject	Not Significant
Co-morbidities → Acceptability	.024	0.875	Failed to Reject	Not Significant

*Legend: Significant at .05 level

Discussion

In this paper, the findings revealed that sex matters when it comes to vaccine acceptance among children with co-morbidities. A study conducted by Bruel et al., (2020) highlights significant sex differences in vaccine acceptance, with women showing higher hesitancy towards COVID-19 vaccination compared with men. This indicates that sex is a significant factor in vaccine acceptability. In particular, vaccination reluctance was higher among women who were employed or living in poverty, whereas it was unaffected by either of these factors for males. However, the lack of a college degree was a factor in both men's and women's reluctance to get the COVID-19 vaccination. Additionally, men's reluctance was often motivated by a belief in conspiracy claims and a lesser sense of the risks posed by COVID-19, whereas women were more concerned about the vaccine's safety (Morales et al., 2022). In a study, there were consistent adjusted associations between demographic factors and willingness to accept employer-recommended vaccination in countries like Brazil (females, older age), Ecuador and Mexico (older age and higher education), France (younger age and higher education), India (males and lower education), South Africa (older age), South Korea (males), and the US (females, younger age, higher education) (Lazarus et al., 2020).

Similarly, we may see that although sex disparities in vaccination uptake still exist, they are primarily restricted to the young and jobless category (Walcherberger et al., 2022). Among PLWH, women were more reluctant to have COVID-19 immunization than men. In particular, women were more likely than men to lack faith in immunizations. According to Lu et al., (2024), fewer women than men thought that COVID-19 vaccinations had positive effects on their own and society's health and that their doctor, healthcare provider, and public health officials were trustworthy and dependable. Men with comorbidities and those who were employed were less likely to be hesitant about getting the vaccination, according to a sex-stratified multivariable study. Less vaccination

hesitation was linked to women's greater educational attainment and higher perception of COVID-19 risk (Nery et al., 2022).

The findings from this analysis align with various studies in the field of public health and vaccination acceptance. For instance, research by Smith et al. (2021) found that demographic factors such as age, education, and income had a limited impact on the acceptability of vaccinations. Instead, factors such as perceived vaccine efficacy, trust in healthcare providers, and societal norms played more significant roles in influencing vaccine acceptance. In addition, parents generally accept the vaccine against COVID-19, but their age, monthly income, and level of education are not considered since they feel that other criteria matter more. This is evident from the results and conclusions. Looking at the different studies from different countries and places here in the Philippines, similarities can be seen in the willingness of parents, particularly mothers to get their children vaccinated, continuously increasing due to certain factors. These factors might include their awareness of the COVID 19 vaccination status of their certain community; the information they know about the Vaccine, the trust from the government and healthcare providers; the availability of the vaccination area, and other factors that might be discovered by further research (Migrino Jr. et al., 2020).

A study by Barello et al. (2020) examined the factors influencing vaccine acceptance among individuals with chronic conditions. The research found that while individuals with comorbidities may have specific concerns about vaccine safety and efficacy, these concerns did not significantly impact their overall vaccine acceptance. Similarly, a study by Loomba et al. (2021) investigated COVID-19 vaccine acceptance among individuals with co-morbidities. The study concluded that while co-morbidities were associated with an increased risk of severe COVID-19 outcomes, they did not significantly influence vaccine acceptance rates once other factors such as vaccine safety, efficacy, and trust were considered.

A study by Zintel et al (2023) examined the factors influencing COVID-19 vaccine acceptance and found that sex was a significant predictor of vaccine acceptance, with women more likely to accept the vaccine than men. The research suggested that this difference could be attributed to women's higher levels of health literacy and willingness to adopt preventive health measures. In addition, a study by Sileo et al (2024) investigated sex differences in vaccine acceptance and found that women were more likely to accept vaccines, including the COVID-19 vaccine, due to their higher levels of health consciousness and engagement with healthcare services.

Conclusion

The findings of this study revealed that sex-specific factors may influence vaccine acceptability, and public health strategies should consider tailoring interventions to address these factors to promote COVID-19 vaccination acceptance. As a result, it argues for the need for sexed public health strategies that are sensitive to context. Likewise, tailoring communication, outreach, and educational campaigns to specific female/male concerns or motivators may bolster overall COVID-19 vaccine acceptance efforts. The results imply that to improve vaccine acceptability, sex-specific considerations should be incorporated into public health strategies. Health officials can create outreach initiatives and focused education campaigns to dispel sex-based myths and concerns. Combining these tactics can improve the efficacy of immunization campaigns and raise public health protection levels overall. Likewise, a qualitative study is recommended for further exploration of the insights regarding this topic.

Acknowledgement

The researchers would like to thank that participants in this study for accepting the invitation.

Contributions:

A.L.D.P. and S.G.G. conceptualized the topic. A.L.D.P., R.S.M., C.J.S.O. and M.T.D.M. did the literature review searching and methodological processes. A.L.D.P. and M.T.D.M. perform the data collection. A.L.D.P. perform the calculations. A.L.D.P., C.J.S.O. and S.G.G. analyzed the data. Finally, A.L.D.P., S.G.G., R.S.M., C.J.S.O. and M.T.D.M. finalized the overall write-up of the paper.

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