

# Association Between Women's Empowerment and Child Immunization in the Philippines

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## BACKGROUND

Child immunization is recognized as one of the most important public health interventions for combating preventable infectious diseases, disability, and death (1).



Despite the 3<sup>rd</sup> Sustainable Development Goal's stipulation that target populations of each country should received all the vaccines included in their national immunization programme (2), the vaccination coverage in some nations was still far from adequate (3-5).

Table 1. Immunization Coverage in 2021 (% of children ages 12-23 months)

Location	Vaccination Coverage		
	DTP	Measles	Polio
Global	82%	81%	81.5%
High-income countries	94%	93%	93.4%
Middle-income countries	83%	67%	82.6%
Low-income countries	71%	85%	70.5%
OECD member countries	91%	94%	91.1%
Least developed countries (UN classification)	73%	70%	72.9%
East Asia & Pacific	87%	88%	86.3%
Philippines	57%	57%	56.0%

Several factors strongly influenced child immunization including education, socioeconomic status, rural/urban residence, and vaccine hesitancy. In addition, women's empowerment had also been linked to child immunization.

Women's empowerment refers to the process by which a woman gains "agency" or the ability to become self-directed and take charge of her life despite external circumstances (6). Miedema et al (7) proposed three domains of women's empowerment – enabling conditions, instrumental agency and intrinsic agency

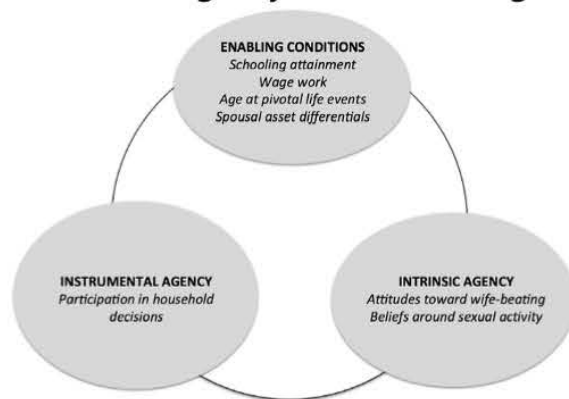


Figure 1. Framework for women's empowerment proposed by Miedema et al

Although Philippines was reported as one of the most gender-equal countries in Asia (8), some of its cities and municipalities were not faring as well as others. Furthermore, only the relationship of individual-level empowerment to child immunization was usually studied in the Philippines. Investigating the effects of sub-national levels of empowerment was necessary to determine the impact of initiatives that empower women in the community.

## OBJECTIVE

To determine the associations of individual and municipality/city level women's empowerment with child immunization.

## METHODS

- The study used data from the Philippine Demographic and Health Survey (DHS) 2017 (9).
- The final analytic sample was composed of reproductive age (15-49 years of age) women who: 1) were currently married or in a common-law partnership; and 2) had at least one child aged 1-2 years during the Philippine DHS 2017.
- Two-level random intercept logistic regression models were used in this secondary data analysis.

## Exposure Variables: SWPER Women's Empowerment Domains

- Women's empowerment was measured using the Survey-based Women's emPowERment (SWPER) index conceptualized by Ewerling et al (10,11).

Table 2. SWPER Domains of Empowerment

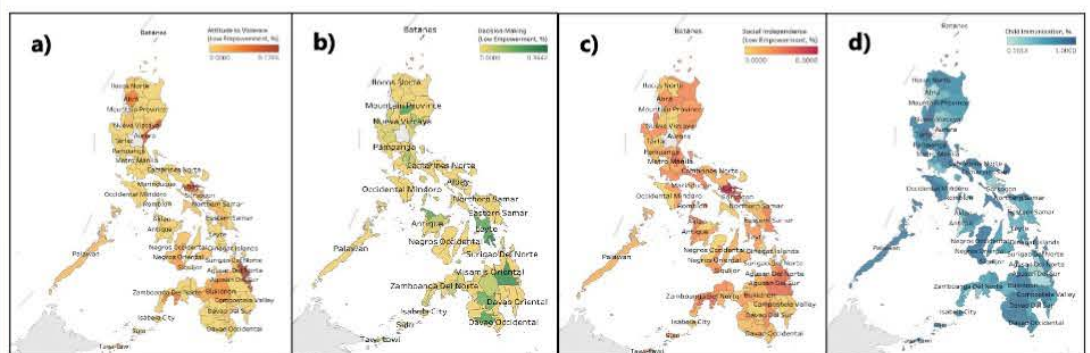
Attitude to Violence	Social Independence	Decision-Making
<ul style="list-style-type: none"> <li>Beating justified if wife goes out without telling husband</li> <li>Beating justified if wife neglects children</li> <li>Beating justified if wife argues with husband</li> <li>Beating justified if wife refuses to have sex with husband</li> <li>Beating justified if wife burns the food</li> </ul>	<ul style="list-style-type: none"> <li>Frequency of reading newspaper or magazine</li> <li>Woman's education</li> <li>Age of woman at cohabitation</li> <li>Age of women at first birth</li> <li>Age difference between woman and husband</li> <li>Education difference between woman and husband</li> </ul>	<ul style="list-style-type: none"> <li>Who usually decides on woman's healthcare</li> <li>Who usually decides on large household purchases</li> <li>Who usually decides on visits to family or relatives</li> </ul>

## Outcome Variable: Child Immunization

- Child immunization was defined according to the Expanded Program on Immunization in the Philippines (12).
- A child was considered fully immunized if he/she received all of the following: 1 dose of Bacillus Calmette–Guerin (BCG) vaccine; 3 doses of diphtheria, tetanus, and pertussis (DPT) containing vaccine; 3 doses of oral polio vaccine (OPV) or inactivated polio vaccine (IPV); and 1 dose measles-containing vaccine (MCV) or measles, mumps, rubella (MMR) containing vaccine.

## RESULTS

- Respondents were comprised of 3,415 women aged 15-49 years who participated in Philippine DHS 2017.
- A total of 117 municipalities and cities were included in the analysis.
- Only 65.7% of the children aged 1-2 years were fully immunized based on the mothers' interviews.
- The proportion of women with high empowerment varied across the SWPER domains (59.8% to 88%), with social independence having the lowest proportion.
- >90% of municipalities and cities have high women's empowerment in terms of attitude to violence, decision-making, and social independence.



(a) Proportion of women who had high tolerance to violence; (b) Proportion of women who had low decision-making power; (c) Proportion of women who had low social independence; (d) Proportion of fully immunized children aged 1-2 years

Figure 2. Spatial variations in women's empowerment domains and child vaccination in the Philippines

- Child immunization was most common among older women who had fewer children, had higher socioeconomic status, were Catholic, and had educated partners.
- Attitude to violence was significantly associated with child immunization at the individual level.
- Meanwhile, social independence was significantly associated with child immunization both at the individual and municipality/city level.

Table 3. Associations of Women's Empowerment Domains at the Individual Level

Domains of Empowerment	Unadjusted Model		Adjusted Model <sup>a</sup>	
	cOR (95% C.I.)	P-value	aOR (95% C.I.)	P-value
<b>Individual level</b>				
<b>Attitude to violence</b>				
Low empowerment	Referent	-	Referent	-
Medium empowerment	2.72 (1.38, 5.35)	0.004	2.41 (1.21, 4.77)	0.012
High empowerment	2.64 (1.39, 5.02)	0.003	2.13 (1.11, 4.09)	0.023
<b>Decision-making power</b>				
Low empowerment	Referent	-	Referent	-
Medium empowerment	1.35 (0.80, 2.27)	0.263	1.45 (0.85, 2.49)	0.173
High empowerment	1.21 (0.75, 1.95)	0.429	1.22 (0.75, 2.01)	0.421
<b>Social independence</b>				
Low empowerment	Referent	-	Referent	-
Medium empowerment	1.51 (1.12, 2.03)	0.006	1.34 (0.99, 1.81)	0.062
High empowerment	2.18 (1.64, 2.90)	<0.001	1.57 (1.15, 2.16)	0.005
<b>Municipality/city level</b>				
<b>Attitude to violence</b>				
Medium empowerment	Referent	-	Referent	-
High empowerment	1.84 (1.00, 3.39)	0.051	1.47 (0.82, 2.64)	0.197
<b>Decision-making</b>				
Medium empowerment	Referent	-	Referent	-
High empowerment	1.31 (0.69, 2.48)	0.415	1.16 (0.63, 2.15)	0.636
<b>Social independence</b>				
Medium empowerment	Referent	-	Referent	-
High empowerment	2.66 (1.50, 4.71)	0.001	1.97 (1.12, 3.46)	0.018

<sup>a</sup> Adjusted for wealth quintile, woman's age, number of children, and other empowerment domains

## CONCLUSION

Women's empowerment at the individual- and sub-national levels were found to have positive associations with child immunization. Strengthening of initiatives towards empowering women in all areas of the Philippines is necessary to ensure better uptake of maternal and child healthcare services.

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