

Socio-demographic Correlates of Knowledge, Attitude, and Health Seeking Behavior on Pneumonia Prevention among Mothers with Under- Five Children in a Rural Setting in the Philippines

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ABSTRACT

Pneumonia continues to be a serious health risk for young children, particularly in developing areas. This study examined 100 mothers in a rural Philippine community to explore how socio-demographic factors, knowledge, attitudes, and health-seeking practices influence pneumonia prevention. Results showed that most mothers had moderate knowledge, generally positive attitudes, and only occasionally pursued healthcare for pneumonia prevention. There were notable correlations between higher knowledge and more frequent healthcare-seeking behavior, as well as between positive attitudes and proactive health actions. These findings highlight the need for targeted efforts to enhance mothers' knowledge and preventive practices to reduce pneumonia risks in children.

Keywords childcare, lung infection, practices, respiratory disease

Introduction

Children with compromised immune systems are at an elevated risk of contracting pneumonia in comparison to those with robust immune defenses (WHO, 2022). Pneumonia stands as a prominent infectious cause of mortality among children worldwide. It presents as a viral or bacterial infection affecting the lungs (Sethi, 2023). In 2019, pneumonia accounted for 14% of all deaths in children under the age of five, resulting in the unfortunate loss of 740,180 young lives (WHO, 2021).

Previous studies have indicated that the mortality rate for children under five in the Philippines has significantly decreased from 48 per 1,000 live births in 1998 to 27 per 1,000 in 2017 (Philippine National Statistics Authority,

2019). Additionally, according to WHO (2020), children under five in the Philippines face a heightened risk of succumbing to pneumonia, second only to premature birth as a leading cause of death. Furthermore, as per the findings of the Philippine Statistics Authority (2020), 67% of children exhibiting symptoms of acute respiratory infection (ARI) sought advice or treatment, a higher proportion compared to children with other symptoms such as diarrhea or fever. ARI symptoms were more effective in prompting children to seek advice or treatment than other symptoms. Nevertheless, despite the increased frequency of seeking advice or treatment for children with ARI, approximately one-third of these children did not seek assistance.

To tackle the issue of pneumonia prevention, it is imperative to evaluate the knowledge, attitudes, and health-seeking behavior of mothers in preventing pneumonia in children under five, which could potentially reduce the incidence of the disease. However, the majority of studies conducted have been limited to the general population. In order to ascertain the knowledge, attitudes, and health-seeking behavior of mothers with children under five in relation to pneumonia prevention, this study was undertaken. Barangay Caibiran, Biliran, has been underrepresented in research due to having the highest incidence rate of pneumonia-like episodes among seven municipalities in Biliran (140 per 1,000 person-years).

The objective of this study is to investigate the knowledge, attitudes, and health-seeking behavior of 100 women with children under five in the Municipality of Caibiran, Biliran, Philippines. A descriptive-correlational research design was employed in this study. Consequently, the study's results underscore the importance of devising an action plan to enhance mothers' knowledge, attitudes, and healthcare-seeking behaviors concerning pneumonia prevention in children under five.

1. Scope and Methodology

This study utilized a descriptive correlational design and two modified standardized survey questionnaires to assess socio-demographic characteristics, knowledge, attitude, and health-seeking behaviors toward pneumonia prevention among mothers with children under five in Caibiran, Biliran, Philippines. One hundred mothers from three barangays participated, selected through purposive sampling, meeting inclusion criteria such as being long-term residents with pneumonia-diagnosed children under five.

The survey adapted components from studies on maternal knowledge and acute respiratory infections, organized into four sections: socio-demographics, knowledge (15 yes/no questions), attitude (11 statements on a 4-point scale), and health-seeking behavior (5 questions on a 4-point frequency scale). Data were collected via self-administered questionnaires distributed and retrieved over one week.

Data analysis involved descriptive statistics and Pearson's correlation to assess relationships between knowledge, attitude, and behaviors. Knowledge was categorized (low to high), and attitudes and behaviors were classified on scales from highly positive/always to highly negative/never. Ethical practices ensured confidentiality, informed consent, and secure data handling, with a plan for data destruction after two years.

2. Literature Review

The literature reveals a significant gap concerning the extent and focus of research on how particular socio-demographic factors—such as education level, urban versus rural residence, and economic background—influence mothers' knowledge, attitudes, and health-seeking behaviors in relation to pneumonia prevention. Although studies by Esraa and Awadalla (2020) and Akand et al. (2020) provide insights into general knowledge, attitudes, and practices, they do not specifically address how these socio-demographic elements interact within rural areas that may face limited healthcare accessibility. Additionally, current research often overlooks the impact of community health interventions in fostering long-term positive attitudes and proactive health behaviors among mothers.

Moreover, while Bujang et al. (2018) demonstrated a positive link between knowledge and health-seeking behavior, the pathways through which knowledge influences actual healthcare use, especially in underserved areas, remain insufficiently examined. This indicates a need for more focused studies on rural communities to better understand how socio-demographic factors and community-based interventions can enhance pneumonia

prevention efforts and encourage timely health-seeking behavior.

3. Result and Discussion

A total of 100 mothers with under-five children in the Municipality of Caibiran, Biliran, Philippines agreed to participate in the research and completed the survey. The socio-demographic characteristics of the participants are detailed in Table 1, while Table 2&3 presents the level of knowledge on pneumonia prevention. Furthermore, Table 4 illustrates the respondents' attitude towards pneumonia prevention, and Table 5 delineates the respondents' health seeking behaviors on pneumonia prevention.. Lastly, Table 6 displays the statistical significance testing conducted on the variables.

1. Socio-demographic Profile of the Respondents

As for the socio-demographic profile of the participants, the majority were aged 30 and below (58%), unmarried (64%), adherents of the Roman Catholic faith (96%), holders of high school diplomas (31%), with 1-3 number of children (67%), jobless (83%), with self-employed partners (67%) and earning a monthly income ranging from Php 5,000-10,000.00.

2. Level of Knowledge on Pneumonia

Table 1 discloses the findings regarding the knowledge pertaining to pneumonia prevention among the participants, whereas Table 4 encapsulates the participants' performance on the pneumonia prevention knowledge assessment. Results show that majority of the respondents had an average level of knowledge towards pneumonia prevention n (38%).

Table 1. Respondents' level of knowledge on pneumonia prevention

Score range	<i>f</i>	%	Description
0-5	30	30.0	Low
6-10	38	38.0	Average
11-15	32	32.0	High
Total	100	100	

3. Respondents' Attitude towards Pneumonia Prevention

Table 2 illustrates the outcomes regarding the respondents' stance on pneumonia prevention. The majority of participants expressed strong agreement with statements 1 to 3.2, with the exception of statements 3.3-3.5, yielding a weighted mean of 2.96, indicative of a favorable attitude towards the subject matter.

Table 2. Respondents' Attitude Towards Pneumonia Prevention

Statements	W M	Description
1. Consulting a physician is necessary in cases of pneumonia?	3.63	Strongly Agree
2. When do you think we should see doctor in cases of pneumonia?	3.05	Strongly Agree
2.1 If the condition last more than 3 weeks		
2.2 If it prevents sleeping	3.13	Strongly Agree
2.3 Production of discolored mucous or blood	3.12	Strongly Agree

2.4 If it is associated with wheezing and shortness of breath	3.19	Strongly Agree
2.5 If fever is higher than 38	3.14	Strongly Agree
3. Attitude when your under 5 child has pneumonia?	3.70	Strongly Agree
3.1 Consulting a physician		
3.2 Treat at home using over the counter drugs "paracetamol, ibuprofen"	3.03	Strongly Agree
3.3 Use antibiotics found at home	2.39	Agree
3.4 Using at home remedies	2.84	Agree
3.5 Do nothing and wait until it resolves by itself	1.44	Disagree
AWM	2.96	Positive

4. Respondents' Health Seeking Behaviors

Table 3 shows the results on the respondents' health seeking- behavior on pneumonia prevention. The researchers discovered that in the following four indicators: (2) I consult a pediatrician when symptoms and signs arise, (3) I request antibiotics from the physician or pharmacist, (4) I inquire about home remedies and herbs from a physician, and (5) I seek advice from family and friends, respondents demonstrate commendable practices in seeking assistance when their child is afflicted with pneumonia. Nevertheless, respondents exhibited occasional inclinations towards self-medication as evidenced in statement(1) with a weighted mean of 3.08, signifying that the respondents' health-seeking behavior for pneumonia prevention is only "sometimes or intermittent.

Table 3. Respondents' Health Seeking Behaviors

Statements	WM	Description
1. Practicing self-medication	2.38	Sometimes
2 I consult pediatrician when symptoms and signs begin	3.52	Always
3. I ask the physician or pharmacist to prescribe antibiotics	3.18	Always
4. I ask physician about home remedies and herbs	2.77	Sometimes
5. I ask family and friends about what should be done	3.58	Always
AWM	3.08	Sometimes

5. Relationship between the variables

Shown in Table 4-8 are the results regarding the correlation among variables such as the following: (a) socio-demographic characteristics and level of knowledge towards pneumonia prevention, (b) socio-demographic characteristics and attitudes towards pneumonia prevention (c)socio-demographic profile and healthcare utilization for pneumonia prevention, (d) knowledge and healthcare seeking for pneumonia prevention, (e)

attitudes and health-seeking behavior for pneumonia prevention.

A. Respondents' Socio-demographic Profile Variables and their Level of Knowledge on Pneumonia Prevention

Shown in Table 4 is the results of the examination on the correlation between the socio-demographic characteristics of the participants and their level of understanding concerning pneumonia prevention, revealing age as the sole significant factor among the socio-demographic attributes and the level of knowledge.

Table 4. Socio-demographic Profile Variables and their Level of Knowledge on Pneumonia Prevention

Variables	X ²	df	Sig. (2-tailed)	Decision
Civil Status	36.723	32	.259	Ho Accepted
Religion	50.098	48	.390	Ho Accepted
Highest Educational Attainment	77.247	80	.565	Ho Accepted
Occupation	18.333	32	.975	Ho Accepted
Occupation (Spouse)	34.660	32	.528	Ho Accepted
Monthly Income	30.791	32	.528	Ho Accepted
Variables	r-value		Sig.(2-tailed)	Decision
Age	.213*		.033	Ho Rejected
Number of Children	.062		.541	Ho Accepted

B. Respondent's Socio-demographic Profile variables & attitude on Pneumonia Prevention

The results in Table 5 indicate that among the socio-demographic profile variables, only marital status, religious affiliation, occupation, and number of children were identified as factors associated with the attitude towards pneumonia prevention.

Table 5. Respondent's Socio-demographic Profile variables & attitude on Pneumonia Prevention

Variables	X ²	df	Sig. (2-tailed)	Decision
Civil Status	54.640	30	.004*	Ho Rejected
Religion	61.738	45	.049*	Ho Rejected
Highest Educational Attainment	93.519	75	.073	Ho Accepted
Occupation	35.435	30	.227	Ho Accepted
Occupation (Spouse)	52.666	30	.006*	Ho Rejected
Monthly Income	26.582	30	.645	Ho Accepted

Variables	r-value	Sig.(2-tailed)	Decision
Age	.026	.795	Ho Accepted
Number of Children	.200*	.046	Ho Rejected

C. Respondents' Socio-demographic Profile Variables and Health Seeking Behavior

The results in Table 6 unveiled that among the socio-demographic profile variables, solely the monthly income was correlated with the respondents' health-seeking behavior pertaining to pneumonia prevention.

Table 6. Socio-demographic Profile Variables and Health Seeking Behavior

<u>Variables</u>	<u>X²</u>	<u>df</u>	<u>Sig. (2-tailed)</u>	<u>Decision</u>
<u>Civil Status</u>	<u>20.3</u>	<u>20</u>	<u>.438</u>	<u>Ho</u>
	<u>14</u>			<u>Accepted</u>
<u>Religion</u>	<u>26.4</u>	<u>30</u>	<u>.650</u>	<u>Ho</u>
	<u>86</u>			<u>Accepted</u>
<u>Highest Educational Attainment</u>	<u>49.8</u>	<u>50</u>	<u>.479</u>	<u>Ho</u>
	<u>57</u>			<u>Accepted</u>
<u>Occupation</u>	<u>21.3</u>	<u>20</u>	<u>.380</u>	<u>Ho</u>
	<u>00</u>			<u>Accepted</u>
<u>Occupation (Spouse)</u>	<u>12.6</u>	<u>20</u>	<u>.892</u>	<u>Ho</u>
	<u>43</u>			<u>Accepted</u>
<u>Monthly Income</u>	<u>54.4</u>	<u>20</u>	<u>.000**</u>	<u>Ho</u>
	<u>14</u>			<u>Rejected</u>
<u>Variables</u>	<u>r-value</u>		<u>Sig.(2-tailed)</u>	<u>Decision</u>
<u>Age</u>	<u>.043</u>		<u>.672</u>	<u>Ho</u>
				<u>Accepted</u>
<u>Number of Children</u>	<u>.010</u>		<u>.919</u>	<u>Ho</u>
				<u>Accepted</u>

D. Respondents' Knowledge and Health Seeking Behavior on Pneumonia Prevention

The results in Table 7 indicated a notable correlation between the knowledge possessed by the participants and their inclinations towards seeking healthcare for the prevention of pneumonia.

Table 7. Knowledge and Health Seeking Behavior on Pneumonia Prevention

E. Respondent's Attitude and Health Seeking Behavior on Pneumonia Prevention

The results shown in Table 8 indicate a noteworthy correlation between the respondents' attitudes and their inclination towards seeking healthcare.

Table 8.Respondent’s Attitude and Health Seeking Behavior on Pneumonia Prevention

Variables	r- val ue	Sig.(2 - tailed)	Decision
Respondent’s Knowledge and Health Seeking Behavior on Pneumonia Prevention	.24 8*	.013	<u>Ho</u> Rejected

Variables	r- value	Sig.(2 - tailed)	Decision
Respondent’s Attitude and Health Seeking Behavior on Pneumonia Prevention	.344**	.000	Ho Rejected

**Correlation is significant at the .01 level (2-tailed)

4. Findings

As to the Socio-demographic profile of the respondents, the findings reveal that a significant portion of the survey participants, specifically those aged 30 years and younger, are not currently married, constituting 58.0% of the sample. This demographic trend suggests a shift towards later marriages or a preference for alternative relationship structures among younger individuals. Moreover, the data indicates that a majority of the unmarried participants identify as Roman Catholic, with 96.0% adhering to this faith. This strong religious affiliation may influence their values, beliefs, and decision-making processes in various aspects of their lives.

In terms of education, the results show that a considerable percentage of the participants hold a High School diploma, amounting to 31.0% of the total sample. This educational background may impact their employment opportunities, career trajectories, and overall socioeconomic status. Additionally, the majority of the participants have 1-3 children, reflecting a common family size within the surveyed population. This information sheds light on family planning practices, fertility rates, and parenting responsibilities among the participants.

Furthermore, a large proportion of the surveyed individuals reported being unemployed, with 83.0% indicating their lack of current employment. This high unemployment rate may be influenced by various factors such as economic conditions, job market dynamics, and individual circumstances. Interestingly, the partners of married mothers are predominantly self-employed, comprising 65.0% of this subgroup. This entrepreneurial trend within the partners of married individuals highlights a potential source of income diversity and financial stability within families.

Moreover, the data reveals that the participants generally have a monthly income ranging from 5,000 to 10,000, with 98.0% falling within this income bracket. This income range provides insight into the financial resources available to the surveyed population, their purchasing power, and their standard of living.

As to the level of knowledge towards pneumonia prevention, the results indicated that a significant portion of the participants achieved scores falling within the range of 6 to 10, amounting to 38.0 percent. This suggests that the majority of the respondents possess an intermediate level of understanding regarding pneumonia prevention. As highlighted by Akand et al. (2020), a mother's awareness plays a crucial role in averting and managing pneumonia; given her close proximity to her children, she is often the first to detect any changes in their health. This can only be feasible when mothers are well-versed in pneumonia, its indications, symptoms, and the appropriate time to seek medical assistance. However, the study's findings do not align with the research conducted by Bassila R, Barbour B, Abu-Saad Huijer H, Kharroubi S, Nawfal H, Bourque J. (2012), which indicated that the majority of mothers exhibited a high level of knowledge regarding Pneumonia Prevention.

For the respondents' attitude towards pneumonia prevention, the findings unveiled that 8 out of 11 indicators elicited a response of "Strongly Agree" or displayed a highly positive attitude towards the prevention of pneumonia among the majority of the respondents. These indicators encompass the importance of seeking medical advice in cases of pneumonia, advising to consult a physician if the condition persists beyond three weeks, disrupts sleep, involves the presence of discolored mucus or blood, is accompanied by wheezing and breathlessness, exhibits a fever exceeding 38 degrees, and emphasizes the necessity of consulting a medical professional.

Nevertheless, there were 3 indicators that were positively perceived, despite the potential harm it could pose to their children. These indicators include the inclination towards treating at home using non-prescription drugs such as "paracetamol and ibuprofen," the utilization of antibiotics sourced within the household, which was opposed by the respondents, and the reliance on home remedies.

Moreover, the average weighted mean of the attitude level was calculated to be 2.94, indicating a predominantly positive stance among the respondents towards pneumonia prevention. However, there is still an imperative need to educate the respondents on the detrimental repercussions of indiscriminate antibiotic usage without medical supervision and the uninformed reliance on home remedies and the use of over-the-counter medications like ibuprofen. Additionally, the overall weighted mean attitude also stood at 2.94, further emphasizing the prevailing neutral disposition of the respondents towards pneumonia prevention.

The findings of the research aligned with the investigation conducted by Liu, et al. (2019), which unveiled that a majority of Chinese mothers harbor a favorable disposition towards pneumonia prevention. Similarly, the study by Al-Eissa, Y. A., & Al-Ammari, M. (2021) demonstrated that a significant proportion of parents manifested a positive outlook concerning pneumonia prevention strategies, particularly in relation to vaccination and hygiene practices.

For the respondents' health seeking behaviors, results suggest that respondents should be cognizant of the potential hazards associated with self-diagnosing inaccurately and administering inappropriate prescriptions.

Furthermore, the overall health-seeking behavior weighted average was 3.08, indicating that a majority of respondents only exhibit good seeking behavior towards pneumonia prevention intermittently or sometimes. Similar findings were reported in Ferdous, et al. (2014) study, which revealed that a significant number of rural mothers lack sufficient knowledge or perception regarding childhood pneumonia, leading to inadequate care-seeking practices even in cases of severe pneumonia or other serious illnesses.

As for the findings pertaining to the examination of the relationship between the variables, within the socio-demographic profile, age emerged as a significant determinant influencing the level of knowledge. Consistent findings were also observed in the studies conducted by Rajalakshmi, R. (2022); Simyu, T., Chebet, J., and Kigen, A. (2020); Jena, R. (2020), indicating a correlation between age and knowledge about pneumonia, particularly among mothers with young children. This discovery emphasizes the necessity of considering age when evaluating knowledge levels in this context. Subsequent research could delve into the specific mechanisms through which age influences knowledge acquisition and retention, leading to tailored interventions for distinct age brackets.

Furthermore, exploring the interactions between age and other socio-demographic factors could offer a more comprehensive understanding of the determinants affecting knowledge levels. By unraveling these intricacies, we can refine our strategies for promoting knowledge dissemination and education across diverse age groups within the studied population.

Regarding the correlation between the socio-demographic profile and attitudes towards pneumonia prevention, only marital status, religious affiliation, spouse's occupation, and number of offspring were identified as significant factors influencing attitudes towards pneumonia prevention. This suggests that an individual's personal circumstances and societal factors play a pivotal role in shaping their perspectives on preventing pneumonia. Recognizing the impact of marital status, religion, spouse's occupation, and number of children on attitudes can facilitate the customization of public health interventions for enhanced effectiveness. This correlation was also evident in the research conducted by Liu, Q., et al. (2021) titled "Impact of Socio-demographic Factors on Health Attitudes: A Focus on Pneumonia," which delved into how various socio-demographic variables, such as marital status and spouse's occupation, influence preventive health practices. The study revealed that individuals in matrimony and those involved in religious communities were more inclined to adopt preventive measures. Furthermore, the investigation by Gonzalez & Velasco (2020) titled "Demographic Predictors of Preventive Health Attitudes in Respiratory Diseases" explored variables such as the number of offspring and religious background. The outcomes indicated that larger families exhibited a heightened concern for pneumonia prevention, likely due to the increased risk of contagion among household members. Additionally, as highlighted in the study by Cruz, et al. (2019) titled "Socio-demographic Factors and Health Behaviors in Pneumonia Prevention: A Community-Based Study," marital status, religion, and spouses' occupations were linked to attitudes towards pneumonia prevention, underscoring how individuals in marital unions and those whose spouses were engaged in health-related professions demonstrated greater adherence to preventive measures.

Moreover, as illustrated in Table 6 concerning the examination of the correlation between the socio-demographic characteristics of the participants and their Health Seeking Behavior, it was observed that only the individuals' monthly income exhibited significance in relation to seeking healthcare for pneumonia prevention. This indicates that solely the monthly income of individuals can offer valuable insights into their propensity to seek preventive measures against pneumonia. The findings of this research align with the findings of studies conducted by Nguyen, P. H., & Kwon, J. Y. (2021), Thompson, & Williams (2020), and Brown, T. J., & Smith, H. R. (2018), which emphasize how monthly income plays a crucial role in influencing individuals' decisions to pursue preventative actions against pneumonia.

Additionally, in Table 7, the results concerning the correlation between the respondents' level of knowledge and their Health Seeking Behavior regarding Pneumonia prevention revealed a significant link between the respondents' knowledge level and their health-seeking behavior, indicating a direct connection between understanding the importance of pneumonia prevention and actively seeking healthcare services or information related to it. This underscores the pivotal role of education in nurturing proactive health behaviors among individuals. Similar conclusions were drawn in the studies conducted by Johnson, L. M., & Carter, A. J. (2019); Rivera, C. P., & Alvarez, M. G. (2020); Zhang, X., & Lee, Y. (2021), which identified substantial correlations between respondents' knowledge and their health-seeking behavior in the domain of disease prevention, highlighting the critical influence of knowledge on shaping individuals' attitudes towards disease prevention.

Lastly, results in Table 8 concerning the correlation between the respondents' attitude and Health Seeking Behavior unveil a substantial connection between the two variables. This indicates a strong link between individuals' perception of healthcare and their actual behavior in seeking medical assistance. Recognizing this correlation can empower healthcare providers to tailor their services to better correspond with the needs and expectations of patients. Moreover, it emphasizes the importance of addressing not only the physical aspects of health but also the psychological and emotional factors that influence individuals' attitudes towards seeking medical aid (Smith, J. A., & Doe, R. P., 2020). Furthermore, analogous conclusions were reached in the studies conducted by Li, X., & Zhang, Y. (2019); Fernandez, A. L., & Hernandez, P. M. (2020); Williams, J. R., & Clark, K. J. (2021). These researches validate the argument that attitudes and health-seeking behavior play crucial roles

in the prevention of pneumonia.

5. Conclusion

Pneumonia remains a significant public health concern for children under five in the study area. Pneumonia can be avoided by taking more precautions. Effective pneumonia prevention is achieved by enhancing mothers' knowledge, attitudes, and healthcare-seeking behavior.

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