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Public Attitudes and Beliefs Towards Childhood Vaccinations: Urban-Rural Differences and the Other Social Determinant of Health

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ABSTRACT

Objective: The study aimed to compare vaccination attitudes and behaviors of individuals living in rural and urban areas by evaluating the social determinants of health.

Methods: This research was a secondary analysis study based on two projects examining vaccination attitudes of individuals, which were conducted separately in urban and rural areas. The researches were conducted in a city center and eight rural areas located in the central Anatolia region of Turkey. In total, 1,164 individuals were studied. Multiple regression analysis (enter model) was used for determinants of public attitude toward vaccination.

Results: In urban areas, the rate of awareness of discussions about vaccination and the rate of consideration that vaccination should be a parental decision were higher than in rural areas. According to the public attitude toward vaccination–HBM Scale, the sub-dimensions of perceived susceptibility, perceived severity, and health motivation scores of participants from rural residents were higher than those from urban residents. Regarding the sub-dimension of perceived barriers, participants from urban areas had a higher score. The social determinants of health, such as lack of health insurance, unemployment or low income, difficulty accessing health facilities, conviction that vaccination is a parental decision, moderate/poor economic perception, especially the profession, are effective in vaccine attitude.

Conclusion: This study showed a difference between vaccination attitudes of individuals living in urban and rural areas.

Keywords: Attitude, childhood, social determinants, rural, urban, vaccine and vaccine hesitancy

1. INTRODUCTION

Infectious diseases may rapidly reach an extent that threatens public health and lead to serious losses (1). Vaccination is considered one of the most effective, inexpensive, easily administrable, and low-risk public health interventions for controlling infectious diseases (2, 3). Effective and safe vaccines are available for certain infectious diseases, and scientists are constantly working on new vaccines (4, 5). An effective vaccination program prevents premature death, hospitalization, and economic losses caused by infectious diseases (5-7). Vaccines protect those who are vaccinated and the entire society by improving community immunity (8). According to the World Health Organization (WHO) data, vaccination presently prevents 2–3 million deaths annually. While 1.5 million more deaths can be prevented by increasing global vaccination coverage, approximately 19.5 million babies are still not vaccinated worldwide (9). Although considerable success has been achieved regarding vaccines in the field of public health, vaccine refusal rates have recently increased, and measles and rubella outbreaks are observed worldwide. There are countries in the European region that have lost measles elimination and are now facing outbreaks of infectious diseases (10). Because the number of vaccine refusal cases has massively increased in recent years, “the anti-vaccination movement” became among the top 10 global health problems that WHO (9) plans to resolve.

Vaccine hesitancy is the problem of accepting the vaccination; in other words, it is a delay in acceptance and rejection of vaccination (11). According to a study conducted in Turkey, 19.7% of parents are hesitant about childhood vaccinations, while the rejection rate is 18.2% (12). 37.7% of children were missing vaccine doses or entire series by the age 24 months

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in America (13). The emergence of vaccine hesitancy appears to be simultaneous with the first application of the smallpox vaccine in the 1790s. However, the 1950s and 1960s are considered the "golden age of vaccine acceptance". This positive progress suffered a deep breakout with the work of Andrew Wakefield, who claimed there is a relationship between measles-rubella and mumps vaccines and autism. Although many studies later rejected this alleged relationship, the negative impact of this study continues (14). Social and political reasons such as lack of information on vaccines and diseases, distrust in vaccines, difficulty in accessing vaccines, fear of side effects, and anti-vaccination news in the media cause vaccine hesitancy (11, 15).

The multifactorial nature of vaccine hesitancy requires the community, health workers, vaccine providers, health systems, and politicians to act to address this problem (16, 17) cooperatively. Understanding and preventing vaccine refusal is an important area of responsibility for health professionals. It may be useful to consider this problem using theories and models associated with health behavior (18-20). Models addressing the health belief system are used more frequently when investigating the causes of vaccine refusal at the community or individual level (21, 22). The most frequently used conceptual framework for explaining health behaviors is The Health Belief Model (HBM) (23, 24). Using this model has explained many health behaviors (25, 26). According to HBM, the probability of a person taking action for disease prevention depends on certain subdimensions. These include awareness about the possibility of being infected with a disease (perceived susceptibility), understanding that the consequences of the disease can be serious (perceived severity), awareness about the need for precautions to be taken before disease onset (perceived benefits), and insufficiency in avoiding risks (perceived barriers) (27). Most conceptual constructs explaining vaccine hesitancy care about the individual motivation that leads to thinking and questioning about vaccination (28). Therefore, it is essential to examine the perceptions of individuals closely. The health belief model has proven to be a successful model for revealing perceptions and attitudes (29) and is preferred by researchers in the evaluation of vaccine hesitancy (30). This model can reveal the opportunity to develop effective strategies in the fight against vaccine hesitancy by identifying the obstacles and motivations of individuals about vaccination.

WHO strongly recommends that social determinants of health be taken into account when assessing health-related situations. It is believed that only in this way will the true nature of the problems be understood (31). Social factors affecting vaccination include race, education level, income level, distance to health institutions, language spoken at home, and the number of children (32-34). Among the social determinants of health, residence is a significant parameter (35). The literature indicates that most sociodemographic factors differ in urban and rural areas (36, 37). This difference is often at the disadvantage of the rural population. Rural areas generally have a lower education level, which leads to lower health literacy rates and is associated with low use of health services. Poverty, agricultural laboring, and difficulty accessing health facilities are less common in urban areas than in rural areas (38, 39).

Different researches have been performed on individuals' attitudes toward vaccination, the significance and benefits of vaccination, and obstacles to vaccination (18, 21, 40)). However, no study covers general population and examines the beliefs, attitudes, and behaviors toward vaccination during childhood based on the social determinants of health, such as place of residence in particular.

2. METHODS

2.1. Design

This study is a secondary analysis based on the research projects that examined vaccination attitudes and behaviors of individuals, which were conducted separately in urban and rural areas. Secondary analysis is the re-analysis of the data collected from previous studies to address a new research question. The new questions of this research are: (a.) Is there a difference between vaccination attitudes of individuals living in urban and rural areas? (b.) What are the social determinants of the public attitude toward vaccination scale–HBM?

2.2. Sample

Researchers conducted these projects between May and June 2018 in a city center and eight rural areas located in the central Anatolia region of Turkey. In the original studies, the study in the rural area was carried out with 392 individuals, and the study in the urban area was carried out with 772 individuals. The secondary analysis was carried out with 1164 people, the sum of these two study groups. All the available data has been used. The sample size of the rural area was determined as a maximum of 384 persons with the rate of delaying or spacing out vaccines of 19% (41), the error rate of 0.04, and a confidence level of 95%. In total, 392 individuals participated in the study. The rate of incomplete vaccination in Turkey's urban areas was 7% (42). Taking this rate into account, the minimum sample size required for the study was found to be 664 with an error margin of 0.03 and a confidence level of 99% 772 individuals, which is a higher value, participated in this study. In the urban area, interviewers collected data from a region where different socioeconomic individuals live together, and the university campus is located. They reached individuals via a Family Health Center (FHC) and municipal social service facilities in three different neighborhoods in this region.

In the rural areas, interviewers collected data through home visits from seven villages and an FHC, to which the villages are connected. Due to the similar population size, approximately 49 individuals from each data collection center were included in the study. Seven interviewers who have received nursing education at the undergraduate level collected data.

Approvals were obtained from the ethics committee for both projects.

2.3. Measures

A questionnaire that included sociodemographic information and awareness about vaccination and the Public Attitude Toward Vaccination Scale –HBM was used as the data collection form.

Sociodemographic information form: This questionnaire included questions regarding demographic (age, marital status, having children/grandchildren aged between 0 and 6 years) and social determinants of health (gender, living place – urban or rural-, education, health insurance, employment status, perception of economic status and difficulty in accessing health facilities)

Awareness about vaccination: The form examined the awareness about childhood vaccination, use of adulthood vaccination, awareness discussions on vaccines (on the arguments of the anti-vaccine movement), and individual opinions on decision-making regarding vaccination.

***The Public Attitude Toward Vaccination Scale –Health Belief Model*:** A scale prepared based on the HBM evaluated the public attitude towards vaccination. This scale comprises 26 items in the following five sub-dimensions: (1) perceived susceptibility (4 items), perceived severity (4 items), perceived benefits (5 items), perceived barriers (8 items), and health motivation (5 items) (43).

In the original validity study of the scale, it was found that these five factors explained 68.9% of the total variance, and in confirmatory factor analysis, acceptable to excellent indices of fit were obtained. The sub-dimensions of the scale have high-reliability coefficients ranging between 0.857 and 0.907. The Cronbach's alpha values of the sub-dimensions for this study ranged between 0.77 and 0.86. Except for the perceived barriers, the increase in the scores of the sub-dimensions shows a positive attitude (43).

2.4. Statistical Analysis

In the comparison of urban and rural areas in terms of (a) sociodemographic characteristics, (b) vaccination behaviors, and (c) scale score, we used independent-samples t-test for continuous variables and chi-square for categorical variables. Multiple regression analysis was performed for determinants of the sub-dimensions. Categorical variables to be analyzed were re-encoded as 1 and 0. Before multiple regression analysis, the assumptions of multiple linear regression were evaluated (linearity, multicollinearity, normality, homoscedasticity, autocorrelation, variance inflation factor, and condition index). Because there was, according to the Phi coefficient, a high correlation between marital status and having children/grandchildren aged between 0 and 6 years, one of the variables was included in the analysis.

3. RESULTS

3.1. Rural and Urban Differences in Characteristics

The mean age of participants from rural and urban residents was similar (p>.05). The rates of being a man, being married, having children between 0 and 6 years of age, illiteracy, and unemployment or having low income was significantly higher in rural residents than in urban residents (p<.001). The perceptions of the economic status of participants from urban and rural residents were similar (p>.05). However, in rural residents, the lack of health insurance and the difficulty in accessing health facilities were higher than in urban residents (p<.05). While 9.2% of participants from urban residents did not have health insurance, 10.5% faced difficulty in accessing health facilities (see Table 1).

Table 1. *Rural and urban differences in some characteristics*

	Rural (n=392)	Urban (n=772)	Test and p-value
Age (mean±sd)	37.0±11.9	36.5±11.3	t=0.643
Gender	n (%)	n (%)	
Man(0)	186 (47.4)	235 (30.4)	X^2=32.57*
Woman (1)	206 (52.6)	537 (69.6)	
Marital Status			
Married	304(77.6)	506(65.5)	X^2=17.71*
Single	88(22.4)	266(34.5)	
Having child/grandchild between 0-6 years of age			
Yes(0)	221 (56.4)	286 (37.0)	X^2=39.51*
No (1)	171 (43.6)	486 (63.0)	
Education			
Illiteracy+only literacy(1)	51(13.0)	15(1.9)	
Primary school(1)	112 (28.6)	137 (17.7)	X^2=157.95*
Middle school – High school(0)	185 (47.2)	288 (37.3)	
University(0)	44(%11.2)	332(%43.0)	
Employment			
Unemployment(1)	179 (45.7)	398 (51.6)	X^2=106.9*
Officer+Retired+self-employment(0)	62 (15.8)	268 (34.7)	
Having low income (1)	151 (38.5)	106 (13.7)	
Perceveid economic status			
Very good+Good(0)	162 (41.3)	348 (45.1)	X^2=5.193
Medium(1)	199 (50.8)	387 (50.1)	
Poor(1)	30 (7.7)	36 (4.7)	
Health Insurance			
Yes(0)	334 (85.2)	701 (90.8)	X^2=8.27**
No(1)	58 (14.8)	71 (9.2)	
Difficulty in accessing health facilities			
Yes(1)	87 (22.2)	81 (10.5)	X^2=28.82*
No(0)	305 (77.8)	691 (89.5)	

**p<0.001 **p<0.05*

3.2. Rural and Urban Differences in Vaccine Attitude

The rate of hearing about childhood vaccines and having vaccination in adulthood was similar in urban and rural residents (p>.05). The rate of being aware of discussions on vaccines and the rate of consideration that vaccination should be a parental decision was higher in urban residents than in rural residents. Further, 87.8% of those rural residents considered that vaccination should be legally mandatory. According to the public attitude toward vaccination–HBM Scale, the sub-dimensions of perceived susceptibility, perceived severity, and health motivation scores of participants from rural residents were higher than those from rural residents. Regarding the sub-dimension of perceived barriers, participants from urban areas had a higher score (p<.05). Regarding the sub-dimension of perceived benefits, participants from urban and rural residents had similar scores (p>.05) (see Table 2).

Table 2. *Rural and urban differences in vaccine attitude*

	Rural	Urban	Test and p-value
Hearing about childhood vaccines	n(%)	n (%)	
Yes (0)	349(89.0)	684(88.6)	X^2=0.04
No (1)	43(11.0)	88(11.4)	
Having vaccination in adulthood			
Yes (0)	149(38.0)	310(40.2)	X^2=0.501
No (1)	243(62.0)	462(59.8)	
Being aware of discussions on vaccines			
Yes (1)	146(37.2)	426(55.2)	X^2=33.46*
No (0)	246(62.8)	346(44.8)	
Consideration about vaccine service			
Considered that vaccination should be legally mandatory (0)	344(87.8)	518(67.1)	X^2=57.73*
Consideration that vaccination should be a parental decision (1)	48(12.2)	254(32.9)	
Public Attitude Toward Vaccination Scale	*mean±sd*	*mean±sd*	
Perceived susceptibility	16.71±2.31	16.28±3.23	t=2.59**
Perceived severity	16.19±2.54	15.48±3.57	t=3.92*
Perceived benefits	19.71±2.69	19.40±3.93	t=1.611
Perceived barriers	18.25±5.06	20.30±6.34	t=-5.96*
Health Motivation	21.08±2.85	19.74±3.83	t=6.699*

**p<0.001 **p<0.05*

3.3. Determinants of Vaccine Attitude Scale

The determinants of the sub-dimensions of the public attitude toward vaccination–HBM Scale were examined by multiple regression analysis. The determinants of the perceived susceptibility sub – dimension were lack of health insurance (β = – 0.06), unemployment or low income (β = – 0.08), the difficulty in accessing health facilities (β = – 0.07), and conviction that vaccination is a parental decision (β = 0.420); these variables decreased the susceptibility score. The determinants of the perceived severity sub-dimension were age (β = 0.09), being a woman (β = – 0.06), unemployed or low income (β = – 0.07), awareness of discussions and news on vaccines (β = – 0.059) and conviction that vaccination is a parental decision (β = – 0.372). While age affected the severity score positively, other variables affected it negatively. The determinants of the perceived benefits sub-dimension were age (β = 0.09), being a woman (β = – 0.07), unemployment or low income (β = – 0.07), not having vaccination in adulthood (β = – 0.08), and conviction that vaccination is a parental decision (β = – 0.372). Living in urban areas (β = 0.124), unemployed or low income (β = 0.144), aware of childhood vaccines (β = 0.09), not having vaccination in adulthood (β = 0.08), and conviction that vaccination is a parental decision (β = 0.324) were the determinants that increased the perceived barriers sub-dimension score.

Concerning health motivation sub-dimension, living urban area (β = – 0.121), moderate/poor economic perception (β = – 0.06), not having vaccination in adulthood (β = – 0.09), awareness of discussions and news on vaccination (β = – 0.142) and conviction that vaccination is a parental decision (β = 0.279) are important determinants, which decreased the health motivation score. Relevant determinants explained 22% of the susceptibility, 18% of the perception of severity, benefits, and barriers, and 17% of health motivation (Tables 3 and 4).

Table 3. *Determinants of perceived susceptibility and severity*

	Susceptibility		Severity	
Variables	**Beta**	**t**	**Beta**	**t**
Age (scale)	0.05	1.64	0.09	2.93**
Gender (women)	-0.05	-1.71	-0.06	-2.05**
Living place (urban)	0.00	0.10	-0.03	-1.12
Having child/grandchild between 0-6 years of age (no)	0.00	0.18	0.02	0.99
Education(illiteracy+only literacy +primary school)	0.01	0.61	0.02	0.91
Health insurance (no)	-0.06	-2.54**	-0.02	-1.05
Employment (unemployment and having low income)	-0.08	-2.71**	-0.07	-2.21**
Perceived economic status (medium and poor)	-0.01	-0.59	0.02	0.92
Difficulty in accessing health facilities (yes)	-0.07	2.64**	0.01	0.42
Being aware of childhood vaccines (no)	-0.01	-0.17	-0.00	-0.24
Having vaccination in adulthood (no)	-0.03	-1.29	-0.03	-1.35
Hearing about discussions and news on vaccination (yes)	0.02	0.08	-0.05	2.07**
Consideration that vaccination should be a parental decision	-0.42	-15.48*	-0.37	-13.38*
Susceptibility R =0,469 R^2= 0,220 F= 24,89*				
Severity R =0,428 R^2= 0,183 F= 19,83*				

**p<0.001 **p<0.05*

Table 4. *Determinants perceived benefits, barriers, and health motivation*

	Benefits		Barriers		Health Motivation	
Variables	**Beta**	t	**Beta**	**t**	**Beta**	**t**
Age (scale)	0.09	3.08**	0.00	0.18	0.00	0.17
Gender (women)	-0.07	-2.34**	-0.04	-1.55	-0.03	-1.06
Living place (urban)	0.02	0.87	0.12	4.06*	-0.12	-3.93*
Having child/grandchild between 0-6 years of age (no)	0.01	0.26	0.03	1.36	-0.04	-1.68
Education (illiteracy+only literacy +primary school)	-0.00	-0.02	0.01	0.30	0.04	1.46
Health insurance (no)	-0.00	-0.11	-0.00	-0.33	-0.02	-0.80
Employment (unemployment and having low income)	-0.07	-2.27**	0.14	4.47*	-0.01	-0.52
Perceived economic status (medium and poor)	-0.01	-0.45	-0.00	-0.30	-0.06	-2.35**
Difficulty in accessing health facilities (yes)	0.04	1.80	-0.01	-0.40	-0.00	-0.15
Being aware of childhood vaccines (no)	0.00	0.10	0.09	3.48*	-0.02	-0.87
Having vaccination in adulthood (no)	-0.08	-2.97**	0.08	3.15**	-0.09	-3.47*
Hearing about discussions and news on vaccination (yes)	0.01	0.48	-0.01	-0.37	-0.14	4.95*
Consideration that vaccination should be a parental decision	-0.37	-13.43*	0.32	11.67*	-0.27	-9.92*
Benefits: R =0.430 R^2= 0.185 F= 20.082 p<0.001						
Barriers: R =0.426 R^2= 0.182 F= 19.648 p<0.001						
Health motivation: R =0.407 R^2= 0.166 F= 17.565 p<0.001						

**p<0.001*
***p<0.05*

4. DISCUSSION

In this study, the participants' mean age and perceived economic status from urban and rural areas were similar. In addition, in rural areas, the rates of being married, having children/grandchildren aged between 0 and 6 years, being illiterate and unemployed, or having low income, lack of health insurance, and difficulty accessing health facilities were higher than in urban areas. The literature indicates that most sociodemographic factors, especially income and education, differ in urban and rural areas. This difference is often at the disadvantage of the rural population (36, 37).

The rates of awareness about childhood vaccination and receiving adulthood vaccination were similar between urban and rural residents. However, there is a higher rate of awareness about discussions on vaccination and against the legally mandatory vaccination among urban residents. A study from (44) found that two-thirds of the urban population thought vaccines should be mandatory. However, attention is drawn to the inadequacy of this ratio. It is stated that this inadequacy arises due to the evaluation of compulsory vaccination as a violation of individual rights (44). The opinions of urban residents against mandatory vaccination policies have raised concerns that it may negatively affect the vaccination of individuals living in socioeconomically poor regions (36, 40).

According to the public attitude toward vaccination scale – HBM, the susceptibility, severity, and health motivation scores of participants from rural areas were higher than those living in urban areas. In the sub-dimension of barriers, on the other hand, participants from urban areas had a higher mean score. Urban residents have more negative ideas about vaccination. Focusing more on the negative consequences of vaccines, such as side effects, prevents individuals from getting vaccinated (45). The increasing concerns of parents on the safety of vaccines lead to vaccine hesitancy and, subsequently vaccine rejection (46).

The examination of determinants of the public attitude toward vaccination scale –HBM revealed that sociodemographic and vaccination characteristics affect the sub-dimensions in different aspects. Increasing age increases severity and benefit perception scores. Similarly, it was seen that vaccination rates increased with an increase in age (38, 47). This may be associated with the diseases and social problems experienced by people in advanced age. On the other hand, it was determined that severity and benefits scores of women were lower. A study examining the characteristics of vaccination attitudes found that being a woman was a negative determinant of vaccination attitudes (48). However, there are conflicting findings in this regard. The majority of first-time pregnant women had positive beliefs and perceptions about childhood immunizations (22).

Profession is an important variable that affects all sub-dimensions of the scale, except for health motivation. It was found that being unemployed and having a low or irregular income decreased susceptibility, severity, and benefits scores but increased the barriers score. Profession provides information about an individual's economic status, and there is a close association between economic status and health level and indicators (49). Therefore, the negative attitude of the disadvantaged group with a high prevalence of diseases and poor health conditions may worsen possible problems.

Participants from urban areas were found to have high barriers score for vaccination and a low health motivation score. In rural areas, individuals consider that their children might have health problems if not vaccinated, increasing their health motivation. On the other hand, participants from urban areas use social media more actively to obtain information about vaccines (50, 51). However, much negative information from unscientific sources, such as harms of vaccines or diseases related to vaccines, is shared on social media, which affects vaccination attitude. In addition, the fact that infectious diseases have been more controlled in urban areas may have resulted in more attention being drawn toward the side effects of vaccines. Considering that people living in urban areas are more aware of the discussions on vaccines (Table 2), this interpretation is supported.

Absence of health insurance and difficulty in accessing health facilities decreased sensitivity score. The primary factors leading to difficulty accessing health facilities are lack of health insurance and not having a fixed-income job. Although these factors are intertwined concepts, they adversely affect individual sensitivities toward vaccination practices (38).

Moderate/poor economic perception was found to be a determinant of health motivation. In a similar study, it was found that the health responsibilities of individuals with low economic perceptions decreased, and they did not provide their children with sufficient recommended vaccinations (52). Individuals with this perception want to benefit less from health services when they have any health problems and cause a negative picture of taking motivation for health. Income is considered a prerequisite for healthy lifestyle behaviors (53). As in many health behaviors, it can be assumed that individuals will take more individual motivation if economic inequalities are eliminated in vaccination.

Awareness of childhood vaccination is a determinant that increases the barriers score. This finding indicates that if individuals have vaccine awareness, their attitudes toward disease and vaccination may change. As an indication of the fact that their attitudes toward vaccine for preventable illnesses have changed, there are parental attitudes that underestimate infectious diseases, do not consider them seriously, and do not care about their negative consequences (16, 17, 19). Negative social media and incomplete and inaccurate information provided by incompetent people may be the reason why awareness may be inhibitory. Health policies and healthcare workers have an important role in transforming vaccine awareness into desired health behaviors of individuals exhibiting vaccine refusal or vaccine hesitancy.

Not having vaccination in adulthood is a determinant that negatively decreases the benefit and health motivation sub-dimensions while increasing the barriers sub-dimension score. It has been found in the literature that there are negative attitudes toward vaccination in adulthood (54, 55). The consideration that is receiving vaccination services is a parental decision decreased susceptibility, severity, benefit, and health motivation scores but increased barriers score, and it was found to be a determinant in all subdimensions. For families who consider that childhood vaccination decision belongs to parents, negative thoughts about vaccines can be more noticeable and worrying (51, 56).

Awareness about discussions and news on vaccines is a determinant that decreased the severity and health motivation subdimension scores. This reveals that all individuals, particularly families, should follow the information shared on vaccines on scientific platforms. While explaining the beneficial effects of vaccination, its contribution to community development should be emphasized and this awareness should be raised among individuals. All scientific developments related to vaccines and the contributions of vaccination to public health must be shared with the public through media and social media (57).

4.1. Limitations and future research

This study has some limitations. First, since data obtained from the study population are based on personal feedback and this has been voluntary research, no data could be gathered on the vaccine attitude of the non-participant group. Second, in the study, the impact of social determinants on vaccine attitude has been examined. However, individual characteristics (personality traits, decision-making mechanisms, etc..) that shape attitudes have not been examined. In the following studies, it can be suggested that the theories explaining individual characteristics and health belief model be used together.

5. CONCLUSION

This study showed a difference between vaccination attitudes of individuals living in urban and rural areas. Insurance, accessing health facilities, conviction that vaccination is a parental decision, age, being a woman, unemployment, or low income are related factors. In urban areas, the rates of awareness about discussions on vaccination and consideration that vaccination should be a parental decision were higher than in rural areas. Examination of determinants of the community's attitude toward vaccination scale –HBM revealed that social determinants of health affected these attitudes, albeit from different aspects. Profession, especially, is an important determinant.

In eliminating obstacles to vaccination, it is important to determine social norms against vaccination and provide

accurate information about vaccines. Public health nurses need to be aware of these obstacles, guide the public on immunization, and advocate for vaccination using a science-based approach. Taking into account the effect of social determinants of health on attitudes. We can also suggest that it would be an effective way for researchers and practitioners to address vaccination attitudes based on HBM in understanding society and solving the issue.

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