My Village My Home: Community Empowerment to Increase Immunization Coverage

Arief Hargono[1], Kurnia Dwi Artanti[1], Fariani Syahrul[1], Hario Megatsari[2], Ratna Dwi Wulandari[3], Anasyia Nurwitasari[4], Kiki Ayu Pramesti[5]

[1]Department of Epidemiology, Faculty of Public Health, Universitas Airlangga, [2]Department of Health Promotion and Behavior Sciences, Faculty of Public Health, Universitas Airlangga, [3]Department of Health Administration and Policy, Faculty of Public Health, Universitas Airlangga, [4]Master Students, Field Epidemiology Training Program, Faculty of Public Health, Universitas Airlangga, [5]Surveillance and Immunization Staff, Surabaya City Health Office

Abstract

Objectives: Analysis of knowledge and attitudes about utilizing My Village My Home (MVMH) to cadres and the community and the impact of its application on immunization coverage in the selected area in the city of Surabaya.

Method: Socialization and training for the implementation of MVMH in Surabaya City. Data description of cadres and community knowledge and attitudes are collected through interviews, document studies, and observations. Analysis of the impact of differences in Complete Basic Immunization (CBI) coverage before and after the implementation of MVMH using the Wilcoxon Signed Ranks Test**.**

Results: Most cadres and communities have good knowledge and attitudes towards the use and application of MVMH. The average CBI coverage before the implementation of MVMH in 2017 amounted to 78.81 then increased to 95.77 after the application of MVMH in 2018. The Wilcoxon Signed Ranks Test results showed that there were significant differences in CBI numbers between before and after MVMH implementation in the region research (P-value = 0.019).

Conclusion: MVMH is one method of community-based intervention through community involvement and empowerment. This method has strategic potential in an effort to increase immunization coverage.

Keywords: *My Village My Home, Immunization House, Community Empowerment, Immunization, Surabaya, Indonesia*

Introduction

Indonesia ranks second in the world after India in the number of the Diphtheria case [(1)]. East Java is the province that has the highest rates of Diphtheria and Measles in Indonesia [(2,3)]. Surabaya as the provincial capital became the city with the highest number of Diphtheria cases in East Java for 3 consecutive years. The Immunization Program aims to reduce infant mortality and morbidity due to Immunization Preventable Diseases such as Diphtheria and Measles. The results of 2018 Basic Health Research show that complete immunization coverage in Indonesia is only 57.9%, while coverage in East Java Province is 70% [(4)]. The routine report numbers differ from the survey results which indicate that there are still targets that have not been reached by the routine immunization program [(5)].

Community participation is a strategic component that is expected to play a role in health development. Community participation through community empowerment is one component of the National Health

Corresponding Author:
Arief Hargono
Department of Epidemiology, Faculty of Public Health, Universitas Airlangga
Email: arief.hargono@fkm.unair.ac.id

System in the management of health development [6]. The form of community participation in health programs is the formation of health cadres. Health cadres work with Public Health Centers (PHC) to implement Integrated Service Posts (ISP - *Posyandu*) to provide maternal and child health services including health promotion about immunization.

The Surabaya City Health Office collaborates with the Faculty of Public Health, Universitas Airlangga to implement Immunization House (Indonesia: *Rumah Imunisasi*) at each ISP in Surabaya. Immunization House refers to the My Village My Home (MVMH) tool as an effort to empower the community to support the achievement of immunization coverage targets. MVMH is a tool developed by the Maternal and Child Health Integrated Program (MCHIP) to increase immunization coverage. MVMH provides a big visual picture of the immunization status of each baby born in a village for a year. People can see this visual picture and follow up on the immunization status of each baby in his village. This allows the community to monitor the immunization status of each target baby in their village so that it can mobilize community participation in immunization services [7]. The purpose of this study was to analyze the knowledge and attitudes about the use of MVMH for cadres and the community and the impact of the implementation of MVMH on immunization coverage in selected village in Surabaya City.

Materials and Method

The Immunization coordinator of the PHC is invited to receive socialization and training on management and how to fill MVMH. They continued the results of the training by providing socialization and training on MVMH to representatives of health cadres in each ISP. MVMH implementation in Surabaya starts in the first trimester of 2018 by recording the immunization status of the baby who was targeted at that time.

Research variables are knowledge and attitudes about the use of MVMH and its impact on immunization coverage. The description of knowledge and attitudes about the use of MVMH was measured through interviews with respondents using questionnaires, the study of routine report documents on immunization programs and observations on filling in MVMH at the ISP. The research respondents were 20 health cadres and 20 mothers who had children under 2 years old. Respondents came from 13 villages in 10 PHC selected purposively based on the lowest immunization coverage in Surabaya. Analysis of the impact of the MVMH implementation was analyzed using the Wilcoxon Signed Ranks Test by comparing the Complete Basic Immunization Coverage (CBI) coverage of routine immunization program reports before the application of MVMH in 2017 with figures when applying MVMH in 2018 in 13 villages in 10 selected PHC. The research methods and instruments have passed the ethical review of the Health Research Ethics Committee, Faculty of Public Health, Universitas Airlangga Number 560/EA/KEPK/2018.

Results

The MVMH is a medium for recording immunization status in a large form. This media is installed at the ISP so that people can see the immunization status of children who have and will be accepted.

Types of vaccines recorded in Immunization House are tailored to the needs of the national immunization program. Immunization House besides recording basic immunizations such as HB0, BCG, Polio, Pentavalent and Measles Rubella (MR), also noted IPV and Booster for Pentavalent and MR. The Immunization House also records infant immunization status which includes complete immunizations, dropouts, and babies dying or moving homes.

The health cadres who were the respondents of this study were mostly 41-50 years old (35%), while the majority of mothers were 20-30 years old (60%). The youngest cadre is 25 years old and the oldest is 68 years old, while the youngest mother is 21 years old and the oldest is 54 years old (Table 1).

Table 1. Age Distribution of Cadres and Mothers Based on Age in Surabaya, 2018

Variable	Frequency (n)	Percentage (%)
Cadres Age (Year)		
20-30	1	5
31-40	4	20
41-50	7	35
51-60	6	30
61-70	2	10
Total Cadres	20	100

Cont... **Table 1. Age Distribution of Cadres and Mothers Based on Age in Surabaya, 2018**

Mothers Age (Year) 20-30 31-40 41-50 51-60 61-70	 12 6 1 1 0	 60 30 5 5 0
Total Mothers	20	100

Table 2 shows the majority of cadres has good knowledge (80%) and a good attitude (85%) on the application of MVMH. The cadre knows the MVMH function and the type of data that must be recorded such as the target criteria and type of vaccine. Cadres also have a positive attitude towards the importance of repeat visits for immunization, coordination with midwives and recording of immunization status correctly.

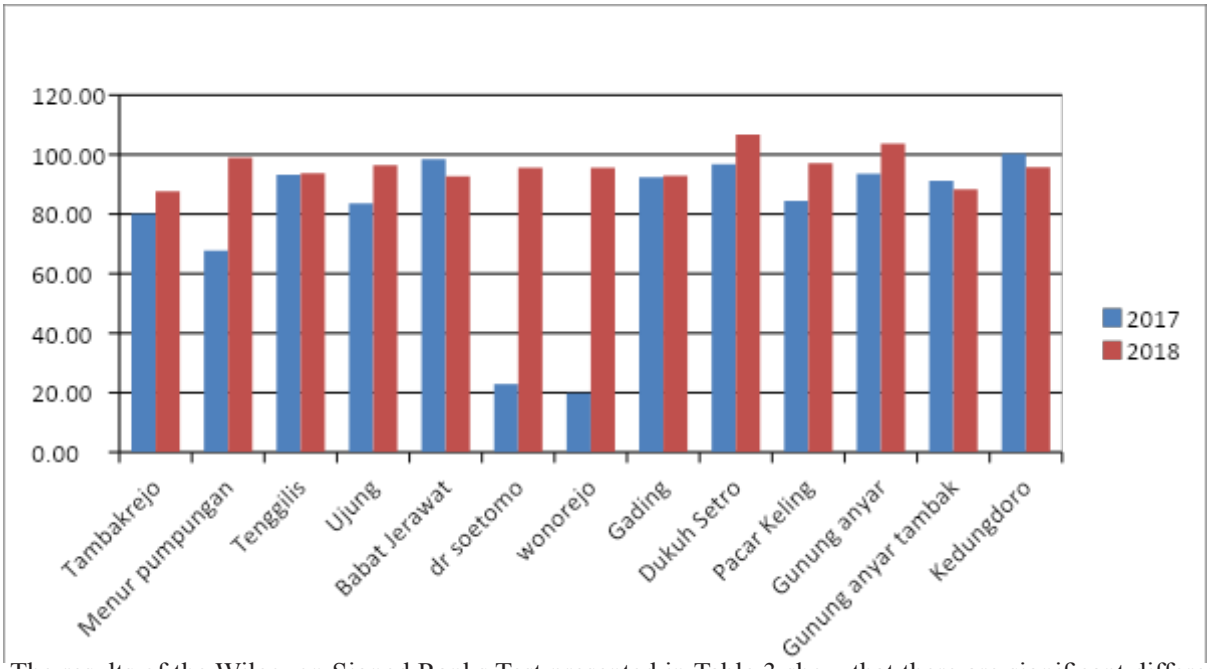
Most of the mothers have good knowledge (50%) and a good attitude (60%) towards MVMH. Mothers know the benefits and types of data displayed by MVMH. Mothers also have a positive attitude towards MVMH especially in helping to remember and monitor their child's immunization schedule. Only a small number of mothers have never seen the existence of MVMH at the ISP.

Table 2. Distribution of Knowledge and Attitudes of Cadres and Mothers about MVMH in Surabaya, 2018

Knowledge and Attitudes About MVMH	**Knowledge**		**Attitudes**	
	(n)	**(%)**	**(n)**	**(%)**
Cadres				
Good	16	80	17	85
Medium	4	20	3	15
Less	0	0	0	0
Total Cadres	20	100	20	100
Mothers				
Good	10	50	12	60
Medium	8	40	7	35
Less	2	10	1	5
Total Mothers	20	100	20	100

Impact of the application of MVMH in 13 villages in 10 health centers that have the lowest coverage in Surabaya is shown in Figure 2. This compares CBI coverage rates before the implementation of MVMH in 2017 and after the implementation of MVMH in 2018. CBI coverage rates in 13 urban villages generally increased in 2018 after the implementation of MVMH.

Figure 2. Differences in Complete Basic Immunization Coverage in 13 Selected Village in Surabaya, 2017 and 2018



The results of the Wilcoxon Signed Ranks Test presented in Table 3 show that there are significant differences between CBI numbers before and after MVMH implementation in 13 selected villages. The average CBI coverage of 78.81 in 2017 increased to 95.77 in 2018.

Table 3. Statistic Test of Complete Basic Immunization (CBI) Coverage in 13 Selected Villages in Surabaya, 2017 and 2018

Variables	Minimum	Maximum	Mean	SD	P value	N
CBI 2017	19.80	100.30	78.81	26, 95	0.019	13
CBI 2018	87.70	106.77	95.77	5.32		

Discussion

Community empowerment is a community activity involving cadres. Cadres produce several levels of community empowerment through intrapersonal and group communication and home visits (8).

Cadres are agents for change who work in their communities to identify and overcome social determinants of health by mobilization (8). In developing countries, the role of cadres is very important to improve access to health services (9). The role of cadres is very important, even though cadres indirectly provide immunization. A cadre at the ISP knows more about the condition of the baby around the place where the baby lives. They are able to monitor the healthy development of babies every month through the ISP.

The majority of cadres who are research respondents are aged 40-50 years. Age is closely related to the cadre level of trust. The age of cadres gets older, the higher the confidence and awareness to provide optimal service. Cadres have a role as a bridge between the community and health workers. Cadre strength is accessibility, cultural, linguistic, and service sensitivity in the local area (10).

Cadres holding village level ISP are very important for health programs because it is easier to interact with the community, and will be an opportunity to provide information or advice to mothers (11). The location of cadre residence is also one of the factors that influence community involvement in community-based activities. Cadres who do not live in the community will have little

chance of being accepted by the community (8). This condition can have an impact on the performance of cadres in providing services to mothers and children as targets of the immunization program.

The majority of mothers in the study group were in the 20-30 year age group. This age group belongs to the adult age category. Mothers who have more than 20 years of age tend to immunize their children compared to mothers less than 20 years old. Several previous studies have suggested that characteristic factors such as maternal education and age have been linked to mothers' knowledge and actions in immunizing their children. One study in China states that there is a relationship between the age of the mother and the child's vaccination status. Mothers of adulthood tend to be more aware of the importance of vaccination (12). Parents younger than 20 years show far lower knowledge and practice values than parents over the age of 20 (13).

Mothers who have low knowledge do not bring and immunize their children at the ISP (14). Nazri et al's research show that mothers with positive attitudes and satisfaction with ISP services will have the intention to attend and show high attendance at the ISP. Satisfaction in ISP services has a greater influence on maternal participation than individual knowledge or attitudes. This shows that interventions on the quality of ISP will have the potential to increase maternal satisfaction so that it will increase their attendance at ISP (11).

A good relationship between cadres and mothers as a component of the community that receives health services can have a positive impact on the success of health programs. In immunization programs, Chantler et al. explain the importance of emphasizing a health system that works directly with service recipients. This is done to balance the supply and demand side of society. Interventions are not sufficiently community-based but must also actively involve community members. In community-based activities, it is important to describe who is involved in decision making, allocation of resources, and who triggers change (15).

Immunization House or My Village My Home (MVMH) is a community-level visual communication tool that provides a visual picture of infant immunization status in the village, where the community as a whole can see and follow up on immunization status for each baby (7). The MVMH aims to strengthen basic immunization coverage services, not only in terms of quantity but also the quality of coverage. This method helps mobilize community participation in basic immunization services.

CBI coverage in the selected village in Surabaya has increased after the implementation of MVMH in 2018. Several studies have linked increased community participation in immunization with increased immunization coverage. The use of MVMH makes health workers and families more aware of immunization status. Positive impacts occurred in Timor-Leste where the coverage and number of immunized infants increased using MVMH (16).

Studies in India say immunization coverage in communities that piloted MVMH increased higher than overall coverage in their districts (16). The evaluation shows that the use of MVMH helps increase vaccination awareness and a sense of shared responsibility between health services and the community. Health workers, volunteers, and mothers have a positive attitude about MVMH. This has an impact on increasing immunization coverage in the community.

MVMH is a tool that can strengthen community participation in immunization programs. This activity has the potential to increase the demand for immunization in health services and among communities. This tool also has the potential to identify children who need an immunization, increase the accuracy of vaccination times, and increase coverage (16).

Community involvement can also be done by community mobilization to advocate for service delivery. Community-based interventions through community involvement can be a new strategy for increasing immunization coverage. Health programs must involve the community in planning, monitoring, and supervision. Community participatory involvement can help identify immunization barriers at the village level and can make sustainable solutions (17). Further implementation and testing of the Immunization House or MVMH tool to increase

immunization coverage and the participation of the people involved is feasible to be developed.

Conflicts of Interest: The authors have no conflicts of interest to declare for this study.

Acknowledgment: This work was supported by Surabaya City Health Office.

References

1. WHO. Overview of VPD surveillance principles. Geneva; 2018.
2. Ministry of Health RI. Indonesia health profile at 2018. Primadi O, Budjianto D, Kurniawan R, Hardhana B, Yudianto, Siswanti T, editors. Jakarta: Ministry of Health of the Republic of Indonesia; 2019.
3. Ministry of Health RI. Indonesia health profile at 2017. Primadi O, Budjianto D, Kurniawan R, Hardhana B, Yudianto, Siswanti T, editors. Jakarta: Ministry of Health of the Republic of Indonesia; 2018.
4. Ministry of Health RI. Main results of Indonesia Basic Health Research (Riskesdas) at 2018. Jakarta; 2018.
5. Hargono A, Purnomo W, Efriyanto Y. Rapid survey of coverage of basic immunization in infants in Lumajang District in 2010. Bull Heal Syst Res. 2012;15(1):55–60.
6. President of RI. Presidential regulation number 72 of 2012 concerning national health systems. Jakarta: Republic of Indonesia; 2012.
7. MCHIP. My village my home: a tool to optimize immunization coverage (guidance note for using the MVMH tool). USA: United States Agency for International Development; 2014.
8. McCollum R, Gomez W, Theobald S, Taegtmeyer M. How equitable are community health worker programmes and which programme features influence equity of community health worker services? a systematic review. BMC Public Health [Internet]. 2016;16(1):1–16. Available from: http://dx.doi.org/10.1186/s12889-016-3043-8
9. Nozaki I, Hachiya M, Kitamura T. Factors influencing basic vaccination coverage in Myanmar: secondary analysis of 2015 Myanmar demographic and health survey data. BMC Public Health. 2019;19(1):1–8.
10. Sommanustweechai A, Putthasri W, Nwe ML, Aung ST, Theint MM, Tangcharoensathien V, et al. Community health worker in hard-to-reach rural areas of Myanmar: filling primary health care service gaps. Hum Resour Health [Internet]. 2016;14(1):1–7. Available from: http://dx.doi.org/10.1186/s12960-016-0161-4
11. Nazri C, Yamazaki C, Kameo S, Herawati DMD, Sekarwana N, Raksanagara A, et al. Factors influencing mother's participation in Posyandu for improving nutritional status of children under-five in Aceh Utara district, Aceh province, Indonesia. BMC Public Health [Internet]. 2016;16(1):1–9. Available from: http://dx.doi.org/10.1186/s12889-016-2732-7
12. Wagner AL, Zhang Y, Montgomery JP, Ding Y, Carlson BF, Boulton ML. Timely measles vaccination in Tianjin, China: A cross-sectional study of immunization records and mothers. BMC Public Health. 2014;14(1):1–7.
13. Awadh AI, Hassali MA, Al-lela OQ, Bux SH, Elkalmi RM, Hadi H. Immunization knowledge and practice among Malaysian parents: a questionnaire development and pilot-testing. BMC Public Health. 2014;14(1):1–7.
14. Schneeberg A, Bettinger JA, McNeil S, Ward BJ, Dionne M, Cooper C, et al. Knowledge, attitudes, beliefs and behaviours of older adults about pneumococcal immunization, a Public Health Agency of Canada/Canadian Institutes of Health Research Influenza Research Network (PCIRN) investigation. BMC Public Health. 2014;14(1):1–9.
15. Chantler T, Karafillakis E, Wodajo S, Demissie SD, Sile B, Mohammed S, et al. 'We all work together to vaccinate the child': a formative evaluation of a community-engagement strategy aimed at closing the immunization gap in North-West Ethiopia. Int J Environ Res Public Health. 2018;15(4):1–12.
16. Jain M, Taneja G, Amin R, Steinglass R, Favin M. Engaging communities with a simple tool to help increase immunization coverage. Glob Heal Sci Pract. 2015;3(1):117–25.
17. Pramanik S, Ghosh A, Nanda RB, Rouw M, Forth P, Albert S. Impact evaluation of a community engagement intervention in improving childhood

immunization coverage. BMC Public Health. 2018;18(1):534.