

Immunization program intervention training in stunting revention effort in Sampang Regency, Madura Island, East Java



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Submitted: 2022-12-27

Revised: 2023-02-12

Accepted: 2023-06-03

ABSTRACT

Introduction: Stunting is still a major health problem in Indonesia. Sampang Regency was one of the districts that experienced an increase in the prevalence of stunting. According to the 2018 Riskesdas data, one in three babies under two years old (*baduta*) and babies under five years old (toddlers) in Indonesia are in the stunting category. The intervention was needed to increase the number of immunization to prevent stunting. This activity aimed to identify the barrier to increasing Universal Coverage Immunization (UCI) to solve the immunization problem using the Human Centered-Design (HCD) method.

Methods: The method used is a qualitative method using HCD with in-depth interviews, which is a method used to explore problems from the community side. This activity was involved by the head of the epidemiology and immunization section, the program holders of the Sampang district health office, coordinating midwives and immunization coordinators at selected health centers regarding immunization program interventions, namely exploring immunization problems from the community. The number of informants were six people in every public health center. The HCD intervention method has several steps: Persona, Journey of Map, Quote, Findings and Suggestions. The data analysis technique used a description of every HCD step.

Results: The results from the intervention were that every public health center is known to have a different picture related to portraits of community members who are influential in implementing the immunization program.

Conclusions: This program showed that health was not only the responsibility of the government or the health program holders but everyone. The recommendations from the HCD training at the two public health centers agreed to re-advocate the immunization program to relevant stakeholders.

Keywords: Immunization, Human Center Design, Stunting, Training.

Cite This Article: Artanti, K.D., Hargono, A., Yamani, L.N., Fadhilah, F., Hasan, T.H. 2023. Immunization program intervention training in stunting revention effort in Sampang Regency, Madura Island, East Java. *Journal of Community Empowerment for Health* 6(2): 118-123. DOI: 10.22146/jcoemph.80680

INTRODUCTION

Stunting is still a major health problem in Indonesia. It is a growth disorder in children caused by a lack of nutritional intake for a long time.¹ Stunting is also identified by assessing the length or height of the children compared to available standard values.² According to the 2018 Riskesdas data, one in three babies under two years old (*baduta*) and babies under five years old (toddlers) in Indonesia are in the stunting category.³ Stunting is a failure to thrive in children under five due to chronic malnutrition, especially in the 1000 First Days of Life (*Hari Pertama Kehidupan/HPK*). Sampang Regency is one of the districts that experienced an increase in the prevalence of stunting. This can be seen from the Stunting Prevalence

from 41.4% at Riskesdas 2013 to 47.9% at Riskesdas 2018. This means that there is an increase in prevalence of 6.5%. Therefore, a comprehensive solution is needed to handle this stunting.³

There are twenty main intervention indicators for stunting prevention, one of which is through coverage of children 0-11 months who have been fully immunized.⁴ What is called Complete Basic Immunization if children aged less than one year have received immunizations in the form of HB 0 1 time, BCG 1 time, Pentavalent 3 times, Polio 4 times and MR 1 time. Sampang district has many low UCI in East Java Province. The total UCI for all Sampang districts is 100 villages or only 53.76%.

The low immunization coverage can

be influenced by factors such as poor socioeconomic conditions and difficult geographical conditions with health facilities. Based on the health profile of the city of Sampang in 2019, it is known that immunization coverage at the Jrengoan and Kedungdung Health Centers is low compared to other health centers in Sampang City, which is 73%. Meanwhile, the highest immunization coverage was at the Bringkoning Health Center, which was 108%. Not fully vaccinated children will be at risk of emerging epidemics of diseases that can be prevented by immunization from the community.^{5,6} This is also common in areas with low immunization coverage where outreach from health facilities is carried out or not.⁶ The development and distribution of vaccines

and immunizations in childhood is one of the achievements of public health, which is a real form of support for the survival and health of children worldwide.^{7,8}

Research in Papua New Guinea shows a relationship between age group and vaccination status. $\chi^2 = 23,294$, $p < 0.005$. This association is quite strong, $\phi = -0.471$, $p < 0.005$. Children above the median age of 32 months (34%) were more likely to be fully vaccinated.^{9,10} Vaccination is recommended as an effective public health measure but has not been given as recommended to children in this area.⁷ The incomplete vaccination status of children denies them an important public health measure.

To prevent stunting, intervention was needed to increase the number of immunization. The intervention was called Human Centered Design (HCD). The intervention method using HCD has also been carried out on community empowerment in Sugeng Village, Trawas, East Java. In this intervention, it is known that HCD can answer existing community empowerment problems. The concept of the HCD method, which starts with the community, and for the community, is considered to have a major influence on community empowerment.⁹ Therefore, this activity aimed to identify the barrier to increasing Universal Coverage Immunization (UCI) to solve the immunization problem by Human Centered-Design (HCD) methods.

METHOD

The method used is a qualitative method using Human Centered-Design (HCD), which is used to explore problems from the community side with in-depth interviews. The sampling technique used was a purposive sampling method followed by the head of the epidemiology and immunization section, the Sampang district health office program in charge, coordinating midwives and immunization coordinators at selected health centers regarding immunization program interventions, namely exploring immunization problems from the community.⁹ To then analyze and find solutions to problems related to the Immunization program.

We were conducting training for the

Sampang district health office program in charge, coordinating midwives and immunization coordinators at selected health centers using Interventions for the Immunization program obtained to explore the differences between health services and community needs.

The training was carried out for two days. The first day was to explain what HCD was and bring trainees together with the community. The duration of the activities was 6 hours. The purpose of carrying out the HCD approach and how the HCD can be useful in increasing the coverage of the Immunization Program. The community involved in this case consists of *Posyandu* Cadres, Toddler Mothers, religious figures and community leaders. The total number of informants is six people. The activity on the second day was to analyze the training results on the first day, which was used to see the core of the problem between the community and health services with discussion method; *Posyandu* Cadres, Toddler Mothers, religious figures and community leaders attended this activity. This step involved health services and a representative community. They look for alternative solutions for each of these problems. This activity be held in July-November 2020 in Sampang Regency, Madura, East Java.

RESULT

The HCD intervention method has several steps: Persona, Journey of Map, Quote, Findings and Suggestions. The first stage is the Persona. This stage describes respondents who can represent a certain area or population. The results of the persona stage with two existing PHCs, Jrangoan PHC considered that the most important influence in community activities was the figure of a religious figure. Although religious leaders play an important role in spreading spiritual knowledge, the community also relies on religious leaders to solve various societal problems. In contrast, at Kedungdung PHC, the most influential figure in solving problems is the head of the household or the opinion of the extended family. This is because the head of the family is responsible for working or earning money for the family. A community representative from the Kedungdung PHC

said that immunization was considered unimportant because the AEFI (Adverse Events Following Immunization) produced could interfere with household activities.

The next stage is the Journey of the Map stage. This stage is the stage of group discussion based on the knowledge and understanding of the community regarding the main subject. This discussion aims to identify and seek priority problems. The results of Journey of the Map can be seen in [Figure 1](#). The Journey of the Map stage shows that at the Jrangoan PHC, there are still many obstacles, such as low public knowledge and low awareness, which results in many parents not considering immunization as important and assuming that immunization only makes healthy children sick. They consider sick toddlers normal; parents of toddlers consider AEFI a disease after being immunized and make it difficult for mothers to take care of their toddlers. Economic factors are also one of the reasons. Many parents are reluctant to spend money to go to *Posyandu*. Another reason is that the place of service is far away, so many parents do not want to take their children to the health service. The results were obtained through group discussions based on community knowledge and understanding to identify and prioritize problems. This discussion was called Journey of the Map ([Table 1](#) and [Figure 1](#)).

In the journal of the map activity, participants put sticky notes containing their understanding of the existing problems.

Furthermore, in this HCD Training, the results can be seen in [Figure 1](#), Journey of the Map activity. The Jrangoan PHC did fieldwork by bringing in Religious Leaders, Health Cadres and Infant Mothers. As in Persona, it is found that the key figure in the community of the Jrangoan Public Health Center is a religious leader / Kyai who has a considerable influence on the actions of the community in the area. The results of the discussion are in [Table 2](#).

The third stage of HCD is Field Work Practice (PKL), using various media to explore situations, conditions and problems experienced by the community. The media can be in mind maps, emotion and action cards, in-depth interviews,

Table 1. Objectives of Mapping the HCD Problem of Sampang Regency in 2020

	Jrangoan PHC	Kedungdung PHC
1. Knowledge, awareness, and trust	Barriers: Knowledge was still lacking, Awareness was still low, Did not really understand the benefits of immunization. Influence: Parents think there was unneed for immunization, parents were reluctant to take their children to the <i>posyandu</i> for immunization, parents think that it made healthy children sick.	Barriers: Fear of injections, Belief in unlawful immunization. Influence: The mother wants her child to be immunized but the father does not allow it for fear of the child getting sick. Information about immunization from the <i>puskesmas</i> is clear.
2. Intention	Barriers: the assumption that healthy children did not need immunization. Influence: If a child was sick, there was an assumption that it was normal, not because they have not been immunized.	Barriers: Husband not allowed, Fear of fever, Remote <i>Posyandu</i> , No permission from family yet, everyone wants their child to be healthy, but mother was lazy to come to <i>posyandu</i> . Influence: Want Healthy Children.
3. The preparation of time, cost and effort	Barriers: Time consuming, parents have to pay to go to <i>posyandu</i> for transportation. Influence: Home affairs/work neglected, mother objected to spending extra money.	Barriers: <i>Posyandu</i> schedule changes sometimes, <i>Posyandu</i> schedule coincides with personal interests, <i>Posyandu</i> distance is far. Influence: Immunization schedule for babies is not appropriate, lazy to go to <i>posyandu</i> , agreement on <i>posyandu</i> schedule, means of transportation are not adequate.
4. Service Place	Barriers: Remote access, difficult terrain, not yet standard service area. Influence: Mother was lazy to go to <i>posyandu</i> , mother was uncomfortable because she has to queue/cramp at <i>posyandu</i> .	Barriers: The <i>posyandu</i> is far away. Influence: Decreased <i>posyandu</i> visits, need to add PWS <i>posyandu</i> (playground, social gathering, door prizes).
5. Treatment Experience	Barriers: There was an AEFI in the previous child, there were other children without immunization but healthy. Influence: Children are not allowed to be immunized, mothers follow their refusal to be immunized.	Barriers: Baby has a fever for about 2 days. Influence: Will not be immunized the following month.
6. After Service	Barriers: The existence of AEFI. Influence: Mothers have trouble taking care of children when AEFIs occur.	Barriers: After being immunized, the baby and toddler are hot. Influence: Immunization services according to standards.



Figure 1. Journey of the Map activity. (a) Jrangoan PHC (b) Kedungdung PHC.

or role plays. This activity can involve caregivers, health workers or midwives, religious leaders, community leaders, and cadres.

The fourth stage is the AHA stage. Determine interesting quotes or discussion results from respondents

that can be suggestions for overcoming immunization problems. This can be seen in Table 2. Respondents gave a lot of good input and aspirations in the fourth stage of the discussion. However, from the two existing public health centers there were some similarities. The first is

to form a WhatsApp group to coordinate on health issues; the community hopes that health workers are communicative and can become community friends and hopes for stakeholders to coordinate. This community aspiration is indeed a good thing because every individual who wants to immunize must have proper access, clear regulations, and professional health workers.

The last stage in HCD is to follow up the discussion findings in four components expected to make these findings more operational. These components include technology, media, services and collaboration. The results can be seen in Table 3. After the HCD activity, a post-test was conducted to review the knowledge from the community (Table 4).

The various findings from the discussion are followed up in four components which are expected to make

Table 2. Results of quotes, findings, and suggestions for solving HCD problems in 2020

	Jrangoan PHC	Kedungdung PHC
1. Quotation	a) People are easily provoked by unclear issues (HOAX); b) The community obeys <i>Toma, Toga</i> and <i>Kader</i> ; c) People want something interesting at <i>posyandu</i> ; d) People want officers to be more caring.	a) Equalizing perceptions among community leaders; b) Coordination with stakeholders; c) Communities trust their neighbors more than midwives; d) The issue of non-Muslim products appears; e) In-laws have not allowed immunizations; f) Convenient Immunization Center; g) Need for Innovation; h) Involve village officials (village funds) for example to prepare transportation; i) Nakes costume; j) Involving <i>Muslimat</i> ; k) Youth converted; l) There is a playground at the <i>posyandu</i> ; m) Improve communication; n) Midwives become friends/friends of the community
2. AHA	a) The community wants a bazaar at the <i>posyandu</i> (so you don't get bored queuing) Giving Door Prizes or gifts for the target; b) Formation of a WhatsApp group to exchange information involving <i>Toga Toma</i> ; c) Officers are ready to receive post-service consultation	a) Coordination with stakeholders; b) Involve village officials (village funds) for example to prepare transportation; c) Enabling youth; d) <i>Nakes</i> costume; e) Use picture as the media; f) Officers have a dual role/become friends of the community
3. Suggestion	a) <i>Posyandu</i> services are on time and there is always communication with the community through social media/directly; b) The existence of cooperation with village officials (<i>Toma, Toga, Kades</i>); c) The community has stabilization by officers before service; d) There are activities other than 5 tables (eg: cooking practice with independent crops)	a) Coordinate with sub-district Regional Technical Implementation Unit (<i>Unit Pelaksana Teknis Daerah/UPTD</i>); b) Coordination with several figures; c) Post- <i>posyandu</i> counselling; d) Provide play facilities; e) Midwives wear attractive costumes (e.g. power ranger); f) Practice farming yourself
4. Follow-up	a) Health workers are asked to be more active in initiating the community to be more advanced and healthy; b) Media used: Village WA groups, associations, village meetings, leaflets, banners, posters; c) Provide dooprize, souvenirs, bazaars to make <i>posyandu</i> more attractive for both mothers and toddlers; d) Cooperation and advocating for all elements of society	a) Advocacy of relevant stakeholders; b) Advocacy with sub-district Regional Technical Implementation Unit; c) Advocacy with family planning; d) Health related education accompanied by making attractive image banners; e) Establishing a Youth Concerned Health Forum (FPPK)
5. Input taken from other groups	a) Suggestion: prepare village device transport from ADD; b) Interesting costumes for officers; c) Follow-up: Establishing a Health Care Youth Forum (FPPK).	a) AHA: <i>Posyandu</i> Bazaar; b) Suggestion: Practice independent farming

Table 3. Sampang District's HCD follow-up components in 2020

	Jrangoan PHC	Kedungdung PHC
1. Media	a) Used Print Tools: Posters, Leaflets and Banners; b) Took advantage of events in the village: village meetings, quran reading (<i>Surah Yasin</i>), lottery club (<i>arisan</i>); c) Used visualization media when counseling	a) Used printed tools: Poster, Banner, Leaflet
2. Teamwork	a) Involved community organizations such as <i>Muslimat</i> , Nahdatul Ulama; b) Collaborated with community leaders/ religious leaders/cadres/ village heads in mobilizing people to be aware of health	a) Created Health Care Youth Forum (FPPK); b) Involved Other sectors beside health; c) Collaborated with religious community
3. Technology	a) Utilized WhatsApp group media; b) Took advantage of the reminder alarm from your cellphone; c) Used the mosque speakers	a) Used Social Media; b) Utilized WhatsApp Group
4. Service	a) "On Care" midwives were always available whenever the community needs it; b) In addition to providing immunization services, it also provides complementary feeding creation services with local products; c) Always prioritized Politeness in providing services	a) Attractive health worker costume during immunization service; b) <i>Posyandu</i> has a playground; c) <i>Posyandu</i> Bazaar; d) Place for independent farming; e) Communication; f) Performance of health workers

Table 4. HCD's Pre-test and Post-test of Sampang Regency in 2020

	Pre-Test	Post-Test
Number	15	15
Mean	90,66667	96
Min	50	90
Max	100	100

these findings more operational. These components include technology, media, services and collaboration, as shown in Table 3.

After the HCD stage, followed by the post-test, results showed an increase compared to the pre-test, which can be seen in Table 4.

DISCUSSION

Human Center Design (HCD) could answer existing community empowerment problems. The concept of the HCD method, which starts with the community, and for the community, is considered to have a major influence on community empowerment.⁹ This program showed that health was not only the responsibility of the government or the health program holders but everyone. Making immunization achievements a joint obligation can encourage joint stakeholders to move to improve Universal Coverage Immunization. The recommendations from the HCD training at the two public health centers agreed to re-advocate the immunization program to relevant stakeholders.

These activities aim to explore the differences between health services and community needs by inviting program holders from the Sampang district health office, field coordinators and immunization coordinators at the Jragung and Kedungdung public health centers. This program was held by intervening in the immunization program in the form of Human Centered-design (HCD), namely by exploring the immunization problems at the *puskesmas* and then comparing it with the opinions of the community (Community Leaders, Religious Leaders and Ibu Batita). Representatives of these people are useful for understanding their way of thinking, how they behave, and how the environment affects their life.¹¹⁻¹⁴ The activity was expected to achieve the following outputs: increasing understanding of the importance of

immunization for the community, knowing the description of problems related to immunization in the community, and getting alternative solutions to problems related to immunization according to community needs. Community empowerment can increase immunization coverage.^{15,16}

The Journey of maps is the stage of group discussion based on the knowledge and understanding of the community regarding the main subject that relies on the community's thoughts, feelings, and experiences.¹¹ The Journey of the Map stage shows that at the Jragung PHC, there are still many obstacles, such as low public knowledge and low awareness, which results in many parents not considering immunization as important and assuming that immunization only makes healthy children sick.^{12,17,18} They consider sick toddlers normal; parents of toddlers consider AEFI a disease after being immunized and make it difficult for mothers to take care of their toddlers. Economic factors are also one of the reasons. Many parents are reluctant to spend money to go to *posyandu*. Another reason is that the place of service is far away, so many parents do not want to take their children to the health service. Based on the journal literature issued by the University of Diponegoro, immunization's completeness is very important for the future of children and will be felt for life. Parents should not be late in giving immunizations to children because immunization plays a positive role in the nutritional status of children.¹²

In contrast to the *Puskesmas* Kedungdung, The MUI Fatwa in 2016 stated that immunization is permissible to build immunity and prevent certain diseases. Immunization must be with holy and halal vaccines; however, in this case there are exceptions. Immunization with haram and/or unclean things is permitted provided that it is carried out in an emergency condition, if there is no halal and

holy vaccine, and there must be competent medical personnel.¹³ The result of this belief is that many husbands forbid their wives to go to immunize their children. In addition, the distance of the health center is far, so many mothers cannot take their children to immunization because of limited vehicles. Many parents also find their children sick after being immunized, so they do not want to take them to be immunized again the following month. Based on research in Klaten, Central Java, 71.1% of children under five have incomplete immunization status. Judging from the Maternal and Child Health book, many toddlers are immunized; however, in certain months, toddlers are not re-immunized. Incomplete immunization for toddlers causes toddlers' immunity to become weak, making them susceptible to infection.^{13,19-23} Research in Banda Aceh district also showed that stunting was caused by incomplete immunization. The risk of stunting increased 4 times greater in children under five who were not fully immunized.¹⁴

Strengthening this activity was HCD methods still rarely implemented at Indonesia. This activity is looking for barrier health problem-specific immunization to increase Universal Coverage Immunization based on a specific approach based on local needs. Limiting the result of this activity cannot be implemented in all regions because the approach is locally specific. It is because the HCD method explores problems and provides alternative solutions to problems using local-specific approaches. The successful of this implementation requires stakeholder commitment to follow up on HCD activities.

CONCLUSION

This program showed that health was not only the responsibility of the government or the health program holders but everyone. The recommendations from the HCD training at the two public health centers agreed to re-advocate the immunization program to relevant stakeholders. In addition, it is also important to involve youth in the local community to provide health-related counseling by establishing a Health Care Youth Forum (*Forum Pemuda Peduli Kesehatan/FPPK*). The easy-to-

understand counseling media is also a means of delivering information related to immunization, both physical media such as posters, leaflets and banners as well as social media often used by the public, such as Whatsapp groups.

ACKNOWLEDGMENT

Thanks go to the immunization program holder of the Sampang District Health Office, to the Coordinator Midwife and the Immunization Coordinator at both the Jragoan and Kedungdung PHC. Then to the Faculty of Public Health, Universitas Airlangga who facilitated this intervention so that the immunization program intervention training to prevent stunting could be carried out.

RESEARCH FUNDING

Faculty of Public Health, Universitas Airlangga supported and financed this research.

CONFLICT OF INTERESTS

The author entirely declares that there is no conflict of interest between the authors nor the partners.

REFERENCES

1. Ministry of Health RI. 2013. Basic Health Research; RISKESDAS. Jakarta: Balitbang Kemenkes RI
2. de Onis M, Branca F. Childhood stunting: a global perspective. *Matern Child Nutr.* 2016 May;12:12–26. DOI: [10.1111/mcn.12231](https://doi.org/10.1111/mcn.12231)
3. Ministry of Health RI. 2018. Basic Health Research; RISKESDAS. Jakarta: Balitbang Kemenkes RI
4. Paulson KR, Kamath AM, Alam T, Bienhoff K, Abady GG, Abbas J, et al. Global, regional, and national progress towards Sustainable Development Goal 3.2 for neonatal and child health: all-cause and cause-specific mortality findings from the Global Burden of Disease Study 2019. *The Lancet.* 2021 Sep;398(10303):870–905. DOI: [https://doi.org/10.1016/S0140-6736\(21\)01207-1](https://doi.org/10.1016/S0140-6736(21)01207-1)
5. Brilliant GH, Yovita Hendrati L. Mapping of children's tuberculosis incidence by coverage of bcg immunization, malnutrition, and home environment. *J Berk Epidemiol.* 2022 Sep 26;10(3):303–11. DOI: [10.1016/S2214-109X\(22\)00283-2](https://doi.org/10.1016/S2214-109X(22)00283-2).
6. Tabatabaei SM, Mokhtari T, Salari M, Mohammadi M. Rural-Urban Differences in Reasons for Incomplete Vaccination in Children Under Six Years, Southeast Iran 2013. *Int J Infect [Internet].* 2015 Jul 20 [cited 2022 Nov 17];2(3). Available from: <https://brief.land/iji/articles/14727.html>. DOI: [10.17795/iji28109](https://doi.org/10.17795/iji28109)
7. Lagani W, Mokela D, Saweri W, Kiromat M, Ripa P, Vince J, et al. Papua New Guinea: real progress towards MDG 4 and real challenges. *Int Health.* 2010 Sep;2(3):186–96. DOI: [10.1016/j.inhe.2010.05.001](https://doi.org/10.1016/j.inhe.2010.05.001)
8. Galles NC, Liu PY, Updike RL, Fullman N, Nguyen J, Rolfe S, et al. Measuring routine childhood vaccination coverage in 204 countries and territories, 1980–2019: a systematic analysis for the Global Burden of Disease Study 2020, Release 1. *The Lancet.* 2021 Aug;398(10299):503–21. DOI: [10.1016/S0140-6736\(21\)00984-3](https://doi.org/10.1016/S0140-6736(21)00984-3)
9. Lusita A, Syahrul F, Ponconugroho P. The Implementation of Immunization Cold Chain Management in Surabaya City. *J Berk Epidemiol.* 2021 Jan 29;9(1):62. DOI: [10.20473/JBE.V9I12021.62-69](https://doi.org/10.20473/JBE.V9I12021.62-69)
10. Samiak L, Emeto TI. Vaccination and nutritional status of children in Karawari, East Sepik Province, Papua New Guinea. Borrow R, editor. *PLOS ONE.* 2017 Nov 9;12(11):e0187796. DOI: <https://doi.org/10.1371/journal.pone.0187796>
11. Suprobo FP. Penerapan Human-Centered Design dalam Pengembangan Model Pemberdayaan Masyarakat. Konferensi Nasional Universitas Pelita Harapan Surabaya. 2012.
12. Demolder C, Forster D, Aronoff-Spencer E. Biometrics For Babies- Human Centered Technology Design to support infant immunization and healthcare delivery in resource limited settings. :13.
13. Mashar SA, Suhartono S, Budiono B. Faktor-Faktor yang Mempengaruhi Kejadian Stunting pada Anak: Studi Literatur. *J Serambi Eng [Internet].* 2021 Jul 6 [cited 2022 Nov 21];6(3). Available from: <http://ojs.serambimekkah.ac.id/jse/article/view/3119>. DOI: <https://doi.org/10.32672/jse.v6i3.3119>
14. Decouttere C, De Boeck K, Vandaele N. Advancing sustainable development goals through immunization: a literature review. *Glob Health.* 2021 Dec;17(1):95. DOI: <https://doi.org/10.1186/s12992-021-00745-w>
15. Hargono A, Artanti KD, Syahrul F, Megatsari H, Wulandari RD, Nurwitasari A, et al. My Village My Home: Community Empowerment to Increase Immunization Coverage. *Indian J Forensic Med Toxicol.* 2019;13(4):541. DOI: [10.5958/0973-9130.2019.00346.3](https://doi.org/10.5958/0973-9130.2019.00346.3)
16. Syahrul F, Megatsari H, Wulandari RD, Hargono A, Artanti KD. The Evaluation of My Home My Village Method to Support the Complete Basic Immunization Programme in Surabaya, Indonesia. *Indian J Public Health Res Dev.* 2019;10(10):1691. DOI: [10.5958/0976-5506.2019.03086.9](https://doi.org/10.5958/0976-5506.2019.03086.9)
17. Chen E, Leos C, Kowitt SD, Morocco KE. Enhancing Community-Based Participatory Research Through Human-Centered Design Strategies. *Health Promot Pract.* 2020 Jan;21(1):37–48. DOI: [10.1177/1524839919850557](https://doi.org/10.1177/1524839919850557)
18. Hargono A, Syahrul F, Indriani D, Chalidyanto D, Megatsari H, Dwi K, et al. Parents' Knowledge about Immunization with Missed Opportunity for Vaccination in Children. 2022;
19. Budiyo D, Agusbyana F. Panduan dalam Perspektif Kesehatan dan Agama Islam.
20. Sutriyawan A, Kurniawati RD, Rahayu S, Habibi J. Hubungan status imunisasi dan riwayat penyakit infeksi dengan kejadian stunting pada balita: studi retrospektif. *J Midwifery.* 2020 Nov 11;8(2):1–9. DOI: <https://doi.org/10.37676/jm.v8i2.1197>
21. Hargono A, Megatsari H, Artanti KD, Nindya TS, Wulandari RD. Ownership of Mother and Children's Health Book and Complete Basic Immunization Status in Slums and Poor Population. *J Public Health Res.* 2020 Jul 3;9(2):jphr.2020.1809. DOI: [10.4081/jphr.2020.1809](https://doi.org/10.4081/jphr.2020.1809)
22. AL-Rahmad AH, Miko A, Hadi A. Kajian stunting pada anak balita ditinjau dari pemberian asi eksklusif, mp-asi, status imunisasi dan karakteristik keluarga di kota banda aceh. :17.
23. Zulkarnain FW, Agustina TSA, Putri DH, Busthomi I, Sonia F. Penyuluhan Gizi Pada Anak Untuk Pencegahan Stunting Di Kampung Tenggher, Kabupaten Sampang. *J Kreat Dan Inov J Keanova.* 2021 Sep 30;1(3):97–103. DOI: [10.24034/keanova.v1i3.5006](https://doi.org/10.24034/keanova.v1i3.5006)



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