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ORIGINAL RESEARCH

ISSN: 2477-4073

EMPOWERING WOMEN'S ORGANIZATIONS FOR ANEMIA PREVENTION AND CONTROL IN TRIMURTI VILLAGE, SRANDAKAN SUB-DISTRICT, BANTUL, YOGYAKARTA, INDONESIA

Waryana^{1*}, Supadi², Wiworo Haryani¹

¹Politeknik Kesehatan Kementerian Kesehatan Yogyakarta, Yogyakarta, Indonesia

²Politeknik Kesehatan Kementerian Kesehatan Semarang, Semarang, Indonesia

***Corresponding author:**

Dr. Waryana, S.KM, M.Kes.

Politeknik Kesehatan Kementerian Kesehatan Yogyakarta, Jalan Tatabumi No.3, Banyuraden, Gamping, Sleman,

Yogyakarta, Indonesia (55293) Website: www.poltekkesjogja.ac.id

Phone: +62 274 617601 Email: waryana60@yahoo.com

ABSTRACT

Background: Anemia in Indonesia is mostly caused by micronutrient deficiency such as iron. Although much have been done to address anemia in the community, the problem remains. As health is not solely government's responsibility, community participation should be seen as an alternative effective approach.

Objective: The influence of women's organizations to community participation and their self-sustenance in anemia prevention and control was examined.

Methods: It was a quasi-experimental study with pretest and post-test control group design involving 30 women in reproductive-age who were selected through a multi-stage random sampling method; and 20 health providers, of whom were members of Dasa Wisma, posyandu cadres, PKK, and Karang Taruna. At the intervention group, women's organization in anemia prevention and control was enabled in order to increase community participation. Hemoglobin level was measured as the outcome of the intervention program.

Results: By empowering women's organization, participation level of community members in the intervention group significantly increased, shown by family's willingness to provide and consume iron-sufficient foods in their daily diets. As an outcome, hemoglobin level of reproductive-aged women at the intervention group slightly raised from its initial level, whilst the level in the control group was relatively stagnant.

Conclusion: Involving the community member has been proven as an effective approach in anemia prevention and control. Given that women's social movement are existed in many settings, therefore, empowering such organization as a manifestation of community participation can be applied in other setting, and also for other health program.

Keywords: anemia, women's organization, empowerment, community participation

INTRODUCTION

Many women in both developed and less-developed nations suffered from anemia. Globally, the highest prevalence of anemia was found among pre-school children, adult women and pregnant women with 76, 63, and 69 percent respectively.¹⁻³ Basic health research in 2016 reported 40 percent of pregnant women and 49 percent of women in Yogyakarta suffered from anemia.⁴ The high prevalence of anemia alarms the importance of anemia control because studies found that the consequences of anemia include reduced energy and capacity for work, poor pregnancy outcomes and elevated maternal and infant mortality.⁵⁻⁸

Although deficiency of folic acid and cyanocobalamin (vitamin B12) is prevalent, iron deficiency is common as the major cause of anemia in Indonesia. It is estimated, about 36 percent of population in low or middle income countries suffered from iron deficiency whilst in high income ones the prevalence of anemia only counted for 8 percent.⁹ Although much have been done to address anemia in the community, the problem remains. As health is not solely government's responsibility, community participation has received more attention during the past three decades. Scholars found, community involvement in health program has been acknowledged as a critical component to achieve effective and sustainable development program, including health and its social determinants.¹⁰⁻¹²

Given the nature of Indonesia's social organization where women's participation in social activity is widely found as Family Welfare Movement (referred as PKK – Pembinaan Kesejahteraan Keluarga – in Indonesia), empowering women for anemia control becomes an effective choice.¹¹ In every

village, FWM has been long established since Suharto era, mostly was designed to assist women in family planning program. In the recent times, cadres are volunteers assigned as supervisor for many health programs in their neighborhood. By involving their own community members, it is expected, the health program will obtain higher participation and sustainable. Therefore, this study aims to examine the influence of women's organization to community participation and their self-sustenance in anemia prevention and control.

METHODS

Participant and Health Provider Selection

This research was a quasi-experimental study with pretest and post-test control group design. We identified the benefits of woman organization empowerment for anemia control. Representing the area with highest anemia prevalence and community participation level in D.I. Yogyakarta province, samples in Trimurti village, Srandakan sub-district, Bantul district were selected as the study site. Our assessment was conducted at two sub-villages, Celan and Bando sub-village, which later pronounced, respectively, as experimental and control group. This study involved 30 women in productive age, selected through a multi-stage random sampling method, with these following inclusive criteria: (1) aged 20 to 35 years; (2) willing to participate; and (3) settling in the site study. Subjects who severe Tuberculosis (TBC) and malaria were excluded for participation.

Health providers comprised of women's groups in grassroots level, which contribute to anemia control, included the members of household cluster (*Dasa Wisma*) and also female teenager groups (*Karang Taruna*), and individuals in family welfare movement group (*Pembinaan Kesejahteraan Keluarga*,

PKK) who work in neighborhood health center (*Posyandu*). Health providers comprised of 20 individuals where 10 persons are the members of *Dasa Wisma*, 5 PKK members who work at *Posyandu*, and the other 5 health contributors are the fellows of *Karang Taruna*.

Women's Organization Empowerment

We documented the processes of women's empowerment at low administrative level, sub-village, and assessed health providers' knowledge and skills, and also their self-sustenance related to anemia prevention and control. This process was begun with a focus group discussion with agenda to cover anemia issue in the experimental sub-village. The head of the sub-village facilitated the establishment process of the women's organization. After forming the anemia control organization in this experimental sub-village, Celan sub-village, then, we trained the established organizations which contributed to the anemia control. Training materials – (1) method to identify anemia; (2) technical assistance; and (3) documentation system in controlling anemia – were given to the health providers at the experimental group whilst no inputs were obtained by the cadres at the control group. Members of women's organization who received training were then required to identify anemia by detecting the symptoms and signs of anemia and providing technical assistance and also observing community's food patterns throughout the three months period of the study. Observed data was stored in the village health post (*Posyandu*) for further analysis.

Key Success Indicators

We employed a descriptive method to analysis the level of community participation among the selected productive women. Interview and

observation were used for scoring participation level from zero (0) to hundred (100). The success of women's empowerment in anemia control was also projected by level of Hemoglobin (Hb) in the involved participants. The Hb level among the eligible correspondents before and after intervention was measured using Test Meter Kit at Srandakan Health Center by the health providers. The Hb level in the experimental group was later compared to the control group. All observed parameters were exhibited as Mean \pm Standard Deviation (SD), and *T-test* method was conducted to compare the mean difference before and after interference. The processes of documentations and observations, and the instrumental measurements were approved by ethical commission of Politeknik Kesehatan Kementerian Yogyakarta with reference number LB.01.01/KE/XIII/144/2016.

RESULTS

Knowledge and skill improvement among the health providers

Our assessment towards the health provider in the two sub-villages, which later pronounced as experimental and control group, exhibited that there is no difference in the initial knowledge and skill score to anemia control. The insignificant difference confirmed the similar characteristic of the involved respondents at those two groups. Scores ranged at 40 to 75 in the Celan sub-village (the experimental group) whilst the grades among the health providers at Bando sub-village (the control group) ranged 40 to 61.43. Data in Table 1 presents that the materials given to the health providers significantly improved the score of the observed parameters. Cadres at experimental group answered the matters related to anemia better than the providers at the control group. Knowledge and skills

among the health providers increased after obtained training materials from 61.43 (\pm 8.0) to 95.0 (\pm 4.4). Contrary to the control group, with no empowerment given to the

health-related organization, knowledge and skills among the health providers remained at same level.

Table 1 Scores of health providers' knowledge and skills related to anemia control at experimental and control group responded to organization empowerment

Observed variables			Group		p value
			Experiment	Control	
<i>Knowledge and skills</i>					
Initial	Mean \pm SD	61.43 \pm 8.0	61.43 \pm 7.7	0.890	
	Range	40-75	40-61.43		
After	Mean \pm SD	95.0 \pm 4.4	62.85 \pm 6.6	0.000	
	Range	90-100	50-75		

Organization empowerment attracts community and other parties' concern to anemia control

Data presented in Table 2 supports the agreement stating that empowering women's organization at sub-village levels significantly rises people's attention to anemia prevention and control program. Began with the low score of participation at 20 for the two site groups, the grades significantly increased if training materials were provided to the health providers prior

to anemia control and prevention programs exposed the community. At the experimental group, the community participation level increased after material supplied to the health contributors from 60.66 (\pm 28.03) to the score of 82.00 (\pm 27.46). At the control group, we found that the level of community participation remained similar if no methods, technical assistance and training were given to the health providers before they conducted health-related programs to the society.

Table 2 Community participation related to anemia control and Hg level at experimental and control group responded to organization empowerment

Observed variables			Group		p value
			Experiment	Control	
<i>Participation</i>					
Initial	Mean \pm SD	60.66 \pm 28.03	54.66 \pm 22.85	0.430	
	Range	20-100	20-100		
After	Mean \pm SD	82.00 \pm 27.46	55.16 \pm 22.85	0.000	
	Range	80-100	20-100		
<i>Hb level (g/dL)</i>					
Initial	Mean \pm SD	12.36 \pm 2.02	12.03 \pm 1.79	0.520	
	Range	7.90-16.60	6.50-14.30		
After	Mean \pm SD	13.54 \pm 1.02	12.55 \pm 1.79	0.000	
	Range	12.0-16.6	10.0-15.0		

We also underlined the impact of attracting community concern to anemia control and prevention program. From the beginning there was no program lifting anemia issues in those two study sites. A 2-month anemia-related program at

experimental group – began with problem identifications; defined anemia symptoms among the reproductive aged women; group counseling; family assistance; and Hb level measurement – increased community awareness to anemia. Since

our inputs to the health providers succeed to rising people' willingness to anemia-related program, it followed with an increase of self-sustenance among the groups in the society.

From focus group discussion we list the community setting agendas to cover anemia issue in the experimental sub-village. The existing women's organization roles to provide human resources rising anemia issues in the society. The members of the society itself have significant contribution to rising awareness in family level and are expected to invite family members to participate the programs. Community dealt with a commitment to contribute financially and seek others' fundraising to maintain the sustainability of the programs. The collected fund will be used wisely for meeting, the provision of stationary, and purchasing iron tablets. This program also attracted attention of community leader and other health providers to support the sustainability of programs. Whilst health providers (nutritionist, midwifery, and health promoter) advised the involved women's organization in assessing anemia-related matters, the head of sub-village provided rooms and other required infrastructures for meeting. This expanding participation shows the empowerment of women's organizations will not only emphasis the targeted community participation, but also encourage the other related parties to maintain the sustainability of programs.

The success of increasing Hb level

We declared the Hb level as an indicator to the success of anemia control and prevention programs. Shown in Table 2, the intervention to the women's organization resulted with an increase of the Hb level among the involved reproductive aged women from 12.36 ± 2.02 g/dL to 13.54 ± 1.02 g/dL. There is

no significant difference of Hb level initially between experimental and control group which exhibited that the intervention was the factor influenced the changes of Hb level.

DISCUSSION

Since Alma Ata declaration in 1978 where WHO introduced the policy of Primary Health Care (PHC), community participation in health program has received a lot of attention. The idea that lay people, not only health provider, can contribute to community health was seen as controversy at its first establishment. Nevertheless, the crucial role of community in health improvement has been proven in many studies especially considering limitation of health services and medicine. Community resources such as human resources, money, materials and time can be utilized to improve their own health by increasing participation.^{12,13}

Community participation has been traditionally defined as people mobilization to uptake an intervention.¹² The notion of participation itself can be varied, ranged from active to passive; can be contributive, collaborative or transformative.¹² Empowerment on the other hand, is seen as creating opportunities for those without power to gain knowledge, skills and confidences to be able to take their own decision.¹² The present study hypothesizes, empowering women's organization at village level may increase community participation for anemia prevention and control. It can be understood since the community members who are involved in anemia control comprised of family, member of household cluster (*Dasa Wisma*), Family Welfare Movement (PKK), Youth organization (*Karang Taruna*), Integrated Health Post (*Posyandu*), and community leaders who were considered as key persons in the community.

The finding of the present study showed that after women's organization being activated and empowered, hemoglobin level of women at reproductive age at the intervention group (Dusun Celan) are slightly higher (13.54 g/dL) than their counterpart in Dusun Bendo as control group (12.55 g/dL). Among the intervention group itself, the hemoglobin level increased from 12.36 g/dL prior the intervention, to 13.54 g/dL after the intervention. Whilst in the control group which did not receive any intervention, the hemoglobin level was relatively stable at 12.03 g/dL before the intervention, to 12.36 g/dL after the intervention was taken place.

The result implies, empowering women's organization for anemia prevention and control affected women's health status, shown by the increasing hemoglobin level in the intervention group. Women's organization seems to have successfully increased awareness on anemia of individuals and groups in the community. Women's organization has successfully persuaded families' willingness to engage in healthier life style for anemia prevention which depicted from the provision and consumption of healthy diets with sufficient iron in their daily life.¹⁴ The facilitation and supervision of women's organizations in the intervention group has significantly increased family awareness to consume foods containing iron in order to maintain hemoglobin at a normal level. As the result, hemoglobin level of reproductive-aged women at the intervention group showed a higher increase compared to their control counterpart. Moreover, community participation can be seen from their active roles in anemia prevention and control such as regular health check-up and keeping a healthy environment.

The study reported, score of community participation in Celan sub-

village as intervention group showed an increased, from 60.66 prior to the intervention to 82.0 after the intervention. Whilst in the control group (Bendo sub-village) the level of community participation remained stagnant at 54 (at the initial stage) to 55 at the later stage. Initially, anemia prevention and control in both villages have not yet supported by the community members. Family, community leaders, women and youth organization were existed but not yet being involved in the program. The empowerment program then enabled all those influential persons to work in one frame.

Family as the smallest unit in the community plays a great role in anemia prevention and control. At the family level, healthy behavior is all started from the provision and consumption of adequate and balanced nutrition for daily diets. Village volunteers (cadre) and community leaders supervised and provided advices in nutrition intake as well as technical assistances to families inside their administrative boundaries. As families become empowered in anemia prevention and control, self-sustenance will be achieved, along together with health education and early diagnosis which operated in village level.

The findings of the study confirmed that community members as beneficiaries of health programs are supposed to be placed at the same level as policy makers and stakeholders, and not as their inferiors. Learning process between health educators and the recipient is not supposed to be vertical but instead as a participatory learning where both parties are at the same level.¹⁵ Health improvement as the result of community participation is therefore be seen as bottom-up changes rather than enforcement from the top.¹³ The successful of a program with community participation approach then is defined when community

acknowledge their own needs and methods to fulfil their livelihood by enhancing their own potential.

Women's organization for anemia prevention and control in the present study utilized the existing women's social movement such as FWM (PKK) and household cluster (*Dasa Wisma*). As it has been noted before, during Suharto's era, women's social movement was the key player on the success family planning program. The existence of such organization in the present time thus can be the capital of anemia prevention and control.¹⁶ The availability of any social institutions in the community has been proven as a good catalyzer for program to take place.

Community leaders are the key persons in anemia prevention and control. Village leaders, hamlet leaders and the head of housing cluster as well as the head of female welfare movements are having a considerable role in increasing community awareness by motivating, facilitating and being the role model for the society. Facilitation of the community leaders enabled the program to be implemented in order to improve health status of the community.¹⁵

CONCLUSION

Involving community member has been proven as an effective approach in anemia prevention and control. By empowering women's organization, the present study showed that participation level of community members in the intervention group significantly increased, shown by family's willingness to provide and consume iron-sufficient foods in their daily diets. As an outcome, hemoglobin level of reproductive-aged women at the intervention group was found significantly raised from its initial level, whilst in the control group relatively stagnant. Given that women's social movements are

existed in many settings, therefore, empowering such organization as a manifestation of community participation can be applied in other settings, and also for other health programs.

Declaration of Conflicting Interest

None declared.

Funding

This study was funded by Politeknik Kesehatan Kementerian Yogyakarta, Indonesia.

Authorship Contribution

All authors equally contributed in this study.

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Cite this article as: Waryana, Supadi, Haryani W. Empowering women's organization for anemia prevention and control in Trimurti Village, Srandakan Sub-District, Bantul, Yogyakarta, Indonesia. *Belitung Nursing Journal*. 2016;2(6):123-130. <https://doi.org/10.33546/bnj.36>