

Analysis of the implementation of activities of adolescent girls drinking iron supplement tablets to prevent anemia in West Sumatra Province

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Abstract

The World Health Organization (WHO) has set six global nutrition targets, one of which is to reduce the prevalence of anemia among women of childbearing age by 50%, aiming for a global rate of 18%. According to Indonesia's 2018 Basic Health Research data, the prevalence of anemia in West Sumatra exceeded the national average, reaching 27.6%. This study aims to analyze the implementation of anemia prevention activities among adolescent girls in West Sumatra Province in 2023, focusing on both successful and unsuccessful districts/cities based on the coverage of iron supplement tablet consumption among adolescent girls. This research employed semi-structured interviews and purposive sampling, utilizing appropriate research instruments. Findings indicate that both successful and unsuccessful districts/cities lacked policies formally supporting anemia prevention activities in the form of local regulations. Additionally, differences in health workforce availability between these districts/cities were observed. The presence of Adolescent Health Cadres in schools fulfilled only 7.4% of the required demand. Furthermore, the availability of facilities and infrastructure for hemoglobin testing was hindered by challenges in procuring consumables needed for the tests.

Keywords: Adolescent girl, anemia, evaluation, iron supplement tablets

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Introduction

The World Health Organization (WHO) has six global nutrition targets, one of which is to reduce the prevalence of anemia among women of childbearing age by 50% [1]. In addition, Indonesia is expected to face a demographic bonus era from 2030 to 2040 [2]. Anemia is diagnosed when the hemoglobin (Hb) concentration falls below a set cut-off value, so the blood's capacity to carry oxygen to tissues is impaired [3]. The Ministry of Health in Indonesia provides a standard for adolescent anemia (aged 10-18 years) with Hb levels <12 g/dl [4]. Indonesia Basic Health Research data in 2018 showed that the prevalence of anemia in Indonesia at the age of 15-19 years reached 30.44% [5]. Adolescent girls are at higher risk of anemia compared to young men. According to Indonesia Basic Health Research data in 2018 anemia in West Sumatra reached 27.6% [5]. Prevention of anemia in adolescent girls can be done by increasing food intake of iron sources, fortification of foodstuffs with iron, and giving iron supplement tablets, especially during menstruation [4]. Consumption of food sources containing protein had a severe deficit of 71.2% in coastal areas and 81.9% in non-coastal areas [6]. Likewise, iron intake from 55 people who were teenagers in SMA 9 Mataram 69.1% were still lacking [7]. On the other hand, Indonesia Basic Health Research data in 2018 showed that only 0.97% of adolescent girls consumed ≥ 52 grains of iron supplement tablets in West Sumatra Province [8]. According to the Health profile data in 2022, the coverage of iron supplement tablets administration in 2022 in Indonesia reached 50%, while in West Sumatra Province this achievement was lower, namely only 45.9% [9]. This anemia prevention program is one of the specific interventions in stunting prevention efforts, this refers to Presidential Regulation number 72 of 2021 and the National Draft of the Circular Letter of the Director General of Public Health of the Ministry of Health Number HK.03.03/V/0595/2016 concerning Providing Blood Addition Tablets to Adolescent Girls and Women of Fertile Age, the provision of iron supplement tablets to adolescent girls is carried out through School Health Unit in educational

institutions (junior and senior high school or equivalent) by determining the day to drink iron supplement tablets together. The dose given is one tablet every week for the whole year [4,10].

This study aims to describe the condition of the implementation of the repatriate anemia prevention program seen from the elements of input, process, and output in West Sumatra Province.

Materials and Methods

This descriptive qualitative research was conducted at the West Sumatra Provincial Health Office from January to June 2024. Data were collected using semi-structured interviews through purposive sampling, with research instruments developed by the researchers. Informants were selected based on specific criteria determined by the researchers, targeting individuals deemed capable of providing relevant information for the study. In addition to primary data collection, secondary data were obtained through the review of reports and documents related to the research. This study has received ethical approval from The Research Ethics Commission of the Faculty of Public Health, Universitas Andalas (approval number: B/20/UN16.12.D/PT.01.00/2024), and permission was granted by the Provincial Health Office prior to data collection. All participants were fully informed about the study's objectives.

Results

Informants consisted of officials at the West Sumatra Provincial Health Office, managers, district/city officials or managers, psychologists, and School Health Unit teachers. Evaluation activities include input, output, and process:

1. Input

a. Policy

The policy for preventing adolescent girls anemia refers to Health Law Number 36 of 2009 concerning Health, this is found in article 142 article 1 which states that nutritional improvement efforts are carried out throughout the life cycle from the womb to prioritizing vulnerable groups including infants and toddlers, adolescent girls and pregnant and lactating mothers [11]. In

addition, Presidential Regulation No. 72 of 2021 concerning the acceleration of stunting reduction is carried out in sensitive interventions targeting adolescent age groups, brides-to-be, pregnant women, nursing mothers, and children aged 0-59 months [10]. "For adolescent girls, we refer to Presidential Regulation No. 72 concerning stunting prevention, namely the specific indicator of Fe tablet administration is the target of each province. Socialization was carried out two years ago. In 2022 the province issued a Governor's Circular Letter in 2022" (Information from head of division West Sumatra Provincial Health Office). The implementation of adolescent girls' anemia prevention also refers to National Action Plan for Improving the Welfare of School Age Children and Adolescents (RAN PIJAR). This is a policy in accordance with the Joint Ministerial Decree (SKB) of 4 (four) ministers. "The activities of checking Hb and providing iron supplement tablets are contained in the RAN PIJAR, which is an agreement between three ministers, namely the Minister of Health, the Minister of National Education, and the Minister of Religion" (Inf. from section chief West Sumatra Provincial Health Office).

b. Human resources

Human resources (HR) can be shown in the following:

"Health human resources are still not fulfilled in several health centers. Actually, the number of health

centers compared to the number of nutrition workers is sufficient, but this is due to the uneven distribution of personnel and mutations." (Inf. head of division West Sumatra Provincial Health Office)

As for the availability of Adolescent Health Cadres, it can be addressed in the following:

"Ideally there should be 10% of the total number of students in Adolescent Health Cadres. While in reality the number of Adolescent Health Cadres is only 5526 students out of 739,260 total students. So only 7.4% of the expected target has been met" (Inf. in charge of nutrition program, West Sumatra Provincial Health Office).

According to the psychologist, "Teenagers have their own language in communication. Peer counselors at school will make information more easily accepted by teenagers. Teenagers are even more receptive to information than their parents. In addition, adolescents prefer group actions called community psychology with a cognitive approach. I have an experience when we elaborate information with the condition of the circle of adolescents who are trending at that time from an adolescent counselor, making information faster and easier to accept by adolescents who are given consultation. But in counseling activities sometimes we forget these things ... when we just need to increase the capacity of adolescents who become counselors with psychological theories..." (Psychologist Informant)

Table 1. Availability of health human resources.

Health human resources	Successful districts/cities (%)	Districts/Cities that have not succeeded (%)
<i>Doctor</i>	100	100
<i>Dentist</i>	100	90.2
<i>Nurse</i>	100	100
<i>Midwife</i>	100	100
<i>Health promotion worker</i>	90	97.6
<i>Sanitation worker</i>	100	85.4
<i>Medical Laboratory Technician</i>	100	95.1
<i>Nutritionist</i>	100	97
<i>Pharmacist</i>	100	100

Table 2. Availability of adolescent health cadres.

Adolescent Health Cadres	n	%
<i>Available</i>	5526	7.5
<i>Not available</i>	73926	92.5

c. Budget

The budget for anemia prevention activities in adolescent girls in 2023 comes from the State Budget and the West Sumatra Provincial Budget in 2023. Activities carried out in the form of campaigns with the theme of Nutritious Action, socialization and advocacy.

“The allocation of funds for Hb examination activities is planned and implemented by each district/city. Meanwhile, Nutritious Action activities have been carried out at the Provincial, District / City and public health center levels, but have not touched all existing targets, therefore it is necessary to increase the budget for nutritious action campaigns at all levels. Not all health centers have conducted Hb checks on adolescent girls, due to limited examination facilities.” (Informant 1 of West Sumatra Provincial Health Office). Districts/municipalities said that activities to prevent adolescent girls anemia are sourced from Health Operational Assistance (BOK) Funds, *“The adolescent girl Hb check which is a screening activity of the public health center and the provision of iron supplement tablets is a routine activity of the public health center. These activities come from the BOK funds at the public health center, while for the Nutrition Action activities that have been carried out twice in ‘our’ city come from the provincial budget.”* (Informant from districts / cities Health Office succeeded).

As for the amount of the budget, it can be different in each public health center.

“We do not have a budget at the Health Office for Hb testing and iron supplement tablets administration activities, maybe from the BOK funds for public health center officers, it depends on the public health center later to budget it” (Informant districts / cities Health Office not successful).

Especially in the prevention of anemia in adolescents, there are still socialization and campaign activities, while the budget for coaching activities does not yet exist, as well as financing in improving health promotion.

d. Facilities and infrastructure

Regarding facilities and infrastructure for anemia prevention efforts in adolescents, specific examination tools are required, namely the Hb meter and blood test strips. The Hb meter is

provided by the Ministry of Health, while the blood test strips are supplied by public health centers, funded by their respective budgets. However, in 2023, not all public health centers conducted these screening activities for new students in grade VII of junior high school and grade X of high school.

“Actually for the provision of Fe we have no problem, but in checking Hb we have problems in purchasing strips so that the means to carry out this activity is a bit problematic” (districts /cities Health Office informant not yet successful).

Procurement of health promotion media has also not yet reached schools, *“Procurement of health promotion media in the context of preventing anemia in adolescents is still very limited. In 2023 we only procured 30 banners and banners for districts/cities in West Sumatra, this is certainly not as expected because promotional media should also be distributed to schools”* (Informant 2 West Sumatra Provincial Health Office).

“For some schools we have provided posters and banners. School Health Unit teachers are very aware of their duties in preventing adolescent anemia” (Informant 2 District/Cities Health Office)

“For promotional media, we provide 200 leaflets, but there are no posters and banners. In the Nutritious Action activity, billboards have been installed.” (inf. districts /cities Health Office not yet successful)

2. Process

a. Planning

Unsuccessful districts/cities shared the steps in the planning process for adolescent girl iron supplement tablets, *“We have planned this activity at the beginning of the year, starting from planning for iron supplement tablets by calculating iron supplement tablets needs in the Public health center area”* (Inf. District/Cities Health Office not yet successful).

However, successful districts emphasize the form of cooperation and commitment of the parties in accordance with RAN PIJAR, *“The planning of Hb and iron supplement tablets testing activities is carried out by involving the Education and School offices. There is an MoU between the Ministry of Education, Ministry of Religious Affairs*

and the Health Office regarding the provision of adolescent girl iron supplement tablets. In addition, requests for support from relevant cross-sectors, The Family Welfare Empowerment Movement (PKK) and Regional Apparatus Organization (OPD)'s are planned to be involved later in nutritious action activities." (Successful District/Cities Health Office informant)

However, in planning there are classic obstacles such as, "In planning, there is usually a mismatch with the availability of the budget also because the availability of data is not optimal so it is difficult to get the basic problems. In the regions, the low quality of human resources for planning has resulted in copy and paste activities." (Informant 1 West Sumatra Provincial Health Office)

Differences in perceptions about who is responsible for activities have caused officers to come to schools to be rejected, "Sometimes schools feel that we are interfering with the teaching and learning process..." (Informant District/Cities not yet successful)

The above will happen if the 'sense' of ownership of this activity is only a health task, "If the school feels that this activity belongs to the school, the schedule with the implementation of the program can be adjusted to the teaching and learning process so that the officers do not seem to be a nuisance". (Informant 5 West Sumatra Provincial Health Office)

The first activity invited relevant cross-sectors and continued by inviting school principals in Padang City. The output of this activity is the agreement of cross-sectors and school principals in the success of anemia prevention in adolescent girls. At the district/city level, there were no socialization activities due to budget constraints, which was a problem for both successful and unsuccessful districts/cities. However, at the public health center level, socialization activities are focused on cross-sector mini workshops that invite the regional technical implementation unit of the Education Office and the Head of the Public health center. This mini-sector workshop is held once every three months. "The school principal emphasized the schedule for the implementation of anemia prevention in adolescents. The provision of iron supplement tablets adolescent girls is carried out every month at school. Meanwhile,

the Hb check is carried out in September. The school principal has received socialization about the Hb check and iron supplement tablets administration and was emphasized again at the lokmin so that it has been agreed that the success of anemia prevention is also part of the school." (inf. Nutrition Officer, West Sumatra Province). "For communication and coordination we have carried out with the capdin as well, but for the MoU we are just designing." (Inf. School age and youth managers)

A problem in the preparation process is that not all public health center have scheduled iron supplement tablets administration activities in an effort to prevent anemia. This activity is expected to be the result of strengthening the partnership between public health center and schools.

b. Implementation

The technical implementation of iron supplement tablets in schools is also different in each district/city. Successful districts tend to strengthen partnerships and supervision from schools. "The implementation of iron supplement tablets in schools is carried out once a week, for some schools it is also added to activities such as the Annisa forum. The implementation is usually simultaneous in each class involving National Standards Guidelines for Health Care Service for Adolescent (PKPR) officers, nutrition officers including peer counselors. This is the same as other districts / cities, maybe only in the past two years we have held meetings with the Principal / school health unit Teacher of Junior / Senior High School equivalent to coordinate related to the adolescent girl iron supplement tablets program" (inf. Psychologist).

c. Supervision

Districts/cities that have not been successful tend to leave iron supplement tablets administration activities to schools. Not all schools schedule the provision of iron supplement tablets and the lack of supervision is a problem in the provision of iron supplement tablets for adolescent girls, "For activities we give a target of 26 iron supplement tablets for a year to be consumed by adolescent girls, for technicalities it depends on each school" (Inf District/Cities Health Office not yet successful)

"In schools, iron supplement tablets should be taken during the first hour of learning and determine the day of iron supplement tablets consumption, but there are still schools that think that iron supplement tablets is only given during the Nutrition Action so that the Nutrition Action, which is actually a campaign, is considered just a ceremony" (Informant 6 West Sumatra Provincial Health Office).

"It is difficult for us to monitor whether these iron supplement tablets are consumed by adolescent girls, because of the large number of female students who need to be monitored" District/Cities Health Office succeeded)

This is supported by the different perceptions of school health unit teachers about the supervision of drinking iron supplement tablets, *The supervision of drinking is of course the parents...*" (Teacher Informant 1). *"As much as possible, eat the tablets at school in front of the teacher... But hmm... there are students who have not had breakfast so they take them home and at school they will be asked if they have eaten them..."* (Teacher Informant 2).

Supervision or monitoring of students taking iron supplement tablets should be done by the school and preferably by the Adolescent Health Cadres, this is related to the unique psychology of adolescents, *"In fact, it's okay that parents don't know... it should be their peers who become counselors to re-evaluate at school. It is feared that children will*

be mocked by their parents... 'have you taken iron supplement tablets this week... etc'. Optimizing and equipping peer counselors is very good in this case ... psychologically adolescents like activities in groups or what is called community psychology. They will be passionate about the success of their group." (Psychologist Informant)

In this program, parents are expected to provide support in the urgency of iron supplement tablets for adolescent girls, not to become supervisors but to provide support to schools in implementing the iron supplement tablets adolescent girl program, *"In this case, parents are expected to be supporters, allow and support this program, because in some schools, especially favorite private schools, parents prohibit students from getting drugs and the like at school ... of course this approach is from schools to parents ..."* (District/Cities informant not yet successful)

From districts/municipalities that have reached and not reached the target, there are differences in the implementation of involving peer counsellors, *"We don't have peer counselors yet, so far every problem is consulted with officers..."* (District / Cities informant not yet successful)

"Peer counselors already exist but are not yet optimal, in solving adolescent girls problems, they still go to the health center officers..." (Inf District / Cities succeeded)

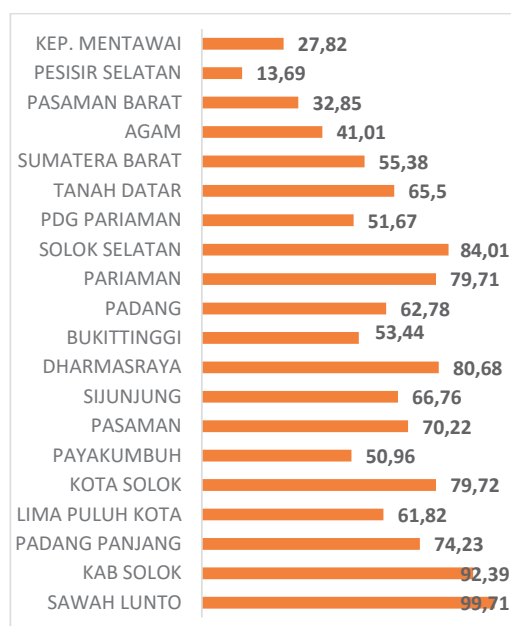


Figure 1. Achievement of adolescent girls who consume iron supplement tablets.

3. Output

Output the coverage of activities is the result of the implementation of the iron supplement tablets program for adolescent girls and is used as a report on the results of activities. The coverage of Fe tablet consumption in West Sumatra has increased as shown in the following:

“Accelerating the reduction of stunting (TPPS) monitors several indicators to accelerate stunting reduction, one of which is the consumption of Fe tablets by adolescent girls. TPPS coordination meetings are held regularly at the provincial level followed by the District/City TPPS. Then the district/city TPPS conducts coordination meetings involving the sub-district TPPS at the sub-district level followed by the health sector, education, Ministry of Religious Affairs, PKK, village government and other related elements, at monthly workshops in order to evaluate the implementation of activities including the provision of iron supplement tablets for adolescent girls. When viewed from the achievements of Fe tablet consumption in West Sumatra, there has been an increase”. (Informant 1 Provincial Health Office)

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Efforts to increase the achievements of this program must indeed be made by strengthening partnerships between community institutions and related OPDs.

“Strengthen RAN PIJAR to the Regency / City so that schools schedule so that they have careful planning. So that it does not interfere with the learning process. So that schools know the urgency and purpose of the importance of iron supplement tablets, there is also a feed back to schools. So that schools know the

results.” (Informant 4 Provincial Health Office, West Sumatra).

Discussion

The policy of providing iron supplement tablets in districts / cities has been successful, we both levels administration adhering to the same regulations, specially Presidential Regulation No. 72 of 2021 and RAN PIJAR No. 1 of 2022 and supported by the Governor’s circular of 2022 [10,12]. It is expected that each district/city will enact local regulations. The urgency of local regulations involves stages such as planning, drafting, discussion, enactment, and promulgation. This aligns with research on the importance of local regulation formation programs in improving the performance of the Regional House of Representatives [13]. Budgeting is also a significant issue. The budget for iron supplement tablet distribution has been eliminated, particularly for operational expenses such as distribution, monitoring, and training. This is consistent with research on the financial analysis of maternal and child health programs through the health account method in Jember District. Operational funding is also linked to infrastructure needs, particularly in supporting anemia screening activities among school children. The success of anemia prevention efforts in adolescent girls is closely related to the distribution of iron supplement tablets. This success is strongly supported by effective cross-sectoral cooperation, adequate health personnel, the availability of communication, information, and education media, and the low adherence rate of adolescent girls to iron tablet consumption. These findings are consistent with research on the evaluation of the iron supplement tablet program for adolescent girls in Pekanbaru City in 2019 [14]. Adolescent behavior is inseparable from the psychological uniqueness of this age group. Research on factors influencing iron supplement tablet consumption intentions among adolescent girls in two high schools in Pariaman City in 2019 found a significant relationship between perceived benefits, perceived barriers, family support, and peer support, with consumption intentions showing an odds ratio (OR) of 6.910 [15]. Additionally, peer influence plays a crucial role, as demonstrated by research on

experts' perceptions of motivators and barriers to sustainable healthy eating behavior among adolescents. This study found that peer influence in the social environment is the most decisive factor for intervention targets (N = 13; urgency M = 6.38) [16].

Conclusion

The input component reveals the absence of local regulations addressing the prevention of anemia in adolescent girls. Additionally, health human resources, which should meet the standard of nine healthcare workers, have only reached 80% of the requirement. The availability of adolescent health cadres remains very low, at just 7.5%. The number of socialization and campaign activities remains broad in scope and limited in terms of health promotion media provision. Districts/municipalities that have met the target have established partnerships with schools, enabling schools to better understand the importance of adolescent girls consuming iron supplement tablets at school. However, inadequate supervision in the prevention of anemia among adolescent girls has resulted in low compliance with iron tablet consumption activities.

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Conflict of interest

The authors declare no conflict of interest.

Data availability statement

More data is available in the author. Please contact the corresponding author for more data.

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