

## Coverage and Adherence of Weekly Iron Folic Acid Supplementation among School Going Adolescent Girls in Indonesia

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**Summary** The Weekly Iron Folic Acid (WIFA) supplementation program for school going adolescent girls has been implemented by Indonesian Government since 2016. The objective of this study was to assess the coverage and adherence toward the WIFAS among school going adolescent girls, as part of a baseline assessment of the new intervention. Methods: A cross-sectional survey was conducted in East Java (EJ) and East Nusa Tenggara (ENT) in year 2018. The samples were drawn from 60 high schools from 20 districts. The data collection was done by using a semi-structured, self-administered questionnaire. Results: The total number of respondents in EJ and ENT was 934 and 922 adolescent girls respectively, with a mean age of 17 y. The percentage of girls who reported to have received WIFAS tablet in the last six months was only 10% in ENT and 31% in EJ. The average number of WIFA tablet received was only 0.4–1.4 tablets and the average number of tablets consumed was only 0.4–0.7 tablet in the last 6 mo. Adolescent girls, who consumed at least 1 tablet was only 9% in ENT and 18% in EJ. The frequently causes of not consuming WIFA were that they forgot; did not think it was necessary; and were scared side effects. Conclusion: The coverage and adherence to WIFA program among school going adolescent girls in EJ and ENT provinces were low.

**Key Words** adolescent, adherence, coverage, iron

Anaemia problem, especially in adolescent girls has complex and long-term consequences related to children morbidity and mortality. The prevalence of anaemia among women of childbearing age in Indonesia was 22.7% (1). The Weekly Iron-Folic Acid (WIFA) supplementation program was implemented as one of strategies to tackle anaemia. This program provided iron tablets in the form of 200 mg Ferrous Sulphate (FeSO<sub>4</sub>) (equivalent to 60 mg of elemental iron) and 400 mcg folic acid in accordance with WHO recommendation to prevent adolescent girls and pregnant women from having iron deficiency anaemia (2). The iron folic acid (IFA) tablets are provided free of charge utilizing school institutions as a distribution channel.

The WIFA supplementation in Indonesia began since 2016 and still ongoing. In 2017, the MoH had targeted to supply WIFA tablets up to 20% of school going adolescent girls and gradually to be increased up to 30% in 2019 (3). National survey found that 98.6% of adolescent girls who ever received WIFA tablet at school did not consume it as much as the recommended amount

by the government or a minimum recommendation of 52 tablets/y (4).

Scaling up WIFAS programs to reach larger populations is a challenge in several developing countries. There are many barriers for successful implementation, such as supply chain management, inadequate procurement plan, and lack of understanding about anaemia, IFA supplement functions and how to handle side effects with IFA consumption (5). These barriers lead to low adherence to IFA supplements consumption.

The Nutrition International, Indonesia proposed a trial on WIFA supplementation for school going adolescent girls to reduce the prevalence of anaemia and reinstate the focus of district and national government on the WIFA supplementation program. It was initiated as a demonstration program in Cimahi and Purwakarta Districts and being scaled up to West Java and Banten Provinces. The study found a very low coverage of IFA supplementation consumption for adolescent girls both in Cimahi and Purwakarta Districts. Less than 5% of adolescent girls in both areas consumed IFA supplementation. The program then being replicated with new intervention strategies in East Java and East Nusa Tenggara. This study was conducted to assess the coverage

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Table 1. School going adolescent girls' coverage and adherence based on WIFA tablet received from school in East Java and East Nusa Tenggara during July-December 2017.

Indicators	EJ	ENT
	n (%) n=934	n (%) n=922
Received at least 1 tablet of WIFA supplement within 6 mo	291 (31.2)	91 (9.9)
Received the recommended scheme of WIFA supplement (at least 24 tablets within 6 mo)	11 (1.2)	0 (0.0)
Received at least 12 tablets of WIFA within 6 mo	27 (2.9)	0 (0.0)
Mean±SD amount of WIFA tablets over 6 mo	1.4±3.5	0.4±1.3
Consumed the recommended scheme (at least 24 tablets within 6 mo)	9 (1.0)	0 (0.0)
Consumed at least 1 tablet of WIFA received	168 (18.0)	83 (9.0)
Consumed at least 12 tablets for 6 mo	10 (1.1)	0 (0.0)
Consumed all of WIFA tablets received	77 (26.5)	77 (84.6)
Mean±SD amount of WIFA tablets consumed	0.7±2.7	0.4±1.2

and adherence toward the WIFA supplementation program among school going adolescent girls, as part of a baseline assessment of an intervention study to improve WIFAS program.

### MATERIALS AND METHODS

*Study design and participants.* This cross-sectional survey was conducted in East Java (EJ) and East Nusa Tenggara (ENT) in the year 2018. The data collection was done in 10 districts in each province. The districts were Sampang, Bangkalan, Ngawi, Lumajang, Banyuwangi, Jember, Pacitan, Ponorogo, Situbondo, and Bondowoso in EJ and Kupang, Alor, Ende, Nagekeo, Mangarai Barat, Ngada, Sumba Barat Daya, Sumba Tengah, Sabu Raijua, and Malaka in ENJ. The study was carried out between February and March 2018.

The samples were drawn from 60 high schools in 20 districts, involving school going adolescent girls in the age group of 15–19 y old. The sampling procedure was systematic random sampling, both for schools and school going adolescent girls' selection. In each school, 30 adolescent girls were selected from grades X, XI, and XII by systematic random sampling for each grade. Thus, the total number of school going adolescent girls, who participated in this study were more than 1,800 girls from two provinces; 934 girls from East Java and 922 girls from East Nusa Tenggara in detail. Ethical clearance for the study was obtained from FKUI-RSCM Research Ethical Committee No. 0057/UN2.F1/ETIK/2018. All schools involved in this study gave informed consent for their participation.

*Data collection and analysis.* The data collection was carried out by using a semi-structured self-administered questionnaire where the respondents wrote the answer by themselves with the assistance of enumerators.

The total number of tablets that were received and consumed by the girls were collected by recall method (based on memory) within the last six months (July to December 2017). The enumerators helped informed them about the day and date of tablet distribution based on information or data from their teachers. The respondents were also asked about the reasons why if they did

not consumed all/some of WIFA tablets received.

Local enumerators were recruited and trained prior to doing data collection. The data was analyzed by using SPSS for windows for statistical analyses. Descriptive analyses was implemented to present the indicators. The data was presented as means and SD for continuous variables and as proportions for categorical data.

### RESULTS AND DISCUSSION

#### *The coverage and adherence of WIFA supplementation*

The adolescent girls' involved in this study were in the age group of 15–19 y old (17 y old in average) that mostly came from regular high schools/madrasah aliyah in East Java and regular/catholic high school in East Nusa Tenggara. The findings regarding to the coverage indicators of WIFA supplementation on school going adolescent girls during July-December 2017 are presented in Table 1.

From 30 schools in each province, the number of school who already implemented IFA program was only 46.7% in East Java and 36.7% in East Nusa Tenggara. The number of adolescent girls who received at least 1 tablet of WIFA in East Java and East Nusa Tenggara were only 31% and 10%, respectively. Only 1.2% of girls in East Java received WIFA according to the recommended scheme that was at least 24 tablets within 6 mo. The girls who received at least half of the recommended scheme (12 tablets within 6 mo) in East Java were 2.9%, while in East Nusa Tenggara there was no girls who received at least 12 tablets of WIFA within 6 mo. The mean value of WIFA tablet received by the girls was vary, that was 0.4–1.4 tablet.

Most of the girls stated that the regimen counseled by school was to consume IFA once in a week, but we still found several different regimens implemented in the study areas, The delivery system of IFA supplementation had not been similar among schools and regions, where only about 58–66% of adolescent girls exposed to an ideal delivery system (once a week), however the delivery only last for few weeks.

Most of the girls in East Java received IFA tablets for the first time in August and November, while in East

Table 2. Reason for not consuming all WIFA tablets received in East Java and East Nusa Tenggara.

Indicators	EJ n (%)	ENT n (%)
Adherence	<i>n</i> received=291	<i>n</i> received=91
Did not consume some/all of WIFA tablets received	213 (73.2)	14 (15.4)
Consumed all of WIFA tablets received	77 (26.5)	77 (84.6)
Reason for not consuming all WIFA tablets	<i>n</i> =213	<i>n</i> =14
Forgot to take	88 (41.3)	5 (35.7)
Do not consider necessary	41 (19.2)	1 (7.1)
Had side effects after consuming WIFA	33 (15.5)	1 (7.1)
Did not like the taste	21 (9.9)	4 (28.6)
Did not know that we need to eat a certain amount	10 (4.7)	1 (7.1)
Not receiving any more	3 (1.4)	2 (14.3)
Myths/beliefs	3 (1.4)	0 (0.0)
Absent or did not go to school	2 (0.9)	0 (0.0)
Family member asked me not to take any more WIFA	1 (0.5)	0 (0.0)
Others (afraid of consuming WIFA tablets, consuming other drugs)	1 (0.5)	0 (0.0)
No respond	18 (8.5)	1 (7.1)

Nusa Tenggara and South Sulawesi were in July and November. Most of adolescent girls (>90%) received IFA in the form of tablet as national recommendation.

The findings showed that the level of adherence in consuming WIFA supplements was very low. The proportion of adolescent girls who consumed the recommended scheme of WIFA was only 1% in East Java, while in East Nusa Tenggara and was 0%. As the proportion of adolescent girls, who consumed at least 1 tablet of WIFA was 18%, but East Nusa Tenggara had a lower coverage (9%) compared to East Java. If a standard of 50% adherence was used, only 0–1% of adolescent girls adhere to WIFA supplementation. The mean value of tablet consumption within six months for adolescent girls in East Java and East Nusa Tenggara were 0.4–0.7 tablet (Table 1).

#### *The reason for non-adherence*

Most of the school going adolescent girls stated that they did not consume WIFA because they forgot (36–41%), felt any side effects (7–16%), and did not like the tablet taste (10–29%). What was interesting was adolescent girls did not want to take WIFA because they did not think it was necessary (7–19%). The specific information about the reasons for not consuming WIFA tablets received is shown in the Table 2.

### DISCUSSION

The government regimen for WIFA distribution to school going adolescent girls is one tablet per week for 12 consecutive months. In this study, among adolescent girls who ever received WIFA within July to December 2017, only 22% of them in East Java and less than 1% of them in East Nusa Tenggara received WIFA according to the recommended scheme (24 tablets within 6 mo). These findings indicate that the WIFA coverage is very low compared to the national target. According to the Strategic Plan of Indonesia Health Ministry 2015–2019, target for WIFA coverage for adolescent

girls is 10% in 2015 and 30% in 2019. , however it is found that some schools received WIFA at a varied time: in 2016, 2017, and 2018. Some schools received for only couple weeks and then the tablets delivery from PUSKESMAS did not continue. There is no data regarding the total WIFA coverage in Indonesia as per 2015, 2016, and 2017. It should be noted that WIFA is targeted for all adolescent girls, not only school going adolescent girls.

In East Nusa Tenggara, WIFA supplementation program only covered few schools (36.7%), thus the number of adolescent girls who received WIFA tablets was still limited. However, school teachers and students had higher acceptance towards the program compared to East Java, based on the higher adherence level in East Nusa Tenggara.

This study showed that the level of adherence in consuming WIFA supplements was very low, 1% in East Java, and 0% in East Nusa Tenggara. On average, the adolescent girls consumed only 0.4–0.7 tablet within the last 6 mo. This coverage level was very low, thus the level of adherence also showed the very low number. Study in India showed that the adherence level calculated as mean of unconsumed WIFA tablets that was only 78 from 780 tablets received (10% unconsumed tablets) showed a positive result in haemoglobin improvement (6).

The school going adolescent girls stated that they did not consume WIFA because they forgot, felt any side effects, and did not like the tablet taste. It was interesting that some adolescent girls stated that they did not want to take WIFA because they did not think it was necessary. In the pilot study on Cimahi and Purwakarta District, the adolescent girls stated the reasons for low adherence were because they “did not feel it was necessary to consume the tablets during menstruation”, “did not understand at which amount they should end the course of consumption”, “was worried the tablet is ex-

pired”, and “was due to other reason”. In several countries, knowledge regarding the benefits and potential side effects of WIFA tablet from health workers and communities are the key to the success of iron supplementation program both for adolescent girls and pregnant women (7–9).

There are two basic schemes of WIFA delivery at schools. The first scheme is school distributed the tablets to be consumed together at schools on designated day, while the second scheme is school distributed the tablets to be consumed at home. The first scheme ensure that the tablet was consumed under teacher’s direct supervision. However, if students did not have their breakfast, sometimes teacher asks students to consume it at home to minimize side effects. In such cases, student may forgot to consume the tablet at home.

In India, WIFA supplementation for adolescent girls has been implemented on large-scale district-level in Uttar Pradesh. WIFA tablets were distributed on a fixed day of the week and designated as “UMANG Day.” Every Saturdays the WIFA tablets was distributed and consumed by school girls under the supervision of teachers and peers. Only a few girls who had problems with gastrointestinal were advised to consume the tablets after dinner and were therefore not supervised (9).

A study in Bali showed that there were various reasons for non-adherence of WIFA supplementation because of bad taste, forgotten, losses, taken other drugs, and nausea (10). Evaluation of the WIFA program at Bogor City showed that only 28.6% of female students adhere to consume WIFA tablets (11). About 80% of students did not like the taste and the smell of WIFA tablet. Nevertheless, WIFA low adherence was not only because of WIFA acceptances but also determined by the role of teacher to motivate and encourage the students to consume WIFA tablet (12).

### CONCLUSION

The coverage and adherence of WIFA supplementation in East Java and East Nusa Tenggara were still low. Forgetting to take WIFA tablet could be avoided by conducting WIFA distribution and consumption at the same time in school. It is also needed to develop a school peer groups in order to increase the level of WIFA adherence, and improving girls’ understanding about positive impact of WIFA and how to manage its possible side effect.

#### Disclosure of state of COI

No conflicts of interest to be declared.

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