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RESEARCH ARTICLE

# Overview of compliance to taking iron-folic acid supplementation at primary healthcare centre during the Covid-19 pandemic

Hanie Kusuma Wardani<sup>1</sup>, Hanni Prihastuti Puspitasari<sup>2</sup> , Yuni Priyandani<sup>2</sup> 

<sup>1</sup>Pharmaceutical Sciences Master Programme, Faculty of Pharmacy, Airlangga University, Surabaya, Indonesia

<sup>2</sup>Department of Community Pharmacy, Faculty of Pharmacy, Airlangga University, Surabaya, Indonesia

## Keywords

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## Correspondence

Hanie Kusuma Wardani  
Pharmaceutical Sciences Master  
Programme  
Faculty of Pharmacy  
Airlangga University  
Surabaya  
Indonesia  
[hanie.kusuma.wardani-2020@ff.unair.ac.id](mailto:hanie.kusuma.wardani-2020@ff.unair.ac.id)

## Abstract

**Background:** One of the causes of anaemia in pregnant women is the insufficient intake of iron-folic acid (IFA) supplementation. However, the COVID-19 pandemic disrupted the mobility of people, including pregnant women who were receiving IFA supplementation. **Objective:** To assess pregnant women's compliance in taking IFA supplementation tablets at the primary healthcare centre in the North Region of Kediri City during the COVID-19 pandemic. **Methods:** This study was observational with a cross-sectional approach that utilised secondary data from the register of pregnant women and the list of IFA supplementation distribution in the North Region of Kediri City primary healthcare centre from January to December 2021. **Results:** There were 767 visits made by pregnant women throughout 2021, with data collected from 366 pregnant women. Of these, 28% (101 people) of pregnant women took more than 90 tablets of IFA supplementation. In comparison, pregnant women had experienced anaemia during pregnancy were 11% (41 people). Pregnant women who experienced chronic energy deficiency 5% (19 people) are indicated by an upper arm circumference of less than 23.5cm. **Conclusion:** The compliance of pregnant women who took IFA supplementation tablets at primary healthcare centres was relatively low, so that it could cause anaemia.

## Introduction

The predominance of iron deficiency anaemia due to insufficient iron intake in pregnant women in lower middle-income or developing countries contributes significantly to the global incidence of anaemia (Benz *et al.*, 2018; Besarab & Hemmerich, 2018; Burz *et al.*, 2019). Pregnant women who experience frailty are at risk of severe health issues for both the mother and the fetus. In low- and middle-income countries, there is an overall 12% rate of babies born with low birth weight (LBW), 19% premature births, and 18% mortality of newborn infants and children due to anaemia in pregnant women (Rahman *et al.*, 2016). In Indonesia, the prevalence of babies with LBW is 6.2-11%, while the infant mortality rate ranges from 5-17% (Ministry of Health, Republic of Indonesia, 2018).

Based on this suggestion, the Indonesian Government seeks to address the vulnerability of pregnant women by implementing an iron-folic acid (IFA) supplementation program. Each tablet contains 60 mg of iron and 400 mcg of folic acid and is taken for at least 90 days during pregnancy. This program began in 1990, but the issue of iron deficiency in Indonesia remains unresolved (Ministry of Health, Republic of Indonesia, 2020).

IFA supplementation in Indonesia is primarily provided at primary healthcare centres. Pregnant women who get antenatal care (ANC) at these centres can receive free IFA supplements (Ministry of Health of the Republic of Indonesia, 2014). However, the COVID-19 pandemic that began in early 2020 has disrupted community mobility, causing pregnant women to be

reluctant to visit healthcare facilities due to the fear of contracting the disease. Consequently, the number of pregnant women visiting primary healthcare centres led to a decline in the achievement rate of the IFA supplementation program (Yurissetiowati & Baso, 2021).

This study aims to determine pregnant women's compliance with IFA tablets at the primary healthcare centre during the COVID-19 pandemic.

## Methods

This study was observational with a cross-sectional approach over three months, from April to June 2022. This research utilised secondary data obtained from the register of pregnant women and the list of those receiving IFA supplementation tablets at the primary healthcare centre in the North Region of Kediri City, covering the period from January to December 2021.

The sample for the study utilised a total sampling technique, including all pregnant women. The variables examined in this research encompassed pregnant women who consumed 90 tablets of IFA supplementation, pregnant women with anaemia during pregnancy, and pregnant women with chronic energy deficiency.

## Results

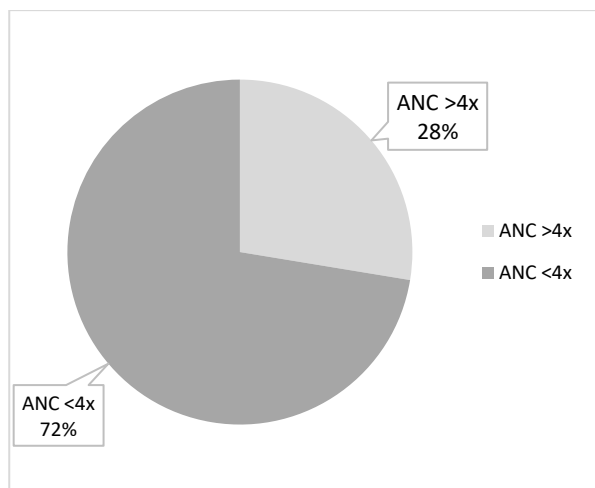
The findings of this research indicate that were 767 visits made by pregnant women throughout 2021, involving 366 individual pregnant women. Among these, 95% (245 people) resided within Kediri City, while 6% (21) were outside the city. In terms of age, the pregnant women in this study were categorised as follows, 4% (15 people) were under 20 years old, 78% (287 people) were between 20 and 35 years old, and 17% (64 people) were over 35 years old (Table I).

**Table I: Demographic data of pregnant women**

Demographic data	Consumption of IFA >90	Consumption of IFA <90	Total	Percentage
<b>Pregnant women's place of residence</b>				
Kediri City	101	244	345	94.26%
Outside of Kediri City	0	21	21	5.74%
<b>Total</b>	<b>101</b>	<b>265</b>	<b>366</b>	<b>100%</b>
<b>Pregnant women's age</b>				
<20 years old	1	14	15	4.10%
20-35 years old	76	211	287	78.42%
>35 years old	24	40	64	17.48%
<b>Total</b>	<b>101</b>	<b>265</b>	<b>366</b>	<b>100%</b>
<b>IFA's consumption</b>				
>90 tablets	101		101	27.60%
<90 tablets		265	265	72.40%
<b>Total</b>	<b>101</b>	<b>265</b>	<b>366</b>	<b>100%</b>
<b>Hb (haemoglobin)</b>				
<11 mg/dL	13	28	41	11.20%
>11 mg/dL	81	107	188	51.37%
No data	7	130	137	37.43%
<b>Total</b>	<b>101</b>	<b>265</b>	<b>366</b>	<b>100%</b>
<b>Upper arm circumference</b>				
<23.5 cm	9	10	19	5.19%
>23.5 cm	92	255	347	94.81%
<b>Total</b>	<b>101</b>	<b>265</b>	<b>366</b>	<b>100%</b>

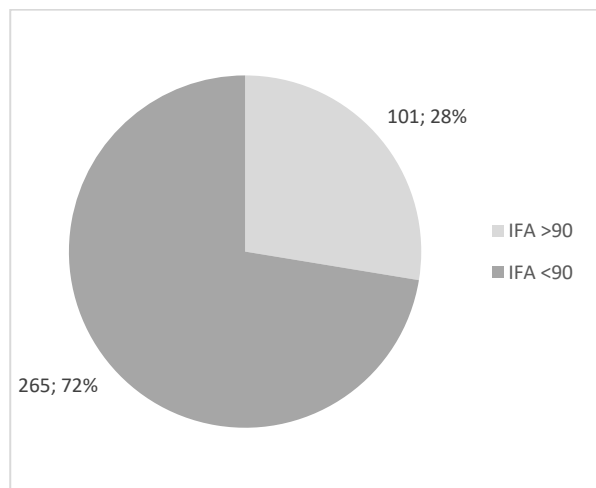
Figure I illustrates the visits of pregnant women who received antenatal care (ANC) during the data collection period. Among the pregnant women, 28%

(101 people) received ANC services more than four times. Meanwhile, 72% received ANC services less than four times.



**Figure 1: Attendance in ANC of pregnant women**

Regarding the consumption of IFA tablets, 28% (101 people) of pregnant women consumed more than 90 tablets of IFA (Figure 2). Based on the measurement of haemoglobin (Hb) levels, pregnant women who experienced anaemia during pregnancy were categorised as follows: 11% (41 people) had Hb levels below 11mg/dL, 51% (188 people) had Hb levels above 11mg/dL, and 37% (137 people) pregnant women had no Hb data.



**Figure 2: IFA's consumption of pregnant women**

Regarding chronic energy deficiency, 5% (19 individuals) of pregnant women exhibited this condition, with an upper arm circumference of less than 23.5 cm. On the other hand, 95% (347 individuals) of pregnant women had an upper arm circumference greater than 23.5.

## Discussion

Primary healthcare centres are the leading provider of individual and regional public health services within a specific region (Ministry of Health Republic of Indonesia, 2019). It is vital to integrate the ANC program and IFA supplementation for pregnant women (Ministry of Health, Republic of Indonesia, 2014). According to the findings of this study, it was observed that 95% of pregnant women who received the benefit of ANC and IFA supplementation resided within Kediri City. This data indicated that the primary healthcare centre has been functioning optimally.

More than half of pregnant women who visited the primary healthcare centre for ANC (78%) were between 20 and 35. Age is considered a risk factor for anaemia, as it relates to the readiness of the female reproductive organs for pregnancy. Healthy reproduction is commonly observed within the age range of 20 to 35 years (Harahap & Lubis, 2021). Pregnant mothers 20 years or older than 35 are at a significantly higher risk of experiencing anaemia, up to 3.921 times higher than pregnant women within the age range of 20 to 35 years (Sari *et al.*, 2021). Regarding compliance with taking IFA supplements, expectant mothers aged between 25 and 29 years have twice the likelihood of being compliant compared to those over the age of 35 years (Gebremichael & Welesamuel, 2020).

Nearly half of the pregnant women who participated in this study (49%) were found to have anaemia. Anaemia in pregnant women is a global issue, with the World Health Organisation (WHO) reporting a worldwide incidence of anaemia at 38% (WHO, 2020). South Asia, Africa, and low-income countries have a higher prevalence of anaemia among pregnant women compared to Asian countries and other upper-middle-income countries (Rahman *et al.*, 2016). In Indonesia, the Basic Health Research (Riskesdas) study revealed a prevalence of anaemia among pregnant women of 48.9%, similar to the rates in low-income countries (Ministry of Health Republic of Indonesia, 2018). This problem can be attributed to insufficient dietary intake, particularly the low consumption of animal-source foods, green leafy vegetables, and fruits in developing nations (Stevens *et al.*, 2013).

Inadequate dietary status can lead to chronic energy insufficiency (CED), characterised by an upper arm circumference measurement of less than 23.5cm. Upper arm circumference indicates the nutritional status of pregnant women used to assess the risk of CED and screen for Low Birth Weight (LBW) births (Oktaviani & Elsanti, 2020). The prevalence of CED among pregnant women in Indonesia is 17.3% (Ministry of Health, Republic of Indonesia, 2018). Based on the

study results, 347 respondents (94.8%) had an upper arm circumference greater than 23.5 cm.

In this study, two hundred sixty-five pregnant women (72%) received less than 90 tablets of IFA supplementation. It is important to note that consuming 90 pills of IFA during pregnancy is sufficient to meet the iron requirements of both the mother and the developing embryo. However, most pregnant women take IFA supplements for only two months because of forgetfulness, too many tablets, and fear of experiencing side effects after consumption (Gebremichael & Welesamuel, 2020). Another study by Mekonnen et al. (2021) identified perceived benefits as a significant factor influencing compliance with IFA supplementation.

Pregnant women who perceive high benefits after consuming IFA supplements are 2.72 times more likely to comply than those with low perceptions of benefits (Mekonnen et al., 2021). This indicates that pregnant women's understanding of the usefulness and advantages of IFA supplements in reducing the risk of anaemia and their awareness of the benefits for themselves and their babies play a significant role in their adherence to IFA supplements. One effective method to enhance pregnant women's perceptions of the benefits of IFA is counselling. Pregnant women who receive counselling on anaemia and IFA supplementation from healthcare providers are significantly more likely to comply. Pregnant women who received IFA counselling were 2.28 times more likely to comply with IFA supplementation compared to those who did not receive any counselling at all (Mekonen & Alemu, 2021).

## Conclusion

The level of compliance among pregnant women who took IFA supplementation tablets at primary healthcare centres was relatively low, indicating the potential for anaemia.

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