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RESEARCH ARTICLE

Knowledge, attitudes, and behaviour of students about iron supplementation to prevent stunting

Rita Mela Kurnia Weno Saputri¹, Gusti Noorizka Veronika Achmad² , Mareta Rindang Andarsari² , Ana Yuda² 

¹ Faculty of Pharmacy, Universitas Airlangga, Surabaya, Indonesia

² Department of Pharmacy Practice, Faculty of Pharmacy, Universitas Airlangga, Surabaya, Indonesia

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Correspondence

Ana Yuda
Department of Pharmacy Practice
Faculty of Pharmacy
Universitas Airlangga
Surabaya
Indonesia
Ana-y@ff.unair.ac.id

Abstract

Background: The Indonesian government is trying to achieve the target of one of the indicators of the Sustainable Development Goals, namely stunting. Stunting is a chronic condition that occurs due to risk factors for malnutrition in women of childbearing age who are menstruating. One indicator of malnutrition in women is anaemia. **Objective:** Women of childbearing age should routinely use iron supplements to replace blood loss during menstruation to avoid anaemia. Knowledge about stunting and iron should be the basis of positive and negative attitudes that significantly affect individual behaviour. **Method:** When collecting data, a cross-sectional questionnaire study was tested for validity and reliability. **Result:** Respondents needed more knowledge about stunting than positive behaviour and favourable attitudes towards iron supplementation. Furthermore, there was a correlation between knowledge and attitudes ($p < 0.001$; $r = 0.479$), then the relationship between knowledge and behaviour has an important relationship ($p = 0.003$; $r = 0.207$), and the relationship between attitudes and behaviour was significant ($p < 0.001$; $r = 0.476$). **Conclusion:** Education is needed to increase respondents' knowledge; hence, respondents can have more positive attitudes if they are educated, which will increase compliance.

Introduction

Sustainable development goals (SDGs) have 17 items. Zero hunger, SDG 2 is linked to reducing stunting and wasting in children under five years of age and addressing the nutritional needs of adolescent girls, pregnant and lactating women, and older persons by 2025. If these can be implemented, there will be no malnutrition in Indonesia by 2030. Currently, in Indonesia, the prevalence of stunting in 2022 is 21.6% (Ministry of Health, 2023). This shows that it is still far from the target of the National Medium-Term Development Plan on reducing stunting by 2024 to 14%. Several factors can contribute to stunting before pregnancy, particularly in prospective mothers: one is the age of the pregnant woman when she is too young (under 20 years old), another is the mother's height (short), and the third is malnutrition. One indication of

malnutrition in prospective mothers is anaemia, primarily in women of childbearing age. Anaemia is common in women of childbearing age, adversely affecting the growth and development of the fetus in the womb, and has the potential to cause complications during pregnancy and childbirth. The most significant visible impact caused by anaemia, especially in pregnant women, is to increase the risk of maternal and infant death, low birth weight, premature birth, and affect children's physical and mental development—premature birth is associated with increased risk of stunting (Sirait & Suryanegara, 2021). Anaemia in adolescent girls and women of childbearing is caused by experiencing a menstrual cycle that causes significant blood loss every month, such that iron is needed twice as much during the menstrual cycle.

The Indonesian government's efforts in handling stunting-related problems are intensifying the anaemia

prevention and control programme in women of childbearing by prioritising administering iron supplements, one tablet every week, to reduce 50% of anaemia prevalence by 2025. Iron supplementation programmes for women aged 15-49 with independent iron supplement administration were obtained independently from pharmacies or drug stores (Ministry of Health of the Republic of Indonesia, 2018). Stunting prevention is essential as early as possible to avoid adverse long-term impacts. Female students need to know the harmful risks of stunting. This study examined female students' knowledge, attitudes, and behaviour related to stunting and using iron supplements in the Surabaya area.

Methods

Design

This study was an observational, analytical, quantitative research study with a cross-sectional design method approach, covering September 2022 to June 2023. The data used primary data with the criteria of respondents aged at least 17 years, non-medical study programme students diploma-4, to graduate level, unmarried, not having children, and not menopausal yet. Sampling was carried out using incidental sampling techniques with the data collection method in this study, which was by giving questionnaires directly to female students studying at universities in the Surabaya City area.

Sample size and sampling technique

The infinite population calculation formula has a 95% confidence level and a 10% precision, so the number of samples needed is a minimum of 97 respondents. Questionnaires were distributed to the students according to the criteria in selected universities.

Administration of the questionnaire and data analysis

The knowledge variables for the Guttman scale assessment consisted of 24 question items. Stunting knowledge was assessed in as many as ten statement items. Iron supplement knowledge questions were addressed in 14 items. Furthermore, the score obtained was totalled, with the total score divided into categories on knowledge: Good ($\geq 75\%$), Fair ($>56\%$ - 74%), and Poor ($>55\%$). Then, the attitude variable consisted of 20 statements with eight stunting statements and 12 iron supplements statements. Attitude measurement using the Likert scale with score values 1 to 4. Then, the score obtained was totalled,

with the total score divided into categories on attitudes divided into two categories: positive attitude with a score of $\geq 50\%$ and negative attitude with a score of $< 50\%$. The behavioural questionnaire consisted of eight statements regarding the use of iron supplements. Furthermore, the score obtained will be the total score, and behaviour can be divided into two categories: positive behaviour with a score of $\geq 50\%$ and negative behaviour with a score of $< 50\%$ (Riyanto, 2013).

The validity test carried out is face and content validity, and trials were conducted on subjects with the same criteria as prospective respondents. Content validity and reliability were carried out on research data with Kolmogorov-Smirnov and Cronbach's Alpha, and it was found that all question items were valid and reliable.

The data is processed descriptively and presented in frequency and percentage tables. Each variable was tested for normality using Kolmogorov Smirnov, and then a correlation test was carried out with the appropriate analysis using the SPSS 25 version.

Results

Demographic characteristics

Based on Table I, the youngest respondent was 18 years old, and the oldest was 29 years old, with a modest age of 21. Since this age range is productive, nutritional deficiencies can severely affect productivity and activities.

Table I: Demographic characteristics (n=201)

Category	n (%)
Age (years)	
18	13 (6.5)
19	31 (15.4)
20	45 (22.4)
21	53 (26.4)
22	41 (20.4)
23	15 (7.5)
24	2 (1.0)
29	1 (0.5)
Education level	
Diploma-3	1 (0.5)
Diploma-4	20 (10.0)
Undergraduate	175 (87.1)
Graduate	5 (2.5)

Based on Table II, only 12 respondents (6%) had good knowledge about stunting and iron supplementation.

Most respondents (70.6%) have poor knowledge. However, 191 (95%) respondents have a positive attitude about stunting and iron supplements, which means they tend to agree with the benefits of iron supplements in preventing stunting in their babies. In measuring usage practices, it turns out that most respondents do not comply with using iron supplements even though they have a positive attitude.

Table II: Profile categories of knowledge, attitudes, and behaviour of respondents

Category	Score	n (%)
Knowledge		
Good	>75%	12 (6.0)
Fair	≥55% - 75%	47 (23.4)
Poor	<55%	142 (70.6)
Attitudes		
Positive	≥50%	191 (95.0)
Negative	<50%	10 (5.0)
Behaviour		
Good	≥50%	57 (28.4)
Poor	<50%	144 (71.6)

Normality test

On the normality test, all variables show data that is not normally distributed with a significance value < 0.05. Then, the correlation testing used is a non-parametric correlation analysis test carried out using *Spearman Rank correlation*.

Spearman rank correlation

Based on Table III, the relationship between knowledge variables and attitude variables is positively correlated with a correlation value of 0.479 with a GIS value of > 0.001 ($p < 0.05$). Hence, the correlation between knowledge and attitudes is significant and includes a moderate correlation. The Spearman Rank correlation test shows that the relationship between knowledge variables and attitude variables obtained a correlation value of 0.476 with a GIS value of 0.000 ($p > 0.05$); the correlation between attitude variables and behavioural variables is significant and includes moderate correlation. The relationship between knowledge and attitude variables obtained a correlation value of 0.479 with a GIS value of 0.000 ($p < 0.05$); the correlation between knowledge and attitudes is significant and includes a moderate correlation.

Table III: Spearman rank correlation

Variable	Knowledge	Attitudes	Behaviour
Knowledge		$r = 0.479$	$r = 0.207$
		$p = 0.000$	$p = 0.003$
Attitudes	$r = 0.479$		$r = 0.476$
	$r = 0.000$		$p = 0.000$
Behaviour	$r = 0.207$	$r = 0.479$	
	$p = 0.003$	$p = 0.000$	

Discussion

Knowledge of stunting and iron supplements is the basis for the formation of positive attitudes and negative attitudes that will affect actual individual behaviour, which is the use of iron supplements. The results of the questionnaire on knowledge showed that female students did not know the first steps to prevent stunting, such as taking iron supplements and avoiding the age of marriage under 20 years. Research has shown that factors causing stunting in young mothers (19 years or younger) can affect the health and nutrition of newborns and their mothers. Teenage pregnancy is associated with poor childbirth and growth deficits, including low birth weight and stunting (Oot et al., 2018). Lack of understanding is influenced by lack of knowledge and education since respondents have non-health backgrounds, affecting the knowledge transfer process to respondents from non-health education environments.

The results show that non-health students need further education about stunting and iron supplements. Research related to stunting prevention was conducted on women of childbearing potential, and the results showed that after education about stunting prevention was given to women of childbearing age, the knowledge and attitudes related to stunting prevention increased (Medinawati et al., 2022). Although the attitude section of the questionnaire showed positive results, the behaviour of respondents still needs to be monitored to prevent stunting by avoiding anaemia, which is a risk factor for stunting. Respondent's lack of behaviour may be caused by side effects from iron supplements because they must take them before bed to avoid side effects.

A positive relationship between knowledge variables and attitude variables was found from the analysis results, indicating that better knowledge will result in a more positive attitude. Knowledge is the basis that will affect a person's attitude towards something. A good knowledge of stunting prevention and the use of iron supplements can promote a good attitude. Women of childbearing age are likely to have a positive attitude towards stunting prevention because they feel anxious

and afraid about their children's health, according to research by Hartanti (2021). An objective should be to assist women of childbearing age increase their knowledge by seeking health information related to iron supplements that can improve their knowledge. Another study showed a significant relationship between knowledge and adolescent girls' adherence to iron supplements. Respondents with high knowledge are more compliant in taking iron supplements. Knowledge is needed to boost attitudes and behaviours daily, so knowledge and goals of taking iron supplements must be continuously improved. (Saridewi et al., 2019).

A moderate correlation was found between knowledge and attitudes and between attitudes and behaviour, while a weak positive correlation was found between knowledge and behaviour. The interpretation of this correlation analysis results is that the higher the respondents' knowledge, the more positive attitudes and the better the behaviour of respondents. Knowledge can be increased through education, counselling, or seminars, especially for women of childbearing who take tertiary education in non-health fields far from health issues. In addition, booklets can contain information about the importance of maintaining hygiene and sanitation, the importance of regular health checks in children to detect growth problems or malnutrition early and the administration of iron supplements to women of childbearing age.

Conclusion

This study suggested a significant positive relationship between respondents' knowledge and attitudes regarding stunting and iron supplement use. So, increased knowledge will increase respondents' positive attitudes towards the benefits of iron supplements for stunting prevention. Respondents' knowledge and attitudes are also positively related to the behaviour of using iron supplements, so educational efforts are needed from the government so that the programme to overcome stunting through iron supplementation in women of childbearing age can be achieved, and future generations of Indonesia become more qualified.

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Ethics approval

This research has received ethical approval from the ethics committee of the Faculty of Pharmacy, Universitas Airlangga No.20/LE/2023.

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