

Effectiveness of Take and Give Method on Knowledge, Attitude, Adherence Iron Tablets in Pregnant Women

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ABSTRACT

Anemia in pregnancy remains a significant concern due to its potential adverse effects on both mother and fetus. This study aimed to assess the effectiveness of the Take and Give method in improving pregnant women's knowledge, attitude, and adherence to iron tablet consumption. A quasi-experimental design with a pre-test-post-test control group was employed, involving 60 pregnant women divided into intervention and control groups. The intervention group received education using the Take and Give method, while the control group used standard KIA books. Data were analyzed using the Wilcoxon and Mann-Whitney U tests. Data analysis results indicated that the 'Take and Give' method significantly influenced the increase in knowledge (p-value $0.000 < 0.05$), attitude (p-value $0.000 < 0.05$), and adherence (p-value $0.000 < 0.05$). Furthermore, the 'Take and Give' method was more effective in improving pregnant women's knowledge, attitude, and adherence to iron tablet consumption compared to using KIA book media (knowledge p-value $0.003 < 0.05$, attitude p-value $0.001 < 0.05$, adherence p-value $0.049 < 0.05$). The Take and Give method not only conveys information but also effectively shapes understanding and emotional responses affectively and evaluatively. This study recommends it as an innovative strategy to enhance understanding and positive behavioral changes in iron tablet consumption among pregnant women. The Take and Give method proved more effective than conventional methods in enhancing health behavior regarding iron supplementation in pregnancy.

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1. INTRODUCTION

Anemia in pregnancy remains a major public health issue globally, particularly in developing countries. The World Health Organization defines anemia in pregnancy as a hemoglobin level below 11 g/dL, with iron deficiency accounting for approximately 95% of cases (Nasla, 2022). Anemia during pregnancy can result in complications such as fatigue, premature birth, low birth weight, and increased maternal and neonatal mortality rates (Kemenkes, 2018). To mitigate these risks, the Indonesian government recommends that pregnant women consume at least 90 iron tablets throughout pregnancy. However, adherence to iron tablet consumption is still suboptimal. Several factors contribute to non-compliance, including lack of knowledge, poor attitudes, low motivation, inadequate family support, and forgetfulness (Bangun et al., 2021). According to the 2023 East Java Health Profile, the anemia prevalence among pregnant women in the province was 12.53%, with Gayungan Public Health Center in Surabaya reporting the highest local prevalence at 4.48% (Dinkes Jatim,

2023). Effective health education is essential to improve iron tablet adherence among pregnant women. The traditional method using the Maternal and Child Health (MCH) handbook is often limited in its impact, especially among individuals with low educational backgrounds. Therefore, more interactive educational strategies are needed to foster behavioral change.

The Take and Give method is a participatory learning technique that involves exchanging information using visual cards. This method encourages active engagement and collaborative learning, which enhances knowledge retention and supports behavior modification (Meiwulan, 2020). Previous studies have shown that the Take and Give method can be effective in improving cognitive and behavioral outcomes in health education settings (Pahri, 2023). This study aims to evaluate the effectiveness of the Take and Give educational method in improving knowledge, attitudes, and adherence to iron tablet consumption among pregnant women at the Gayungan Public Health Center, Surabaya.

2. METHOD

This study employed a quasi-experimental design with a pre-test–post-test control group approach. The study was conducted from January to March 2024 at the Gayungan Public Health Center, Surabaya, East Java. The objective was to determine the effectiveness of the Take and Give method in increasing knowledge, improving attitudes, and enhancing adherence to iron tablet consumption among pregnant women. The population consisted of all pregnant women who attended antenatal care at the Gayungan Public Health Center. A total of 60 pregnant women met the inclusion criteria and were selected using purposive sampling. Participants were divided equally into two groups: 30 in the intervention group and 30 in the control group. The inclusion criteria were: pregnant women in the second or third trimester, able to read and write, and willing to participate in the study. Exclusion criteria included pregnant women with comorbidities or those receiving other interventions.

The intervention group received health education using the Take and Give method. This approach involved interactive learning sessions where participants shared knowledge using prepared information cards. The sessions were conducted in small groups and facilitated by trained health educators. Each session lasted 60–90 minutes and was conducted twice over a two-week period. The control group received standard education using the Maternal and Child Health (MCH) handbook. Data collection tools included structured questionnaires on knowledge, attitudes, and adherence to iron tablet consumption. The knowledge and attitude questionnaires were adapted from validated instruments and tested for reliability prior to use. Adherence was assessed using self-report measures based on the number of tablets consumed in the last seven days. Data were analyzed using SPSS version 26. Descriptive statistics were used to summarize demographic data. The Wilcoxon Signed-Rank Test was used to analyze within-group differences before and after intervention, and the Mann–Whitney U Test was employed to compare between the intervention and control groups. A significance level of $p < 0.05$ was considered statistically significant.

3. RESULTS AND DISCUSSION

This study involved 60 pregnant women equally divided into two groups: 30 in the intervention group and 30 in the control group. The effectiveness of the Take and Give method was assessed through three outcome variables: knowledge, attitude, and adherence to iron tablet consumption. The results were analyzed using the Wilcoxon Signed-Rank Test and the Mann–Whitney U Test.

3.1 General Characteristics of Pregnant Women at Gayungan Public Health Center in 2025

Table 1. Frequency Distribution of Maternal Characteristics among Pregnant Women at Gayungan Public Health Center, 2025

Characteristics	Categories	Media			
		Intervention		Control	
		f	%	f	%
Age	<20 years	0	0	0	0
	20 – 35 years	25	83,3	26	86,7
	>35 years	5	16,7	4	13,3
Total		30	100	30	100
Gestational Age	Trimester I (weeks 1 – 12)	9	30,0	8	26,7
	Trimester II (weeks 13 – 27)	19	63,3	17	56,7
	Trimester III (weeks 28 – 40)	2	6,7	5	16,6
	Total	30	100	30	100
Parity	Primiparous	15	50,0	16	53,3
	Multiparous	15	50,0	14	46,7
	Grandmultiparous	0	0	0	0
Total		30	100	30	100
Educational Level	Basic	3	10,0	2	6,7
	Secondary	25	83,3	24	80,0
	Higher	2	6,7	4	13,3
Total		30	100	30	100
Occupation	Not Working/Housewife	25	83,3	25	83,3
	Self-employed	3	10,0	2	6,7
	Civil Servant	2	6,7	3	10,0
	Private Employee	0	0	0	0
Total		30	100	30	100

4.

3.2. Identification of Pregnant Women's Knowledge, Attitude, and Adherence to Iron Tablet Consumption Before and After Intervention in Both Groups

Table 2. Identification of Pregnant Women's Knowledge About Iron Tablets Before and After Intervention in the Intervention and Control Groups

Knowledge	Intervention Groups				Control Groups			
	Before		After		Before		After	
	f	%	f	%	f	%	f	%
Good	0	0	19	63,3	2	6,7	10	33,3
Fair	8	26,7	10	33,4	18	60,0	20	66,7
Poor	22	73,3	1	3,3	10	33,3	0	0
Total	30	100	30	100	30	100	30	100

Based on Table 2, the intervention group using the Take and Give method showed an improvement in pregnant women's knowledge about iron tablets. Before the intervention, the majority of respondents (73.3%) had poor knowledge, whereas after receiving the intervention through the Take and Give method, most respondents (63.3%) demonstrated good knowledge.

The control group, which received education using the Maternal and Child Health (MCH) handbook, also showed an increase in knowledge, although the improvement was not as substantial as that observed in the intervention group. Prior to the intervention, most respondents (60.0%) had moderate knowledge, while after the intervention, the majority (66.7%) still demonstrated moderate knowledge.

Table 3. Identification of Pregnant Women's Attitudes Toward Iron Tablets Before and After Intervention in the Intervention and Control Groups

Attitude	Intervention Groups				Control Groups			
	Before		After		Before		After	
	f	%	f	%	f	%	f	%
Positive	2	6,7	22	73,3	1	3,3	4	13,3
Neutral	21	70,0	7	23,4	16	53,3	24	80,0
Negative	7	23,3	1	3,3	13	43,4	2	6,7
Total	30	100	30	100	30	100	30	100

Based on Table 3. in the intervention group, prior to the intervention, the majority of respondents (70.0%) exhibited a neutral attitude. After receiving the intervention using the Take and Give method, most respondents (73.3%) demonstrated a positive attitude. In the control group, which received education using the Maternal and Child Health (MCH) handbook, a slight improvement in attitude was observed. Before the intervention, the majority of respondents (53.3%) had a neutral attitude, and after the intervention, nearly all respondents (80.0%) continued to show a neutral attitude.

Table 4. Identification of Adherence to Iron Tablet Consumption Among Pregnant Women Before and After Intervention in the Intervention and Control Groups

Adherence	Intervention Groups				Control Groups			
	Before		After		Before		After	
	f	%	f	%	f	%	f	%
Adherent	10	10,0	25	95,0	5	5,0	15	50,0
Non-adherent	20	90,0	5	5,0	25	95,0	15	50,0
Total	30	100	30	100	30	100	30	100

Based on Table 4, in the intervention group, prior to the intervention, nearly all respondents (90.0%) were non-adherent to iron tablet consumption. However, following the intervention using the Take and Give method, almost all respondents (95.0%) became adherent. In the control group, which received education using the Maternal and Child Health (MCH) handbook, there was also an increase in adherence. Before the intervention, nearly all respondents (95.0%) were non-adherent, while after the intervention, half of the respondents (50.0%) became adherent to iron tablet consumption.

The findings indicated a significant difference between pretest and posttest results following the intervention. Most respondents were pregnant women aged 20–35 years, with a senior high school education background. The majority were unemployed and primiparous. According to Dahniar et al., parity can influence maternal knowledge, as increased childbirth experience enhances the ability to draw conclusions from personal experience (Dahniar et al., 2023). Knowledge levels before the intervention varied by gestational age. First-trimester (TM I) respondents generally had lower pretest scores compared to those in the second (TM II) and third trimesters (TM III), indicating less exposure to health information. However, after the educational intervention, knowledge significantly increased across all groups, especially among TM I respondents. Bandura's Social Learning Theory also supports this, emphasizing the role of repetition, exposure, and social interaction in the learning process (Ariningtyas et al., 2024).

In addition to knowledge, demographic factors also influenced adherence. Higher educational attainment has been associated with better understanding and compliance with health recommendations (Aji et al., 2023). Parity also played a role—mothers with higher parity may either benefit from prior experience or face increased responsibilities, reducing their focus on adherence (Wachdin, 2021). Maternal age similarly impacts adherence, with younger or older mothers facing different behavioral challenges compared to those in the optimal reproductive age range (Putri Febriyanti Ludin et al., 2023). During the first trimester, many mothers are still adjusting to pregnancy and have not yet developed consistent habits related to iron tablet intake. In contrast, women in the second and third trimesters tend to show higher adherence due to established routines, prior exposure to iron tablet consumption, and repeated health education during antenatal care (ANC) visits. Overall, the respondent characteristics—particularly those in the first trimester and primiparous—

indicated that these groups were less experienced and therefore suitable targets for educational interventions on iron tablet consumption

3.3 The Effect of Knowledge, Attitude, and Adherence to Iron Tablet Consumption Among Pregnant Women Before and After Intervention in the Intervention and Control Groups

Table 5. Analysis of the Effect of Pregnant Women's Knowledge About Iron Tablets Before and After Intervention in the Intervention and Control Groups

Variable	Intervention Groups				P-Value	Control Groups				P - Value
	Pretest		Posttest			Pretest		Posttest		
	Min - Max	$\bar{x} \pm$ SD	Min - Max	$\bar{x} \pm$ SD		Min - Max	$\bar{x} \pm$ SD	Min - Max	$\bar{x} \pm$ SD	
Knowledge	2,0 – 13,0	7,8 – 2,1	8,0-15,0	11.8 – 1,5	0,000	7,0 – 12,0	9,1 – 1,3	9,0 – 14,0	10,7 – 1,2	0,000

Table 5 presents the analysis of the effect of the intervention using the Take and Give method in the intervention group and the MCH handbook in the control group on pregnant women's knowledge. In the intervention group, the mean knowledge score before the intervention was 7.8, with a standard deviation of 2.1 and a minimum to maximum range of 2.0 to 13.0. After receiving education through the Take and Give method, the mean score increased to 11.8, with a standard deviation of 1.5 and a score range of 8.0 to 15.0. The statistical test showed a p-value of 0.000, indicating a significant effect on knowledge ($p < 0.05$). In the control group, the mean knowledge score before the intervention was 9.1, with a standard deviation of 1.3 and a score range of 7.0 to 12.0. After the intervention using the MCH handbook, the mean score increased to 10.7, with a standard deviation of 1.2 and a score range of 9.0 to 14.0. The statistical test also showed a p-value of 0.000, indicating a significant effect on knowledge.

This significant improvement aligns with several educational theories. The Take and Give method promotes active learning, consistent with constructivist theory, which posits that individuals construct knowledge through experience and interaction (Az-Zahra & Murtafiah, 2022). In this context, pregnant women engaged not only in receiving information but also in discussion and peer sharing, leading to deeper understanding and better retention. The method also reflects Bandura's Social Cognitive Theory, which emphasizes learning through observation, direct experience, and social interaction. Participants in the intervention group learned not only from facilitators but also from peer experiences and group discussions. The interactive environment supported cognitive reinforcement through repetition and elaboration—known strategies for improving long-term memory (Rachmawati, 2019).

The effectiveness of the Take and Give method can be attributed to its interactive, participant-centered design. Unlike traditional one-way instruction methods such as lectures or printed materials, this method fosters engagement, breaks monotony, and encourages feedback. Pregnant women, who may have limited attention spans or face discomfort during pregnancy, benefit from this dynamic approach that involves multiple senses and encourages active participation. Additionally, the relevance of the content to real-life challenges related to iron tablet consumption made the sessions more impactful. By addressing practical issues in an accessible format and allowing opportunities for clarification and discussion, the intervention created a supportive learning environment. Group-based discussions further enhanced social support, enabling participants to share concerns and ask questions in ways that static materials could not facilitate. Therefore, the Take and Give method not only transfers knowledge but also empowers pregnant women through an inclusive and responsive educational setting.

Table 6. Analysis of the Effect of Pregnant Women's Attitudes Toward Iron Tablets Before and After Intervention in the Intervention and Control Groups

Variabel	Intervention Groups				P-Value	Control Groups				P - Value
	Pretest		Posttest			Pretest		Posttest		
	Min - Max	$\bar{x} \pm$ SD	Min - Max	$\bar{x} \pm$ SD		Min - Max	$\bar{x} \pm$ SD	Min - Max	$\bar{x} \pm$ SD	
Attitude	32,0 – 51,0	39,9- 4,9	33,0 – 58,0	48,7- 5,0	0,000	30,0 – 54,0	37,9- 4,8	32,0 – 55,0	44,5- 5,3	0,000

Based on Table 6, presents the analysis of the effect of the intervention using the Take and Give method in the intervention group and the MCH handbook in the control group on pregnant women's attitudes. In the intervention group, the mean attitude score before the intervention was 39.9 with a standard deviation of 4.9 and a score range of 32.0 to 51.0. After the intervention using the Take and Give method, the mean score increased to 48.7, with a standard deviation of 5.0 and a range of 33.0 to 58.0. The statistical analysis showed a p-value of 0.000, indicating a significant change in attitude. In the control group, the mean attitude score before the intervention was 37.9 with a standard deviation of 4.8 and a range of 30.0 to 54.0. After receiving education through the MCH handbook, the mean score increased to 44.5, with a standard deviation of 5.3 and a range of 32.0 to 55.0. The statistical test also yielded a p-value of 0.000, indicating a significant change in attitude.

This attitudinal shift can be supported by recent theoretical frameworks. The Health Psychology Review by Fishbein and Ajzen emphasized that attitudes are central predictors of behavioral intention and are formed through the integration of affective and cognitive evaluations (Ramdani et al., 2019). The Take and Give method, with its interactive structure, enables participants to process information deeply by engaging in discussions and reflecting on shared experiences, leading to stronger attitude formation. Harmon-Jones and Mills highlighted in their updated cognitive dissonance theory that when individuals encounter new, behavior-supportive information that conflicts with their prior beliefs, they are motivated to adjust their attitudes for psychological consistency (Rosyadi, 2024). This is reflected in the intervention group, where new knowledge and peer validation may have helped resolve initial resistance to iron supplementation.

From the perspective of educational psychology, affective engagement is essential for attitude change. Krathwohl (2017) revisited Bloom's taxonomy and emphasized that affective learning—achieved through emotional relevance, empathy, and discussion—plays a critical role in shaping values and beliefs (Farani, 2022). The effectiveness of the Take and Give method is further supported by Schunk, who explained that social persuasion and observation are key mechanisms of behavior change in social cognitive learning environments. The peer-based format of Take and Give allowed pregnant women to share success stories, practical tips, and emotional support, building confidence and reducing psychological resistance to iron tablet consumption.

Table 7. Analysis of the Effect of Adherence to Iron Tablet Consumption Among Pregnant Women Before and After Intervention in the Intervention and Control Groups

Variable	Intervention Groups				P-Value	Control Groups				P-Value
	Pretest		Posttest			Pretest		Posttest		
	Min -	$\bar{x} \pm$	Min -	$\bar{x} \pm$		Min-	$\bar{x} \pm$	Min-	$\bar{x} \pm$	
	Max	SD	Max	SD		Max	SD	Max	SD	
Adherence		14,1		19,5 –		13,0				
	5 - 21	-	7 - 21	3,702	0,000	6 - 21	–	8 - 21	17,7 –	0,000
		5,837					4,605		4,362	

Based on Table 7, this section presents the analysis of the effect of the intervention using the Take and Give method in the intervention group and the MCH handbook in the control group on pregnant women's adherence to iron tablet consumption. In the intervention group, the mean adherence score before the intervention was 14.1 with a standard deviation of 5.837. After the intervention using the Take and Give method, the mean score increased to 19.5 with a standard deviation of 3.702. The p-value was 0.000, indicating a statistically significant improvement in adherence. In the control group, the mean adherence score before the

intervention was 13.0 with a standard deviation of 4.605. After receiving education through the MCH handbook, the mean score increased to 17.7 with a standard deviation of 4.362. The statistical analysis also showed a p-value of 0.000, indicating a significant effect on adherence.

This finding can be explained using updated health behavior models. The Health Belief Model (HBM), as revisited by Carpenter in 2016, suggests that behavior is influenced by perceived susceptibility, severity, benefits, barriers, cues to action, and self-efficacy (Sharifikia et al., 2019). The Take and Give method helps pregnant women recognize their vulnerability to iron deficiency anemia and the severity of its consequences. Through peer discussions, they better understand the benefits of consistent iron tablet intake while sharing strategies to overcome common barriers such as forgetfulness or side effects. Cues to action are reinforced through group support and facilitator prompts, which are essential for habit formation.

In addition, the Social Cognitive Theory provides further insight into the mechanisms of behavioral change. According to Schunk (2020), adherence behavior is influenced by self-efficacy and outcome expectations. The Take and Give method boosts self-efficacy through vicarious learning (observing others' success), verbal persuasion (peer and facilitator encouragement), and direct practice through group discussion. Witnessing others manage side effects or develop daily routines motivates participants to adopt similar behaviors. Positive outcome expectations such as improved maternal well-being and fetal health are reinforced through accurate information and shared success stories.

From the researchers' perspective, the effectiveness of the Take and Give method lies not only in delivering information but also in motivating behavioral change. It bridges the gap between "why should I take iron tablets?" and "how can I maintain regular intake?". Group discussions help identify personal obstacles—such as nausea or forgetfulness—and collaboratively generate practical solutions. The "give" component plays a particularly important role in adherence. When pregnant women are asked to recall and re-explain information to peers, it enhances memory and fosters a sense of responsibility. This active involvement strengthens internal motivation and encourages commitment. Moreover, the peer support network created through group learning provides emotional and social reinforcement, making participants feel they are not alone in facing adherence challenges. As a result, the Take and Give method cultivates a supportive and empowering ecosystem that promotes sustained health behavior.

3.4 Effectiveness of the Take and Give Method on Knowledge, Attitude, and Adherence in the Intervention and Control Groups.

Table 8. Analysis of the Effectiveness of the Take and Give Method on Knowledge, Attitude, and Adherence to Iron Tablet Consumption in the Intervention and Control Groups.

Variable	$\bar{x} \pm SD$	<i>P-Value</i>
Knowledge		
<i>Post Test</i> Intervention Groups	11,8 – 1,562	0,003
<i>Post Test</i> Control Groups	10,7 – 1,264	
Attitude		
<i>Post Test</i> Intervention Groups	48,7 – 5,077	0,001
<i>Post Test</i> Control Groups	44,5 – 5,316	
Adherence		
<i>Post Test</i> Intervention Groups	19,5 – 3,702	0,049
<i>Post Test</i> Control Groups	17,7 – 4,362	

Based on Table 8 The analysis showed that the Take and Give method was more effective than the MCH handbook in improving knowledge, attitude, and adherence among pregnant women. For the knowledge variable, the post-intervention mean score in the intervention group was 11.8 (SD = 1.562), compared to 10.7 (SD = 1.264) in the control group. The Mann–Whitney test yielded a p-value of 0.003, indicating a statistically significant difference ($p < 0.05$), with the intervention group showing better outcomes.

In terms of attitude, the mean post-intervention score was 48.7 (SD = 5.077) in the intervention group and 44.5 (SD = 5.316) in the control group. The Mann–Whitney test showed a p-value of 0.001, confirming a significant improvement in the intervention group ($p < 0.05$). Regarding adherence, the intervention group had a mean score of 19.5 (SD = 3.702), while the control group scored 17.7 (SD = 4.362). The Mann–Whitney test produced a p-value of 0.049, indicating a significant difference ($p < 0.05$). These results suggest that the Take

and Give method is more effective in enhancing pregnant women's knowledge, attitude, and adherence to iron tablet consumption.

The data analysis revealed a significant difference between the intervention and control groups across all outcome variables: knowledge, attitude, and adherence to iron tablet consumption. These findings demonstrate that the Take and Give method is an effective educational approach in enhancing understanding, fostering positive attitudes, and improving adherence among pregnant women. The effectiveness of the Take and Give method in increasing knowledge can be explained through the lens of Social Cognitive Theory. According to Schunk (2020), learning occurs through observation, direct experience, and social interaction, which enhance information retention and application. In this study, pregnant women learned from peer discussions, shared experiences, and facilitator feedback—making the sessions more interactive and easier to internalize.

This aligns with the findings of Az-Zahra, Murtafiah, and Sanusi (2022), who reported that interactive learning methods significantly improved participants' knowledge acquisition (Az-Zahra & Murtafiah, 2022). Furthermore, the Take and Give method's participatory and affective nature allowed participants to process information not only cognitively but also emotionally and evaluatively. Sumayana (2021) also found that active learning methods that engage both cognitive and affective domains are more effective in improving comprehension and retention (Sumayana et al., 2022). In conclusion, this study confirms that the Take and Give method is a highly effective educational strategy for improving pregnant women's knowledge, attitude, and adherence to iron tablet consumption. The method does more than simply transfer information—it also fosters emotional engagement and encourages behavioral change. This is supported by both statistical significance and higher mean scores observed in the intervention group compared to the control group.

4. CONCLUSION

This study concludes that the Take and Give method is an effective educational strategy for improving knowledge, attitude, and adherence to iron tablet consumption among pregnant women. The intervention group, which received education using the Take and Give approach, showed significantly greater improvements in all measured outcomes compared to the control group that received conventional education through the Maternal and Child Health (MCH) handbook.

The interactive and participatory nature of the Take and Give method promotes cognitive, emotional, and behavioral engagement, which supports deeper understanding and sustained health behavior. Peer discussions, active information exchange, and facilitator guidance created a supportive learning environment that helped overcome common barriers to iron tablet adherence, such as forgetfulness and misconceptions. The significant differences observed in post-intervention scores between the two groups reinforce the potential of this method to be integrated into antenatal education programs. Health educators and midwives are encouraged to adopt this approach to empower pregnant women in making informed decisions about iron supplementation and maternal health.

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