

The Evaluation of Anemia Prevention Program in Adolescent Girl in Indonesia

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Abstract:

Background: Anemia is a condition of the lack number of red blood or hemoglobin concentration which is below normal of threshold value that could cause the disruption of blood capacity in transporting oxygen throughout the body. Anemia is one of the indicators of poor health and nutrition (WHO, 2012).

Aim: Explore the evaluation result of the implementation of anemia prevention program in adolescent girl.

Method : This research is scoping review which is conducted by identifying the research question which used PEOS (Population, exposure, outcomes, study design) and then identifying the relevant study by using Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Review (PRISMA-ScR) with the database such as PubMed, Scopus, Science Direct and Grey Literature (Google Scholar).

Result: The total articles identified, it is obtained 4 relevant studies that related to the topic research that is obtained through critical evaluation procedure of assessment technique JBI Critical Appraisal Checklist for Qualitative Study.

Conclusion: Based on the result of evaluation in this scoping review, there are some obstacles of the implementation of anemia prevention program in adolescent girl including the availability of TTD, TTD distribution, observation, and reporting program as well as the regulation of cross-sectoral coordination of program implementation.

Keyword: anemia, evaluation program, adolescent

1. BACKGROUND OF STUDY

Anemia is a condition when the level of hemoglobin (Hb) in the blood is more than the normal limit of adolescent anemia, i.e., when the hemoglobin (Hb) level is less than 12 gr / dl (Astuti, Munigar, and Lukman 2019). Anemia is a condition when the body is lack number of red blood cell or hemoglobin concentration is below the normal threshold which can result in disruption of blood capacity in transporting oxygen throughout the body, anemia is one of the indicators of poor health and nutrition (WHO, 2012). Anemia can reduce individual well-being as anemia causes physical fatigue, lethargy and can interfere with physical capacity and performance, therefore it can decrease productivity and directly anemia is associated with morbidity and mortality (WHO, 2012).

According to data from the Global Health Observatory, the highest world prevalence of anemia aged 15-49 years is Central Asia and South Asia which amount 47.5 percent and the

lowest anemia rate is North America and Europe, which amount 14.6 percent (World Health Organization, 2021). In this case, as an intervention for anemia problem in adolescent girl, WHO (World Health Organization) recommends daily iron supplementation in adolescent girls which is contained in the guidebook Daily Iron Supplementation in Adult Women and Adolescent Girls (2016-2030) (World Health Organization, 2018). Modification, distribution, promotion of TTD can increase the adherence of adolescent girl in consuming TTD (Gosdin et al. 2020).

2. SCOPING REVIEW

Scoping Review is a literature review aiming to explore the available evidence by mapping the concepts underlying the research area, sources of evidence and the types of evidence available (Tricco et al. 2016). Scoping review is useful for examining existing evidence when research questions are still unclear or specifically described (Munn et al. 2018).

Eligibility Criteria

The process of Scoping Review is carried out based on the Guidelines for Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Review (PRISM-ScR) (Tricco et al. 2018). PRISM is a tool that author can use to improve the quality of systematic review reporting and meta-analysis. Better reporting of systematic review result in increased transparency and allows readers to evaluate the quality and findings on publications (Leclercq et al. 2019).

Identification of Scoping Review Question

In this stage, the researcher used framework Population, Exposure, Outcome and Study design (PEOS) as follow.

Based on the Population, Exposure, Outcome, and Study Design (PEOS) framework, the scoping review question is "what are the results of the evaluation of the implementation of anemia prevention programs in adolescentgirls?"

Identification of Relevant Literature

In conducting identification of relevant literature, the researcher used the steps as follow:

Inclusion and Exclusion Criteria

Inclusion and exclusion criteria that researcher determined in selecting article as a source of scoping review are as follow:

Based on the Population, Exposure, Outcome, and Study Design (PEOS) framework, the scoping review question is "what are the results of the evaluation of the implementation of anemia prevention programs in adolescentgirls?"

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In conducting identification of relevant literature, the researcher used the steps as follow:

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Inclusion and exclusion criteria that researcher determined in selecting article as a source of scoping review are as follow:

Table2.1. Framework Research Question

P	E	O	S
Health Office Head of community Health Centre Headmaster/ principal Person in charge of School Health Adolescent	Implementation Program	Evaluation	Qualitative research

Table2.2. Inclusion and Exclusion Criteria

No.	Aspect	Inclusion Criteria	Exclusion Criteria
1.	Characteristics of Article	a. Original Research/Peer-Reviewed b. Articles published in English and Indonesian c. Article published in 2019 to 2022 timeframe d. All studies design	a. Grey literature includes conference, papers, conference proceedings, theses/dissertation, books, guidelines and other papers that are considered as grey literature b. Article published in predator journal c. Article review
2.	Participant	a. Health Office b. Head of community health centre c. Headmaster d. Person in charge of scholl health e. Adolescentgirl	
3.	Focus of study	Article discussing the evaluation of anemia prevention program in adolescentgirls	Articles about the evaluation of program that have just been planned or have not been implemented

Literature Searching

The literature searching used to search the articles consists of several databases, such as PubMed, Scindirect, Wiley, Ebsco, and Proquest. The searching strategy for electronic databases is developed from the question of scoping review and defines relevant key concepts.

Selecting Study

All articles that have been identified by using search strategy will be filtered for inclusion in the review by using notability criteria. Of the five databases such as science direct, wiley, pubmed, ebsco and proquest databases, it was

found 618 articles. All search results from five databases are stored and filtered in Zotero's reference management software. The process of screening the findings of the number of articles and the researcher's filter process are described in the PRISM Flowchart as follows.

PRISM Flowchart

PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) is a series of evidence-based minimum items for reporting in systematic review and meta-analysis (McInnes et al. 2018). The following is Prism Flowchart in this scoping review:

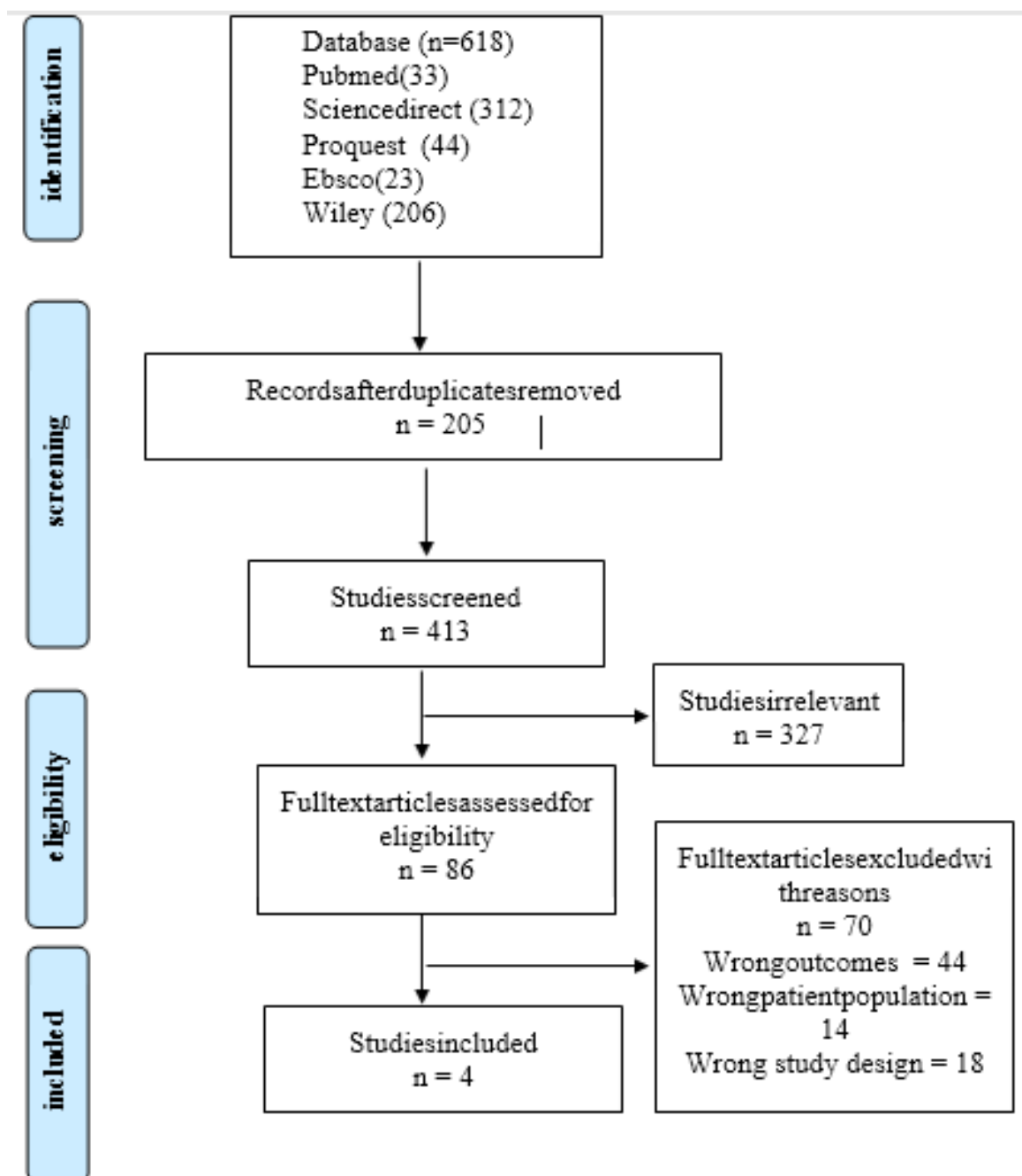


Figure3.1. PRISM flowchart(McInnes et al. 2018)

Article Quality Assessment (Critical Appraisal)

Quality assessment is a structured objective approach that results in a better understanding of the strengths and weaknesses of a study and identifies evidence derived from rigorous, reliable, unbiased, and methodologically appropriate research (Buccheri and Sharifi 2017).

To assess the quality of article, the author ranks each article, the overall score is calculated by using JBI Critical Appraisal Checklist For Qualitative Study and it obtained 4 articles with grade A with an overall score of 30. The result of critical appraisal in this research are summarized in the following table:

Table 2.3. Data Charting

Title/Author/Year	Research Design	How Data is Collected	Aim of Research	Informant of Research	Result of Research
<i>Evaluasi Pelaksanaan Program Pemberian Tablet Tambah Darah Remaja Putri Tahun 2019 di Kota Pekanbaru (Maulida, Setiarini, dan Achadi 2021)</i>	<i>Qualitative Study</i>	<i>In-Depth Interviews</i>	The purpose of this study is to evaluate the implementation of TTD program for adolescent girl	The person in charge of the TTD program at the health Office, the person in charge of the TTD program at the Pekanbaru City Health Office, the person in charge of the TTD Program at the Riau Provincial Educational Office, the person in charge of the TTD Program at the Pekanbaru	It was found that in the evaluation of human resources inputs of program implementers, the budget for program implementation funds was still late, and cross-sectoral coordination regulations were still not strong, in the process of obtaining program planning using real data to determine program targets, there was no written organizational structure in the implementation of the program, TTD distribution according

				<p>Provinci al Educatio n Office, the person in charge of the TTD Program at the Ministry of Religion in PekanBa ru city and several nutrition officers at the commun ity health center, with supporti ng informa nts being adolesce nt princess es</p>	<p>to the Ministry of Health guidelines and there was a discrepanc y in the recapitulati on of the monthly program. At the output stage, it was found that TTD coverage increased, but there was still community health center that had not run the program.</p>
<p>EvaluationofIron Tablet Supplementation Program ofFemaleAdolescent in East Jakarta (Yudina dan Fayasari 2020)</p>	<p><i>Qualitat ive Study</i></p>	<p><i>In-DepthInterview s</i></p>	<p>To evaluatethe TTD supplementation program in adolescentgirlsatthe Pasar Rebo Health Center</p>	<p>2 nutrition ists, 1 school health teacher, 1 principal , 6 adolesce nt girls</p>	<p>The result of the study was obtained at the input stage there was a discrepanc y in facilities and infrastru ctu re, while in the process there were discrepanci es in the distribution , monitoring, recording, and reporting, while at the</p>

					output stage there were discrepancies in the accuracy of the target, time, and distribution of implementation.
Evaluasi Program Pemberian Tablet Tambah Darah Pada Remaja Putri Anemia dan Non Anemia di Wilayah Puskesmas Antapani (Hasanah, Lestari, dan Yuniarni 2020)	Quantitative Study	Analitik observasional dan analisis statistik uji-t berpasangan	To find out the impact of the TTD program on adolescent girls	118 respondents of junior high school and 134 high school respondents	TTD supplementation program once succeeded in increasing respondents' hemoglobin levels
School Readiness in Weekly Iron Folic Acid Supplementation Program in Urban Area, West Java, Indonesia (Apriningsih dkk. 2020)	Qualitative Study	In-Depth Interviews	This study aims to analyze program guidelines and stakeholder perspectives as well as school readiness in implementing weekly TTD supplementation programs.	10 respondents consisted of 1 health service informant, 1 education service informant, and 8 nutritionists from the health center.	Based on the results of the study, it was found that school readiness is at a vague stage, so school readiness is an important factor in program implementation.

Table 2.4. JBI Critical Appraisal Checklist For Qualitative Study

Assessment question	ARTICLE			
	A1	A2	A3	A4
1. Is there a congruence between the philosophical perspectives expressed and the research methodology?	3	3	3	3
2. Whether there is a congruence between the research methodology and the research question or objectives?	3	3	3	3
3. Is there a compatibility between the research methodology and the methods used to collect the data?	3	3	3	3
4. Is there a congruence between research methodology and data representation and analysis?	3	3	3	3
5. Is there a congruence between the methodology of the study and the interpretation of the results?	3	3	3	3
6. Is there a statement that places the researcher culturally or theoretically?	3	3	3	3

7. What is the researcher's influence on the study, and vice versa, addressed?	3	3	3	3
8. Are participants, and their voices, adequately represented?	3	3	3	3
9. Is the study ethical according to current criteria or, for recent research, and is there evidence of ethical approval by the appropriate body?	3	3	3	3
10. Does the conclusion draw in the research report flow from the analysis of, or interpretation of, the data?	3	3	3	3
TOTAL VALUE (GRADE)	30/A	30/A	30/A	30/A

3. RESULT AND DISCUSSION

Evaluation is a systematic assessment of the design, implementation, or results of an initiative for learning purpose or decision-making(Canada evaluation society, 2015). The objective ofevaluation is to compare the result with expectation, find the driving and inhibiting factors, generate plans to improve the program and find solutions (Lopez, 2008).

Based on the result of the scoping review conducted by the researcher, there are several indicators of evaluation result based on articles that researcher found, such as the unavailability of TTD and the irregularity of submitting reports on TTD consumption is one of the obstacles identified in the implementation of adolescentanemia prevention programs (Jayadi, Palangkei, and Warahmah 2021). According to research conducted by (Maulida et al. 2021) it was found that in the evaluation of human resource input for program implementers, the program implementation fund budget is still late, and cross-sectoral coordination regulations are still not strong, there is no written organizational structure in program implementation, TTD isstigmatized according to the Ministry of Health guidelines and there are discrepancies in the recapitulation of monthly programs. At the output stage, it was found that the TTD coverage increased, but there were still community health center that had not run the program, even though the accuracy of implementation was the main factor in good program results (Buehren et al. 2017).

The result of this research is also supported by research conducted by (Yudina and Fayasari 2020) that at the input stage there is a discrepancy in facilities and infrastructure, while in the process there are discrepancies in the distribution, monitoring, recording and reporting, while at the output stage there are discrepancies in the accuracy of the target, time, and distribution of implementation. In fact, according to (Saban 2017) facilities and infrastructure in the provision of health education affect the increase in adolescentgirls' knowledge about anemia so that they can

support the implementation of anemia prevention programs through health education. The result of the study is also supported by research conducted by (Ermi 2022) that anemia education is carried out and effective to increase the knowledge of young women about anemia.

A study conducted about the description of anemia prevention measures in adolescent girls during the Covid-19 pandemic that out of 85 respondents there were only 13 (15.3 percent) respondents who were in the good category in preventing anemia, therefore it is necessary for adolescents to be educated about appropriate actions in preventing anemia (Windhita 2021). According to (Nancy and Dongre 2021) health education will gradually create a conducive change in behavior and environment. Strong synergy is needed for the implementation of cross-sectoral programs in order to reduce the inefficiency of the scope of the TTD program for adolescentgirls (Joe et al. 2022).

4. CONCLUSION

Based on the scoping review result obtained, there were obstacles in the implementation of anemia prevention program of adolescent through supplementation tablet blood booster in the indicator of input and output process i.e., the availability of TTD, distribution of TTD, observation, and reporting program as well as cross-sectoral coordination regulation of program implementation.

5. THE LIMITATION OF SCOPING REVIEW

The limitation in the preparation of this scoping review is the number of articles used is still few due to the lack of articles that discuss specifically about the evaluation of anemia prevention programs in adolescent girls.

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Citation: Sulistyaningsih, et.al., “The Evaluation of Anemia Prevention Program in Adolescent Girl in Indonesia”, *International Journal of Clinical Case Reports (AJCCR)* vol. 8, no. 2, pp. 1-9, 2022. Available: DOI: <http://dx.doi.org/10.20431/2455-9806.0801001>

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