

BALANCED NUTRITION EDUCATION BASED ON THE "ISI PIRINGKU" PRINCIPLE AT THE OUTPATIENT CLINIC OF ROKAN HULU REGIONAL GENERAL HOSPITAL

A Promotive Effort in the Prevention of Non-Communicable Diseases

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ABSTRACT

Non-communicable diseases (NCDs) such as diabetes mellitus, hypertension, and obesity constitute a significant public health problem in Indonesia. One of the principal modifiable risk factors is an unhealthy dietary pattern. Balanced nutrition education based on the "Isi Piringku" principle represents a promotive strategy to improve nutrition literacy in the community. This activity aimed to enhance the knowledge and understanding of patients and their family members attending the Outpatient Clinic of Rokan Hulu Regional General Hospital regarding the principles of balanced nutrition and the application of the "Isi Piringku" concept in daily life. The education session was conducted on September 8, 2025, through a visual presentation using PowerPoint media explaining the "Isi Piringku" principle, followed by a discussion and question-and-answer session with healthcare personnel. Evaluation was carried out qualitatively through observation of participant engagement throughout the activity. The activity demonstrated active participant involvement during the discussion session, with various questions and responses reflecting interest in and comprehension of the material. The visual and interactive approach was considered capable of improving participants' information retention. Nutrition education using a visual and participatory approach may represent a relevant method for implementation in healthcare facilities as part of a promotive strategy for NCD prevention. In the future, quantitative measurement is required to evaluate the long-term impact of similar interventions.

Keyword: *Balanced Nutrition, Health Education, Isi Piringku, Non-Communicable Diseases, Outpatient Care, Health Promotion.*

INTRODUCTION

Non-communicable diseases (NCDs) such as obesity, diabetes mellitus, and hypertension are among the leading causes of morbidity and mortality globally, including in Indonesia. The Global Burden of Disease Study showed that suboptimal dietary intake is one of the major risk factors for death worldwide (GBD 2017 Diet

Collaborators, 2019). In Indonesia, the 2018 Basic Health Research (Riskesdas) reported an adult obesity prevalence of 21.8% and a diabetes mellitus prevalence of 10.9% among individuals aged ≥ 15 years (Kementerian Kesehatan Republik Indonesia, 2019). The increasing prevalence of these conditions has major implications for the national health burden and healthcare system.

Unhealthy dietary patterns, particularly the consumption of high-calorie but nutrient-poor foods such as ultra-processed foods, have been shown to contribute to an increased risk of metabolic syndrome and NCDs (Elizabeth et al., 2020). Low levels of nutrition literacy and the lack of effective educational interventions further aggravate this condition, especially in vulnerable populations such as outpatients (Nutbeam, 2008).

In response, the Indonesian government developed the balanced nutrition guideline “Isi Piringku,” which replaced the previous 4 Healthy 5 Perfect concept. This guideline emphasizes the importance of allocating half of the plate to vegetables and fruits and the other half to staple foods and side dishes at each meal (Kementerian Kesehatan Republik Indonesia, 2022). However, successful implementation of this guideline depends greatly on educational approaches that are relevant, practical, and easily understood by the community.

Several studies have shown that contextual and participatory nutrition education approaches can produce meaningful effects. For example, a study by Effendy et al. (2020) in Southeast Sulawesi demonstrated that nutrition classes combined with monthly home visits significantly improved dietary diversity scores among children aged 6–17 months. In Riau Province, leaflet-based nutrition education increased mothers’ interest in balanced nutrition information for toddlers (Winda & Trisnadoli, 2023). In Bekasi, local-food-based intervention combined with nutrition counseling improved maternal nutrition knowledge and supported better child growth outcomes (Nurpratama et al., 2024).

In the context of Rokan Hulu Regional General Hospital, Riau, which serves outpatients at high risk for NCDs, education based on the Isi Piringku guideline is highly relevant. Direct educational delivery during outpatient visits, supported by visual media and interactive discussion, has the potential to enhance understanding and to promote sustainable changes in patients’ dietary behavior.

The objective of this activity was to improve patients’ and their families’ understanding of the principles of balanced nutrition based on Isi Piringku, encourage healthy

eating behavior changes, and create a space for dialogue between healthcare workers and patients as part of an NCD control strategy.

Objectives and Benefits

This activity aimed to improve community understanding, particularly among those visiting the Outpatient Clinic of Rokan Hulu Regional General Hospital, regarding the importance of knowledge about healthy dietary patterns and the Isi Piringku principle, which may contribute to the prevention of non-communicable diseases and the improvement of quality of life in efforts to enhance public health status.

IMPLEMENTATION METHODS

This community service activity entitled Balanced Nutrition Education and Isi Piringku was conducted on Monday, September 8, 2025, from 10:00 a.m. Western Indonesian Time until completion, at the Outpatient Clinic of Rokan Hulu Regional General Hospital, Riau. The activity was attended by patients and patients’ family members visiting the outpatient clinic of Rokan Hulu Regional General Hospital.

The method used in implementing the activity was media-based education utilizing a PowerPoint presentation containing material on balanced nutrition and the importance of the Isi Piringku principle in daily dietary patterns. This educational activity aimed to improve community understanding of how to arrange a healthy diet in accordance with balanced nutrition guidelines and the implementation of the Isi Piringku principle.

The educational process was conducted in two main sessions, namely a presentation session and a discussion session. During the presentation session, the presenter explained balanced nutrition and the Isi Piringku principle and provided clarification regarding the benefits of each food group, how to choose healthy food ingredients, and their impact on long-term health. This session was also complemented by a demonstration of selecting healthy food ingredients that could be directly applied by the community in everyday life.

Subsequently, the discussion session aimed to explore more deeply the community’s understanding of the material that had been

delivered. In this session, participants were given the opportunity to ask questions about topics requiring further explanation and to share experiences or challenges encountered in implementing healthy dietary practices. This discussion also provided a forum for healthcare personnel to offer clarification and additional information regarding the topics discussed.

After all material and discussion sessions had been completed, the activity was closed with an evaluation in the form of participants' responses and feedback regarding the material presented. This evaluation aimed to assess the community's level of understanding of balanced nutrition and the *Isi Piringku* principle, as well as to obtain feedback regarding the effectiveness of the educational activity. The evaluation also included an assessment from Rokan Hulu Regional General Hospital regarding the contribution and usefulness of the educational activity in increasing nutrition awareness among patients and the surrounding community.

RESULTS AND DISCUSSION

Preparation Phase

The educational activity on balanced nutrition and the *Isi Piringku* principle began with a preparation phase involving coordination between the implementation team and Rokan Hulu Regional General Hospital, particularly the Outpatient Clinic unit. This activity was designed based on the educational needs of outpatients, most of whom belong to groups at high risk for non-communicable diseases (NCDs) such as diabetes mellitus, hypertension, and dyslipidemia. These conditions are closely related to unbalanced food consumption patterns, limited understanding of ideal meal composition, and low community nutrition literacy. Therefore, the delivery of nutritional information that is simple, practical, and contextual is of great importance in promotive and preventive efforts at secondary-level healthcare facilities.

The educational material was prepared based on the official guideline of the Ministry of Health of the Republic of Indonesia regarding the *Isi Piringku* principle, which emphasizes the visual division of meal composition on a single plate: 50% consisting of vegetables and fruits and

50% consisting of staple foods and side dishes. In addition, the material was supplemented with up-to-date scientific references related to balanced nutrition principles in the prevention of NCDs.

The information was delivered through a communicative and easily understandable PowerPoint presentation and included examples of local menus relevant to the socioeconomic conditions of the surrounding community. Preparation also included identifying the most effective time and location for implementation, namely when patients were waiting for clinical services in the outpatient waiting area, so that the educational activity could proceed without disrupting clinical service flow.

Implementation Phase

The educational activity was conducted on September 8, 2025, beginning at 10:00 a.m. Western Indonesian Time, in the waiting area of the Outpatient Clinic of Rokan Hulu Regional General Hospital, Riau. The activity was divided into two main stages, namely presentation of the material and an interactive discussion session. In the first session, the material was delivered orally by the medical team using PowerPoint media.

The explanation was presented communicatively by emphasizing visual aspects and concrete examples of daily foods commonly consumed by the community. The main emphasis was placed on the concept of balanced nutrient intake, the impact of unhealthy dietary patterns, and the importance of dietary diversity on a single plate. The material was tailored to the participants' social and cultural background so that it would be easier to accept and apply.

Following the presentation, the activity continued with an open and interactive question-and-answer session. During this session, participants were given the opportunity to ask questions about healthy dietary patterns, food management for specific disease conditions, and ways to select nutritious yet economical food ingredients. Participant engagement was relatively high, as reflected by their enthusiasm in asking questions and sharing personal experiences related to daily dietary habits. The presence of healthcare personnel as resource persons also added value

because participants expressed greater trust in the information delivered and felt comfortable engaging directly with healthcare practitioners.

Schematic Representation of the Educational Pathway

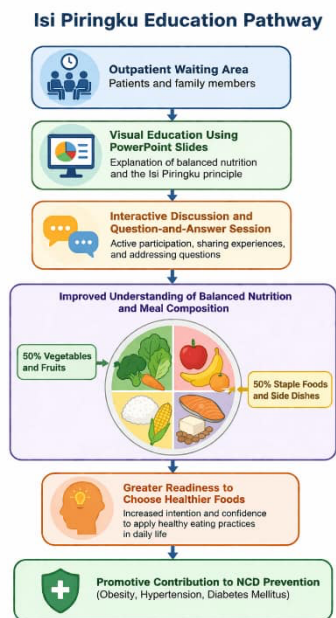


Figure 1. Schematic Representation of the Outpatient Balanced Nutrition Education Pathway Based on the "Isi Piringku" Principle.

Figure 1 illustrates the conceptual pathway through which the intervention was expected to influence participants' understanding and eating-related intentions. The visual presentation functioned as the primary educational stimulus by simplifying the Isi Piringku message into a concrete and easy-to-remember plate model, while the discussion and question-and-answer session allowed participants to connect the general recommendations with their own daily food practices and disease-related concerns. In an outpatient waiting-area setting, this combination of visual reinforcement and direct explanation is particularly relevant because it supports comprehension among participants with heterogeneous educational backgrounds and limited consultation time.

The scheme also highlights the anticipated progression from improved knowledge to behavioral intention and, ultimately, to a promotive contribution to NCD prevention. By clarifying appropriate meal composition and

enabling contextual clarification from medical personnel, the intervention may strengthen readiness to choose healthier foods and to reduce dietary patterns associated with obesity, hypertension, and diabetes mellitus. Although the present activity did not include formal quantitative outcome measurement, the observed participant engagement, active questioning, and expressed willingness to improve eating habits provide qualitative support for the plausibility of this educational pathway, consistent with prior interactive nutrition-education literature (Alonso Arana et al., 2019; Rahmawati et al., 2021; Sedibe et al., 2014).

Evaluation Phase

Evaluation of this activity was conducted qualitatively and observationally, given the time constraints and the characteristics of the participants, most of whom were patients waiting for medical services. No formal pre-test or post-test questionnaire was administered; therefore, increases in knowledge could not be measured quantitatively. Nevertheless, the effectiveness of the material delivery could be assessed through indicators of participant engagement during the activity. Verbal and nonverbal responses from participants, such as the questions asked, expressions of interest, and active discussion during the question-and-answer session, served as indicators that the material was well received and understood.

Several participants even stated that this was the first time they had learned about the visual healthy plate division through the Isi Piringku method. In addition, some expressed their intention to begin improving their dietary patterns based on the information obtained. This suggests that an informal educational approach using visual methods and direct discussion still has significant effectiveness in increasing participants' awareness and motivation, despite the absence of quantitative measurement.

Analysis and Relevance to the Literature

This educational activity shares similarities with several previous studies that also did not use formal pre-test and post-test assessments as measurement tools, but instead relied on

observational, participatory, and reflective approaches. One relevant study is that by Alonso Arana et al. (2019), entitled “Being tested but not educated: A qualitative focus group study exploring patients’ perceptions of diabetic dietary advice,” which showed that direct interaction between healthcare professionals and patients had a more substantial impact than merely providing written information. The study concluded that patients benefit more from interactive and communicative educational processes than from receiving information without space for discussion or clarification (Alonso Arana et al., 2019).

In addition, the study by Rahmawati et al. (2021) on nutrition education for pregnant women in Indonesia also employed a qualitative approach, namely through interviews and discussions, without quantitative measurement of changes in participant knowledge. The study emphasized that the success of educational interventions is not always determined by numerical outcomes, but also by the extent to which participants feel understood and involved in the educational process (Rahmawati et al., 2021).

Another study by Sedibe et al. (2014) in South Africa showed that an educational approach based on discussion and participants’ life narratives generated a more contextual and relevant understanding of nutrition and health issues, despite not employing direct quantitative measurements (Sedibe et al., 2014).

From these three studies, it can be concluded that educational approaches based on direct interaction, participatory observation, and two-way communication between medical personnel and educational participants remain highly effective in building awareness and encouraging behavioral change. Therefore, although this activity had limitations in terms of quantitatively measuring impact, the approach used remains valid and is aligned with contemporary health education models that place active participation as an indicator of success.

Several previous studies have shown that evaluation in nutrition education programs is not always conducted using quantitative methods such as formal pre-test and post-test assessments, but rather through qualitative and observational approaches. For example, the study by Alonso

Arana et al. (2019) found that patients with type 2 diabetes expressed a greater need for personal dialogue with healthcare personnel than merely receiving written materials without direct interaction. Rahmawati et al. (2021) also described how healthcare professionals assessed educational delivery, challenges, and participant perceptions without formal measurement of knowledge change. Likewise, Sedibe et al. (2014) demonstrated that observational and discussion-based approaches could generate meaningful insights into barriers, motivations, and participants’ verbal and nonverbal responses to educational messages.

Based on these studies, observational and qualitative approaches may be considered viable alternatives when limitations in resources, time, or participant characteristics make the implementation of pre-test and post-test assessments infeasible. Verbal responses, active participation in discussion, and participants’ questions during educational sessions may serve as meaningful indicators of understanding and engagement even though they are not numerically measured before and after the intervention.

CONCLUSION

The educational activity on balanced nutrition and the Isi Piringku principle at the Outpatient Clinic of Rokan Hulu Regional General Hospital was conducted using a PowerPoint-based material delivery method and an interactive question-and-answer session. Evaluation was performed through observation of participant involvement and verbal responses during the discussion session, without using quantitative measurements in the form of pre-test and post-test assessments. Active participant involvement during the question-and-answer session indicated a fairly good level of engagement in understanding the material delivered.

For future development, it is recommended that evaluation involving quantitative measurement of knowledge change be conducted to obtain more comprehensive data regarding the effectiveness of the educational activity. Routine implementation of educational sessions and expansion of participant coverage may also be

considered to support wider dissemination of nutrition information. The provision of easily accessible educational materials and continued follow-up assistance may form part of the implementation strategy for healthy dietary patterns in the community.

Nutrition education using a visual approach and interactive dialogue is one method that may be applied in the context of primary and secondary healthcare services, particularly in promotive and preventive efforts against non-communicable diseases.

This nutrition education activity is highly relevant to several studies emphasizing the importance of interactive educational approaches for outpatients, particularly those at risk of or already living with non-communicable diseases (NCDs). Such interaction may strengthen understanding and support sustained motivation for behavioral change.

DAFTAR PUSTAKA

- Alonso, Arana, M., Valderas, J. M., & Solomon, J. (2019). Being tested but not educated - a qualitative focus group study exploring patients' perceptions of diabetic dietary advice. *BMC Family Practice*, *20*, Article 1. <https://doi.org/10.1186/s12875-018-0892-5>
- Elizabeth, L., Machado, P., Zinöcker, M., Baker, P., & Lawrence, M. (2020). Ultra-processed foods and health outcomes: A narrative review. *Nutrients*, *12*(7), 1955. <https://doi.org/10.3390/nu12071955>
- Effendy, D. S., Prangthip, P., Soonthornworasiri, N., Winichagoon, P., & Kwanbunjan, K. (2020). Nutrition education in Southeast Sulawesi Province, Indonesia: A cluster randomized controlled study. *Maternal & Child Nutrition*, *16*(4), e13030. <https://doi.org/10.1111/mcn.13030>
- GBD 2017 Diet Collaborators. (2019). Health effects of dietary risks in 195 countries, 1990-2017: A systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*, *393*(10184), 1958-1972. [https://doi.org/10.1016/S0140-6736\(19\)30041-8](https://doi.org/10.1016/S0140-6736(19)30041-8)
- Kementerian Kesehatan Republik Indonesia. (2019). *Laporan nasional Riskesdas 2018*. Badan Penelitian dan Pengembangan Kesehatan, Kementerian Kesehatan Republik Indonesia.
- Kementerian Kesehatan Republik Indonesia. (2022). *Isi Piringku: Pedoman makan kekinian orang Indonesia*. Ayo Sehat, Kementerian Kesehatan Republik Indonesia.
- Nurpratama, W. L., Asmi, N. F., & Prakoso, A. D. (2024). Pengaruh intervensi pangan lokal dan konseling gizi terhadap stunting pada balita. *Jurnal SAGO Gizi dan Kesehatan*, *5*(3B), 1086-1093. <https://doi.org/10.30867/gikes.v5i3B.2177>
- Nutbeam, D. (2008). The evolving concept of health literacy. *Social Science & Medicine*, *67*(12), 2072-2078. <https://doi.org/10.1016/j.socscimed.2008.09.050>
- Rahmawati, W., van der Pligt, P., Worsley, A., & Willcox, J. C. (2021). Indonesian antenatal nutrition education: A qualitative study of healthcare professional views. *Women's Health*, *17*, 17455065211066077. <https://doi.org/10.1177/17455065211066077>
- Sedibe, H. M., Kahn, K., Edin, K., Gitau, T., Ivarsson, A., & Norris, S. A. (2014). Qualitative study exploring healthy eating practices and physical activity among adolescent girls in rural South Africa. *BMC Pediatrics*, *14*, Article 211. <https://doi.org/10.1186/1471-2431-14-211>
- Winda, D., & Trisnadoli, A. (2023). Effectiveness of leaflet media on mother's interest in information on balanced nutrition for toddlers. *Jurnal Ilmiah Kebidanan (The Journal of Midwifery)*, *11*(2), 202-207. <https://doi.org/10.33992/jik.v11i2.2571>