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Barriers and potential facilitators to implement nutrition care program in athletes' training centers in Indonesia

Mustika Cahya Nirmala Dewinta[1], Mirza Hapsari Sakti Titis Penggalih[2] and Digna Niken Purwaningrum[3]

Abstract

Background: In order to improve national sport achievement in Indonesia, a new policy of nutritionist placement in every training center in Indonesia was proposed. The understanding of barriers and potential facilitators was needed to identify problems and arrange policy implementation strategies. Aim: This study aims to determine the barriers in nutrition intervention practices for athletes and opportunities in implementing the proposed policy of sport nutritionist placement in athlete training centers. Methods: The study was conducted using Consolidated Framework of Implementation Research (CFIR) as the guideline for data collection and analysis. In-Depth Interview (IDI) and Focus Group Discussion (FGD) were conducted on 9 participants from the Ministry of Youth and Sport, the Republic of Indonesia. Results: This study indicates that there are several potential barriers, which are influential on the implementation of nutrition support for athletes. These include the lack of facilitation of athletes' nutritional needs, lack of supervision for food catering service, lack of communication, and limited funding. In contrast, the potential facilitators are strong relationship with sport-related stakeholders, compatibility with the existing policy, relative advantages, and trialability of the proposed policy. Conclusions: The Indonesia Ministry of Youth and Sports should utilize these facilitators as opportunities to design, develop, and implement a policy that requires nutrition support available for all athletes at every PPLP in Indonesia.

Keywords

Policy implementation, sports nutritionist, sport manpower, athlete training center, CFIR

Introduction

Globally, various studies described that athletes are vulnerable to nutrition deficiencies, whether in junior athletes (Kim et al., 2019; Michael et al., 2019) or elite athletes (Jenner et al., 2018; Ong and Brownlee, 2017). Studies in Indonesian youth athletes showed that inadequate nutrition intake was frequently found in sport schools and athlete training centers (Penggalih et al., 2016, 2017, 2018). The flawed nutrition intervention strategy, lack of education about nutrition's importance for athletic performance, and the absence of nutritionist role in the sport management team were some of the reasons for the nutritional problems in athletes (Jenner et al., 2018).

Previous studies concerning the implementation of nutrition support in sports schools and athlete training centers in Indonesia described that the nutrition intervention system was still far from supporting the nutrition requirements of athletes to optimize health and performance. It was shown that there was an absence of a nutritionist role in calculating the ideal nutrition requirements based on the athletes' training program and sport category (Kusumawardhana, 2019; Sari et al., 2017). Furthermore, the absence of nutritionists also influenced the lack of nutrition education for athletes and resulted in athletes' unhealthy dietary habits such as consuming high fat and sodium foods, skipping meals, and poor hydration practice. Meanwhile, it is important

[1] Master of Public Health Program, Faculty of Medicine, Public Health and Nursing, Gadjah Mada University, Yogyakarta, Indonesia
[2] Department of Nutrition and Health, Faculty of Medicine, Public Health and Nursing, Gadjah Mada University, Yogyakarta, Indonesia
[3] Department of Health Policy and Management, Faculty of Medicine, Public Health and Nursing, Gadjah Mada University, Yogyakarta, Indonesia

Corresponding author:
Mustika Cahya Nirmala Dewinta, Master of Public Health Program, Faculty of Medicine, Public Health and Nursing, Gadjah Mada University, Yogyakarta, Indonesia.
Email: mustikanirmala@ugm.ac.id

that athletes have an understanding of the importance of good nutrition to support their health and sporting performance (Trakman et al., 2016).

Law of the Republic of Indonesia No. 3/2005 Article 63 concerning the sport manpower had clearly stated that a nutritionist is considered to play a key role in contributing to an athlete's ability to meet their nutritional requirements to optimize health and sporting performance. However, the presence in implementing optimal support for athletes is lacking (Kusumawardhana, 2019; Sari et al., 2017). It is suggested that implementing a new policy that requires sports nutritionist to be present in every training center in Indonesia. As the pre-implementation study for the proposed policy, this study aims to identify the barriers in nutrition intervention practices for athletes in PPLP (Pusat Pendidikan dan Latihan Pelajar or student athlete training center founded by the Ministry of Youth and Sports Republic of Indonesia) and the potential facilitators to implement the proposed policy of nutritionist placement every PPLP in Indonesia.

Methods

Participants

Respondents in this study were 9 officials from the Ministry of Youth and Sport of Republic Indonesia. The participants were selected by purposive sampling method according to the relevance of their working authorities and the research topic. The recruitment of participants was assisted by the Center of Development of Sport Science and Technology, Indonesia Ministry of Youth and Sports (PPITKON Kemenpora RI). The researchers identified the targeted participants from the job position in the organization structure and the names of individuals were listed by the PPITKON. Each participant was explained about the research and the consent of participation was collected from each participant.

Data collection

The study was conducted as policy implementation research with qualitative design, using Consolidated Framework of Implementation Research (CFIR) as the guideline in data collection and analysis (Damschroder et al., 2009). CFIR constructs were selected in 3 main domains, outer setting, inner setting, and intervention characteristics. The questions employed were open-ended questions to explore their understanding and perspective on the implementation of nutrition support programs for Indonesian athletes. Data collection was performed using In-Depth Interview (IDI) and Focus Group Discussion (FGD) methods. In-Depth Interviews were conducted to 3 participants: Chief Deputy III of Sports Culture, Chief Deputy IV of Sports Performance Improvement, and Assistant Deputy of Sports School and Sports Center Management. FGD was participated by 6 participants, consisting of Heads of Division within the Deputy III and Deputy IV. Every interview and discussion was conducted by two experienced interviewers and assisted by two note-takers. In consequence of Covid-19 pandemic, all of the IDI and FGD activities were performed online using Cloud Zoom Meeting as the meeting platform. Each interview and discussion lasted about 60–90 min. Verbatim transcription of each interview and discussion was sent to every participant to get their approval.

Data analysis

The data were transcribed verbatim and analyzed with thematic analysis, using deductive approach. The transcripts were analyzed using OpenCode version 3.6 application as supporting tool to conduct data coding, data synthesis and data classification by CFIR constructs.

Results

We found 4 barriers in the practice of nutrition support for PPLP athletes as well as 4 potential facilitators to implement the proposed policy of nutritionist implementation in PPLP. The results are shown in Table 1.

Discussions

Barriers

One of the determining factors of policy implementation success was to what extent the needs of the target population, as well as the required resources to achieve it, were identified and prioritized by the policymaker. In this particular topic, understanding the nutritional requirements of athletes and the strategy to meet them is vital. Therefore, the role of sports nutritionists is needed to help athlete meet their nutritional needs. However, respondents stated that PPLP in Indonesia do not have sports nutritionists employed to support the athletes in meeting their nutritional requirements. It was identified that so far there had only been a few involvements of a nutritionist from the catering service provider who was in charge of menu development and food processing supervision. The identified lack of nutrition support and assessment for athletes is concerning considering the important role of nutritionists can play in optimizing sporting performance and enduring nutritional requirements are met. Ideally, it includes dietary intake evaluation, anthropometry, and body composition analysis, biochemical testing, clinical examination, as well as athlete's medical history (Driskell and Wolinsky, 2010; Andersen et al, 2018).

Furthermore, the capability of nutritionists in formulating appropriate daily menus according to athletes' sport category and training periodization will also be beneficial to improve the fulfillment of nutrition requirements. Appropriate nutrition intake according to the type of exercise and its periodization would be advantageous for

Table 1. Barriers and potential facilitators for nutrition care implementation for athletes in PPLP Indonesia.

No.	Barriers in Nutrition Care for Athletes in PPLP	Potential Facilitators for Implementation of Nutritionist Placement in PPLP
1.	Outer Setting: Client Needs & Resources Limitation in resources to meet athletes' nutrition recommendations: (a) Calculation of nutrition needs without considering sports category and training periodization, (b) Inadequate support for supplements and sports foods or foods that are specially formulated to support athletes achieve specific sporting performance goals, (c) Inadequate involvement from sports nutritionists to support the nutritional needs of athletes.	Outer Setting: Cosmopolitanism Strong relationship and cooperation between the Ministry of Youth and Sports and a variety of external stakeholders in athlete training programs, such as National Sports Committee of Indonesia (Komite Olahraga Nasional Indonesia/ KONI), Indonesia Olympic Committee, and the association of each sport in Indonesia.
2.	Inner Setting: Structural Characteristic Lack of supervision towards catering service as it was externally appointed through a bidding system.	Inner Setting: Compatibility The compatibility of the proposed policy to facilitate the Long Term Athlete Development program by the Ministry of Youth and Sports.
3.	Inner Setting: Communication System Lack of communication and coordination system between the Ministry of Youth and Sports and PPLP concerning the monitoring of nutrition service for athletes.	Intervention Characteristic: Relative Advantage The understanding about the relative advantages of implementing nutritionists to support athlete's health and sporting performance.
4.	Intervention Characteristic: Cost Limited funding for ideal implementation of nutrition support for athletes.	Intervention Characteristic: Trialability Commitment and support from the Ministry of Youth and Sports to undertake a pilot intervention with nutrition support implemented in selected PPLP.

increasing physiological adaptation and performance capacity of athletes. The optimal physiological condition may lead to athletic achievement in sport competitions (Mujika et al., 2018).

Finally, the absence of nutritionist's role influenced the lack of nutrition education for athletes. Athletes need to be well educated about the principle of nutrition to enhance their performance as well as information related to supplement consumption. Athletes should be aware of the suitable supplements for their individual needs and to avoid any potential adverse side effects from supplement consumption (Savino et al., 2019). Moreover, nutritional education should be delivered to influential parties as well such as parents or guardians, coaches, and supporting staff in PPLP.

Organizational structure is strongly related to working culture that will contribute to the organization's performance (Jones and Jones, 2013). In this particular topic, annual contract of third-party catering company might tend to be business-oriented, hence the catering company has weak engagement to the value, culture, and vision of the athlete training program in PPLP. It resulted in the inability and unwillingness of catering companies to provide the optimal meal service as one of the sport enhancement strategies. In this particular topic, it was described that miscommunications still commonly happen in the practice of food service for athletes. These miscommunications were mainly caused by the lack of communication and coordination as well as ambiguity in standard of food quality for athletes.

Previous studies that evaluated the food service system for athletes in sport schools and athlete training centers in Indonesia identified that mostly they used a similar system, which was partnering with third-party catering companies selected through bidding. The observation in those training centers described that the meals for athletes were served in a buffet in a dining room for the whole athletes in the dormitory. Although some catering companies already have their nutritionist, the standard of meal servings was still far from the appropriate meal serving for athletes based on sport nutrition principles. For instance, the total energy of the meal was still below the nutritional recommendation and there was an imbalance portion of carbohydrates, protein and fat (Alfitasari et al., 2019; Sasmarianto, 2020; Wani, 2018).

The third barrier found in the practice of nutrition care for athletes in PPLP was poor communication system, particularly regarding monitoring and evaluation activity. The participants state that communication between PPLP is lacking, which may be influenced by their geographical diversity. Good communication is recognized as an important factor for successful implementation of programs or policies. The findings obtained from the communication process can then be used as reference in decision making and policy advocacy (Health Policy Projects, 2014). Therefore, regarding the nutrition service for athletes in

PPLP, it is necessary to establish a more structured communication system to monitor and evaluate the nutritional fulfillment of athletes in PPLP dormitories.

Given that the communication should be carried out with every 34 PPLP officials throughout the country, the use of digital communication media will be beneficial. Digital means of communication may prove important considering the large number of stakeholders spread across the country. Data from Conte and Hawe (2018) indicates that e-monitong or digital communication will act as an aid to the implementation program.

The last barrier found in this study was the budget constraint. Respondents of the study revealed that the allocation of the National Budget of Indonesia for sport sector was very small compared to other sectors, which was only <1% of the total of the National Budget. For comparation, data from Indonesia Ministry of Finance the 2021 National Budget for education sector was 9.0% and 5.7% for health. Budgeting is identified to be an important determinant of the successful implementation of policies, hence this will be an important consideration for the PPLP, within the management of the Ministry of Youth and Sports, to have higher funding from the Ministry of Finance. Available funding sources are often insufficient to meet the implementation of various activities required for successful policy implementation. The Ministry of Finance is required to allocate a budget for public needs from different sectors with different interests competing with each other (Campos and Reich, 2019). Findings from several previous studies also reveal that budget constraint is a classic constraint found in athlete training programs in Indonesia, starting from student-athletes to professional athletes (Fa21ah, 2019; Prasetyo et al., 2018). Budget constraints are likely to be a barrier in the successful implementation of nutritional support for athletes to optimize health and sporting performance (Tampubolon and Harianja, 2020). Therefore, evidence-based advocacy should be delivered to the Ministry of Finance to raise the funding allocation for sports development in Indonesia.

Moreover, the involvement of local government and community to allocate budget for quality improvement in food service for athletes in PPLP is also essential to improve athletes' achievement. Provincial Government Budget allocation is essential to reinforce the implementation of optimal nutrition support for PPLP athletes in every province. In addition, PPLP managers in each province are also suggested to propose sponsorship from various sports companies in Indonesia, such as sports equipment companies and sports foods and sports supple- ment companies. The availability of nutritional resources will be beneficial for sports nutritionists in performing the best nutritional strategy to enhance sports performance.

Potential facilitators

Respondents of the study described that beneficial relationships had been established between the Indonesian Ministry of Youth and Sports and other stakeholders, which may be influential of the nutritional support available for PPLP athletes. Relationships that have been established were collaborations with academic groups, professional organizations, Indonesia National Committee of Sport (KONI), the center of sport clubs and organizations, local governments, and companies in sport.

Collaboration between the Ministry of Youth and Sports with various organizations that had been established might provide good opportunities for implementing the proposed policy of nutrition employment in every PPLP in Indonesia. An organization that has extensive collaboration with various external organizations tends to achieve success in the implementation of an innovation program (Greenhalgh et al., 2004). Collaborative activities with professional groups, or cosmopolitanism, in supporting the nutritional needs of Indonesian athletes should continue to be carried out and developed. The association of nutritionists plays role in providing the qualified and certified sports nutritionist and developing the best practices of nutritional strategy to enhance sports performance. Moreover, collaborative action is also needed in research and development for the formulation of sport foods and supplements from local commodity. All of these collaboration will play vital role in supporting the athletes to meet their nutritional requirement and achieve the best sports performance.

The next potential facilitators found in this study was the alignment of3e proposed policy with the existing policies or programs of the Ministry of Youth and Sports. The alignment started from the legal regulations on sports nutrition in Indonesia, National Grand Design of Sports 2021–2032 that prioritizes the application of sports science and technol- ogy, as well as nutrition training programs that have been scheduled as part of the Long Term Athlete Development (LTAD) program. An innovative nutrition policy within the existing programs may serve as an important facilitator to ensure the success of such implementation (Greenhalgh et al., 2004).

A proposed policy for implementing sports nutritionists in PPLP will provide athletes with enhanced nutrition support, hence leading to optimized health and sporting performance. This was based on the understanding that nutritionists who join as sports personnel in one coaching team and management of PPLP will have a major role in implementing ideal nutrition care for athletes13he expected roles of nutritionists include: measuring the nutritional needs13athletes according to the category of sports, evaluating the nutritional intake of athletes, providing nutritional education to athletes, coaches, and manager, as well as formulating an attractive, and varied menu cycle according to the principles of sports nutrition.

Understanding of advantages in implementing the new policy will increase the receptiveness, especially from the front-line policy implementer. An innovative policy with clear benefits to the athletes and support team will be well received and therefore more likely to be successfully implemented (Scott et al., 2008). However, it is important that the advantages should be measurable, so there will be a clear

comparison between the advantages of the previous policy and the new one. The measured advantages should be also presented to every related stakeholder as one of the advocacy materials to strengthen the support for the policy implementation (Feldstein and Glasgow, 2008).

Finally, the Ministry of Youth and Sports also expressed their enthusiasm to implement a pilot study to explore the effect of sports nutritionists working in PPLP environments, and whether this has a significant impact on the nutrition support available for the athletes. The support from the Ministry of Youth and Sports will be in the form of accommodation and working facilities for nutritionists, as well as supervision for the PPLP officials.

Trialability is the main key in the quality improvement of policies that enable researchers to find ways to improve coordination and mutual relationships among the policy actors involved (Leeman et al., 2007). Therefore, future trials are required to test and evaluate the effectiveness and value of nutrition policy interventions, which aim to provide athletes with greater nutrition support.

Conclusions

In summary, this study indicates that there are several potential barriers, which are influential on the implementation of nutrition support for athletes. These include the lack of facilitation of athletes' nutritional needs, lack of supervision for food catering service, lack of communication, and limited funding. In contrast, the potential facilitators are strong relationship with sport-related stakeholders, compatibility with the existing policy, relative advantages, and trialability of the proposed policy. The Indonesia Ministry of Youth and Sports should utilize these facilitators as opportunities to design, develop, and implement a policy that requires nutrition support available for all athletes at every PPLP in Indonesia.

Limitations

This study is subject to some limitations. The primary limitation is the design of the study that only focuses on one particular stakeholder as the policymaker concerning the implementation of nutritional support for athletes. Further investigations that explore the perspective of other stakeholders such as PPLP officials, PPLP athletes, and sports nutritionists to get a deeper exploration of the potential implementation of optimal nutritional support for Indonesian athletes. The second limitation of this study is in the data collection, in which the interviews were performed virtually, which might result in some technical problems related to unstable connections and unclear video/audio output. However, this issue was properly addressed by asking for confirmation to the respective participant for any statements that require further explanation.

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Author contributions

MD and MP designed the study and oversaw its implementation. MP and DP supported the interpretation of data analysis and contributed to the revisions of the manuscript. MD wrote the first draft of the manuscript. All authors critically reviewed and approved the final manuscript.

Declaration of conflicting interests

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Ethical approval

The participants provided informed consent. The study was approved by the Ethical Committee of Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada on reference number KE/FK/0292/EC/2020.

Availability of data and materials

Due to the personal nature of the data, they will be available blind, upon request.

Consent for publication

All the authors consent to the publication of the present paper.

ORCID iD

Mustika Cahya Nirmala Dewinta https://orcid.org/0000-0002-4977-9903

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