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Developing Nutrition Awareness Students Using The Five Levels Of Prevention Concept In The Kuala Lumpur

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<i>Article Info:</i> Submitted: December 1, 2024 Accepted: December 13, 2024 Published: January 2, 2025	<i>ABSTRACT</i>
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Keywords: Clean and Healthy Living Behavior; young health cadres; elementary school; health training.	<i>Adolescent nutrition is a critical issue, particularly for children of Indonesian migrants at the Muhammadiyah Kampung Baru Guidance Studio, Kuala Lumpur, Malaysia, who face unbalanced diets, unhealthy snacking habits, low nutritional knowledge, and malnutrition. This program aimed to enhance students' awareness of balanced nutrition through the Five Levels of Prevention concept. Using a participatory approach, activities included social marketing of balanced diets, training on menu planning, anthropometric assessments, individual counseling, and nutrition rehabilitation. Pre- and post-test evaluations showed significant improvements in knowledge (35% to 95%), attitudes (35% to 85%), and practices (27% to 90%) related to nutrition. Outputs included educational booklets, monitoring cards, and scientific publications. The program also supported university performance indicators by involving students and faculty in impactful community service. These efforts successfully improved students' nutritional awareness, with recommendations for continued community involvement and broader support to sustain and expand the program's impact.</i>

1. INTRODUCTION

Adolescence is a critical phase of life marked by significant physical, mental, and social changes. During this period, nutritional needs are the highest compared to other age groups, making it essential to ensure adequate and balanced dietary intake (Unicef & WHO, 2001). However, adolescents are often vulnerable to nutritional deficiencies due to unhealthy eating habits, low knowledge of balanced nutrition, and limited access to healthy food (Vollman et al., 2004). This is particularly evident among children of undocumented migrant workers in Malaysia, who often face additional challenges, such as living in insecure environments and having limited access to health and hygiene facilities (Astuti & Rosidi, 2014). These conditions can exacerbate health and nutrition problems, potentially leading to decreased academic performance and reduced physical activity (Elder et al., 1999).

The Muhammadiyah Learning Center, managed by the Muhammadiyah Special Branch Leadership (PCIM) Malaysia in Kuala Lumpur, is a vital institution providing education and training to children of Indonesian migrant workers. Observations at the center identified several nutritional issues, including unbalanced diets, unhealthy snack consumption, and a high

prevalence of underweight students with a Body Mass Index (BMI) below 18.5. In response to these findings, this community service program aims to address nutritional challenges through the implementation of the five levels of prevention concept.

This program seeks to enhance students' knowledge, attitudes, and practices regarding balanced nutrition by offering tailored training, mentoring, and self-monitoring tools (Suharmanto & HP, 2015). Activities include nutrition promotion, balanced menu planning, early diagnosis of malnutrition, and rehabilitation interventions for students with nutritional deficiencies (Arisman, 2010). By engaging with the Muhammadiyah Learning Center as a partner, this program aligns with the broader mission of improving adolescent health and well-being through evidence-based strategies and participatory approaches (Notoatmodjo, 2022).

The findings and outcomes of this initiative will not only address the immediate nutritional challenges faced by the students but also contribute to the broader understanding of effective community-based interventions for adolescent nutrition in marginalized populations (Depkes, 2007; Kustyaningsih, 2007).

2. METODE

The design of this community service activity addresses the nutritional issues faced by migrant children in Kuala Lumpur, focusing on improving their nutritional status through awareness, training, and monitoring. The primary target of the activity is the students of Sanggar Bimbingan Muhammadiyah Kampung Baru, Kuala Lumpur, who are children of Indonesian migrant workers. These students often experience nutritional deficiencies due to unhealthy eating habits and low knowledge of balanced nutrition.

The activity was conducted at Sanggar Bimbingan Muhammadiyah, a learning center for migrant children. The community service program utilized the five levels of prevention concept, emphasizing education, intervention, and sustainable behavioral change to address malnutrition.

Implementation Stages

The implementation of this community service program involved three main stages: preparation, activity, and evaluation. During the preparation stage, the team conducted observations and discussions to identify key nutritional issues among the students, such as unbalanced diets, unhealthy snack consumption, and low Body Mass Index (BMI) (Almatsier, 2006).

Based on these findings, a detailed program plan was developed, emphasizing strategies like social marketing of balanced nutrition, menu planning, nutritional status monitoring, and rehabilitation for malnutrition cases.

In the activity stage, various interventions were carried out. Awareness-building efforts included social marketing campaigns to educate students about balanced nutrition and encourage self-reflection on their eating habits (Fertman & Grim, 2010). Facilitators guided group discussions to help students evaluate and improve their dietary behaviors. Training sessions equipped students with the skills to create balanced menus, monitor their nutritional status independently, and implement specific nutrition interventions (Green, 1991). Practical demonstrations, such as preparing supplementary feeding (PMT) recovery programs, were also provided. Additionally, students applied these concepts through hands-on practice, including meal preparation and monitoring their weight and height using standard equipment.

Finally, the evaluation stage focused on assessing the impact of the program. Students' nutritional status was evaluated using anthropometric measurements, such as weight and height, at different phases: before,

during, and after the program. The evaluation also ensured behavioral adoption, as students demonstrated independent application of the concepts learned during follow-up evaluations and monitoring. The program employed participatory and experiential learning methods to ensure sustainable change. These collaborative efforts effectively addressed the nutritional challenges faced by migrant children, providing them with the necessary knowledge and skills to enhance their overall health and well-being (SYABANI, 2016).

3. RESULTS AND DISCUSSION

Implementation Stages of Community Service Program

The community service program was implemented in several stages: socialization, education and training, and evaluation, all of which were designed to enhance participants' knowledge, attitudes, and skills regarding healthy and nutritious diets. Below is a detailed account of each stage.

Socialization of the Program

The socialization phase of the program took place on Wednesday, November 20, 2024, from 10:00 AM to 12:00 PM local time, in a classroom at Sanggar Bimbingan Belajar Muhammadiyah. This session was attended by the school principal,

teachers, and students as prospective training participants. During this stage, the implementation team, consisting of the project leader and members, discussed the structure of the planned educational program. Key aspects included the preparation of training materials, methods of delivery, and tools for evaluation, such as pre-tests and post-tests. Discussions also covered educational aids to enhance the participants' understanding of healthy and nutritious food, nutritional intake assessment, nutritional status measurement, and problem identification. Concepts such as social marketing of balanced nutrition menus and the five levels of prevention were also addressed.

Additionally, the implementation team collaborated with school representatives to finalize the schedule, ensuring that the training did not conflict with the school's activities. The training venue, required equipment, and participant selection were also determined at this stage.

Education and Training

The education and training session was held on Thursday, November 21, 2024, from 9:00 AM to 4:00 PM at Sanggar Bimbingan Belajar Muhammadiyah, located at 30 Wisma Sabarudin, Jalan Raja Alang Kampung Baru, Kuala Lumpur, Malaysia. A total

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of 30 participants attended the training. The session began with a registration process, where participants signed the attendance list and received a folder containing a pocket guidebook, notebook, pen, and ID card.

Before the training officially started, participants were given a pre-test consisting of 30 questions divided into three sections: knowledge, attitude, and practice. This test served to assess the participants' initial understanding and helped tailor the program's focus areas.

The training session commenced with an introduction to its objectives, materials, methods, and the expected outcomes. Participants were oriented on the overall goals of the program, which focused on equipping them with practical knowledge and skills to improve nutritional practices. This introduction set the stage for a participatory and engaging learning experience.

One of the key topics covered was Building Learning Commitment (BLC), which aimed to create a supportive and dynamic training environment. Through this activity, participants identified their expectations, established norms for the training, and collectively committed to achieving the program's objectives. This initial stage helped foster

collaboration and a sense of shared responsibility among participants.

Another important topic was Healthy and Nutritious Foods, where discussions focused on the importance of balanced diets. Practical examples of meal planning were provided to help participants understand how to incorporate various food groups into their daily diets. This was followed by training on Nutritional Intake Assessment, where participants learned how to evaluate their dietary intake and identify potential deficiencies, ensuring they could apply this knowledge in their daily lives.

The session also included demonstrations on Measurement of Nutritional Status, where participants were taught how to measure weight, height, and calculate Body Mass Index (BMI) accurately. This practical component ensured participants could independently monitor their nutritional status. Another significant topic was Social Marketing of Balanced Nutrition Menus, where participants were introduced to strategies for promoting healthy eating habits within their communities.

To enhance the learning experience, the training utilized diverse methods, including lectures, discussions, demonstrations, and hands-on practice. The use of supporting media, such as

04 videos, posters, and presentation slides, further enriched the session, making it more interactive and engaging for participants. This comprehensive approach ensured that the participants gained valuable knowledge and practical skills to improve their nutritional practices effectively.

Provision of Equipment and Demonstration Materials

To support practical training, the implementation team provided tools and demonstration materials, including models of food items for meal planning. These included staple foods like rice and corn, protein sources such as eggs and fish, vegetables like spinach and carrots, and fruits such as apples and oranges. Participants also used anthropometric tools for nutritional status measurements, ensuring they could replicate these practices independently.

Evaluation of the Program

The program concluded with an evaluation phase, where participants completed a post-test to measure the knowledge, attitudes, and skills they had gained. This evaluation aimed to identify changes in their understanding and their ability to implement healthy eating practices.

Through these structured stages, the program successfully fostered awareness and provided practical tools

to improve participants' dietary habits and overall health, ensuring sustainable benefits for the target community.

Participant Description

Table 3.1 Characteristics of Students

Target Characteristics	N=30	100 %
Class		
4	10	33,0
5	9	30,0
6	11	37,0
Age		
10	10	33,0
11	9	30,0
12	11	37,0
Gender		
Male	17	57.0
Female	13	43.0

Source: data proceed

The target participants in this activity are students from the Sanggar Bimbingan Belajar Muhammadiyah Kampung Baru, Kuala Lumpur, Malaysia, totaling 30 individuals. The characteristics of the participants are based on age and gender, as shown in Table 3.1 above:

Table 3.1 shows that the majority of students participating in the education and training at the Muhammadiyah Study Center in Kampung Baru, Kuala Lumpur, Malaysia, are in the 6th grade, comprising 37% of the total participants. The majority of the students are 11 years old, also accounting for 37%. In terms of gender,

17 male participants (57%) were involved, while 13 female participants (43%) took part in the program. This demographic distribution highlights a slightly higher participation rate among male students compared to female students, with a focus on children in the late elementary school age range. The balance in age and gender reflects the diverse group of learners engaging in the health and nutrition education initiative.

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Achieved Results

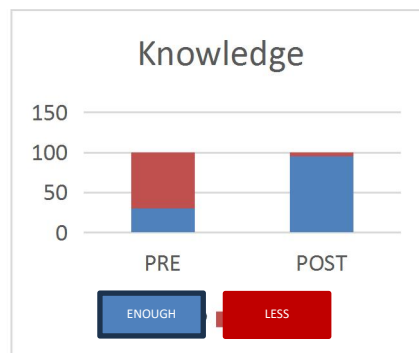
- Improvement in knowledge about healthy and nutritious foods, nutritional intake assessment, demonstration of nutritional status measurement and health problem assessment, social marketing of balanced nutrition menus (Nutrition Promotion), and the concept of the five levels of prevention.
- Improvement in positive attitudes towards healthy and nutritious foods, nutritional intake assessment, demonstration of nutritional status measurement and health problem assessment, social marketing of balanced nutrition menus (Nutrition Promotion), and the concept of the five levels of prevention.
- Improvement in positive actions to implement or apply healthy and

nutritious foods, nutritional intake assessment, demonstration of nutritional status measurement and health problem assessment, social marketing of balanced nutrition menus (Nutrition Promotion), and the concept of the five levels of prevention independently.

- Availability of nutritional status measurement tools and balanced nutrition menu models.

Changes in Knowledge Before and After Education and Training

Graph 1 shows a significant improvement in the knowledge of training participants at the Muhammadiyah Learning Center in Kampung Baru, Kuala Lumpur, Malaysia, regarding healthy and nutritious food after participating in the education and training program. Prior to the program, only 35% of participants had sufficient knowledge on the topic. However, after the training, the percentage of participants with adequate knowledge drastically increased to 95%.



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Graph 1: Knowledge During Pre- and Post-Test

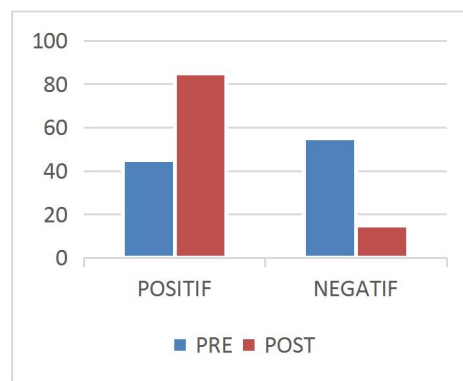
This improvement reflects the effectiveness of the methods applied during the training, which included providing material on balanced nutrition, assessing nutrient intake, and demonstrating how to measure nutritional status. With this increase in knowledge, it is expected that participants will better understand the importance of maintaining a healthy and balanced diet and will be able to apply it to their daily lives. Furthermore, this significant change indicates that participants not only received information but also actively engaged in the learning process, which can drive behavioral changes toward healthier and more nutritious eating habits.

Despite the significant improvement for most participants, approximately 5% did not show a notable increase in their knowledge. This could be attributed to a lack of active engagement. While the training was designed to involve participants through discussions and demonstrations, some participants were less actively engaged, which may have affected their ability to absorb the material.

Changes in Attitudes Through Education and Training

Graph 2 highlights a significant improvement in the positive attitudes of

participants at the Muhammadiyah Learning Center in Kampung Baru, Kuala Lumpur, Malaysia, toward healthy and nutritious food following the education and training program. Before the training, only 35% of participants displayed positive attitudes regarding the importance of healthy eating. However, after the training, this percentage rose sharply to 85%.



Graph 1: Attitude Chart Before and After Training

This improvement demonstrates that the training successfully influenced participants' attitudes, with many developing a more favorable perspective on adopting a balanced and nutritious diet. The use of interactive teaching methods, such as discussions, demonstrations, and hands-on activities, played a critical role in fostering these positive changes. As participants gained a deeper understanding of nutrition and its impact on health, they became more inclined to embrace

healthier eating habits and express positive attitudes toward nutrition.

Despite the substantial progress, approximately 15% of participants still exhibited negative or neutral attitudes after the training. This was attributed to several factors, including deeply ingrained cultural beliefs, personal preferences, and long-established eating habits. Some participants found it challenging to break away from their longstanding dietary patterns or adapt their food choices. Additionally, social or familial influences played a role in shaping their attitudes, making the adoption of new practices more difficult.

These findings emphasize the importance of addressing not only knowledge and skills but also the psychological and social factors influencing behavior change. While the training program succeeded in altering the attitudes of the majority, continued efforts to reinforce these changes, such as follow-up sessions or community support, could further reduce the percentage of participants resistant to adopting a positive attitude toward healthy eating.

Changes in Actions Before and After Education and Training

Graph 3 highlights a significant improvement in the actions and skills of participants at the Muhammadiyah

Learning Center in Kampung Baru, Kuala Lumpur, Malaysia, regarding the application of healthy eating practices after completing the education and training program. Before the training, only 27% of participants demonstrated good skills and practices in healthy eating. However, after the training, this number surged to 90%, reflecting the program's success in enhancing participants' ability to apply what they had learned effectively.



Graph 3. Action Scores at Pre-Test and Post-Test

This substantial increase illustrates the effectiveness of the training in delivering both theoretical knowledge and practical skills. The hands-on approach of the program, including demonstrations of nutritional status measurement and the preparation of balanced menus, significantly contributed to skill development. Participants were encouraged to actively implement their learning,

which reinforced their understanding and boosted their confidence in practicing healthy behaviors independently.

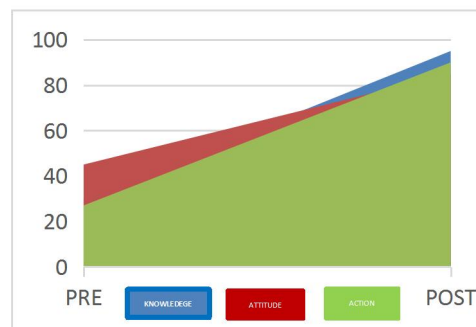
Nevertheless, 10% of participants still exhibited poor performance or skills in applying healthy eating practices after the training. This was due to deeply ingrained dietary habits that are challenging to change in a short period. Some participants also faced difficulties in translating new knowledge into actions, particularly when it came to selecting and preparing balanced meals based on the guidelines provided during the training.

To address these challenges, follow-up support is essential, such as additional workshops, support groups, or practical demonstrations in real-life settings. These initiatives would help participants gain greater confidence and sustain healthy eating habits in their daily lives. Overall, while the training achieved significant success in improving participants' actions and skills, continued support is necessary to ensure all participants fully integrate these practices into their lifestyles.

Comparison of Knowledge, Attitude, and Action Changes Before and After Education and Training

Graph 4 demonstrates a significant improvement in knowledge, attitudes, and actions among participants at the

Muhammadiyah Learning Center in Kampung Baru, Kuala Lumpur, Malaysia, before and after the education and training program. The results reflect a transformative impact of the program, which aimed to enhance participants' understanding of healthy eating practices and promote positive behavioral changes.



Graph 4. Comparison of Knowledge, Attitude, and Action at Pre and Post Test

Before the training, a large proportion of participants (70%) had limited knowledge about healthy and nutritious foods, while after the training, 95% of participants demonstrated a solid understanding of the subject. This sharp increase in knowledge highlights the effectiveness of the training, as it provided participants with the tools and information necessary to make informed decisions about their diet and nutrition. The inclusion of comprehensive content, such as balanced diets, nutritional assessments,

and practical demonstrations, likely contributed to this improvement.

Similarly, a positive shift in participants' attitudes was observed. Before the training, 55% of participants held negative attitudes towards healthy eating, likely due to a lack of awareness or misconceptions about nutrition. However, following the education and training, 85% of participants exhibited a positive attitude towards adopting healthy eating habits. This change suggests that the program not only provided knowledge but also succeeded in motivating participants to view healthy eating in a more favorable light. The interactive and participatory approach, including discussions and group activities, likely played a key role in fostering this positive shift in attitude.

The most striking improvement was seen in participants' actions and skills related to healthy eating. Prior to the training, 73% of participants displayed inadequate actions when it came to applying healthy eating practices. Yet, after the program, 90% of participants were able to demonstrate good practices, such as preparing balanced meals and making healthier food choices. This dramatic improvement indicates that the program effectively bridged the gap between knowledge and practical application,

empowering participants to implement what they had learned in their daily lives.

In summary, the results from Graph 4 underscore the success of the education and training program in bringing about positive changes in participants' knowledge, attitudes, and actions. While there was already a strong foundation in knowledge before the training, the program significantly enhanced participants' understanding, fostered a more positive attitude towards healthy eating, and led to greater application of healthy eating practices. These outcomes highlight the importance of comprehensive, engaging, and participatory training programs in fostering long-term behavioral change in communities.

Issues and Challenges

The implementation of the community service program, which focused on forming and conducting training at the elementary school level, ran smoothly. The program achieved its objectives successfully, with active participation from the students and positive feedback from the school staff. However, there were a few technical challenges encountered during the sessions. Specifically, issues arose with the sound system and the connection between the laptop and the LCD projector. Despite these challenges, the

team was able to quickly troubleshoot and resolve the issues, ensuring that the training continued without significant disruption. The prompt resolution of these technical difficulties allowed the session to proceed as planned, with all participants able to fully engage with the content. Overall, the activity was a success, highlighting the importance of preparation and adaptability in addressing unexpected obstacles during community outreach initiatives.

4. CONCLUSION

The education and training provided to students at Sanggar Bimbingan Belajar Muhammadiyah Kampung Baru Kuala Lumpur, Malaysia, on healthy and nutritious foods, nutritional intake assessment, nutritional status measurement demonstrations, health problem assessments, and the social marketing of balanced nutrition menus (Nutrition Promotion), based on the five levels of prevention concept, has demonstrated significant improvements in students' knowledge, attitudes, and actions. Furthermore, it has enhanced their ability to effectively apply nutritional awareness using the five levels of prevention concept. Additionally, the nutritional status measurement tools and balanced nutrition menu planning models provided during the training serve as valuable resources for ongoing

education and nutritional monitoring. These tools are now ready to be implemented in the school and shared across the entire school community, ensuring that the benefits of the program are extended beyond the immediate participants.

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