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Photo Essay

POLITEKNIK KESEHATAN KEMENKES PALANGKA RAYA: HEALTH FORUM AND INTERNATIONAL SEMINAR
THE NEW NORMAL : Creating a Pleasant Virtual Communication

How education on nutrition increases knowledge of hypertension among the adolescents

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Globally, WHO states that about 40% of the adult population aged ≥ 25 years are diagnosed with hypertension. Hypertension itself is the leading cause of death, which is about 45% of deaths in the world due to cardiovascular disease (World Health Organization, 2013). Based on the 2017 Indonesian Health Profile, the national prevalence of high blood pressure was 30.9% and the prevalence increased with age (Kemenkes RI, 2018). At Central Kalimantan, in 2017 as many as 25.64% of the population aged ≥ 18 years suffered from hypertension (Dinkes Provinsi Kalimantan Tengah, 2018).



Figure 1 Checking Blood Pressure Regularly Since Adolescence is Important in The Early Detection of Hypertension

Furthermore, in Palangka Raya City the number of patient visits with hypertension increased quite sharply in the last five years where females (61.54%) were higher than males (38.46%) (Dinkes Kota Palangka Raya, 2018). Several studies have shown that hypertension can occur since adolescence and its prevalence has increased over the last few decades, but many have not realized that it is one of the main causes of hypertension in later life (Chen & Wang, 2008; Kelly & Magnussen, 2014; Muntner, He, Cutler, Wildman & Whelton, 2004). *Risikedas* (Baseline Health Research) reported that 8.7% of adolescents aged 15-24 years experienced elevated blood pressure (Departemen Kesehatan, 2008).

Adolescence is a transformation from childhood to adulthood where there is a social transition in growth and lifestyles affecting the type of disease in adolescents (Soetjningsih, 2004). Unhealthy lifestyles in adolescents include alcohol consumption, smoking, excessive sodium consumption, high-stress levels and lack of physical activity can cause cardiovascular diseases such as hypertension (Cordente-Martinez, Garcia-Soidän, Sillero-Quintana & Stirling, 2009). Lifestyle modification particularly weight management for overweight and obese believes in having a beneficial effect in lowering blood pressure among adolescents (Genovesi et al., 2018). For implementing a suitable healthy lifestyle, adolescents should have adequate knowledge, particularly the risk factors of hypertension and ways to improve nutrition practices in daily life. Thus, it is essential to provide adolescents with the necessary knowledge through nutrition education to prevent the occurrence of hypertension in later life. The project aims to examine the improvement of knowledge about hypertension in adolescents through nutrition education.



Figure 2 Demonstrating Height Measurement in Adolescence Correctly to Calculate Nutritional Status Precisely (A); A Student Measures Body Weight Correctly Regularly as One Way to Self-Monitor Nutritional Status (B)

The project was performed at Senior High School in Palangka Raya. Inclusion respondents' criteria included age 15-18 years, 10th-12th grade, both female and male adolescents. Anthropometric measurements (height and weight) were conducted to teach students to determine their nutritional status. Nutrition education was carried out through audio-visual aids and leaflet both individually and as a group. A questionnaire evaluating nutrition knowledge consisted of 15 items. The questionnaire was given to all students before the

nutrition education was delivered to obtain pre-test scores. Then, at the end of the session, the questionnaire was re-administered to all the students to obtain post-test scores. Correct responses were expressed in percentage. The classification of knowledge level was categorised into 3 levels, namely "Good/High" (score 71-100%), "Intermediate" (score 51-70%) and "Poor" (score 0-50%) (Yusof, Chia & Hasni, 2014). The significance of the change in knowledge was analyzed using paired t-test. The success in providing nutrition education was determined from the differences in the results score of the knowledge of adolescents before and after nutrition education.



(A)

(B)

Figure 3 Providing Nutrition Education about Hypertension to Adolescents Individually (A); Providing Nutritional Education about Hypertension to Adolescents as a Group (B)

There was 40 student who volunteered for this project. Most students were females at 68% while males at 32%. Students learned how to self-monitor nutritional status. The average IMT/U was 21.1 ± 2.5 and the nutritional status according to z-score IMT/U was -0.1 ± 0.9 . However, approximately 10% of students indicated overweight. Being overweight or obese is directly proportional to the increased risk of developing hypertension resulting in cardiovascular diseases (Sánchez-Zamorano, Salazar-Martinez, Anaya-Ocampo, & Lazcano-Ponce, 2009). The nutritional status of obesity in adolescents is a modifiable risk factor to reduce the risk of developing hypertension in the future. It is in line with previous research which shows that there is a significant relationship between obesity nutritional status and the incidence of adolescent hypertension (Fitriana, Lipoetoe, & Triana, 2012; Kaprina, 2012).

The Ministry of Health of the Republic of Indonesia has produced an incredibly interesting infographic containing important information about hypertension. These infographics can be compiled and used as a nutrition resource in providing nutrition education about hypertension. Infographics demonstrating visually appealing might be easier to understand, memorable, more persuasive, and relay information easily (Balkac & Ergun, 2018).



Figure 4 Compilation of Infographics on Hypertension Used as a Resource in Nutrition Education

Knowledge is the result of knowing that is obtained from the process of understanding the nutrition education material that has been delivered. 40 high school students received nutrition education both individually and in groups. Nutrition knowledge about hypertension improved greatly among students. Almost all students (95%), with sufficient and good levels of knowledge, assuredly understand the nutrition education material provided. The mean score of students before receiving nutrition education (pre-test) was 65.9 ± 12.0 , while the mean score of students after receiving nutrition education (post-test) was 77.5 ± 11.9 . The paired t-test showed the result of $p = 0.000$ which indicated there were differences in the level of knowledge of students before and after receiving nutrition education. Furthermore, implementing nutrition education to students were apparently improve students' nutrition knowledge effectively (Rajikan & Esmail, 2020).

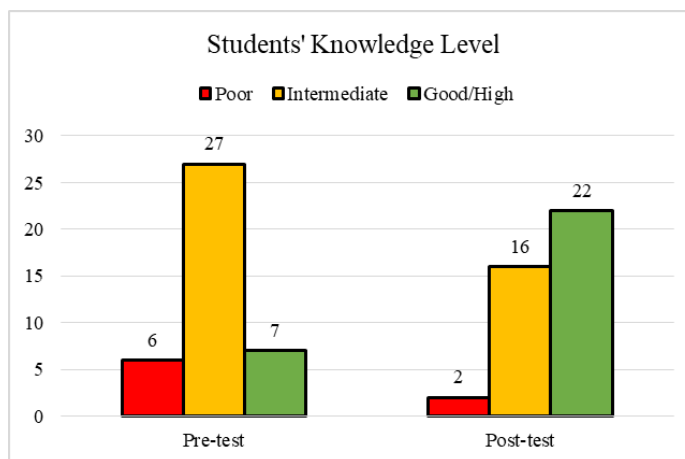


Figure 5 The Proportion of Students' Knowledge Levels Before and After Receiving Nutrition Education

In summary, it was undoubtedly important to provide early knowledge about hypertension to adolescents considering adolescents were vulnerable to unstable behavioural lifestyle changes. This integrated adolescent

nutrition education program might significantly improve nutrition-related knowledge among students.



Figure 6 Nutrition Education about Hypertension in Adolescents is an Early Step in Preventing Hypertension. Adolescent Students Involved in Interactive and Engaging Nutrition Education Increase Their Knowledge of Hypertension.

Conflict of Interest

None.

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