

Literature Review: The Effect of Nutrition Education on Knowledge, Attitude, and Nutrition Practice on Adolescents in Indonesia

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Abstract-- *Nutrition education is a way which has been done mostly to alter nutrition behaviour globally. However, in Indonesia, there is no information yet which describes on success evaluation of nutrition education improves nutrition behaviour such as knowledge, attitude, and practice. The aim of this article is to give review of various evidences of nutrition education in Indonesia in order to improve knowledge, attitude, and behaviour of adolescents. Literature search was conducted by using databases of google scholar and repository of Institut Pertanian Bogor with keywords “Nutrition Education”, “Nutrition Education for Adolescents”, and “Nutrition Education Intervention” by involving the literature published between 2013 and 2019. Total 21 studies show that there is only one study which is unsuccessful to improve the knowledge and attitude, but only four studies (36.4%) that can improve nutrition practice. The factors which affect nutrition education on adolescents in Indonesia are duration and period of intervention, the strategy based on the theory of behavioural change, and involving multi elements such as peer friends and trained facilitators.*

Keywords: *Nutrition Education, Adolescents, Knowledge, Attitude, Practice*

I. Introduction

Wrong nutrition on adolescents is a problem of public health which becomes attention. Wrong nutrition manifestation is stated such as thin recognized from low Body Mass Index (BMI) according to age and short stated from the low of body height according to age. In Indonesia, adolescents age 13-18 years old who have thin nutrition status and very thin in the amount of 8.42% and 26.25 % for short and very short, while fat adolescents and obesity in the amount of 14.84% [1]. Nutrition status has tight relation to the disease and mortality occurrence. In adolescents, wrong nutrition importantly contributes on non-contagious disease and wrong nutrition occurrence between generation [2-5].

In Indonesia, the prevalence of non-communicable disease such as Diabetes Mellitus, heart, and hypertension at age 15-24 years old increase rapidly from the previous year respectively 1.40%, 0.58%, 4.52%. The

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adolescents' prevalence which suffer chronic kidney failure also increase 0.03%, even number of adolescents who suffer haemodialysis is the highest compared to another age group [6].

Lack nutrition status of adolescents influenced by several factors such as the quantity and quality of bad diet [7]. It is found that 96% adolescents are lack of eating vegetables and fruits, 45.90% like to eat fried food/greasy and fatty, 30% like to consume salty food and 43.27% like to consume sweet food [6].

The efforts that mostly had been done to change nutrition behaviour globally is through nutrition education. For adolescents, nutrition education is conducted through various level of success in changing diet behaviour [8, 9]. The success of nutrition education on adolescents is influenced by some factors such as intervention duration, purpose focus, peer friend involvement, environment, and basic theory used [10]. In Indonesia, even though this effort has been done, but there is still minimum information related to the strategy and success level of improving domain of nutrition behaviour.

The purpose of this paper is to review various evidence about the success of nutrition education in Indonesia in improving the knowledge, attitude, and behaviour of adolescents.

II. Method

Data Sources and Search Method

The research was conducted in September until October 2019. Literature search was conducted by using keywords "Nutrition Education", "Nutrition Education for Adolescents", and "Intervention of Nutrition Education" at databases of google scholar and repository of IPB University.

Inclusion and Exclusion Criteria of The Study

Inclusion criteria of literature used in this study is the literature published between 2013 and 2019 aimed to know the correlation between nutrition education and knowledge, attitude or nutrition practice in adolescents of Indonesia. For the review purpose, the definition of teenager used is age 10-19 years old [11]. The outcome variables covered knowledge, attitude or nutrition practice included nutrition intake and nutritional status. The study which particularly sees the effect of nutritional intervention towards certain group such as obesity adolescents or lack of nutrition was also included in the review.

The Process of Data Collection and Synthesis

The first author analysed each title and abstract in details for identifying the similarity of title and content. The articles which fulfil the inclusion requirement then given code. The complete article on each title was collected and then extracted into the authors' column, type of intervention, strategy design, place, research purpose, character of subject, intervention duration, and result.

III. Results

Total there are 21 studies included into this review. Seven studies were conducted in Java, five studies in Sumatera, four studies in Sulawesi, and one study in Bali. Most of the studies were conducted at Senior High School and equivalent in the amount of 13 studies (61.9%), eight studies (38.1%) at Junior High School and equivalent. Most of the study investigated the effect of nutrition education towards knowledge in the amount of 19 studies (90.5%) [12-30] while 11 studies (52.4%) analysed the effect of nutrition intervention towards nutrition

practice [13, 14, 16, 17, 19, 20, 22, 28, 29, 31, 32] and only eight studies (30.1%) which studied the effect of nutrition education towards adolescents' attitude [13, 16, 20, 21, 24-26, 30]. The result shows that there is one study of nutrition intervention which was unsuccessful in improving the knowledge and attitude out of 19 studies (5.3%) which assessed the knowledge and eight studies assessed the attitude (12.5%) [21], however nutrition study can only improve nutrition practice in four studies out of 11 studies that assessed nutrition practice (36.4%) [13, 16, 22, 31].

Strategy Design

All types of reviewed studies were Quasi Experimental with non-randomized pre-test and post-test design in the amount of 9 studies (45.5%) [12, 13, 15, 20, 22, 24, 25, 28, 32]. Twelve other studies used pretest and posttest one group design (31.8%) [14, 16-19, 21, 23, 26, 27, 29-31]. Only one study used intervention based on theory [20].

Nutrition Education Strategy

The strategy of nutrition education used by most of the studies are tell talk or socialization and booklet media, leaflet and slide presentation media in the amount of 10 studies (45.5%) [14, 17, 19, 21, 22, 28-32]. One counselling study conducted by certified counsellor [13]. Three studies used website and social media such as Facebook and Instagram as the media of nutrition education (18.1%)[15, 25, 27]. Two studies used media assistance in the form of animation and books explosion (9.0%) [23, 26]. Five studies (%) each used game [18], nutrition education based on module [12], peer model counselling [24], combination of video and module [16], and combination of brainstorming, discussion, practice, game, and presentation as the strategies of nutrition education [20].

Duration and Frequency of Nutrition Education

The study of nutrition education intervention in Indonesia is mostly conducted in the duration less than one month in the amount of 11 studies (52.4%) [14, 17-19, 23-28, 30]. Two of them were conducted three times in three weeks [14, 17], three studies were conducted for a week [25, 27, 28], while nutrition education intervention at one study was conducted twice [19] and five other studies were conducted only once [18, 23, 24, 26, 30].

Nutrition education intervention at seven studies were conducted in one month duration (33.3%) [12, 15, 16, 20, 21, 29, 32] with varied frequency started from four times [12, 16, 20, 29], six times [32] in a month until three times in a week [15]. One study (4.8%) was conducted for 7 weeks with frequency once a week [13]. Only two nutrition education interventions (9.5%) were conducted for 3 months with frequency once a week [22] and three times in three months [31].

Six studies conducted study result assessment with time range shortly after the study conducted (28.6%) Two studies conducted study result assessment after a week [25, 26], one study each after two weeks [16], three weeks [20] and two months [12]

IV. Discussion

The review aims to collect the evidence and assess the success of nutrition education in improving the knowledge, attitude, and behaviour of adolescents related to nutrition in Indonesia. Knowledge, attitude, and

behaviour are assumed to have linear correlation [33] until to improve the behaviour, then needs continuity in the improvement of knowledge and attitude.

The results of this review show that the study which targets to improve the knowledge through nutrition education mostly show improvement of knowledge from nutrition intervention conducted. Only one study that does not show significant knowledge improvement of the subjects after conducting nutrition education intervention [21]. Even though there is score improvement of knowledge in the subject given nutrition education but statistically it is not correlated. If looking at the review result, the study does not show significant difference compared to other studies related to the strategy type, research design, the character of subject, and duration of intervention implementation [21]. There is another case which can cause the study not showing the significant result in improving the knowledge such as the facilitator ability and the environmental condition that did not support nutrition education when it was conducted [34, 35].

Nutrition education improvement is the initial stage of achieving the purpose of nutrition education. Knowledge does not merely improve nutrition education which is the main purpose of nutrition education [36]. Even though most of the study results in the review show good level of success in nutrition education but it does not merely improve the attitude and behaviour (action). In this review, it is known that the study which shows nutrition intervention is insignificant in improving the knowledge also did not succeed in improving the subjects' attitude. Through the knowledge will give good understanding and high trust on the information obtained until the knowledge is one of which that can affect the change of attitude [37].

However, only four studies out of 11 studies (36,4%) in this review which show that nutrition education has effect towards nutrition action improvement. Three of them show the increase of good nutrition action in line with the increase of knowledge an attitude [13, 16, 22]. One remaining study does not assess knowledge or attitude on its subject [31]. Four studies which succeed showing the increase of nutrition practice from nutrition intervention conducted have longer intervention time compared to seven other studies. The average of intervention nutrition done more than one month with frequency at least once a week. The intervention period determines the success level of nutrition education conducted in changing the behaviour [10]. Changing behaviour needs longer time and practice needs to be applied. The length of time enables the implementation of combination strategies of nutrition education which influence the success of nutrition intervention [38].

The intervention of nutrition education which succeeds in improving nutrition practice uses the certified counsellor [13] and used some combinations in his nutrition strategy such as discussion, presentation, video playing, and balanced nutrition module [31]. Various strategies of nutrition education tend to succeed in improving nutrition behaviour [9]. One type of strategy sometimes only aims to improve one component of behaviour but it does not improve another behaviour component. Tell talk is the strategy which can increase knowledge but less capable of increase practice. Five research in this review show that tell talk method can improve the knowledge but not the nutrition practice [14, 17, 19, 28, 29].

Material delivery by certified counsellor is a good strategy because he has certificate that fulfils the training requirement which must be taken. It means the certified counsellor has the knowledge and good skill in delivering nutrition education with suitable method [39].

The review of nutrition education intervention globally states that nutrition education based on the theory can show better result in improving nutrition behaviour compared to the one that does not [10]. Family approach and peer-group are the strategy mostly used and show positive effect in improving the behaviour [8]. In this review, only

one study which states that nutrition education intervention conducted based on theory of behavioural change [20]. The result only shows increase of knowledge and attitude but not behaviour. In this review, there is no study which involved family in its intervention and only one study used peer counselling model method and succeeds in improving the knowledge and attitude[24]. There is one other group that also use peer model but only capable of improving the education, attitude and action in peer educator group, but not at target group of peer educator [16]. This is caused by the short intervention time and effectiveness of delivering the message [16].

In this review, there is only one study which mentions that the intervention done in the form of improving the skill or practice. Nevertheless the study also does not show significant change on nutrition action [20]. Probably because of short time duration available [20]. Beside knowledge, adolescents also need to have skill of doing nutrition practice expected to be done. By doing so, individual can be considered easy in doing the nutrition behaviour [40].

This review shows that the success of nutrition education intervention is influenced by the intervention period of time, the strategy used and peer group involvement and professional in the field of nutrition. Its implication that nutrition education intervention needs to be conducted through better ways, not only improving the knowledge but also targeting on the change of behaviour until achieving expected nutrition behaviour.

This review is the first literature review in Indonesia which presents the results of nutrition education intervention study in improving the knowledge, attitude, and behaviour from journals, undergraduate thesis, and master thesis. The limited study which aims to see the effect of nutrition intervention on behavioural change makes it difficult to do comparison among the studies.

V. Conclusion

The intervention of teenager nutrition education in Indonesia increase the knowledge and attitude but less capable of improving the nutrition action. Nutrition education intervention in Indonesia needs to be conducted by considering duration and time of conducting the intervention, the strategies used, and the theories of behavioural change until involving multi factors that are important for adolescents such as peer friends and counsellor or trained facilitator.

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