

BALANCED DIET BEHAVIOUR OF ADOLESCENT GIRLS IN INDONESIAN ISLAMIC BOARDING SCHOOL

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Abstract

Background: Poor balanced diet behaviour is one of the causes of nutritional problems in adolescent girls. The study aimed to examine the characteristics of adolescent girls in Islamic boarding schools and their correlation with balanced diet behaviour.

Methods: A cross-sectional study was conducted in September 2023 at Darul Khair Islamic Boarding School in Banggai, Central Sulawesi, Indonesia. The study involved 53 adolescents aged 12–18 years. The variables collected included adolescent and household characteristics, knowledge, self-efficacy, attitude, and practice regarding a balanced diet.

Results: Most subjects were 15-18 (60.4%) and came from farming/fishing families (58.5%) with minimum wage. No significant relationship exists between girls' education levels, parents' education and income, and their knowledge, self-efficacy, attitudes, and practices about balanced diet ($P > 0.05$). Subjects with higher-educated parents were less aware and had negative attitudes toward healthy eating, while those from lower-educated families had poorer dietary habits. Subjects with lower-educated mothers and higher-educated fathers had lower self-efficacy, and those from families earning below the minimum wage had limited knowledge and negative perceptions and habits regarding balanced diets. Subjects still exhibit deficiencies in adopting balanced diet behaviours, including personal hygiene, adherence to recommended water intake, consumption of vegetables and fruits, intake of animal protein sources, implementation of guidelines and pillars of a balanced diet, and regulation of sugar, salt, and fat consumption. Additionally, there is a lack of engagement in physical activities as recommended. **Conclusions:** Adolescent girl's characteristics do not influence balanced diet behaviour.

Keywords: Adolescent girls, Balanced Diet, Behaviour, Islamic Boarding School.

Introduction:

Adolescence represents a critical phase of substantial bodily development, commencing with the onset of puberty, typically spanning the ages of 10 to 19 years(1). Fostering health during this stage aims to equip adolescents to evolve into healthy, intelligent, competent, and productive members of society while also contributing to preserving, managing, and enhancing health. Adolescent health's physical, psychological, and social aspects must be considered(2). Adopting healthy dietary patterns and lifestyles supports adolescent health(3). Indicators of optimal health in adolescents include maintaining a nutritional status and a body mass index appropriate for their age(4).

In Indonesia, adolescents face significant nutritional challenges, including anaemia in females, chronic energy deficiency (CED), and obesity(5). A 2018 study found that 8.7% of adolescents aged 13-15 and 8.1% aged 16-18 are underweight, while 16.0% and 13.5% in these age groups are overweight or obese, respectively(6). Additionally, 32% of adolescent females suffer from anaemia, especially in Central Sulawesi, where 4,635 cases were reported(7). Further research in Central Sulawesi's Banggai area suggests that anaemia is due to poor dietary intake and poor diet behaviours among adolescent girls(8). Behaviour is influenced by an individual's knowledge, self-efficacy, attitudes, and practices.

The relationship between an individual's extent of nutritional knowledge and its influence on self-efficacy, attitudes, and behaviours, particularly in relation to dietary choices, plays a pivotal role in determining nutritional status. It is hypothesised that an augmentation in nutritional knowledge is directly proportional to enhancements in nutritional status.(4). This knowledge domain includes but is not limited to, a comprehensive understanding of food groups and their nutrient compositions, access to and interpretation of nutritional information, and adherence to established safety protocols regarding food consumption(9). Adolescents, who often exhibit a deficiency in awareness regarding optimal nutritional practices, are advised to seek equilibrium between their dietary intake and nutritional needs in an effort to circumvent potential issues stemming from nutrient inadequacies or surpluses(4).

Self-efficacy refers to belief in one's ability to perform actions needed for achieving certain goals, significantly affecting personal agency and health behaviours (10). High self-efficacy in managing health is linked to better confidence in maintaining good physical health, while low self-efficacy in nutrition can negatively affect dietary choices and lifestyle habits(10). Research shows a strong relationship between high self-efficacy and positive dietary attitudes(11). Adolescents with high nutritional self-efficacy tend to follow healthier diets, whereas those with low self-efficacy may have

poor nutritional habits, leading to dietary neglect(10). Therefore, it is crucial to encourage a positive dietary attitude to promote healthy eating practices(10).

The nutritional knowledge of adolescents plays a crucial role in shaping their dietary attitudes and behaviours, which in turn influence their food choices(12). A strong understanding of nutrition helps adolescents make healthier food selections that meet their body's needs(12). Conversely, lacking nutritional knowledge can lead to poor eating habits, such as choosing nutritionally deficient foods. Assessing adolescents' knowledge, attitudes, and practices toward nutrition could help prevent diet-related diseases. Research supports the link between good nutritional knowledge, practices, and healthier dietary behaviours(4,11)Therefore, this study examined the characteristics of adolescent girls in Islamic boarding schools and their correlation with balanced diet behaviour.

Ethical Consideration:

The Faculty of Public Health, Hasanuddin University's ethical commission, has approved this research. The approval number is 5302/UN4.14.1/TP.01.02/2023.

Subjects and Methods:

A cross-sectional study was designed to fulfil the objective. This study was located at the Darul Khair Islamic Boarding School in Banggai Regency, Central Sulawesi, Indonesia. In September 2023, this study encompassed 53 adolescent girls aged 12 to 18. The participants were meticulously selected, ensuring their eligibility by confirming the absence of any physical or mental impairments. The method employed for participant selection was the total sampling technique. The research instruments comprised a questionnaire based on respondent characteristics, knowledge, attitudes, and nutritional practices. This questionnaire was adapted from Rimbawan (2023)(13)Furthermore, this study also utilised a self-efficacy questionnaire specifically developed and validated by the Department of Nutrition at Hasanuddin University.

The data were gathered using primary data collection methods, specifically through interviews supplemented by questionnaire distribution. The data analysis methodology employed in this study involved descriptive analysis, with the findings presented in a tabular format to illustrate the frequency distribution of the respondents' characteristics. All the statistical tests were conducted using version 26 of IBM SPSS Statistics (for Windows; IBM Inc., Chicago. USA). Univariate analysis for respondent characteristics and bivariate analysis with the Chi-Square test with significance set at $p < 0.05$.

Results:

Fifty-three adolescent females were included in the study, most of the respondents aged 15-18 (60.4%), with thirty-three participants being junior high school students, accounting for 62.3% of the total sample. The educational background of most of the participants' fathers was identified as junior high school graduates (32.1%), while the predominant education level for their mothers was elementary school graduates (33.9%), as detailed in Table 1. The primary occupations of the parents, both fathers and mothers, were farming or fishing. Additionally, it was observed that the income of the participants' parents was predominantly lower than the minimum wage.

Table 1. Distribution of Characteristics Respondent

Characteristics	N	%
Age		
12-15 Years	21	39.6
15 -18 Years	32	60.4
Education Level		
Junior High School	33	62.3
Senior High School	20	37.7
Parent's Educational Level		
Father's Educational Level		
Elementary School	15	28.3
Junior School	17	32.1
High School	15	28.3
Diploma	1	1.9
College	5	9.4
Mother's Educational Level		
Elementary School	18	33.9
Junior School	12	22.6
High School	17	32.1
Diploma	0	0
College	6	11.3
Parents ' job		
Father's job		
Farmers / Fisher	31	58.5
Civil Servants	4	7.5
Employees	7	13.2
Trader	9	17.0
Unemployed	1	1.9
Other	1	1.9
Mother's job		
Farmers / Fisher	19	35.8
Civil Servants	6	11.3

Employees		2	3.8
Trader		6	11.3
Housewife		17	32.1
Other		3	5.7
Income Family (/month)			
< Minimum Wage		34	64.2
≥ Minimum Wage		19	35.8

The predominant portion of participants demonstrating poor knowledge, negative self-efficacy, negative attitudes, and negative practices of a balanced diet corresponded to those possessing an education up to the junior high school level (Table 2). Interestingly, participants whose parents attained a higher educational level exhibited poor knowledge and negative attitudes regarding a balanced diet. Conversely, participants with parents of lower educational backgrounds primarily engaged in poor practices related to a balanced diet. Notably, negative self-efficacy predominantly affected participants with mothers of low educational levels and fathers with higher educational levels (Table 3).

Table 2. The Relationship between Knowledge, Self-efficacy, Attitudes and Practices Regarding Balanced Diet on The Educational Level of Adolescent Girls

Variables	Educational Level of Adolescent Girls		p-value*
	Junior High School (%)	Senior High School (%)	
Knowledge			
poor	57.6	50	0.801
good	42.2	50	
Self-efficacy			
negative	57.6	50	0.801
positive	42.4	50	
Attitude			
negative	57.6	55	1.000
positive	42.4	45	
Practice			
negative	66.7	40	0.107
positive	33.3	60	

Note: *Chi-square Test

Table 3. The Relationship between Knowledge, Self-efficacy, Attitudes and Practices Regarding Balanced Diet on The Educational Level of Parents

Variables	Mother's Educational Level		p-value*	Father's Educational Level		p-value*
	low educational level** (%)	high educational level*** (%)		low educational level** (%)	high educational level*** (%)	
Knowledge						
poor	53.3	56.5	1.000	50	60.9	0.610
good	46.7	43.5		50	39.1	
Self-efficacy						
negative	56.7	52.2	0.962	53.3	56.5	1.000
positive	43.3	47.8		46.7	43.5	
Attitude						
negative	53.3	60.9	0.788	50	65.2	0.408
positive	46.7	39.1		50	34.8	
Practice						
negative	63.3	47.8	0.396	60	52.2	0.772
positive	36.7	52.2		40	47.8	

Note: *Chi-square Test, **non formal education-junior high school, ***senior high school-college

Table 4. The Relationship between Knowledge, Self-efficacy, Attitudes and Practices Regarding Balanced Diet on Income Family

Variables	Income Family (/month)		p-value*
	< Minimum Wage	≥ Minimum Wage	
Knowledge			
poor	47.1	68.4	0.226
good	52.9	31.6	
Self-efficacy			
negative	50	63.2	0.525
positive	50	36.8	
Attitude			
negative	50	68.4	0.313
positive	50	31.6	
Practice			
negative	50	68.4	0.313
positive	50	31.6	

Note: *Chi-square Test

According to the data presented in Table 4, a predominant portion of participants whose family incomes fall beneath the minimum wage threshold exhibit poor knowledge and negative self-efficacy, attitudes, and practices concerning a balanced diet. Furthermore, the analysis reveals no substantial correlation between the characteristics of the respondents and the variables about knowledge, self-efficacy, attitudes, and practices related to a balanced diet.

Discussion:

This study reveals that there's no significant link between the educational levels of adolescent girls, their parents, and their parent's income and their understanding and habits related to a balanced diet. It highlights that girls up to junior high lack awareness and good practices towards healthy eating. Interestingly, those with higher-educated parents were less informed and showed negative attitudes towards balanced diets, while those from less-educated backgrounds displayed worse dietary habits. A notable trend was worse self-efficacy in participants with lower-educated mothers and higher-educated fathers. Additionally, those from families earning below the minimum wage had limited knowledge and negative perceptions and habits regarding a balanced diet.

The level of education of parents, particularly the mother, was found to be linked to a lower likelihood of disordered eating attitudes in adolescents(14). The higher the mother's education level, the less likely adolescents were to engage in disordered eating attitudes. Additionally, adolescents whose parents had a higher level of education were more likely to eat fruit daily and consume fewer salty snacks than those whose parents had a lower level of education(15,16). Parents' educational level impacts adolescent nutritional behaviours more than their job type or income status(17). Mothers' influence is stronger than fathers; girls with highly educated mothers are less likely to skip breakfast than others, and a mother's employment affects the food availability for adolescents, influencing their food choices(17).

Food preferences can be shaped by psychological factors like childhood experiences, emotions tied to foods, and learned behaviours(18). Adolescent nutrition choices are influenced by their beliefs about nutrition and self-efficacy, affecting how much parents and friends can sway their food choices(19). Attitudes towards nutrition are crucial for developing healthy eating habits, and teenagers' view of health's importance affects this attitude. Social and cultural elements, societal beauty standards, and peer influence also significantly shape adolescents' eating behaviours, sometimes contradicting health values(17).

Family income also affects the consumption of specific food groups, such as fruits and vegetables and fast foods(20). Even though the higher socioeconomic status of families is typically linked to better nutritional behaviour among adolescents, there are reports of a reverse relationship between family socioeconomic status and teenagers' nutritional behaviours in Iran(17). This controversy suggests that while socioeconomic status can potentially support healthy nutrition in the family, it may lead to behaviour modification if accompanied by practical support in meeting the adolescent nutritional needs.

Most of the respondents still struggle to maintain a balanced diet and healthy behaviours, such as practising good personal hygiene, drinking enough water, eating plenty of fruits and vegetables, consuming adequate animal protein, following the principles of a balanced diet, and regulating their intake of sugar, salt, and fat. Additionally, there is a lack of participation in recommended physical activities. Adolescent girls' nutritional behaviour can be significantly influenced by their family's socio-economic character, particularly if they live with their parents(12,17). This is in contrast to the subjects of this study, who were residing in dormitories. The school environment plays a key role in influencing adolescents' eating habits, as students spend much time there. While the availability of nutritious food at school impacts their eating habits, it doesn't significantly affect their snack consumption(12).

Conclusion

Based on the research findings, the educational level of adolescent girls, the educational level of their parents, and their parents' income do not significantly influence their behaviour regarding a balanced diet. However, boarding schools must pay attention to their students' eating arrangements, which can impact their eating behaviour.

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Conflict of Interest:

There are no conflicts of interest.

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