

Determining Food Choice Motivator And Associated Factors Of Female Boarding School Students

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ABSTRACT:

Introduction: Adolescence is a notable period of physical and psychological development. It is crucial to understand the reason behind their food choices to promote optimal nutrition and well-being, especially among girls.

Objectives: This study aimed to explore food choice motive among boarder students and to examine its associated factors.

Methods: Validated food choice questionnaire (FCQ) and nutritional knowledge questionnaire were used in this paper and pencil survey of 171 female students. Anthropometrics measurement was done by nutritionist.

Results: Student's median of age was 16 years old. Health and religion, comfort, weight control, familiarity, and price and convenience motive were considered important for the students by order. Nutritional knowledge positively associated with health and religion motive. Inversed associations were observed between body mass index (BMI) and comfort motive, and BMI and price and convenience motive.

Conclusions: Health and religion food choice motive was emphasized by boarder students with the influence of basic nutrition literacy. Nutritional status derived personal motive. Future research may investigate further relationship between food choice motivator and the actual food consumption of the students.

1. Introduction

Adolescence marks a crucial period of physical and psychological development, necessitating heightened attention to nutritional intake. Females during high school age in particular, would biologically experience nutritional deficiencies and lay the groundwork for future health issues once suboptimal food choices is happened [1].

Up until recently, triple burden malnutrition among school-age children and adolescents was still high in low-middle income countries. Within East Asia and Pacific region, underweight children were 37% while overweight and obese were quite prevalent reaching 59.2% with a notably scant data in Oceania countries [2]. In Indonesia, the prevalence of underweight teens reached 8.1% with 13.5% were overweight and obese which has increased from the last national health survey [3]. Anaemia as one of the outcomes where individual have insufficient intake of food was also high (19%) among Indonesian girls [4]. Besides, unhealthy eating practice led to a higher weight status for them [5]. Wang, Xu [6] revealed further that weight status during adolescence contributed to 48% increase of overweight and obese prevalence in adults. As a matter of fact, higher body mass index (BMI) increased the odds of having multiple chronic diseases such as type 2 diabetes mellitus, vascular disease, respiratory disease, etc. [7]. The nutritional status of female adolescents, whether they experience undernutrition or overnutrition, can have an impact on their health status in the next phase of life. This can create a cycle [1].

In order to develop targeted interventions that promote optimal nutrition and overall well-being, it is crucial to understand the motivations behind the food choices of female high school students. During this age, adolescents start demanding autonomy. Girls tried to apply healthy dietary practice but adequate nutrient intakes were untouched eventually [8]. Even so, they were adaptive and able to have better reason for food when environment or situation is shifted [8, 9].

One approach to explore this motivation for food is by using food choice questionnaire (FCQ) [10]. The FCQ included domain for health, weight control, mood, familiarity, convenience, and price, natural content, and sensory appeal of the foods. Later on, religion domain was suggested to be included [11]. The use of FCQ has expanded in many countries. It explored different favorable reason for food between characteristics such as sex, life cycle, occupation, etc. Further studies added to the knowledge that demographics and other factors including body image, physical activity, nutritional status, knowledge about basic nutrition, and media access influenced student's food choice motivations [12, 13].

Nevertheless, food choice motivators have not yet been explored in the context of boarding schools where a school-based nutrition approach in Indonesia has been recommended for implementation. Boarding schools become popular educational option as it put various socio-culture forwards for the students. Such health initiative was communicated based on the attribution of the autonomy and the facility of boarding schools compared to public or common private schools. This study, however, was a part of nutritional intervention program to address eating behavior among female boarding school students. This present study specifically aimed to fill the gap exploring reasons behind boarder student's food choice and to examine its associated factor.

2. Methods

This study applied a cross-sectional design and was a part of an environmental nutrition intervention for student at boarding schools. The program was purposively selected two schools employing inclusion criteria for both school and participating students [8]. This present study invited female student of grade 10 and 11, willing to participate by providing assent form, and obtained written parent's consent. Those who had dietary restriction and/or failed to complete the measurement were excluded from the analysis. Study protocol was approved for ethical consideration by the Institutional Review Board of Chulalongkorn University, Thailand (No. 245/2021) and Universitas Muhammadiyah Jakarta, Indonesia (No. 10.353.B/KEPK-FKMUMJ/XI/2021).

Measurements

Food choice motivation

Food choice motive of the students was obtained using Food Choice Questionnaire (FCQ) [10, 11]. It had been tested to Indonesian high school students and resulted five motives namely health and religion, price and convenience, comfort, weight control, and familiarity [12]. The questionnaire recorded participant's response in a 4-Likert's scale from not important at all (0) to very important (3). Initial and example of the statements are "It is important to me that the food I eat on a typical day..." and follows by "keeps me healthy, cheers me up, is cheap, is not forbidden in my religion, low in calories, and is like the food I ate when I was a child".

Anthropometrics

Student's weight and body fat, and height was measured using Tanita BC-541 and Seca 206 respectively. Weight status was then calculated with weight, height, and age data. Researcher was utilizing WHO AnthroPlus software to generate z-score of body mass index (BMI) for adolescents. For descriptive information, weight status was categorized as normal for z-score laid between -2SD to 1SD, underweight for z-score < 2SD, overweight for z-score > 1SD, and obese for z-score > 2SD [14]. Body fat status was categorized following cutoff values by McCarthy [15]. All the assessment was performed by trained personnel.

General nutritional knowledge and physical activity

Researcher constructed general nutritional knowledge questionnaire (GNKQ) following Indonesian dietary guideline [16]. The questionnaire covered topic on food-disease relations, food groups, dietary recommendations, and nutrient sources. Physical activity questionnaire for adolescent (PAQ-A) was used in the study [17]. PAQ-A recorded student's activity in the past week including activity at school, after school, and during weekend. With a 5-Likert's scale, the higher average score of PAQ-A implied the more physically active of the individual. The questionnaire has been validated by the expert and pilot-tested to 30 students [12].

Data analysis

Data analysis in this study was performed using SPSS version 29.0 (Chulalongkorn University license). Descriptive statistics presenting frequency (percentage) and median (inter-quartile range/IQR) as data were not normally distributed. Multiple linear regressions were done to analyze the association between food choice motivation and factors. Each motive was included to the model as dependent variable with age, general nutritional knowledge, physical activity, BMI, and body fat percentage as predictors. Significance was set at p -value < 0.05 .

3. Results

A hundred and seventy-one female students were recruited in the study with 16 (IQR 1) years median of age. There was one case of underweight (0.6%) while 26.9% of them were having BMI for age z -score > 1 SD or included as overweight and obese (**Table 1**). Majority of the students (60.2%) were exceeding the normal range for body fat percentage.

Students emphasized health and religion motive when choosing daily food (mean = 3.10, SD = 0.4, **Figure 1**). Comfort was placed second (mean = 3.09, SD = 0.6) while price and convenience was the least important motive for food choice among participating students (mean = 2.88, SD = 0.6).

Figure 2 summarizes multiple linear regression by which performed with each of five food choice motivation as dependent variables and participant's characteristics as predictors. General nutritional knowledge had a positive effect on health and religion motive for student's food choice. On the other hand, student's BMI yielded inverse effects for two motivations, price and convenience motive, and comfort motive.

Table 1. Characteristics of participants

Characteristics	N = 171	
	Median (IQR)	n (%)
Age, years	16 (1)	
General nutritional knowledge, score	71.0 (11)	
Physical activity, score	2.2 (0.7)	
BMI for age, z -score	0.4 (1.3)	
Underweight		1 (0.6)
Normal		124 (72.5)
Overweight		34 (19.9)
Obese		12 (7.0)
Body fat percentage, %	31.7 (6.9)	
Normal		68 (39.8)
Overfat		49 (28.7)
Obese		54 (31.6)

4. Discussion

Food choice motivation among female boarding school students was dominated with health and religion motive. The other four motives: comfort, weight control, familiarity, price and convenience, followed respectively. General nutritional knowledge was positively associated with emphasizing health and religion aspect for the student to choose their food. On contrary, an increase of student's BMI was found to minimize student's food choice motivation related to price and convenience, and comfort.

Health motive in food choice was emphasized across age-groups. Similar finding was discussed among general population and students [12, 18]. The present study included religion motive altogether with health, and the reason remained prioritized by the students. It was coherent as the present study was conducted in a religion-based school. Moreover, boarding schools allow the student to engage with senior, advisor, and school principal in daily life and so religious value was kept resonated among themselves.

Food choice motive besides health and religion in this study were noteworthy. Unlike previous studies, boarding school students treasured familiarity motive over price and convenience [9, 12]. They communicated that food from home help them completing their meal [8]. They also favored their ethnic foods when they had to buy food to cope with food lacking at school. In addition, the student often made effort to improve food taste with seasoning or side dish. This might contribute to the second important motive or comfort motive in the study.

Student's knowledge related to nutrition was found positively associated with the top food choice motivation in this study, health and religion motive. It consistent with previous study by which discussing basic nutrition literacy reflected quality diet. Those with higher knowledge was able to consume more diversified food with balance nutrient [19, 20]. It was less-likely for knowledgeable individual to choose common food when available [12]. They valued well-being and weight control in their everyday food selection as well as they tended to reject unsafe food myths [21].

BMI of the students in this study was inversely associated with two motivations, comfort motive, and price and convenience motive. These findings were intriguing. Comfort motivation included mood and sensory profile items in this study. Majority researches revealed otherwise where mood reason and sensory appeal of the food were favored by individuals with an excess weight [22]. da Silva, Marôco [23] mentioned further that being obese had higher odds to place importance on mood and sensory appeal in their daily food choice. Nevertheless, this present study was conducted in boarding school setting wherein food availability was rather limited [8]. Comfort motive was secondly important, but normal weight students were dominant.

Price and convenience motive in this study included economy value and food access items. It was the least important of all food choice motivation for the students. Similar trend was discussed as nutrition was noninterchangeable for participants [24]. High nutrition knowledge score of the students in this study might be relevant with this argument. The exploration of sample participant of this present study has published elsewhere and exposed that boarder students were resilient with food lacking at school [8]. They made effort to eat properly by preparing food from home during holiday period (to be brought to school) or acquiring made-by-order food at school. To some extent, it contrasted with the rationale that students in general would prefer inexpensive and easy-to-get food [23]. Likewise in regard to BMI, prior study found that both price and convenience domains were positively correlated with BMI of children and their parents with rather slightly for the latter domain [25].

Along with contribution to the knowledge of nutritional portrait among boarder students, several points should be addressed as limitation in this study. Firstly, a cross-sectional study could not capture which exposure or outcome between food choice motive and factors. Next, the findings of this study may limit to represent boarder students.

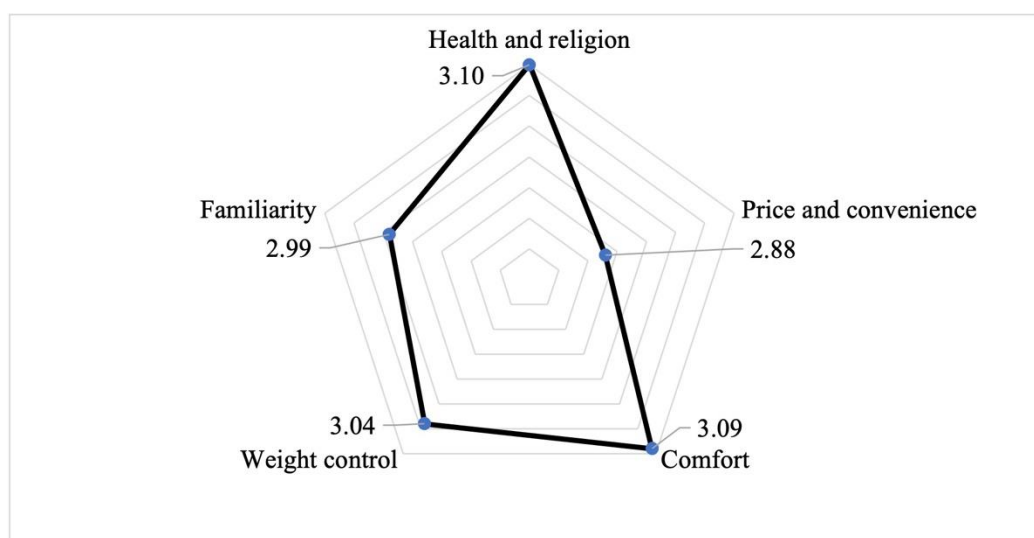


Figure 1. Food choice motive of high school students and mean value

5. Conclusion

Female boarder students put more interest in health and religion when choosing daily food. It was positively influenced by their nutritional knowledge. Meanwhile, student's BMI was negatively associated with comfort motive, and price and convenience motive.

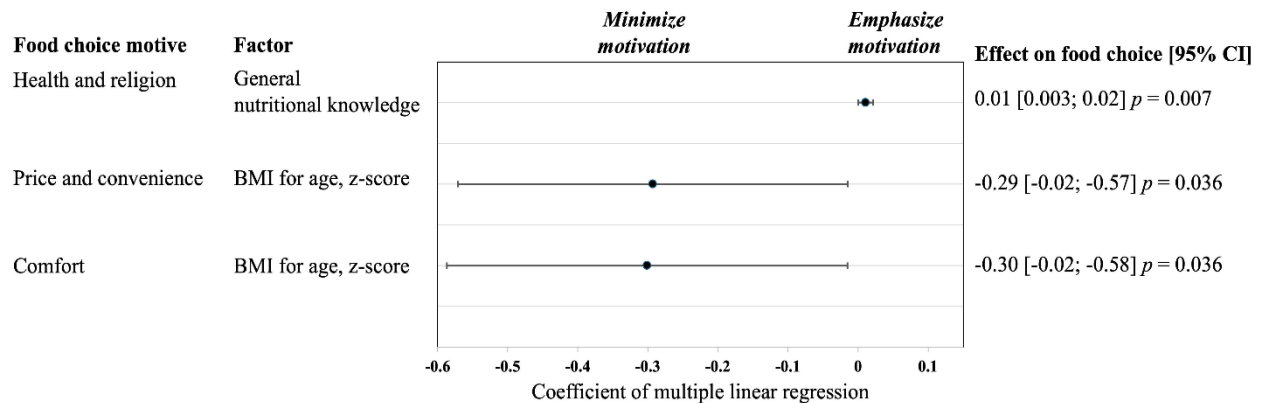


Figure 2. Regression coefficients for the relationship between factors and food choice motivation among high school students. Notes: multiple linear regression was performed with each of five food choice motivation as dependent variables and participant's characteristics as predictors.

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