

Parenting styles, food addiction and obesity: A case study of Malaysian Chinese adolescents

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Abstract – This study aims to examine the relationships between parenting styles, food addiction and obesity among Malaysian Chinese adolescents, since their obesity rates are higher than other ethnics in Malaysia. 333 secondary students were recruited using the purposive sampling method to participate in a survey. The questionnaire included the parental authority questionnaire, Yale food addiction scale in addition to the details of height and weight for BMI. The results showed only authoritative parenting style is positively associated with food addiction. In addition, food addiction is not associated with BMI. Moreover, food addiction does not mediate the effects of parenting styles on BMI. These results are different from studies conducted on adults and adolescents from Western countries. These differences could be related to Asian cultural values and the location where participants were recruited from. Future studies may consider recruiting participants from urban areas in Asian countries to see whether different results can be obtained.

Keywords – adolescents, food addiction, Malaysia, obesity, parenting styles

INTRODUCTION

The Star Online [1] highlighted that Malaysia has the highest obesity rate in Asia. According to the Malaysian Clinical Practice Guidelines of Obesity Classification [2] the national prevalence of obesity was 30.6%. The National Health and Morbidity Survey also found an increase in the prevalence of overweight and obesity, with 0.6% and 2.6% in 2015 compared to 2011 [2].

According to the Ministry of Health Malaysia [2], the highest prevalence of obesity cases were among Indians, married adults, lower educational background, and government or semi government employees. The prevalence of obesity among females are higher than males (49% vs. 44%). It is also noted that the prevalence of obesity among children aged below 18 years old was 11.9% with a higher percentage for boys (13.6%) compared to girls (10%). Among the ethnic groups, Chinese children had the highest prevalence of obesity (13%), followed by Indians (12.6%) and Malays children (11.8%).

The causes of obesity can be related to biological, social and psychological factors. Both energy balance hypothesis and endocrinological hypothesis are based on the biological approach. The energy balance hypothesis proposes that when an individual takes in

more food than that is required by the body, an accumulation of fat in the body will happen; thus, an individual will be obese. The endocrinological hypothesis, however, proposes that obesity is more relevant to biology or genetic factors, where obese people had adipose tissue that was more lipophilic. Since fat cells accumulate excessive calories as fat, other organs and cells need to take more energy to thrive and this leads to hunger or lethargy [3].

Therefore, the endocrinological hypothesis claims that obesity is not caused by excessive food intake as proposed by the energy balance hypothesis, but the hormonal response that is triggered by the food consumed. It drives the partitioning of the fuel consumed into storage as fat. Though the debates of these two hypotheses are still on-going, monitoring caloric intake, taking more fruit and vegetable consumption are strategies commonly suggested to reduce obesity rate [4].

Social change can be another cause of the increasing rate of obesity. Finkelstein & Strobombe [5] mentioned that the increase use of computers, television, and video games have been obstacles to leisure-time physical activities. Certain job demands, such as extended work (including overtime night work and sedentary work) may promote weight gain and

accumulation of abdominal fat [6]. As more women participate in the workforce and they hardly have time to prepare meals, the demands of production and sales of prepackaged food are on the increase [7, 8]. To increase sales, prepackaged food usually covers a wide variety in large portions that are usually energy dense and low in nutritional value besides being convenient, affordable [5]. In addition, due to the fear of crime in local neighborhoods, people who live there are also more likely to be overweight and obesity as there is a lack in physical activities [9].

Psychological factors, such as stress can also cause obesity. Stress is potentially associated with weight gain if accompanied by maladaptive coping skills such as unhealthy eating and sedentary activities, which in turn contribute to obesity [10]. In addition, parenting styles have also found to be relevant to obesity among children, where good parent-child communication may influence parent-monitoring behavior, like types of food intake and also the physical activity of their children [11].

Parenting also refers to the combination of parents' behavior that can work together or separately to have an influence on a child's behavior. Different parents have their different styles in exerting their control towards their children and communicating with them in different ways [12]. The authoritative parenting style is relevant to high demands and response from parents. These parents give rational demands and respond to their children by providing support in order to reach set expectations. Studies have shown that the authoritative parenting style is more likely to result with best outcomes as parents help form their child's relationship with food using a positive and active ways. They will allow random treats in order to avoid irregular meal intakes. Parents who practice this style will clarify the reasons behind avoidance of unhealthy food [13]. It is emphasized that mothers who adopt the authoritative style can influence children to achieve a balanced BMI status [14].

Authoritarian parents, on the other hand, impose strict demands but they have less response to their child. Power is built through punishment or force. Parents assume that their child will comply to the rules after punishments are meted out. For example, parents will make sure that meals are always finished regardless of the child's appetite. They are also more likely to reject candy to prevent excessive intake of sweet, sugary food without realization that this act may cause a child to have cravings, leading to bingeing [15].

In contrast, permissive parents gave low demands but offer more response to their child, to a point that there is a lack of control. There is no guidance and regulation on a child's behavior so it is more likely that a child will make decisions based on desires and peers [16]. Parents who adopt this parenting style are very kind; they will prefer escape from conflict and are less likely to punish their children. Hence, their children have no restriction on making their own choices [17]. Gregory et al. [15] also explained that children brought up using this type of parenting style will not be able to control the amount of food intake, making them a risk towards becoming obese.

Overall, these studies suggest that mothers who practice the authoritarian and permissive parenting styles tend to have weighty sons compared to mothers who practice the authoritative parenting style [18]. Nonetheless, it is unsure whether these findings can be generalized to the Asian population. For example, it is argued that authoritarian parenting was more suitable for Asian population while the authoritative parenting was more suitable for European Americans, since the parent-child relationship among Asian families, especially Chinese, is characterized as hierarchically structured; whereas parent-child relationship in western culture is characterized as communication and affective expression [19, 20].

This study aims to examine the relationships between parenting styles and obesity (BMI) among Malaysian Chinese adolescents. Besides parenting styles, food addiction is another factor that is related to obesity. A key feature of food addiction is uncontrollable food consumption, either more frequent and/or larger meals [21]. Studies have shown that overeating is part of food addiction and people who are addicted to food would crave for a particular type of food that they like [22]. Davis and Carter [23] stated that people normally get addicted to refined food and fast food, which are processed food with high sugar or other processed sweet ingredients, such as processed carbohydrates, high fats, high salt or caffeine. Thus, obese participants who are addicted to food are more inclined to eating problems, such as binge eating, hedonic eating, emotionally driven to eating, snack craving and sweets snacking [24].

It is, therefore not surprising to find a close relationship between food addiction and obesity [25]. A study conducted by Jin [26] used the Yale Food Addiction Scale (YFAS) as a measurement and found that participants who are obese displayed food addiction symptoms than those who are non-obese. In

addition, obese people have less ability to stop eating compared to slender people [27]. In spite of that, a review of studies conducted by Meule [28] relevant to YFAS reported that many studies did not find significant relationships between YFAS and obesity. Since the samples of these studies are mostly adults, it is unclear whether the findings can be generalized to adolescents. The relationship between food addiction, obesity and parenting styles among Malaysian Chinese adolescents are also examined in this study and whether food addiction mediates the effect of parenting styles on obesity.

OBJECTIVES OF THE STUDY

There are 4 research questions in this study. They are:

RQ1: To determine the relationship between parenting styles (authoritarian, authoritative and permissive) and obesity (BMI);

RQ2: To determine the relationship between parenting styles and food addiction;

RQ3: To determine the relationship between food addiction and obesity among Malaysian Chinese adolescents;

RQ4: To examine whether food addiction mediates the effect of parenting styles on obesity.

MATERIALS AND METHODS

Table 1. Demographic background of respondents

Gender	Male	48%
	Female	52%
Level of study	Form One	36%
	Form Two	31.8%
	Form Three	32.1%
Mothers' highest education level	None	0.9%
	Primary	12%
	Secondary	58.6%
	Above secondary	8.4%
	Don't know	20.1%
Mother's employment status	Full time	29.7%
	Part time	9.9%
	Housewife	59.5%
	Deceased	0.9%

A total of 333 secondary students (48% males and 52% females) were recruited from two secondary schools located in Perak, a state in Malaysia. All

participants are Malaysian Chinese. 36% were Form One students, 31.8% were from Form Two while 32.1% were Form Three students. The average height is 158.52cm (SD = 10.01), the average weight is 49.12 (SD = 11.27), and the average BMI is 19.39 (SD = 3.94). About 87.1% of the mothers have a secondary or above education while 59.5% are housewives. Only mothers' information was asked as most of the times it is mother who prepares foods for their children. (see Table 1)

Instruments

Participants were asked to fill in a questionnaire that had 3 sections: Demographic information, Parental Authority Questionnaire (PAQ) and Yale Food Addiction Scale (YFAS).

Demographic information.

In this section, participants filled in their age, gender, height in centimeters (cm), and weight in kilograms (kg). The Body Mass Index (BMI) scores were calculated by weight divided by square of height in meters.

Parental Authority Questionnaire (PAQ).

The PAQ consisted of 30 items and was developed to measure the three different parenting styles: Permissive (10 items), Authoritarian (10 items) and Authoritative (10 items). Participants were asked to tick the box to indicate the extent of agreement with each item that describes the parenting styles of their mothers according to a 5-point Likert Scale. Only mothers' parenting styles were asked as most of the times it is mother who prepares foods for their children.

Yale Food Addiction Scale.

The YFAS is used to identify signs of some specific food addiction (Gearhardt, Corbin, & Brownell, 2009). It contains 26 items in 8 criteria. There are 2 types of scoring in this instrument which are dichotomous (Yes or No) and frequency (never, once a month, 2-4 times a month, 2-3 times a week and 4 or more times or daily). The scores were added up all the scores in each criterion. A higher score indicates more problems on substance dependence in the consumption of high fat or high sugar foods.

Procedure

Four secondary schools in Perak were contacted to obtain approval for students to participate in this survey. Only 2 schools replied and a copy of the

questionnaire was sent to the school principals for consideration. After getting the final approval, the date and time was decided with the liaising teacher. The purposive sampling method was used to recruit the participants where only secondary students from Form 1 to Form 3 (Grades 7 to 9) were invited. All participants were briefed on the aims of the study, their right to withdraw from the study and anonymity of responses. After collecting the questionnaires, data was analyzed using the Statistical Package for Social Sciences (SPSS), Version 22. [and SmartPls version 3]

RESULTS

Construct reliability and validity.

As shown in the table 2, the composite reliability (CR) of all parenting measurements range from 0.764 to 0.815 and their average variance extracted (AVE) range from 0.526 to 0.634, which exceeds the recommended value of 0.7 for the former and the recommended value of 0.5 for the later [29]. The findings suggest that the latent constructs are acceptable. No result of BMI and food addiction are reported here as both of them are single item scales.

Table 2. Construct reliabilities and validities of all measurements

	items	CR	AVE
Authoritarian	3	0.764	0.528
Authoritative	4	0.815	0.526
Permissive	2	0.766	0.634

Discriminant validity. The Heterotrait-Monotrait Ratio (HTMT) was used to examine the discriminant validity of the measurements. The HTMT ratios of all results are below the critical values of 0.85 [30].

Table 3. Discriminant validity of all measurements

	1	2	3	4
Authoritarian (1)				
Authoritative (2)	0.236			
BMI (3)	0.081	0.117		
Food addiction (4)	0.138	0.270	0.082	
Permissive (5)	0.196	0.584	0.104	0.159

Regression analyses. Table 4 highlights that after controlling mothers’ highest level of education, employment status and participants’ gender, the results showed none of the parenting styles is a significant predictor of BMI, and only the authoritative parenting

style is a significant predictor of food addiction (B = 0.194, SE = 0.053, p < 0.001). In addition, no significant effect of food addiction on BMI was found. Moreover, the specific indirect effects of food addiction on the effects of parenting styles on BMI are not significant. According to the decision tree from Zhao [31], since all three specific indirect effects are not significant, it indicates no occurrence of mediating effect.

Table 4. Path coefficients of structural model

	B	SE	T values	P Values
<u>Food addiction</u>				
Authoritarian	0.107	0.076	1.408	0.159
Authoritative	0.194	0.053	3.668	<0.001
Permissive	0.019	0.055	0.883	0.377
<u>BMI</u>				
Food addiction	0.066	0.062	1.064	0.287
Authoritarian	-0.019	0.099	0.188	0.851
Authoritative	0.057	0.066	0.857	0.392
Permissive	0.076	0.080	0.959	0.338
<u>Specific indirect effect</u>				
Authoritarian -> Food addiction -> BMI	0.007	0.010	0.726	0.468
Authoritative -> Food addiction -> BMI	0.013	0.014	0.931	0.352
Permissive -> Food addiction -> BMI	0.003	0.006	0.523	0.601

Discussion

Obesity is one of the more serious issues faced by adolescents and is on the increase nowadays. It is of utmost importance that factors pertaining to obesity be identified in order for effective intervention programs to be taken to control this problem. Previous studies suggest that different parenting styles and food addiction are significant causes of obesity, but since only few of these studies recruited adolescents in Asia

as participants, this study aims to examine whether these findings can be generalized to Asian adolescents, specifically Malaysian Chinese adolescents as the rate of obesity is higher than Malays and Malaysian Indians.

Firstly, the results show that only authoritative parenting is relevant to food addiction. This is in contrast to the explanation of this type of parenting style. It is suggested to be a better parenting style as parents are able to rationalize their decisions and explain to their children in a positive manner. A possible reason can be related to the respect that a child has to have towards parents. It is a traditional Chinese cultural value that expects a child to honor his or her family and to understand and be obedient to their parents' expectation [20]. Authoritative parenting may in turn, cause a child to have more stress in meeting the expectations. Food addiction is perhaps a coping strategy to reduce the level of stress [32]. Nonetheless, further studies need to be conducted to examine the relationship between different parenting styles and stress levels among adolescents in Asian culture.

In the second research question, the relationship between food addiction and obesity is non-existent, which is similar to adult samples in some studies [28]. One possible reason is that the relationship between food addiction and obesity is more likely to be found among obese participants who have a wide BMI range [33]. In this study, participants were recruited from two secondary schools located in rural areas where students spent their time playing sports and less time on sedentary activities. This could be a reason behind the non-relationship between food addiction and BMI. Future studies may consider recruiting adolescents from urban areas to find out if there is a significant relationship between food addiction and BMI.

Conclusion

In conclusion, the results of this study suggests that authoritative parenting style is related to food addiction among adolescents. Therefore, awareness programs can be implemented parents to understand the relationships between parenting styles and eating habits. It is hoped that this will help reduce the problem of obesity and overeating in Malaysia. This is especially important in Asian cultural values that emphasis on family relationship.

Nonetheless, it should be noted that the findings of this study are different from previous findings that showed that a relationship between parenting styles and obesity, with the authoritative parenting style being

more related to a lower obesity rate, while food addiction is related to obesity, in which individuals with higher food addiction are more likely to be obese [21, 25]. Due to the difference in cultural values, more studies should be conducted by recruiting Asian samples to examine the robustness of those findings from non-Asian samples.

The interpretation of the findings should be done cautiously. As participants of this study are recruited from rural areas, different findings may be found among adolescents from urban areas where a smaller number of adolescents engage in physical activities. It is suggested that future studies may include these contextual factors, such as recruiting adolescents from urban areas or from a western country, to examine whether different outcomes will emerge.

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