

Examining adolescents' fast-food dining behavior from the influence of knowledge, attitude, self-efficacy, and patience

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Abstract: The study uses multiple regression analysis to validate correlation among constructs of fast-food behavior, knowledge, attitude, self-efficacy, and patience with respect to the sample's demographic characteristics (including different BMI levels). The sample came from 500 high school students across Taiwan but only 432 answered questionnaires were deemed valid. Demographic significance was identified for gender and BMI level but not where respondents live. Female adolescents tend to have higher nutrition knowledge and higher self-efficacy than their male counterparts do. Adolescents' BMI level positively correlates with their attitudes toward fast-food behavior. However, adolescents' BMI level negatively correlates with their self-efficacy and/or patience. The negative correlation between "patience" and fast food "behavior" was only statically supported for adolescents with low BMI where statistical insignificance was shown for those with standard or high BMI level. It is recommended that schools need to educate adolescents with more nutrition knowledge which ultimately influences their attitude toward fast-foods and their consequent behavior of fast-food dining which may affect their BMI level.

Keywords: attitude, fast-food behavior, knowledge, patience, self-efficacy

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I. INTRODUCTION

The epidemic of obesity among teenagers is gaining attention in Taiwan. Anecdotal evidence often suggests obesity among teenagers can be traced to their exposure to fast food. Association between adolescent obesity and proximity of fast-food restaurants to school was observed (Davis & Carpenter, 2009). Frequent consumption of fast foods, sweets/candy, and carbonated drinks were identified as predictors of obesity and overweight among school children (Amin et al., 2008). More specifically, substantial evidence showed consumption of fast food to positively associate with the change of body mass index (BMI) (Duffey et al., 2007). In addition, fast food consumption may induce impatient behaviors and choices outside their eating domain. To extend further, the mere exposure to fast-food symbols may reduce people's willingness to save (Zhong & DeVoe, 2010). Thus, the foods people choose to eat have influences on their behaviors, related or unrelated to eating.

The study seeks to extend past researches to see if the fast-food dining behavior influences patience. Six hypotheses were postulated as follows. (1) Adolescents with high knowledge about fast-food, the less likely that they would choose fast-food (i.e. lower behavior). (2) Adolescents with high attitudes toward eating fast-foods would correlate with their behavior of acting on it. (3) Adolescents with high self-efficacy would correlate with their refusal of fast-food dining. (4) There is a negative correlation between the cognitive level of patience and the behavior of fast-food dining by adolescents. (5) There are significant correlations among knowledge, attitude, and refusal of fast-food by self-efficacy to the behavior of fast-food dining by adolescents. (6) There are demographic significances relating to the behavior of fast-food dining by knowledge, attitude, and refusal of fast-food dining.

II. LITERATURE REVIEW

Motivation for eating at fast-food restaurants differ by age, sex, education, employment status, and household size. Rydell et al. (2008) found the most frequently reported reasons for eating at fast-food restaurants were: quick (92%), easy to get to (80%), and tastes good (69%). The study seeks to understand the behavior of fast-food dining in terms of knowledge, attitude, self-efficacy, and patience. The moderating influence of knowledge on the attraction effect varies with the information mode. When the choice set information is presented numerically, greater category knowledge attenuates the attraction effect, but when information is presented verbally, greater knowledge actually increases the size of the attraction effect (Sen,

1998). Nonetheless, Charny and Lewis (1987) noted the association of healthy changes in food consumption from high levels of knowledge. However, when more students are being employed to increase their socioeconomic ratings, associated increase of spending for fast food, alcohol, cigarettes, and gambling have also been found, which are precursors of negative health implications (Darling et al., 2006).

Larson et al. (2008) found snack frequency to be positively associated with the frequency of fast-food intake regardless of gender. Peer support for healthy eating among males and both concern about health and self-efficacy for healthy eating among females were inversely related to follow-up fast food intake. Among females, perceptions of time and taste barriers to healthy eating, lunch frequency, television viewing, and unhealthy food availability at home were also positively associated with follow-up fast food intake. Schwartz (1975) revealed that young women previously enrolled in home economics courses with a unit in food, nutrition, and health did not achieve significantly higher scores in tests of nutritional knowledge, attitudes, and practices than did those who had not been exposed to such nutritional education. However, attitudes toward food and nutrition were found to mediate the nutritional knowledge and practices of these high school graduates. Other studies have shown wide explanatory power of self-efficacy mechanism that the perceived self-efficacy helps to account changes of coping behavior produced by different modes of influence, achievement strivings, career pursuits, growth of intrinsic interest, level of physiological stress reactions, resignation and despondency to failure experiences, self-debilitating effects of proxy control and illusory inefficaciousness, and self-regulation of refractory behavior (Bandura, 1982).

III. METHODOLOGY

High school students of Taiwan are the study subject. Sampling was taken from a total of five high schools. A total of 500 questionnaires were distributed to receive 432 answered returns but only 396 of them were deemed valid. From School "A" in northern Taiwan, 91 were valid from 101 returns. From School "B" in central Taiwan, 155 were valid from 162 returns. From School "C" in central Taiwan, 79 were valid from 82 returns. From School "D" in southern Taiwan, 29 were valid from 44 returns. From School "E" in southern Taiwan, 42 were valid from 43 returns. The questionnaire items for each of the five constructs are as follows.

A. The construct of "western fast-food behavior" consists six items where each item is evaluated by a five-point Likert scale ("1" for strongly disagree, "2" for tend to disagree, "3" for neutral, "4" for tend to agree, and "5" for strongly agree).

1. I often eat western fast-food.
2. I would have eaten completely of the western food-food.
3. I purchase western fast-food from street vendors.
4. I would peel off the breaded exterior of fried items before eating.
5. I would ask for reduced salt or sauce on fried items.
6. I purchase fast foods from fast-food restaurants.

B. The construct of "nutrition knowledge" consists 12 items where respondents are ask given three choices for each items ("yes", "no", or "don't know"). Except Q3 and Q8, a point is given to an item when the respondent answers "yes" with no point given to a response of "no" or "don't know". For Q3 and Q8, a point is given to an answer of "no" while no point is given to a response of "yes" or "don't know". Hence, the maximum score of nutrition knowledge is "12".

- Q1. Oily content is high among majority of western fast-foods.
- Q2. Salt content is high among majority of western fast-foods.
- Q3. Long-term consumption of western fast-food causes the lack of Vitamins B and C.
- Q4. Consumption of fat should not exceed 30% of the calories required daily.
- Q5. Consumption of excessive western fast-foods increases the chance of cardiovascular.
- Q6. Saturated fatty acid increases blood's bad cholesterol.
- Q7. Fried food contains higher calories.
- Q8. Both animal fat and vegetable oil contain cholesterol.
- Q9. People with high blood pressure need to avoid excessive consumption of salt.
- Q10. Consumption of fibrous foods may reduce the chances of contracting colorectal cancer.
- Q11. There is a correlation between hyperlipidemia and consumption of excessive fat.
- Q12. In terms of nutritional balance, a combo meal of "cheese burger, salad, and orange juice" is better than "fried chicken burger, large fries, and iced tea".

C. The construct of “attitude towards taking western fast foods” consists five items where respondents are asked to respond their attitude on a scale of 5 between the extremes of the follows adjectives.

1. The level of “Unhealthy” to “Healthy” toward fast-food is weighed from 1 to 5.
2. The level of “Don’t like” to “Like” toward fast-food is weighed from 1 to 5.
3. The level of “Difficult” to “Easy” toward fast-food is weighed from 1 to 5.
4. The level of “Unattractive” to “Attractive” toward fast-food is weighed from 1 to 5.
5. The level of “Against making recommendation” to “Worthy of recommendation” for fast-food is weighed from 1 to 5.

D. The construct of “self-efficacy towards refusal of eating western fast foods” consists 16 items where each item is evaluated by a five-point Likert scale (“1” for strongly disagree, “2” for tend to disagree, “3” for neutral, “4” for tend to agree, and “5” for strongly agree).

1. Even with money to spend, I choose not to eat western fast foods.
2. Reception of promotional coupon does not make me to eat western fast foods.
3. In the event of promotional new tastes, I still refuse to eat western fast foods.
4. In the event of others buying western fast foods for me, I choose not to eat them.
5. Celebration calls rewarding myself, I choose not to eat western fast foods.
6. When there is no cooking at home, I choose not to eat western fast foods.
7. With coupons of western fast foods, I choose not to eat them.
8. During travel, I choose not to eat western fast foods.
9. When classmates are eating western fast foods, I choose not to eat them.
10. When western fast foods are available at home, I choose not to eat them.
11. During sedentary activities (e.g. watching movies), I choose not to eat western fast foods.
12. During recreational activities (e.g. hiking), I choose not to eat western fast foods.
13. Seeking to lose weight, I choose not to eat western fast foods.
14. Even when walking by western fast-food restaurants, I resist the temptation.
15. When family members or teachers advice me not to eat western fast foods, I follow suit.
16. Even when hungry, I choose not to eat western fast foods.

E. The construct of “patience” consists 12 items where each item is evaluated by a five-point Likert scale (“1” for strongly disagree, “2” for tend to disagree, “3” for neutral, “4” for tend to agree, and “5” for strongly agree).

1. I am willing to adjust when I believe the possibility of success exists.
2. I often continue doing a project knowing it won’t be materialized in years.
3. I am satisfied with the current situation, yielding the future to go by naturally.
4. I only care about what’s in front, and not think about others.
5. Convenience is the principle I go by.
6. To reach my goals, I am willing to sacrifice things I like.
7. I believe in the importance of crisis awareness at all times.
8. I believer it is meaningful to have a set goal rather than without one.
9. I basically would not be affected by unexpected events because I was prepared in advance.
10. I don’t give up on anything because there a solution always exists.
11. Although satisfied at the time being, I pay attention to potential problems.
12. I demand myself of reaching my set goals, always setting higher goals.

Demographic section of the questionnaire would ask respondents to indicate the following.

1. Gender.
2. Date of birth.
3. Height by centimeters and weight by kilograms.
4. Dietary type.
5. Estimated weekly expenditure (in National Taiwan Dollars) on snacks and drinks.
6. In the past week, how many times have you had fast foods?

A pretest of 75 samples was conducted to ensure reliability of the questionnaire (i.e. Cronbach’s alpha value being greater than 0.70). As a result, deletion was demanded for Q4 (“I would peel off the breaded exterior of fried items before eating”) and Q5 (“I would ask for reduced salt or sauce on fried items”) for the Cronbach’s alpha of “western fast-food behavior” construct to exceed 0.7. After the deletion, only four items exist in the construct of “western fast-food behavior”. Hence, adequate consistency, stability, and reliability were achieved by the questionnaire on all five constructs. Especially for the construct of self-efficacy, its Cronbach’s alpha was 0.92. Data would be evaluated by SPSS 20.0 for Windows for descriptive statics,

reliability test, one-way ANOVA (analysis of variance), t-test, correlation analysis, and multiple regression analysis. For example, the correlation analysis would be performed to see if there exists a correlation between "A. behavior" and "B. knowledge", "C. attitude" and "D. self-efficacy", ... etc. The multiple regression analysis would be performed to validate the presumed hypotheses with regard to demographics.

IV. RESULTS

Descriptive statistics of the respondents are shown in Table 1 where majority of the high school students were female, at 56.8% ($n = 225$). Majority of the sample came from students in central Taiwan, at 59.1% ($n = 234$). Majority of the respondents had standard BMI (between 18.5 and 23.9), at 63.1% ($n = 246$). As shown in Table 2, for the construct of "nutrition knowledge", respondents answered correctly on Mean = 7.84 out of maximum 12 items, with S.D. = 2.03. The other four constructs were evaluated based on a five-point Likert scale where the construct of "self-efficacy" received the highest mean, at 3.43 (with S.D. = 0.65), followed by "patience" (Mean = 3.35, S.D. = 0.45), "attitude" (Mean = 3.02, S.D. = 0.67), and "behavior" (Mean = 2.89, S.D. = 0.70).

Table 1 Demographic information of the respondents

Variable		Samples	Percentage
Gender	Male	171	43.2%
	Female	225	56.8%
Residence	North Taiwan	91	23.0%
	Central Taiwan	234	59.1%
	South Taiwan	71	17.9%
BMI (18.5 – 23.9 as standard)	Low (< 18.5)	50	12.6%
	Standard	246	62.1%
	High (> 23.9)	100	23.3%

Table 2 Mean and standard deviation for each construct

Construct	Item	Mean	S.D.
Western fast-food "behavior"	4	2.89	0.70
Nutrition "knowledge"	12	7.84	2.03
"Attitude" towards western fast foods	5	3.02	0.67
"Self-efficacy" towards refusal of eating western fast foods	16	3.43	0.65
"Patience"	12	3.35	0.45

Gender difference of the respondents on each construct was evaluated by an independent sample *T*-test, as shown in Table 3, where significances are identified for the construct of "nutrition knowledge" and "self-efficacy towards refusal of eating western fast foods". For the construct of "knowledge", female high school students scored significantly higher than their male counterparts ($8.06 > 7.33$, with t -value = 2.46^{***}). Moreover, female students also showed slightly higher "self-efficacy" than their male counterparts ($3.50 > 3.37$, with t -value = 1.84^*). Statistical insignificance was shown in the other three constructs, "behavior", "attitude", and "patience". Most notably, male students showed slightly higher fast-food "behavior" than their female counterparts ($2.91 > 2.87$, with t -value = 0.69), meaning male adolescents tend to make fast-foods as their choice of dining more than females do.

Table 3 Gender difference toward each construct

Construct	Gender	<i>N</i>	Mean	S.D.	<i>t</i> -value
"Behavior"	Male	171	2.91	0.62	0.69
	Female	225	2.86	0.81	
"Knowledge"	Male	171	7.55	2.16	-2.46 ^{***}
	Female	225	8.06	1.90	
"Attitude"	Male	171	3.03	0.73	0.49
	Female	225	3.00	0.62	
"Self-efficacy"	Male	171	3.37	0.66	-1.84 [*]
	Female	225	3.50	0.64	
"Patience"	Male	171	3.35	0.45	0.05
	Female	225	3.35	0.44	

* $p < .05$ significance; ** $p < .01$ significance; *** $p < .001$ significance

One-way ANOVA analysis was performed to see if demographic differences exist among adolescents' location of residence and their different BMI levels. Where adolescents live have no bearing on the significance but demographic significance exists for respondents' BMI level. Statistical significance was identified for the construct of "attitude (F -value = 4.85^{***})", "self-efficacy (F -value = 4.09^{**})", and "patience (F -value = 3.50^{**})", as shown in Table 4. The post-hoc test by LSD showed the higher of a student's BMI level would result the higher attitude towards taking western fast foods. This is a very alarming trend confirming past studies that there is a correlation between consumption of fast-food and the level of BMI. Similarly, the post-hoc test by LSD showed that the lower of a student's BMI level would result the higher self-efficacy towards refusal of eating western fast foods. And, the post-hoc test by LSD showed that the lower of a student's BMI level would result the higher patience.

Table 4 BMI difference toward each construct

Construct	BMI	N	Mean	S.D.	F-value	post-hoc
"Behavior"	Low	50	3.02	0.83	1.33	
	Standard	246	2.85	0.66		
	High	100	2.92	0.71		
"Knowledge"	Low	50	7.42	2.55	1.24	
	Standard	246	7.89	2.06		
	High	100	7.93	1.63		
"Attitude"	Low	50	2.80	0.55	4.85 ^{***}	Low < High
	Standard	246	3.00	0.72		
	High	100	3.15	0.58		
"Self-efficacy"	Low	50	3.59	0.60	4.09 ^{**}	Low > High
	Standard	246	3.38	0.65		
	High	100	3.34	0.73		
"Patience"	Low	50	3.39	0.45	3.50 ^{**}	Low > High
	Standard	246	3.30	0.41		
	High	100	3.23	0.46		

* $p < .05$ significance; ** $p < .01$ significance; *** $p < .001$ significance

Correlation analysis between each of the constructs was performed, where the construct of "behavior" correlates with "attitude" and "self-efficacy", as shown in Table 5. Similarly, the construct of "knowledge" correlates with "self-efficacy" and "patience". The construct of "attitude" correlates with "self-efficacy". At last, the construct of "self-efficacy" correlates with patience. In Table 5, a positive beta indicates positive correlation while a negative beta indicates negative correlation. For example, if a student often eats fast-food (i.e. positive behavior), he or she would have low "nutrition knowledge (although insignificant)" and low "self-efficacy (high significance)", which corresponds to negative correlation. Conversely, he or she would have high "attitude towards fast-food" which corresponds to a positive correlation. Likewise, if a student has high "nutrition knowledge", he or she would have low "attitude toward eating fast-food (although insignificant)", which corresponds to a negative correlation. At the same time, when he or she has high "self-efficacy (significance)" and high "patience (significance)" would mean a positive correlation.

Table 5 Correlation between constructs

Construct	Mean	S.D.	A	B	C	D
A. "behavior"	2.89	0.70				
B. "knowledge"	7.84	2.03	-.12			
C. "attitude"	3.02	0.67	.52 ^{**}	-.12		
D. "self-efficacy"	3.43	0.65	-.32 ^{**}	.22 ^{**}	-.38 ^{**}	
E. "patience"	3.35	0.45	.01	.17 [*]	-.12	.25 ^{**}

* $p < .05$ significance; ** $p < .01$ significance; *** $p < .001$ significance

A multiple regression analysis was performed to test the postulated hypotheses. As shown in Table 6, the negative correlation between "behavior" and "knowledge" was not validated due to insignificant beta value (-0.029) but the negative correlation still exists. However, if the adolescents have high attitudes toward the preference of fast-foods, he or she has high probabilities of acting in it (high behavior), which was validated by a positive beta (0.460 with $p = .000$ ^{***}) meaning positive correlation. Conversely, a negative correlation exists between "behavior" and "self-efficacy" as evidenced by beta = -0.132 ($p = .002$ ^{**}), indicating that adolescents with high self-efficacy are less likely to have fast-food dining behavior, or vice versa (i.e. those with low self-efficacy are more likely to have fast-food dining behavior).

Table 6 Correlation of “behavior” to “knowledge”, “attitude”, and “self-efficacy”

Variance	Explained variance	Beta	t-value	p	Validation
“Behavior”	“Knowledge”	-.029	-0.673	.501	Not support
	“Attitude”	.460	9.898	.000 ^{***}	Support
	“Self-efficacy”	-.132	-3.049	.002 ^{**}	Support
<i>F</i> -value (<i>p</i>) = 52.759 (.000 ^{***}), <i>R</i> ² = .288, adjusted <i>R</i> ² = .282					
* <i>p</i> < .05 significance; ** <i>p</i> < .01 significance; *** <i>p</i> < .001 significance					

Correlation between “behavior” and “knowledge”, “attitude”, and “self-efficacy” with respect to an adolescent’s BMI level was also evaluated through a multiple regression analysis. As shown in Table 7 (low BMI), Table 8 (standard BMI), and Table 9 (high BMI), the hypothesis that adolescents’ fast-food “behavior” positively correlates with their “attitude towards fast food” was validated by respondents from all BMI levels (low, standard, and high). However, the negative correlation between fast-food “behavior” and “knowledge” was only supported by those with low BMI level (beta = -.217 with *p* = .049^{*}). Similarly, the negative correlation between fast-food “behavior” and “self-efficacy” was only supported by those with standard BMI level (beta = -.203 with *p* = .001^{**}).

Table 7 Correlation of “low BMI” to “knowledge”, “attitude”, and “self-efficacy”

Variance	Explained variance	Beta	t-value	p	Validation
“Behavior”	“Knowledge”	-.217	-1.984	.049 [*]	Support
	“Attitude”	.712	6.291	.000 ^{***}	Support
	“Self-efficacy”	-.038	-0.334	.740	Not support
<i>F</i> -value (<i>p</i>) = 15.100 (.000 ^{***}), <i>R</i> ² = .496, adjusted <i>R</i> ² = .463					
* <i>p</i> < .05 significance; ** <i>p</i> < .01 significance; *** <i>p</i> < .001 significance					

Table 8 Correlation of “standard BMI” to “knowledge”, “attitude”, and “self-efficacy”

Variance	Explained variance	Beta	t-value	p	Validation
“Behavior”	“Knowledge”	-.036	-0.642	.521	Not support
	“Attitude”	.437	7.410	.000 ^{***}	Support
	“Self-efficacy”	-.203	-3.389	.001 ^{**}	Support
<i>F</i> -value (<i>p</i>) = 33.521 (.000 ^{***}), <i>R</i> ² = .294, adjusted <i>R</i> ² = .561					
* <i>p</i> < .05 significance; ** <i>p</i> < .01 significance; *** <i>p</i> < .001 significance					

Table 9 Correlation of “high BMI” to “knowledge”, “attitude”, and “self-efficacy”

Variance	Explained variance	Beta	t-value	p	Validation
“Behavior”	“Knowledge”	-.130	-1.516	.133	Not support
	“Attitude”	.457	5.057	.000 ^{***}	Support
	“Self-efficacy”	-.150	-1.653	.102	Not support
<i>F</i> -value (<i>p</i>) = 53.497 (.000 ^{***}), <i>R</i> ² = .297, adjusted <i>R</i> ² = .275					
* <i>p</i> < .05 significance; ** <i>p</i> < .01 significance; *** <i>p</i> < .001 significance					

A multiple regression analysis was performed on two levels for correlation with or without the intrusion of “patience”. As shown in Table 10, the first level of correlation between “behavior” and “knowledge”, “attitude”, and “self-efficacy” was performed in the first level and found a positive correlation between fast-food “behavior” and “attitude” (beta = .46 with *p* = .000^{***}), and a negative correlation between fast-food “behavior” and “self-efficacy” (beta = -.14 with *p* = .002^{**}). With the intrusion of “patience” in the second level of multiple regression analysis, the previous two hypotheses were reinforced (i.e. “positive correlation between behavior and attitude” and “negative correlation between “behavior and self-efficacy”). And, a negative correlation between “behavior” and “patience” was also validated (beta = -.12 with *p* = .008^{**}). At last, a multiple regression analysis was performed for the correlation between the level of BMI and “behavior” with the intrusion of “patience”. As shown in Table 11, a negative correlation exists between “patience” and “behavior” only for adolescents with low BMI (beta = -.419 with *p* = .002^{**}). Insignificance was resulted for those with standard or high BMI when the construct of “patience” was added.

Table 10 Correlation of "behavior" with "patience" to other constructs

Variance	Explained variance	Beta	t-value	p	Validation
First level:					
"Behavior"	"Knowledge"	-.03	-0.67	.501	Not support
	"Attitude"	.46	9.99	.000***	Support
	"Self-efficacy"	-.14	-3.05	.002**	Support
<i>F</i> -value (<i>p</i>) = 52.76 (.000***), $R^2 = .288$, adjusted $R^2 = .282$					
Second level:					
"Behavior"	"Knowledge"	-.04	-0.99	.322	Not support
	"Attitude"	.46	10.12	.000***	Support
	"Self-efficacy"	-.17	-3.55	.000***	Support
	"Patience"	-.12	-2.68	.008**	Support
<i>F</i> -value (<i>p</i>) = 41.993 (.000***), $R^2 = .301$, adjusted $R^2 = .293$					
* <i>p</i> < .05 significance; ** <i>p</i> < .01 significance; *** <i>p</i> < .001 significance					

Table 11 Correlation of "BMI" with "patience" to "behavior"

Variance	Explained variance	Beta	t-value	p	Validation
Low BMI + "Patience"	"Behavior"	-.419	-3.194	.002**	Support
<i>F</i> -value (<i>p</i>) = 10.199, $R^2 = .175$, adjusted $R^2 = .158$					
Standard BMI + "Patience"	"Behavior"	-.034	-.257	.501	Not support
<i>F</i> -value (<i>p</i>) = 0.278, $R^2 = .001$, adjusted $R^2 = .003$					
High BMI + "Patience"	"Behavior"	-.085	-.847	.399	Not support
<i>F</i> -value (<i>p</i>) = 0.717, $R^2 = .007$, adjusted $R^2 = .003$					
* <i>p</i> < .05 significance; ** <i>p</i> < .01 significance; *** <i>p</i> < .001 significance					

V. CONCLUSIONS

The study identified high correlations among adolescents' behavior, nutrition knowledge, self-efficacy, patience, and attitude towards fast-food with respect to their BMI levels. It was validated a negative correlation exists between "nutrition knowledge" and "fast-food behavior" in that adolescents with high knowledge about fast-food would make them less likely to choose (i.e. lower behavior). A positive correlation exists between "attitude" and "behavior" in that adolescents with high attitudes toward eating fast-foods would make them more likely to eat fast-food (i.e. higher behavior). Adolescents with high self-efficacy would make them more likely to refuse fast-food. There is a negative correlation between adolescents' cognitive level of "patience" and their "behavior" of taking fast-food. There are also significant correlations among adolescents' nutrition knowledge, attitude towards taking fast-food, and refusal of taking fast-food by self-efficacy. Demographic significance was also identified that female adolescents tend to have higher nutrition knowledge and higher self-efficacy than their male counterparts do. Adolescents' BMI level positively correlates with their attitudes toward fast-food behavior. However, adolescents' BMI level negatively correlates with their self-efficacy and/or patience. The negative correlation between "patience" and fast food "behavior" was only statically supported for adolescents with low BMI where statistical insignificance was shown for those with standard or high BMI level. It is recommended that schools need to educate adolescents with more nutrition knowledge which ultimately influences their attitude toward fast-foods and their consequent behavior of fast-food dining which may affect their BMI level.

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