

Understanding media literacy in relation to adolescent soft drink consumption behavior

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Abstract

This paper examines relationship between media literacy and the Theory of Planned Behavior (TPB) variables focusing on consumption of soft drink among adolescents in Klang Valley, Malaysia. In addition, this paper also determines soft drink consumption, level of media literacy and the influences of the TPB variables on the intention of soft drink consumption. A cluster sampling method was used in collecting data within the Klang Valley area. The sample consisted of 436 adolescents from secondary school, aged between 13 to 18 years old. Two main scales utilized were Media Literacy (ML) scale and TPB scale. The descriptive, multiple linear regression and Pearson product-moment correlation analyses were carried out to answer the research objectives. Results revealed that 36% of respondents drank a minimum of 1 can, bottle or glass of soft drink for the past seven days and possess good level of media literacy (35%). Meanwhile, 14% of variance in adolescents' intention of soft drink consumption is explained by TPB variables. Additionally, the total media literacy score towards soft drink advertisement was significantly positively correlated with attitude ($r = 0.250, p < .05$) and subjective norms ($r = 0.174, p < .05$). Conversely, total media literacy was significant negatively correlated with intention to consume soft drink ($r = -0.19, p < .05$) and indicated that media literacy could lower the intention to consume soft drink, thus can reduce soft drink consumption among adolescents. The importance of this study is to help the authorities, soft drink marketers and producers in Malaysia to better understand media literacy and adolescent soft drink consumption behavior.

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Introduction

A phenomenal increase of unbalance nutritional food and beverage advertisements to young people is a serious health concern. Food and beverage advertisements could influence adolescents' food choices and affect their healthy diet. Story *et al.* (2002) found that viewer's food choices towards higher-fat or higher energy foods may be influenced by exposure to food and beverage advertising especially commercials for fast food, convenient foods, and soft drinks. Additionally, food and beverage companies try to reach adolescent with promotional message highlighting taste, convenience, and fun (Schor, 2004). Since television is available in almost every home, marketers use this opportunity to gain attention of adolescents through television advertisement. While watching television is one of the popular activities during their leisure time, this is seen as the best way to market unbalance nutritional food and beverage to this target group.

Unbalance nutritional food and beverage

advertisements targeted adolescent as their potential market because they consumed the most of the unbalance nutritional food and beverage such as soft drinks. Consequently, soft drink consumption was assessed and studied across the world to know the pattern, effect, and how to reduce it. For example, the findings of research carried out in Norway showed that participant age ranging from 15-16 years old consumed an average of between one to six glasses of soft drink each week (Lien *et al.*, 2006). Meanwhile, for Malaysian's perspective the Global School-based Student Health Survey done in 2012, found that from a total of 25,505 Malaysian students that participated about 23.2% of students age ranging 13 to 17 years old usually drank carbonated soft drinks one or more times per day during the past 30 days (World Health Organization, 2012).

The aim of contemporary marketing is not only to expose young people to advertisement, but rather to encourage development of ongoing engagement. Adolescent, especially young children was directly targeted by heavy marketing to develop brand

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awareness, brand preference, and brand loyalty (Story and French, 2004). Besides that, the industry has view children and adolescents as an important market force, given their spending power, purchase influence, and potential as future adult consumers (McNeal, 1998). The influence of advertisement is getting worse when the marketer use misleading message in food and beverage advertisement to attract adolescent.

For instance, health-related messages in food advertisement from food and beverage marketers have become a trend lately. Over half of 534 of the total food advertisements using health message shown on television in the United States of America during 2009 were targeting children and adolescent (Castonguay *et al.*, 2013). Majority of food advertisement tried to convey health messages and most likely to appear in commercial is fast food (81%). Moreover, in Australia, the packaging of 157 food products sold through hypermarket was examined and about 55.5% of none-core foods were claimed to be healthy and nutritious (Mehta *et al.*, 2012).

Meanwhile, author of Coke's Unconscionable New Ad article, Faden (2013) responded to the Coca-Cola's statement: "All calories count. No matter where they come from including Coca Cola and everything else with calories". Faden (2013) points out that Coca-Cola's latest effort to position itself against the rising tide of concern about the role of sodas in the obesity epidemic is unacceptable. This misleading message of advertisement will influence adolescents to consume soft drink more because they would think Coca Cola contain calories like others food and beverage. The food industry especially soft drink industry spent millions of dollars in advertising to persuade consumer to drink more sugary foods and beverages. Nearly 25% of adolescents consumed more than 738 ml of soft drink per day in the U.S (Harnack *et al.*, 1999).

Castonguay *et al.* (2013) suggested nutrition education program to create awareness among children and adolescent to look for healthy food when choosing foods to eat in their diet. Misleading advertisement will occur when consumer's beliefs generated by the advertisement is different with the factual performance of the product (Gaeth and Heath, 1987). It can happen without the consumer realizing it. Consumer may be deceived by the characteristic of advertising when they watch and receive attention from soft drink advertisement (Jacoby *et al.*, 1982). In this context of study, adolescent believed they will be happy by drinking soft drink and thinking calorie in soft drink is similar to consuming other food. However, they did not realize that this will affect

their body and can lead to adverse health such as dental caries, gastric mucosal damage and urinary stone disease (Kassem and Lee, 2004).

Media literacy was found to be a preventive method from being misled by soft drink advertising. Several experts agree that media literacy is the ability to access, analyze, evaluate and create messages in variety of forms (Aufderheide, 1993; Potter, 2004). Besides, media literacy is what people know about the world beyond their current environments received through the media. However, the media did not convey their message in neutral manner like giving untrue information which gives problems to society (Yates, 1999). Media literate adolescent should be able to understand the media deeper and could differentiate between misleading advertisement or not. Since the adolescent represent a fast growing market segment, the effort and budgeting of food and beverage advertisement has expanded and become more refined in technique. Based on this, adolescent was recommended to be more sophisticated and media literate to overcome heavy advertisement targeting them (Pecheux and Derbaix, 1999; Livingstone and Helsper, 2006). Perhaps with media literacy initiative, unscrupulous soft drink consumption among adolescent will eventually reduce.

Theory of Planned Behavior (TPB) (Ajzen, 1991) shown in Figure 1 was used as the framework to predict the intention of soft drink consumption among adolescent in Klang Valley, Malaysia. This study used five variables of TPB which are attitude, subjective norms, perceived behavioral control, intention, and behavior. The intention was determined by three variables including attitude towards the behavior (favorable or unfavorable), subjective norm (perception of social pressures to perform or not perform the behavior), and perceived behavioral control (perception of ease or difficulty of performing the behavior) (Kassem *et al.*, 2003). Meanwhile, behavior predicted by intention and perceived behavior control (Armitage and Conner 2001).

This study specifically aimed at determining 1) media literacy score and level among adolescent towards soft drink advertisement, 2) soft drink consumption among adolescent in Klang Valley area, 3) the influences of the TPB variables towards the intention of soft drink consumption among adolescent in Klang Valley and 4) relationship between media literacy score and the TPB variables focusing on consumption of soft drink among adolescent.

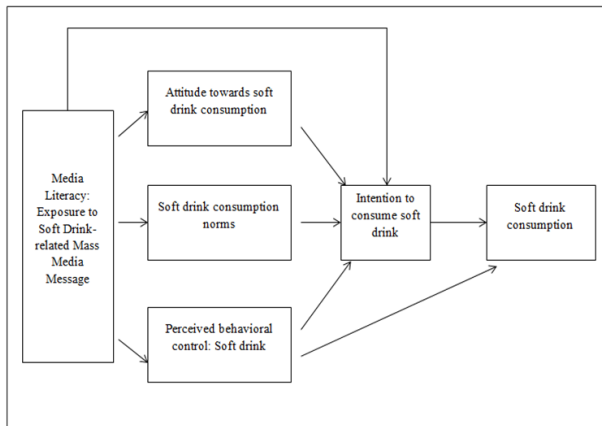


Figure 1. The framework of the study which apply the TPB (Ajzen, 1991) to mass media exposure and soft drink consumption

Methodology

Study design and sample selection

The population of interest consisted of adolescent ranging between 13 to 18 years old. A total of 500 students include Form 1 until Form 6 students from 10 selected schools within Klang Valley area were chosen and questionnaires were distributed between March 2014 and April 2014. Of 500 distributed questionnaires, only 463 usable as 37 questionnaires were found missing, uncompleted, and rejected. After spotting the outliers, the number of questionnaire was reduced to 436. To select the sample from target population, cluster sampling was utilized. Adolescents' population in Klang Valley was clustered into ten clusters based on district and the selected respondent will be drawn to embody each cluster. List of secondary school would be determined according to each cluster and one school will be selected to represent each cluster. The list of secondary school was obtained from State and Federal Territories Education Department.

Procedure

A self-administered questionnaire was used to collect data from adolescent in Klang Valley, Malaysia. Prior approval from the Ministry of Education, Malaysia, State Education Department and school principals were attained to collect data from secondary school students in Klang Valley. A total of 436 adolescents from 10 schools in Klang Valley were recruited. The questionnaires were administered to the adolescents during a class session or relief class in the presence of a teacher and the researcher. Briefing on the research was carried out before the questionnaires were distributed to the respondents. The students were also informed about the confidentiality of the survey and the instruction to

answer the questionnaire. Each student was given a can of chocolate malt drink as a token of appreciation for participating in the study at the end of the day.

Measures

Soft drink consumption

Soft drink consumption was determined using the modified instrument of the study from Evans (2009). Pattern of soda drink consumption consisted of three items. First, the adolescent was asked whether they usually drink regular soft drinks or diet soda drinks. Second, they need to choose what type of soda drinks they regularly drink based on the following categories: I don't drink soft drinks, cola, citrus-flavored, fruit-flavored, root beer and others. Next, they were asked on how often they drink soda drinks during the past 7 days (i) never (ii) less than 1 can/bottle (iii) 1 can/bottle (iv) 2-7 cans/bottles (v) more than 7 cans/bottles.

Media literacy

Media literacy scale was modified from smoking media literacy scale that was initially developed by Primack *et al.* (2006). The smoking media literacy scale was adapted by Evans (2009) to create nutrition media literacy in discovering any relationship between media literacy and consumption of soda drinks. There are 20 items measuring media literacy that were build based on three main fields such as authors, and audiences, messages and meanings and representation and reality. Participants rated the items based on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree).

Theory of planned behavior (TPB)

TPB scale consisted of four measures which are attitude, subjective norms, perceived behavioral control and behavioral intention. Originally the TPB scale was developed by Kassem *et al.* (2003) and Kassem and Lee (2004) that was used to understand soft drink consumption among male and female adolescent using TPB in the United States of America. Participants rated their level of agreement based on a 5-point Likert scale in each measure (1 = strongly disagree, 2 = disagree, 3 = either agree or disagree, 4 = agree and 5 = strongly agree). The intention to consume soft drinks was assessed using the following items: 1) if I could do what I wanted, I would drink soft drinks every day and 2) In the future, I will drink soft drinks daily. Next, to assess attitude towards soft drinks, the example of item that was asked to participant is "how likely is it that you

Table 1. Description of demographic (n=436)

Demographic Profile	Percentage (%)
Gender	
Male	43.6
Female	56.4
Age	
13	16.1
14	3.4
15	29.6
16	25.2
17	24.1
18	1.6
Ethnicity	
Malay	70.4
Chinese	19.3
Indian	9.4
Others	0.9
Language when speaking with parents most of the times	
English	9.6
Malay	68.8
Mandarin, Cantonese, Hokkien	15.4
Tamil	6.2
Grades do they usually get in school	
Mostly A's	13.1
A's and B's	35.3
Mostly B's	18.3
B's and C's	18.6
Mostly C's	5.5
C's and D's	5.3
Mostly D's	2.5
D's and F's	1.1
Mostly F's	0.2

will enjoy the taste if you drink soft drinks every day (1 = very unlikely, 2 = unlikely, 3 = neutral, 4 = likely and 5 = very likely). Subjective norm was assessed using item such as “most people who are important to me think I should not drink soft drinks every day (1 = strongly agree, 2 = disagree, 3 = either agree or disagree, 4 = agree and 5 = strongly agree). To assess perceived behavioral control, the example of item that was asked is “how easy or difficult it is to consume soft drink” (1 = strongly difficult, 2 = difficult, 3 = either difficult or easy, 4 = easy, 5 = very easy).

Statistical analyses

Data was analyzed using Statistical Package for Social Science (SPSS) 21 version. Descriptive analysis was carried out to determine the level of media literacy towards soft drink advertisement and soft drinks consumption among adolescent. Then, multiple linear regressions was utilized to examine the influences of attitude, subjective norms and perceived behavioral control on the intention to consume soft drink. Meanwhile, Pearson product-moment correlation analysis was used to assess relationship between media literacy score with the TPB variables concerning consumption of soft drink among adolescent.

Results

Respondents' characteristics

Table 1 presents the description of demographic data of respondents of this study. As can be seen in Table 1, just over half (56%) of the respondents were female. About 29% of respondents were in 15 years old group. Only 1.6% of adolescents were in 18 years old group. This situation was due to the reason that not all secondary schools offer Form 6 level. Majority of respondents were Malay followed by Chinese and Indians. Besides that, respondents frequently speak Malay with parent most of the times (68.8%). About 35% of them received A's and B's grades on most classes. Very rarely the adolescents received F's grade in the classes. Location of study play important role as the location is in urban area and most schools have excellent facilities and best teachers to help students achieved good grade in examination.

Media literacy level

The minimum and maximum total scores from 436 respondents were 17 and 55. Mean value for total score of 11 items was 40.11 ± 7.89 . Table 2 provides respondent distribution of media literacy level. The media literacy level is classified into five categories. Beginning with worse minimum score of 11 (1 score (strongly disagree x 11 statements), and ending with better maximum score of 55 (5 score (strongly agree)

Table 2. Respondent distribution of media literacy level (n=436)

Media Literacy Level	Frequency	Percentage (%)
Worse (11-19)	1	0.2
Bad (20-28)	33	7.6
Moderate (29-37)	123	28.2
Good (38-46)	181	41.5
Better (47-55)	98	22.5

Table 3. Respondent distribution of soft drink consumption during the past seven days (n=436)

Soft drink consumption	Frequency	Percentage (%)
Never	133	30.5
Less than 1 can, bottle, or glass	157	36.0
1 can, bottle or glass	97	22.2
2-7 cans, bottles, or glasses	47	10.8
More than 7 cans, bottles, or glasses	2	0.5

x 11 statements).

The majority of the respondents (92.2%) fall within the classification of moderate to better media literacy level. Specifically, 41.5% of respondents scored good level of media literacy (scores ranging from 38 to 46 of 55). Meanwhile, only 0.2% had worse level of media literacy (scores ranging from 11 to 19 out of 55).

Soft drink consumption

Table 3 shows the respondent distribution of soft drink consumption during the past seven days. About 157 respondents (36%) consumed less than 1 can, bottle or glass which is less than 500 ml to 600 ml during the past week. Only small number of respondents (0.5%) had consumed more than 7 cans, bottles, or glasses of soda drink during the past 7 days. Cola was the most preferred type of soft drink among the adolescent (27.3%) and followed by Citrus-flavored soft drink (26.8%).

The influences theory of planned behavior constructs with the intention of soft drink consumption among adolescent in Klang valley

According to Table 4, results of the multiple regression analysis revealed that attitude and perceived behavioral control (PBC) explained 14% of the variance in intention of soft drink consumption behavior among adolescents ($F = 22.154$, $p = 0.00$, $R^2 = 0.139$). Of the three predictor variables, only attitude and PBC significantly predicts intention ($p < .05$). The standardized coefficients beta value for PBC was 0.367, which specified for every point of PBC variable increase, the intention of soft drink consumption was increased by 0.367. Meanwhile, the standardized beta value for Attitude was low, -0.092 which specified for every point of Attitude increase would decrease the intention of soft drink consumption by 0.092.

Relationship between media literacy score with the theory of planned behavior variables regarding consumption of soft drink among adolescent.

The media literacy score was significantly positively correlated with respondents' attitude ($r = 0.250$) and subjective norms ($r = 0.174$) at 0.05 level of significant. Meanwhile, the media literacy score was significantly negatively correlated with respondents' intention regarding consumption of soft drink among adolescent. Pearson correlation coefficient between media literacy score and respondents' intention was -0.190. It indicated that higher media literacy score was associated with lower respondents' intention to consume soft drink.

Discussion

As can be seen from the results above, media literacy mean score among adolescent is quite high, which is 40.11 ± 7.89 and most of them achieved good level scores ranging from 41 to 48 out of 55 possible total score. The percentage of adolescent that achieved good level in media literacy is high according to sample location. In this study, the location sampled is schools mostly in urban area that have fully equipped academic facilities. Klang Valley was selected as sample location because of high in population density (Department of Statistics Malaysia, 2010). Moreover, adolescent living in urban area such as Klang Valley was expected to have high media exposure via broadcast media such as television and radio. Each household must have at least one television set since the urban area had the highest mean of monthly gross household income (Department of Statistics Malaysia, 2012). The sample of schools selected in this study excluded boarding school, technical school, elite school and religious Islamic school as the student comes from all over the country.

Table 4. Multiple linear regression of attitude towards soft drink, subjective norms and perceived behavioral control to predict respondents' intention to consume soft drink

Model Summary							
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson		
1	0.373	0.139	0.133	1.38592	1.732		
ANOVA							
Model		Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	127.661	3	42.554	22.154	0.000	
	Residual	787.518	410	1.921			
	Total	915.179	413				
Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig. t	Collinearity Statistics	
	Beta	Std. Error	Beta			Tolerance	VIF
1 (Constant)	2.575	0.327		7.866	0.000		
Attitudes towards soft drink	-0.004	0.002	-0.092	-1.988	0.047	0.970	1.030
Subjective norms	0.001	0.003	0.013	0.271	0.786	0.963	1.038
PBC	0.029	0.004	0.367	7.957	0.000	0.984	1.016

The study found the majority (66%) of adolescents consumed less than one can, bottle or glass and never consume soft drink during the last week. Unlike the findings from a recent survey involving 25,505 Malaysian students by WHO in 2012 found that 23.2% of respondents age ranging 13 to 17 years old usually drank carbonated soft drinks one or more times per day during the past 30 days (World Health Organization, 2012). The result of this study is quite different than the WHO findings maybe because of location of this study. Klang Valley area was known as urban area where adolescent is highly educated and coming from a good family background which could discourage them to consume soft drink. Nevertheless, the percentage of adolescent consuming soft drink in Malaysia is predicted increasing from 2012 until today (BMI Research, 2015). The increasing soft drink's consumption among adolescents also occurs in other country for example in the previous study carried out by Kassem and Lee (2004) and Kassem *et al.* (2003) in the United States, almost 96.5% of male respondents and 96.3% of female respondents reported that they currently consumed soda drinks. Besides, in 2011, the mean score of the soft drink consumption was 559 ml per day among the total of 1361 adolescent in the 1st and 3rd year of secondary school (12 – 15 years old) in Rotterdam, Netherlands (Tak *et al.*, 2011).

A total of 14% of the variance in intention to consume soft drink among adolescent could be explained by their attitude, social pressure of daily soft drink consumption and the perception of ease

in consuming the soft drink. Due to low R squared value, the independent variables as a whole do not explain much of the variance in adolescents' intention to consume soft drink. However, PBC have made a significant contribution to predicting the intention to consume soft drink as the standardized coefficients beta value for PBC is 0.367. In previous research, attitude was the strongest contributor, followed by PBC and subjective norms (Kassem *et al.*, 2003; Kassem and Lee, 2004). However, the result of this study shows that PBC was the strongest contributor. It indicated that perception of ease of difficulty of consuming soft drink is a big contributor to intention to consume soft drink.

Furthermore, total media literacy was significantly positively correlated with attitude score ($r = 0.250$) at 0.01 level of significant indicating relationship of stronger attitudes towards the negative effect arising because of frequent consumption of soft drink. Moreover, total media literacy also was significantly positively correlated with subjective norms score ($r = 0.174$) at 0.01 level of significant. This specifies that greater level of media literacy are related with strongly held beliefs that the important people in their live want them to consume soft drink frequently. It is implied that media literacy could affect the adolescents' favorable and unfavorable evaluation or assessment of the behavior and adolescents' feels social pressure to consume soft drink.

According to Evans (2009), media literacy would be expected to increase negative attitude toward consumption of soft drinks and correct

misperceptions of social pressure of daily soft drink consumptions. The findings of this study also revealed that media literacy could not influence the perception of ease in consuming soft drink. Even there are positive relationships between total media literacy score with attitude and subjective norms but these relationships were not contributing to determine the soft drink consumption intention. Even though these happened, media literacy directly related to the intention of soft drink consumption. Total media literacy score significantly negatively correlated with the intention of soft drink consumption ($r = -0.190$). Negative correlation between media literacy and intention to consume soft drink shows that increasing media literacy score could effectively reduce the intention to consume soft drink among adolescent. As such efforts should be taken to increase Malaysia adolescents' media literacy to enable them to identify incorrect claims in soft drink advertisement. This in turn will reduce their intention to consume soft drink which may perhaps reduce soft drink consumption among adolescent in Klang Valley Malaysia.

Limitation

Some of limitations of the study need to be acknowledged. Firstly, a cross sectional study was applied in the research design where the sample data was collected from determined population at a certain time. Therefore the finding may vary over the years. Moreover, measurements for this study were only based on self-reported data. Since this study used questionnaire as the instrument, the biasness of participant is beyond the control of the researcher although some precautionary measures to minimize were applied. In addition, other limitation during data collection is that most schools' principal suggested survey to be conducted based on class selection rather than student selection. The whole class was selected and the randomly selected students have to answer the given questionnaire. Furthermore, only a few studies have explored the relationship between media literacy score and soft drink consumption in Malaysia. The lack of prior research on this subject matter was also an obstacle in finding a trend and an actual relationship especially in Malaysia.

Conclusion

Overall, results obtained from this study found that adolescent has attained a good level of media literacy score towards soft drink advertisement. It showed that adolescent is rational in determining misleading messages from the media. Unlike previous study, the majority 66% of the adolescent

in this study consumed at least one can, bottle or glass, or never consumed soft drink in the past week. Meanwhile, TPB constructs explained 14% of variance in adolescents' intention of soft drink consumption. Additionally, attitude and PBC was found as significant contributor in adolescents' intention to consume soft drink.

PBC was identified as the strong contributor to predict intention to consume soft drink. Rather than attitude towards soft drink and peer and parents influence, the accessibility and availability of soft drink have great impact on intention to consume soft drinks. Besides that, other finding on the soft drink consumption behavior among adolescent could be very useful for the authority and policy maker to better understand the current trend of soft drink consumption. Despite of that, adolescents' media literacy was found to have a negative relationship with intention to consume soft drink. Nevertheless, it is indicated that, media literacy can reduce adolescents' intention to consume soft drink, thus perhaps can reduce soft drink consumption among them. Hence, findings from this study can help the Ministry of Education and Ministry of Health to comprehend better about media literacy and consider the idea to safeguard and prevent adolescent from being misled by media especially on unhealthy food and beverage advertising among secondary school students. Furthermore, finding of this study will also help soft drink marketers and producers to understand media literacy and adolescents' soft drink consumption behavior. The marketers could strategize better plan for soft drink advertisement especially through mass media. The message in the advertisement needs to improve in good quality, proper and not mislead. To further test these findings, longitudinal and experimental studies are proposed.

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