The Relationship between Smoking, BMI, Physical Activity, and Dietary Intake among Thai Adults in Central Thailand

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Objective: *Evaluate dietary intake, physical activity, and BMI in adult Thais stratified by smoking status, living in the central region of Thailand.*
Material and Method: *Participants (n = 1,027) were administered a health questionnaires, 24-h dietary recall, and anthropometric measurements were obtained.*
ResultS: *Compared to ex-smokers (24.5 $\pm$ 4.3 kg/m^2) and non-smokers (24.8 $\pm$ 4.0 kg/m^2), current smokers (22.6 $\pm$ 3.8 kg/m^2) had significantly lower BMIs, regardless of gender ($p < 0.001$). In addition, male smokers had smaller waist circumferences than non-smokers. There were no statistically significant differences in nutrient intake or physical activity based on smoking status. Results from this study are consistent with others reports showing that smoking is associated with lower weights and BMI when compared to non-smokers. The mechanism for this association may be related to the potential for nicotine to increase metabolic rate rather than appetite suppression in smokers.*
Conclusion: *Because the substantial negative health consequences of smoking are far stronger than those associated with modest weight differences, smoking cannot be viewed as an appropriate weight management strategy.*

Keywords: *Smoking, BMI, Physical activity, Dietary intake, Thai*

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The relationship between smoking and body weight has been studied for many years with most studies finding that smoking and body weight are inversely related. For example, several studies found that smokers weigh less than non-smokers[1,2], but gain weight after quitting smoking[2,3]. The reasons for the negative association between current smoking and body weight remain unclear but it is likely to be related to energy expenditure and dietary intake differences between smokers and non-smokers.

Smoking may increase energy expenditure by raising the basal metabolic rate or it may decreases calorie intake[4]. However, there is no evidence that smoking increases energy expenditure related to physical activity[1,5,6]. In addition, no animal studies have demonstrated a relationship between physical activity, weight loss and nicotine administration[7,8]. In contrast, researchers have noted that nicotine decreases appetite and dietary intake[9-11] and increases resting metabolic rate in animal studies[12]. For humans, nicotine in cigarettes may increase metabolic rate rather than change energy intake or physical activity[3,4,13].

A meta-analytic review of the relationship between smoking and nutrient intake demonstrated dietary differences between smokers and non-smokers[14]. Many of the studies included in this meta-analysis confirmed that smokers had unhealthier dietary patterns

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when compared to non-smokers[14]. Smokers had higher fat and alcohol consumption and lower intakes of fruit and vegetables[14-17] than non-smokers. However, none of the studies reviewed in the meta-analysis[14] included Asian samples nor did they examine potential differences in body weight between smokers and non-smokers. In fact, only one recent study has reported nutrient intake and weight data stratified by smoking status in Asian samples. Dyer et al[17] found that Japanese and Chinese male participants in the INTERMAP study who smoked were more likely to have lower fruit and carbohydrate intakes but had higher vegetable and total fat intakes. In addition, they had lower weights than their non-smoking counterparts. There were no differences in intakes for women in the study, but the same weight differences were found between smokers and non-smokers[17]. However, they did not collect data on physical levels among smokers and non-smokers.

The purpose of the present study was to evaluate the relationship between smoking status and body weight, physical activity, and nutrient intake. The present study is unique because very few studies have examined these relationships in Asian samples, which tend to have substantially higher rates of smoking among men than typically found in Western samples. Conversely, smoking rates among women tend to be very low and much lower than those reported in Western samples[18]. The present study is also unique because body mass index (BMI) was determined with measured weights and heights. Finally, the authors also assessed physical activity level, which has not been evaluated in any of the previous studies with Asian samples.

Material and Method

Participants

A sample of 1,027 adults aged 35 years and over was randomly selected from Suphanburi province, the central region of Thailand. In this province, two districts were selected, urban and rural political districts. Two sub-districts were randomly selected within each district, and two enumeration areas were selected within each sub-district, yielding 193 villages. Within each village a random sample of households was drawn from the local government registers of households' lists and only one individual was recruited from a household.

For each individual who agreed to participate, trained staff administered a structured questionnaire and performed a physical examination. The questionnaire included questions about basic socio-demographic variables, the medical history regarding hypertension, hypercholesterolemia and diabetes mellitus, physical activity, cigarette smoking, and alcohol consumption.

Measures

Smoking status was categorized as non-smoker, ex-smoker, and current smoker. To determine smoking status, participants were asked the following questions: "Have you smoked 100 or more cigarettes during your life (about 5 packets)?" (yes/no answer); "How old were you when you started smoking cigarettes regularly?"; "Do you smoke cigarettes now?"; "How many cigarettes do you smoke per day?"; "How many years have you smoked regularly?" and "How old were you when you stopped smoking cigarettes?".

Participants were asked to indicate their levels of physical activity or labor during the time they were and were not at work using the following categories of activity: 1) vigorous activity (some very strenuous exercise and heart beat rapidly, e.g. shoveling, digging, running); 2) moderate activity (some moderate exercise and not exhausting, e.g. gardening, carpentry, fast walking); 3) light activity (some physical activity but minimal effort, e.g. walking on the level); and 4) sedentary or almost no physical activity (sedentary most of the time, e.g. sitting at a desk, watching TV).

Dietary intake was recorded using the 24-hr recall method. All foods and drinks consumed over the previous 24-h period were recorded by a trained dietary interviewer. To obtain the accuracy information, the quantity of all foods, drinks and supplements were estimated using the standard measuring cups and spoons. In addition, the cooking methods and brand names were also recorded. Nutrient intakes from 24-h recall were entered, verified by another person and analyzed using the specialized Thai software, INMUCAL program (Institute of Nutrition, Mahidol University, 2001).

Anthropometric measurement included the measurements of body weight and height, with participants wearing indoor clothes without shoes, and the measurement of waist and hip circumferences. BMI was calculated as weight (kg) divided by height squared (m^2).

Statistical analysis

Statistical analyses were performed using SPSS® (version 14.0; SPSS Inc., Chicago, IL, USA). Estimates of nutrient intakes (mean $\pm$ SD or percentage where appropriate), BMI, and PA were calculated based on smoking status (i.e., current, ex-smokers, and

non-smokers), stratified by gender. Analyses were gender stratified because of the substantial differences in current smoking prevalence noted in the current sample and commonly reported in studies with Asian samples[17]. Chi-square and ANOVA were used to examine differences in BMI, PA, and nutrient intake among the smoking status groups and all analyses were stratified by gender. All statistic analyses were performed at a significance level of p = 0.05.

Results

Tables 1 and 2 present the demographic characteristics of male and female participants by smoking status.

Table 1. Demographic characteristics of male participants by smoking status (M ± SD or n; %)

	Men				
	Non-smokers (n = 136)	Ex-smokers (n = 138)	Current smokers (n = 232)	p-value*	Total (n = 506)
Age (y)[1]	52.8 ± 10.3	58.6 ± 11.9	53.5 ± 11.6	<0.001	54.73 ± 11.54
Alcohol consumption[2]	43 (31.6%)	39 (28.3%)	80 (34.5%)	0.460	162 (32.0%)
Education level[2]				0.004	
Less than elementary school	91 (66.9%)	110 (79.7%)	195 (84.1%)		396 (78.2%)
High school	30 (22.1%)	19 (13.8%)	26 (11.2%)		75 (14.8%)
College	15 (11.0%)	9 (6.5%)	11 (4.7%)		35 (6.9%)
Marital status[2]				0.317	
Married	119 (87.5%)	123 (24.3%)	197 (38.9%)		439 (86.8%)
Widowed / Separated	11 (8.1%)	7 (1.4%)	26 (5.1%)		44 (8.7%)
Never married	6 (4.4%)	8 (1.6%)	9 (1.8%)		23 (4.5%)
Employment status[2]				0.105	
Employed	114 (83.8%)	104 (20.6%)	193 (38.1%)		411 (81.2%)
Retired	20 (14.7%)	34 (6.7%)	39 (7.7%)		93 (18.4%)
Unemployed	2 (1.5%)	0 (0%)	0 (0%)		2 (0.4%)
Total household income (dollars)[1]	5932.4 ± 14142.0	6597.5 ± 23118.5	3015.2 ± 4646.7	0.040	4776.3 ± 14526.7

[1] Mean ± SD; [2] n (%); * Note: p-value refers to a statistically significant difference among smoking status groups

Table 2. Demographic characteristics of female participants by smoking status (M ± SD or n; %)

	Women				
	Non-smokers (n = 495)	Ex-smokers (n = 8)	Current smokers (n = 18)	p-value*	Total (n = 521)
Age (y)[1]	55.1 ± 11.6	53.0 ± 9.3	54.8 ± 11.3	0.870	55.10 ± 11.55
Alcohol consumption[2]	144 (29.1%)	5 (62.5%)	1 (5.6%)	0.010	150 (28.8%)
Education level[2]				0.685	
Less than elementary school	435 (87.8%)	8 (100%)	17 (94.4%)		460 (88.3%)
High school	30 (6.1%)	0 (0%)	1 (.6%)		31 (6.0%)
College	30 (6.1%)	0 (0%)	0 (0%)		30 (5.7%)
Marital status[2]				0.082	
Married	301 (60.8%)	3 (37.5%)	9 (50.0%)		313 (60.1%)
Widowed / Separated	131 (26.5%)	4 (50.0%)	9 (50.0%)		144 (27.6%)
Never married	63 (12.7%)	1 (12.5%)	0 (0%)		64 (12.3%)
Employment status[2]				0.232	
Employed	345 (69.7%)	3 (37.5%)	12 (66.7%)		360(69.1%)
Retired	134 (27.1%)	4 (50.0%)	6 (33.3%)		144 (27.6%)
Unemployed	16 (3.2%)	1 (12.5%)	0 (0%)		17 (3.3%)
Total household income (dollars)[1]	3284.3 ± 5927.4	1400.0 ± 1007.2	1917.07 ± 1912.3	0.416	3208.1 ± 5798.7

[1] Mean ± SD; [2] n (%); * Note: p-value refers to a statistically significant difference among smoking status groups

Among men, approximately 45.9% were current smokers, 27.3% and 26.8% were ex-smokers and non-smokers, respectively. In contrast, there was a very high percentage of women who never smoked (95.0%), compared with those who already quit smoking (1.5%) and those currently smoking (3.5%). Sixty-one percent of male and 59% of female were aged less than 60 years old. Male former smokers were significantly older on average than either non-smokers or current smokers, but there was no significant age difference among smoking status in women. Among males, smokers reported significantly less education ($p < 0.001$) and the lowest annual household income ($p < 0.05$); however, there were no significant differences among women with regard to demographic characteristics.

Tables 3 and 4 present BMIs, physical activity levels, and intake data for energy, macro- and micro-nutrients stratified by gender.

Regardless of gender, current smokers (22.6 ± 3.8 kg/m^2) had significantly lower BMIs, compared to ex-smokers (24.5 ± 4.3 kg/m^2), and non-smokers (24.8 ± 4.0 kg/m^2; $p < 0.001$). When stratified by gender, female smokers' BMIs (21.6 ± 3.7 kg/m^2) were more than three BMI units lower than non-smokers (24.8 ± 4.17 kg/m^2) or ex-smokers (24.9 ± 5.4 kg/m^2; $p = 0.005$). Male smokers also were significantly lighter (22.7 ± 3.8 kg/m^2) than

Table 3. BMI, physical activity level, and nutrient intake among men by smoking status[1]

	Men (n = 506)			
	Non-smokers (n = 136)	Ex-smokers (n = 138)	Current smokers (n = 232)	p-value*
BMI (kg/m^2)	24.80 ± 3.4	24.50 ± 4.2	22.70 ± 3.8	<0.001
Waist circumference (cm)	87.60 ± 9.3	87.30 ± 11.5	82.70 ± 11.3	<0.001
Vigorous & moderate physical activity (%)	18.2%	19.1%	37.9%	0.093
Macronutrients				
Energy (kcal)	1734.68 ± 704.25	1691.69 ± 782.05	1699.94 ± 743.21	0.875
Total fat (g)	20.16 ± 9.01	18.91 ± 8.52	19.60 ± 8.94	0.503
Cholesterol (g)	177.86 ± 208.56	148.69 ± 161.15	177.41 ± 158.59	0.252
Carbohydrate (g)	277.82 ± 125.51	282.10 ± 146.77	269.82 ± 126.26	0.665
Total protein (g)	59.68 ± 28.35	55.08 ± 28.44	59.60 ± 30.83	0.305
Dietary fiber (g)	8.12 ± 6.73	7.14 ± 4.31	6.94 ± 5.58	0.136
Water (g)	886.34 ± 392.15	834.22 ± 367.51	857.01 ± 445.77	0.576
Alcohol intake (kcal)	158.74 ± 177.18	151.39 ± 157.79	222.52 ± 339.00	0.278
- Nonconsumers (%)	68.38	71.74	65.52	0.460
Micronutrients				
Potassium (mg)	1513.44 ± 937.05	1398.11 ± 618.64	1434.44 ± 790.70	0.463
Calcium (mg)	345.38 ± 692.22	269.96 ± 173.37	280.33 ± 223.88	0.223
Copper (mg)	0.44 ± .43	0.38 ± .33	0.38 ± .30	0.205
Selenium (mg)	0.15 ± .37	0.16 ± .40	0.17 ± .88	0.969
Sodium (mg)	2479.67 ± 1676.23	2326.10 ± 1594.88	2544.68 ± 1613.46	0.456
Iron (mg)	10.90 ± 6.69	10.23 ± 7.37	10.89 ± 7.73	0.666
Magnesium (mg)	9.45 ± 59.96	4.83 ± 12.27	3.79 ± 14.71	0.275
Phosphorus (mg)	642.76 ± 600.40	544.82 ± 263.04	582.47 ± 284.42	0.112
Zinc (mg)	2.38 ± 2.79	1.87 ± 1.53	1.97 ± 1.45	0.059
Vitamin A (μg)	635.01 ± 2563.98	829.67 ± 3318.86	992.67 ± 3129.02	0.551
Retinol (μg)	516.15 ± 2552.57	630.80 ± 3214.94	738.10 ± 2869.38	0.774
Carotene (μg)	1064.40 ± 1754.16	889.83 ± 1022.50	1014.42 ± 1683.57	0.625
Vitamin B12 (μg)	0.00 ± .02	0.00 ± .01	0.00 ± .01	0.462
Vitamin B6 (mg)	0.00 ± .00	0.00 ± .00	0.00 ± .00	NA
Vitamin C (mg)	59.68 ± 88.88	44.81 ± 54.46	43.38 ± 61.39	0.070
Vitamin E (mg)	0.00 ± .00	0.10 ± 1.12	0.17 ± 2.58	0.695
Niacin (mg)	16.44 ± 7.74	17.02 ± 8.63	17.50 ± 9.23	0.522

[1] Mean ± SD; Note: p-value refers to a statistically significant difference among smoking status groups

their non-smoking counterparts (24.8 ± 3.4 kg/m^2 and 24.5 ± 4.2 kg/m^2, respectively for non- and ex-smokers; $p < 0.001$).

There were no other statistically significant differences in nutrient intake or physical activity based on smoking status among women or men. However, because there were significant demographic differences among males based on smoking status, the authors re-analyzed BMI, physical activity level and nutrient intakes after adjusting for age, education level, and total household income in men. After adjustment for these factors, there were no changes in outcomes for BMI, caloric intake, or physical activity level. Besides, the authors also separated male smokers based on the number of smoked cigarettes per day; light smokers (1-20 cigarettes per day) and heavy smokers (> 20 cigarettes per day) and analyzed for BMI and caloric intake by adjusting age, education level, marital status, employment status and total household income in these two groups. There were no significant differences between them.

Discussion

The present study examined the relationship between smoking status (smokers, non-smokers and ex-smokers), BMI and dietary intake among randomly

Table 4. BMI, physical activity level, and nutrient intake among women by smoking status[1]

	Women (n = 521)			
	Non-smokers (n = 495)	Ex-smokers (n = 8)	Current smokers (n = 18)	p-value*
BMI (kg/m^2)	24.80 ± 4.1	24.90 ± 5.4	21.60 ± 3.7	0.005
Waist circumference (cm)	84.60 ± 11.4	86.90 ± 10.8	78.70 ± 11.7	0.079
Vigorous & moderate physical activity (%)	68.3%	1.1%	2.6%	0.808
Macronutrients				
Energy (kcal)	1199.95 ± 530.46	1234.25 ± 334.78	958.73 ± 489.01	0.159
Total fat (g)	19.16 ± 9.07	21.08 ± 9.63	18.23 ± 7.46	0.759
Cholesterol (g)	116.18 ± 128.38	122.71 ± 99.00	124.05 ± 134.19	0.959
Carbohydrate (g)	201.08 ± 91.45	203.91 ± 69.97	151.91 ± 79.21	0.079
Total protein (g)	39.92 ± 24.28	41.47 ± 17.03	34.25 ± 17.49	0.603
Dietary fiber (g)	6.37 ± 4.31	5.98 ± 3.56	7.50 ± 6.97	0.549
Water (g)	627.08 ± 291.76	564.94 ± 205.34	538.95 ± 252.13	0.380
Alcohol intake (kcal)	190.06 ± 251.63	50.80 ± 41.93	14.33 ± 0.00	0.372
- Nonconsumers (%)	70.91	37.50	94.45	0.010
Micronutrients				
Potassium (mg)	1074.76 ± 701.85	1025.30 ± 350.67	1021.70 ± 552.75	0.933
Calcium (mg)	277.49 ± 503.73	263.07 ± 133.48	195.03 ± 177.69	0.782
Copper (mg)	0.30 ± .26	0.31 ± .20	0.33 ± .32	0.913
Selenium (mg)	0.20 ± 1.06	0.00 ± .00	0.10 ± .17	0.803
Sodium (mg)	1798.29 ± 1272.28	2751.78 ± 1758.46	1548.67 ± 1087.02	0.077
Iron (mg)	7.92 ± 5.78	7.49 ± 2.33	7.32 ± 4.87	0.892
Magnesium (mg)	8.03 ± 36.19	0.48 ± 1.37	5.46 ± 16.20	0.803
Phosphorus (mg)	441.76 ± 420.81	461.57 ± 187.39	381.08 ± 194.68	0.820
Zinc (mg)	1.47 ± 1.88	1.16 ± .66	1.37 ± 1.15	0.868
Vitamin A (μg)	223.74 ± 603.27	124.92 ± 61.77	155.32 ± 139.09	0.801
Retinol (μg)	149.83 ± 592.94	73.16 ± 54.62	91.97 ± 126.64	0.859
Carotene (μg)	837.40 ± 1198.03	621.13 ± 336.23	760.39 ± 1057.87	0.849
Vitamin B12 (μg)	0.00 ± .02	0.00 ± .00	0.00 ± .00	0.738
Vitamin B6 (mg)	0.00 ± .00	0.00 ± .00	0.00 ± .00	0.949
Vitamin C (mg)	47.55 ± 55.54	45.77 ± 52.11	32.34 ± 36.75	0.514
Vitamin E (mg)	0.13 ± 1.61	0.00 ± .00	0.00 ± .00	0.914
Niacin (mg)	10.79 ± 5.94	12.00 ± 4.01	9.23 ± 4.36	0.454

[1] Mean ± SD; * Note: p-value refers to a statistically significant difference among smoking status groups

selected 1,027 adult Thais living in the central region of Thailand. The results of the present investigation indicated that those who currently smoke had significantly lower BMIs than never smokers or those who had quit smoking in both genders ($p < 0.001$ for men and $p = 0.005$ for women). The finding is consistent with several previous studies that found that smokers tended to have lower BMIs and lower weights than non-smokers or ex-smokers[1,19-23], even among Thai military personnel[24]. However, the authors were unable to document any other substantial differences in nutrient intake or physical activity based on smoking status that might help explain these weight differences in either women or men. Thus, the authors found no evidence for the hypothesis that the anorectic or appetite-suppressor of nicotine helps smokers maintain their body weight lower than ex-smokers or non-smokers in this sample[25].

An alternate explanation for the observed differences in BMI is the metabolic effects of nicotine[26,27]. Perkins[27] has suggested that nicotine intake from smoking may increase metabolic rate as the primary mechanism rather than decrease energy intake due to appetite suppression in smokers. These dietary intake and physical activity results are consistent with other studies that reported that smokers can maintain similar levels of energy intake[1,28,29] and physical activity level to non-smokers[5,30]. In addition, many studies of micronutrient intakes in smokers, non-smokers and ex-smokers have not reported a consistent pattern, with both higher intake and lower intake for smokers compared to non-smokers and no differences of intake among them[31-37]. Furthermore, several investigations have shown that ex-smokers consumed diets similar to those of never smokers than current smokers[34,38-40].

There are some limitations of the present study. First, the small sample size of women smokers limited the authors' ability of statistical power and ability to detect differences in the various study outcomes. Also, the present dietary intake data was based on self-report may be biased by differences in validity or in reliability of the 24-hr recall method data[41]. However, the authors used the 24-hr dietary recall method, which is considered one of the better methods for estimating dietary intake and, according to Margetts[42] is very effective when applied to a large sample size. The presented physical activity measure also may have been insensitive to actual energy expenditure because it was based on self-report and only allowed the authors to classify activity level into five broad categories, which is not a very refined method. Future studies with this population should attempt to include a more standardized physical activity questionnaire and possibly include the use of an objective measure, such as an accelerometer or pedometer with a subsample. A strength of the present study was the actual measurement of weight and height to calculate BMI in all participants.

In conclusion, the findings from the present study are consistent with many other studies which reported that smoking was associated with lower body weight compared to non-smokers. These differences among smoking status in body weight could not be explained by the differences in physical activity or dietary intake pattern. Based on the data from the present study, it is possible that nicotine intake may increase resting metabolic rate and therefore increase energy expenditure enough to affect BMI. However, others have noted that weight differences associated with smoking status are less than those that could be achieved with diet and exercise[43]. In addition, because the substantial negative health consequences of smoking are far stronger than those associated with modest weight differences, smoking cannot be viewed as an appropriate weight management strategy.

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ความสัมพันธ์ระหว่างการสูบบุหรี่ ดัชนีมวลกาย การออกกำลังกาย และพฤติกรรมการบริโภคของผู้ใหญ่ไทย

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งานวิจัยนี้เป็นการศึกษาเปรียบเทียบการบริโภคอาหาร การออกกำลังกาย และดัชนีมวลกาย ระหว่างผู้ไม่สูบบุหรี่ ผู้เคยเลิกสูบบุหรี่แล้วและผู้ที่กำลังสูบบุหรี่ จำนวน 1027 คน ในเขตพื้นที่ภาคกลางของประเทศไทย โดยตัวอย่างได้รับการซักประวัติสุขภาพทั่วไป ประวัติการบริโภคอาหารในรอบ 24 ชั่วโมง ประวัติการสูบบุหรี่ พฤติกรรมการออกกำลังกาย และตรวจวัดสัดส่วนร่างกาย ผลการศึกษาพบว่า มีผู้ไม่สูบบุหรี่ 631 คน ผู้ที่เคยสูบบุหรี่แต่เลิกแล้ว 146 คน และผู้ที่กำลังสูบบุหรี่อยู่ 250 คน เมื่อทำการเปรียบเทียบดัชนีมวลกายทั้ง 3 กลุ่ม พบว่าผู้ที่กำลังสูบบุหรี่ (22.64 $\pm$ 3.77 kg/m^2) มีดัชนีมวลกายน้อยกว่าผู้ที่ไม่สูบบุหรี่ (24.82 $\pm$ 3.95 kg/m^2) และผู้ที่เลิกสูบบุหรี่แล้ว (24.48 $\pm$ 4.25 kg/m^2) อย่างมีนัยสำคัญทางสถิติโดยไม่คำนึงถึงตัวแปรเพศ นอกจากนั้นยังพบว่าผู้ชายที่สูบบุหรี่มีความยาวรอบเอวน้อยกว่าผู้ที่ไม่สูบบุหรี่และผู้ที่เลิกสูบบุหรี่ และไม่พบความแตกต่างทางสถิติในพฤติกรรมการบริโภคอาหารและพฤติกรรมการออกกำลังกายในทั้ง 3 กลุ่ม

ผลการศึกษาที่ได้ครั้งนี้สอดคล้องกับการศึกษาอื่นที่พบความสัมพันธ์ระหว่างการสูบบุหรี่ ดัชนีมวลกายและน้ำหนักตัว อย่างไรก็ตามความแตกต่างที่พบในการวิจัยนี้ ไม่สามารถอธิบายได้จากพฤติกรรมการบริโภคอาหารหรือ พฤติกรรมการออกกำลังกายที่แตกต่างกันระหว่างกลุ่มที่สูบบุหรี่ และไม่สูบบุหรี่ จึงอาจเป็นไปได้ว่า สารนิโคตินในบุหรี่ได้ไปเพิ่มอัตราเมตาบอลิสมมากกว่าที่จะไปลดความอยากอาหาร จึงทำให้กลุ่มที่สูบบุหรี่มีน้ำหนักตัว และดัชนีมวลกายน้อยกว่ากลุ่มที่ไม่สูบบุหรี่ นอกจากนั้น การสูบบุหรี่ส่งผลกระทบด้านลบต่อสุขภาพมากกว่าที่จะมีส่วนช่วยในการลดน้ำหนัก ดังนั้นจึงไม่ควรใช้การสูบบุหรี่มาเป็นวิธีลดน้ำหนัก