

# Perceived Attractiveness of Female Smokers: A Comparison between Caucasian and Asian Students (Conducted at the University of Victoria, B.C., Canada)

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## Objective

Smoking among females is a serious global issue. Studies have demonstrated a link between smoking and attractiveness. The present study investigated the differences between Caucasian and Asian university students in their perceptions of the attractiveness of female smokers.

## Method

It involved 102 participants, 81 of them female; the participants were 51 Caucasian and 51 Asian students at a mid-sized Canadian university (the University of Victoria in British Columbia). Participants were shown a photograph of a female either with or without a cigarette and asked to evaluate the attractiveness of the model. The Caucasian participants were shown the Caucasian model and the Asian participants the Asian model.

## Result&Discussion

The results of the study reported a strong relationship between smoking and attractiveness as well as differences based on ethnicity. Consistent with past research, non-smoking models were perceived as more attractive than smoking models by both Caucasian and Asian participants. Moreover, Caucasian participants rated the model as significantly more attractive overall than did the Asian participants, and rating differences between the smoking and non-smoking models were larger for the Caucasian model than for the Asian model, indicating that cigarettes had a stronger impact on the perceived attractiveness of the model for the Caucasian participants.

## Conclusion

The results of this study can be applied to future smoking prevention programs among young adults.

## Key words

tobacco, smoking, female smoker, attractiveness, ethnicity

## Background

The World Health Organization (WHO) reported that smoking is recognized as a health hazard, and studies have investigated the link between cigarette

smoking and lung cancer since 1950.<sup>1)</sup> According to Henschke<sup>2)</sup>, females are twice as likely as males to suffer from lung cancer given the same level of cigarette smoking. Moreover, women have greater difficulty quitting smoking and are physically and emotionally more dependent on cigarettes than are men.<sup>3)</sup> Smoking also has a negative influence on the health of pregnant women and their unborn children.<sup>4)</sup> Although consequences of smoking are more serious for females than for males, WHO indicates that about 200 million women are daily

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smokers today.<sup>5)</sup> Moreover, the smoking rate among women in developing countries is either stable or rising, while the smoking rate among men appears to have peaked and has decreased substantially over the last few decades.<sup>6)</sup> Tobacco industries are promoting young women as new targets for cigarette consumption, especially in many developing countries, where women are less educated about the health risks associated with cigarettes.<sup>7)</sup> Recognizing this trend, WHO selected “Gender and tobacco with an emphasis on marketing to women” as the theme of the World No Tobacco Day, May 31, 2010.<sup>8)</sup> This event was designed to highlight the epidemic of tobacco among women and draw particular attention to the harmful effects of tobacco marketing to girls.<sup>8)</sup> WHO suggests that women differ from men in their smoking behaviours in various ways and that it is important to use gender-specific strategies to discourage smoking.<sup>5)</sup> The importance of the present study is its focus on the smoking issues among females, especially young and adolescent girls, in its contribution to the prevention of smoking among the target population.

Some anti-smoking campaigns are effective while others are not.<sup>9~11)</sup> Hansen<sup>9)</sup> found that death-related warnings were ineffective and even heightened positive attitudes in people with high smoking-based self-esteem. In contrast, death-unrelated warnings such as “smoking makes you unattractive” were more effective.<sup>9)</sup> Grogan<sup>10)</sup> examined the effectiveness of the British anti-smoking campaign “Give up to save face”. Young non-smokers were found to be concerned about the effect of smoking on their appearance (such as aging and yellowing skin and discoloured teeth), while smokers said they would be concerned only if they saw the changes happening on their skin.<sup>10)</sup> According to Hayes<sup>11)</sup>, anti-smoking advertisements which do not focus on health issues but rather emphasize the beauty of non-smokers might be effective because factors such as physical attractiveness, appearance, and popularity are most meaningful to youth. Following from the assump-

tion that concern with appearance has a stronger impact on young women than on middle aged and elderly people and is more important to women than men<sup>11)</sup>, it is assumed that young females may be most highly motivated to quit smoking because of concern over their appearance, to maintain their physical attractiveness.

The relationship between smoking and attractiveness has been investigated by several researchers<sup>12~15)</sup>. For example, Wiium<sup>12)</sup> examined the subjective attractiveness of smoking and chewing tobacco among young Norwegians through phone interviews. They found that both smoking and chewing tobacco were perceived as unattractive and that the younger the participants the less attractive they perceived smoking to be. Clark<sup>13)</sup> also investigated the attractiveness of smokers and non-smokers by using videotapes of models. They found that, overall, non-smoking models were perceived as more attractive than were the smoking models. Polivy<sup>14)</sup> showed that smokers were seen as generally less attractive by using sets of photographs as stimuli. Jones<sup>15)</sup> examined the perceived social characteristics of female smokers and non-smokers in Australia. According to their study, female smokers were perceived as more outgoing, more sophisticated, more independent, and less emotional than non-smokers; however, they were not found to be more attractive.

Despite the fact that there are fewer female smokers in Asia than in the West, WHO warns that smoking rates for females have been increasing significantly since the entry of foreign multinational tobacco firms into Japan, the Republic of Korea, and Thailand.<sup>6)</sup> While several studies have investigated the link between smoking and attractiveness in North America as mentioned above, little in the published literature in Asia addresses this subject.

The purpose of this study is to help fill the gap by investigating the link between attractiveness and smoking for Asians and comparing it to the Caucasian linkage. Based on previous research<sup>12, 13~15)</sup>, it is hypothesized that non-smoking models will

be perceived as more attractive than smoking models by both Caucasian and Asian young adults. In addition, there will be differences between Caucasians and Asians in the perceived attractiveness of female smokers as compared to female non-smokers.

## Method

### Participants

One hundred and two students from the University of Victoria participated in the study. The university where the research was conducted had many international students with different ethnic backgrounds. The Caucasian students were taking undergraduate psychology courses and participated for extra course credits. They were born and raised in North America or Europe. The Asian students were studying English as a second language at the university and participated in the study as volunteers, without any compensation. They were born and completed at least their elementary education in Asian countries such as Japan, China, South Korea, and Taiwan before their arrival in Canada. In total, 21 males and 81 females participated. The mean age of the subjects was 20.8, ranging from 18 to 30 years old.

### Materials and Procedures

Participants were tested in groups of no larger than 9. Researchers told them that this was a study on the social perceptions of individuals. Participants were told that they would be viewing a photogram of a female and answering questions about her based on their first impression. Photograms were used as stimuli because past research indicated that although videotapes might provide stimuli similar to real settings, using them makes it more difficult to exclude confounding variables than using photograms.<sup>13)</sup> Participants were informed that they could withdraw from the experiment at any time and asked to read and sign a consent form. Participants who were not fluent English speakers were encouraged to use a dictionary or ask the researcher when they did not

understand instructions or questions during the study. The researcher then showed a photogram of a female to the participants. There was a total of four photograms: a Caucasian girl with a cigarette (**Figure 1-1**), the same Caucasian girl without a cigarette (**Figure 1-2**), an Asian girl with a cigarette (**Figure1-3**), and the same Asian girl without a cigarette (**Figure 1-4**). Caucasian participants were shown photograms of a Caucasian girl, and Asian participants were shown photograms of an Asian girl. Each participant was shown only one photogram of a girl, either with or without a cigarette. After exposure to the photogram, they were asked to answer questions about the girl in the photogram in order to investigate their perceptions of her attractiveness. Each girl's physical attractiveness was measured using the subscale "measurements of physical attractiveness," taken from the interpersonal attraction items developed by McCrosky.<sup>16)</sup>

Four of the 10 questions were deleted because of their irrelevance (e.g., "She wears neat clothes", "The clothes she wears are becoming", "She is well groomed", "She is repulsive to me"), resulting in a total of 6 questions (see **Figure 2**). The internal reliability of the questions ranged from .61 to .85. All of the questions were answered by a 7-point Likert scale (e.g., "I think she is quite pretty" was answered by a response range from "1 = strongly disagree" to "7 = strongly agree"). Half the questions were reverse-scored questions to avoid response bias (e.g., "I don't like the way she looks" was answered by a response range from "1 = strongly disagree" to "7 = strongly agree"). After participants answered the test items, they were asked to fill out a questionnaire with their demographic information, including age, home country, and smoking status (see **Figure 3**). The study took approximately 10 to 20 minutes. After completion, participants were thanked and briefed about the true purpose of the study.

The data collected were statistically examined by using a computer program called IBM SPSS Statistics ver. 17, exact tests. No participant was

excluded from the data before performing the analysis of variance.

## Results

A 2×2 (the model's smoking status×participants' ethnicity) analysis of variance was performed on participants' attractiveness ratings. Leven's test for the assumption of homogeneity of variance was significant at  $p < 0.02$ . Therefore, our assumption was violated. However, this is possibly due to the larger response variance for Asian than for Caucasian participants; therefore, data transformation was not performed. There was a significant main effect for the smoking status of the model on attractiveness:  $F(1, 98) = 7.84, p < 0.01$ . Participants

rated non-smoking models' attractiveness significantly higher than that of smoking models ( $N = 51, M = 5.02$  for non-smoking models;  $N = 51, M = 4.45$  for smoking models). In other words, participants found non smokers more attractive than smokers overall. There was also a significant main effect of ethnicity on attractiveness at  $F(1, 98) = 60.19, p < 0.001$ . Caucasian participants rated the attractiveness of models significantly higher than Asian participants did ( $N = 51, M = 5.42$  for Caucasian participants;  $N = 51, M = 4.05$  for Asian participants). In other words, Caucasians found the Caucasian model more attractive than Asians did for the Asian model. In all, 7 % of the variability was explained by the smoking status of



**Figure 1-1.** The Caucasian smoking girl model



**Figure 1-2.** The Caucasian non-smoking girl model



**Figure 1-3.** The Asian smoking girl model



**Figure 1-4.** The Asian non-smoking girl model

the model ( $R^2 = 0.07$ ), and 38 % of the variability was explained by ethnicity ( $R^2 = 0.38$ ). (see **Table 1**)

As **Figure 4** shows two parallel linear lines, there was no significant attractiveness interaction between the smoking status of the model and ethnicity, at  $F(1, 98) = 0.18, p > 0.67$ . For both Caucasians and Asians, attractiveness for non smokers is higher than that for smokers by fairly similar amount. However, the mean difference between the smoking model and the non-smoking model was slightly wider for Caucasian participants than for Asian participants (mean difference = 0.56 for Caucasian participants; mean difference = 0.41 for Asian participants), showing that the impact of cigarettes on the attractiveness of the

model was stronger for Caucasian participants than for Asian participants. Moreover, there was a correlation between gender and model attractiveness ( $r_{pb} = 0.22$ ). Furthermore, 5 % of the variability was explained by gender, at  $R^2 = 0.05$ , indicating that male participants generally rated the models lower than female participants did. However, this must be interpreted carefully due to the small sample of male participants involved.

### Discussion

The primary goal of this study was to investigate differences between Caucasians and Asians in the perceived attractiveness of female smokers. It was hypothesized that non-smoking models would be

1. I think she is quite pretty.								
strongly disagree	1	2	3	4	5	6	7	strongly agree
2. I don't like the way she looks.								
strongly disagree	1	2	3	4	5	6	7	strongly agree
3. She is very sexy looking.								
strongly disagree	1	2	3	4	5	6	7	strongly agree
4. She is somewhat ugly.								
strongly disagree	1	2	3	4	5	6	7	strongly agree
5. She is very attractive physically.								
strongly disagree	1	2	3	4	5	6	7	strongly agree
6. She is not very good looking.								
strongly disagree	1	2	3	4	5	6	7	strongly agree
Now that you have finished the questions, why did you rate the woman the way you did, what are the things that affected your rating of the woman in the photo?								

**Figure 2.** Question sheet #1: By looking at the girl on the screen, please circle the number based on how much you agree with each sentence.

perceived as more attractive than smoking models by both Caucasians and Asians. Moreover, differences were anticipated between the Caucasian and Asian participants in their perceptions of the attractiveness of non-smoking and smoking models. In our study, both hypotheses are supported. Consistent with prior research, non-smoking models are perceived as significantly more attractive than smoking models, regardless of their ethnicity. However, the results also show that Caucasian participants show significantly higher attractiveness of the model and stronger impact of cigarettes on attractiveness than Asian participants do.

For both Caucasian and Asian participants, non-

smoking models are found to be more attractive than smoking models. One explanation for this finding could be the similarity effect that smokers like smokers and non-smokers like non-smokers.<sup>13)</sup> More than eighty percent of the participants are non-smokers in this study; therefore, the preference for non-smokers may have occurred. Another possible reason is because smoking may be seen as negative for women due to the distinctiveness of smoking behaviour for women in our society.<sup>13)</sup> Thus, participants may have rated smokers less attractive than non-smokers because of the negative schema about female smokers.

Caucasian participants show higher attractiveness than Asian participants regardless of

1. How old are you?  
\_\_\_\_\_

2. What is your biological sex?  
 Female  Male

3. Were you born in Canada?  
 Yes  No

If “No”, which country are you from? \_\_\_\_\_

If “No”, or your permanent home is outside of Canada, how long have you been in Canada? (For example, if you came to Canada 2 years ago for post secondary education, then you have been here for 2 years)  
\_\_\_\_\_

4. Please identify yourself.  
 never-smoker (you have never smoked in your life)  
 former smoker (you have smoked before, but have not smoked for 4 years)  
 current smoker (you smoke daily or occasionally).

If you are a current smoker, how many cigarettes do you usually smoke per week?  
\_\_\_\_\_

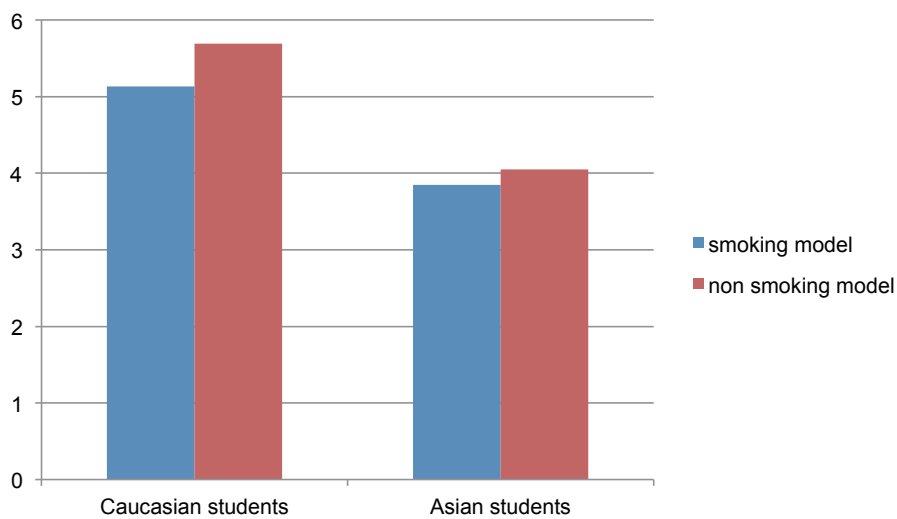
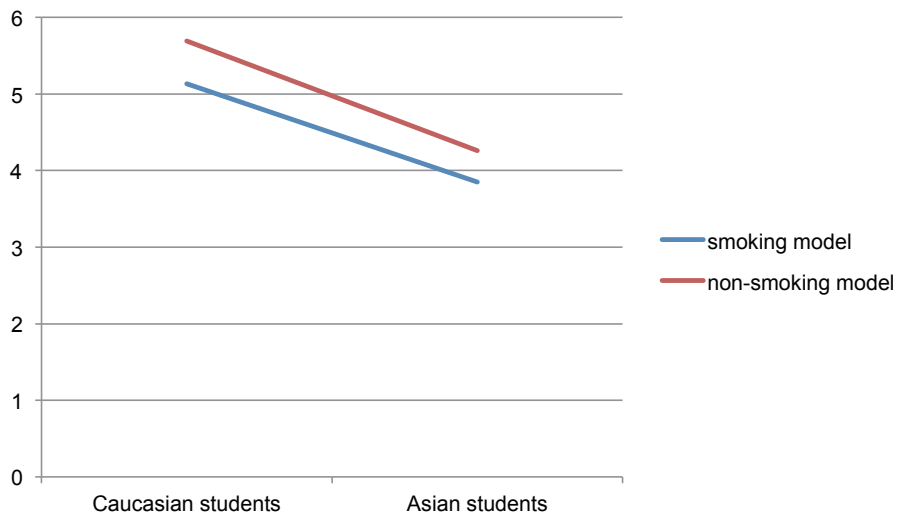
5. Do your parents smoke?  
Mother:  Yes  No  
Father:  Yes  No

6. Are you currently in a relationship?  Yes  No

Figure 3. Question sheet # 2

**Table 1.** A 2 × 2 (the model's smoking status × participants' ethnicity) analysis of variance

ethnicity \ smoking status	Caucasian students	Asian students	Total
Non smoking model	$M = 5.69, SD = 0.54, (N = 27)$	$M = 4.26, SD = 0.78 (N = 24)$	$M = 5.02, SD = 0.97 (N = 51)$
Smoking model	$M = 5.13, SD = 0.97 (N = 24)$	$M = 3.85, SD = 1.11 (N = 27)$	$M = 4.45, SD = 1.22 (N = 51)$
Total	$M = 5.42, SD = 0.81 (N = 51)$	$M = 4.05, SD = 0.98 (N = 51)$	$M = 4.73, SD = 1.13 (N = 102)$



**Figure 4.** Influence of ethnicity and the smoking status of the model on attractiveness

the conditions. There are three possible explanations for this finding. First, Asians may have scored lower than Caucasian participants because Asians have a cultural tendency to avoid extreme scores and to provide middle scores, unlike Caucasian participants.<sup>17)</sup> The second explanation for the scoring differences between Caucasians and Asians is the actual differences in the two models' physical attractiveness. Although the picture backgrounds and postures of the two models are identical, their attractiveness is not controlled in this experiment. The Caucasian model has a slight smile, while the Asian model does not. People perceive a face with a wide smile as significantly more attractive than one without.<sup>18)</sup> A smile indicates positive emotions (such as joy, friendliness, and sociability) that are associated with attractiveness.<sup>18)</sup> Thus, the Caucasian model may have been perceived as more attractive than the Asian model because of her smile. Finally, Asian participants show lower scores in attractiveness because Asians may be more critical of physical appearance than Caucasians.<sup>19)</sup> Females in collectivist cultures to be more critical of their physical appearance than those in individualistic cultures because collectivist cultures place more emphasis on gender roles and have higher expectations for women to look beautiful.<sup>19)</sup>

The most unexpected finding in this study is that the discrepancy in attractiveness ratings between the smoking model and the non-smoking model is wider for Caucasian participants than for Asian participants. In other words, the impact of cigarettes on physical attractiveness is stronger for Caucasian participants than for Asian participants. According to WHO<sup>6)</sup>, the substantial decrease in North American smoking rates is attributable to the many recent actions against smoking, including anti-smoking campaigns, smoking bans in public spaces, and increases in tobacco prices and taxes, that are still rare in many Asian countries. In participants' written responses, Caucasians reported cigarettes as disgusting and less clean, while Asians reported them as cool and sexy.

There are several limitations to this study. First, gender differences are difficult to assess due to the small male sample size. A significant relationship between the perceiver's gender and the attractiveness of the model has not been found in many published studies; it would be interesting to see how males' perceptions of female smokers differ from those of female participants. Secondly, according to Clark<sup>13)</sup>, the smoking status (current smokers, former smokers, and never smokers) has a significant influence on the perceived attractiveness of female smokers. However, the influence of participants' smoking status is not examined in this study due to the lack of current smokers in the sample. Therefore, further research that includes more male participants and current smokers is needed. A third limitation of this study involves the photograms used as stimuli. The Caucasian and Asian models are not manipulated to be equally physically attractive; therefore, we cannot verify whether the Caucasians' tendency to rate models higher than Asians occurred because of their ethnicity or because of the higher attractiveness of the Caucasian model. Finally, the last limitation of this study is that each participant sees only one photogram. The use of more photograms would help counterbalance attractiveness levels and address the issue of differences in attractiveness between the two models in this study.

In conclusion, addressing the global female smoking epidemic, this study indicates that we can discourage young girls from smoking by emphasizing the beauty and attractiveness of non-smokers. By telling young girls that "they look better without cigarettes because they are already attractive the way they are", we can lead them to appreciate their health and youth as forms of natural beauty and make them stay away from the cigarettes that will degrade their attractiveness. Moreover, the results of this study suggest that it would be useful to increase health awareness among young adults by taking more anti-smoking actions.



## References

- 1) IARC monographs on the evaluation of carcinogenic risks to humans: Tobacco smoke and involuntary smoking. International agency for research on cancer (IARC; WHO) , Lyon, France. 2004; vol. 83.
- 2) Henschke C. I., Yip R., Miettinen O. S.: Women's susceptibility to tobacco carcinogens and survival after diagnosis of lung cancer. *JAMA* 2000; 296: 180-184.
- 3) Bjornson W., Rand C., Connett J. E., et al.: Gender differences in smoking cessation after 3 years in the lung health study. *Am J Public Health* 1995; 85: 223-230.
- 4) Einarson A., Riordan S.: Smoking in pregnancy and lactation: a review of risks and cessation strategies. *Eur J Clin Pharmacol* 2009; 65: 325-330.
- 5) WHO: 10 facts on gender and tobacco. 2010; [http://www.who.int/features/factfiles/gender\\_tobacco/](http://www.who.int/features/factfiles/gender_tobacco/)
- 6) WHO: Tobacco Atlas 3rd edition <http://www.afro.who.int/en/clusters-a-programmes/hpr/health-risk-factors/tobacco/tobacco-country-profiles.html>
- 7) Amos A.: Women and smoking. *Br Med Bulletin* 1996; 52: 74-89.
- 8) WHO: World No Tobacco Day 2010 <http://www.who.int/tobacco/wntd/2010/announcement/en/index.html>
- 9) Hansen J., Winzeler S., Topolinski S.: When the death makes you smoke: A terror management perspectives on the effectiveness of cigarette on pack warnings. *J Exp Social Psychol* 2010; 46: 226-228.
- 10) Grogan S., Fry G., Grough B., et al.: Smoking to stay thin or giving up to save face? Young men and women talk about appearance concerns and smoking. *Br J Health Psychol* 2009; 14: 175-186.
- 11) Hayes D., Ross C. E.: Concern with appearance, health beliefs, and eating habits. *J Health Social Behaviour* 1987; 28: 120-130.
- 12) Wiium N., Aero L. E., Hetland J.: Subjective attractiveness and perceived trendiness in smoking and snus use: a study among young Norwegians. *Health Education Research* 2009; 24: 162-172.
- 13) Clark E. M., Klesges R. C., Neimeyer R. A.: Attributions about sexual behaviour, attractiveness, and health as a function of subject's and target's sex and smoking status. *Basic Applied Social Psychol* 1992; 13: 205-216.
- 14) Polivy J., Hackett R., Bycio P.: The effect of perceived smoking status on attractiveness. *Personality Social Psychol Bulletin* 1979; 5: 401-404.
- 15) Jones B., Carroll M.: The effect of a video character's smoking status on young female's perceptions of social characteristics. *Adolescence* 1998; 33: 657-667.
- 16) McCrosky J. C., McCain T. A.: The measurement of interpersonal attraction. *Communication Monographs* 1974; 41: 261-266.
- 17) Si S. X., Cullen J. B.: Response categories and potential cultural bias: effects of an explicit middle point in cross-cultural surveys. *Int J Organizational Analysis* 1998; 6: 218-230.
- 18) Cunningham M. R.: Measuring the physical attractiveness: Quasi-experiments on the socio-biology of female facial beauty. *J Personality Social Psychol* 1986; 50: 925-935.
- 19) Jung J., Lee S. H.: Cross-cultural comparisons of appearance self-schema, baby image, self-esteem, and dieting behaviour between Korean and U.S. women. *Family Consumer Sciences Research J* 2006; 34: 350.

# 女性喫煙者における女性の魅力：カナダビクトリア大学、 欧米人学生とアジア人学生の調査結果

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**【目的】** 今日女性喫煙は世界中で深刻な問題である。本研究は女性喫煙者の魅力における西洋とアジアの文化の違いについて調査したものである。

**【方法】** 対象はカナダビクトリア大学生102名(女性81名)。内51名は欧米人、51名はアジア人。タバコを持った女性の写真か、持っていない女性の写真のうちのどちらか一枚を見せて、その女性の魅力について定められた質問をした。欧米人には欧米人の写真、アジア人にはアジア人の写真を見せた。

**【結果】** アジア人、欧米人共にタバコを持っていない女性のほうが、持っている女性より高い魅力の評価を得た。アジア人に比べ欧米人のほうがタバコを持っている女性と持っていない女性の魅力により差をつけて評価した。

**【考察】** 民族性文化に関係なく、非喫煙女性の方が喫煙女性よりも魅力的に見られていることがわかった。更に、アジア人に比べ欧米人のほうがタバコの危険性について高い教育、知識を得ている可能性がある。アジア人のほうがタバコに対し肯定的なイメージを持っている若者が多い可能性がある。

**【結論】** 本研究の結果は将来的な若者の禁煙プログラムの制作に大いに役に立つであろうと思われる。

**キーワード：** タバコ、喫煙、女性喫煙者、女性の魅力、民族性文化