Sexual Content of Advertisements and the Smoking Process in Adolescents*

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**Study objectives:** To analyze the perception of sexual content (PSC) of tobacco advertisements and its potential impact on the process of smoking in adolescents.

**Design, participants, and setting:** A questionnaire was administered to 1,186 adolescents at the National Institute of Respiratory Diseases in Mexico City to determine the PSC. In addition, age, gender, susceptibility, receptivity, parental smoking and education, anxiety, depressive symptoms, school category, and grade were determined.

**Interventions and measurements:** The images of two advertisements were projected in color onto a screen. One of the images had unquestionable sexual content. The impact of the images was evaluated at the same time in the questionnaire.

**Results:** Forty-one percent of participants were nonsmokers (25% nonsusceptible and 16% susceptible), whereas 59% were smokers (47% experimenters and 12% established). Sixty-six percent were receptive to promotions of the tobacco companies. Seventy-two percent perceived sexual contents in the advertisements. A logistic regression model showed that receptivity (odds ratio [OR], 2.1; 95% confidence interval [CI], 1.3 to 3.4), minimal PSC (OR, 2.6; 95% CI, 1.7 to 4.0), and high PSC (OR, 4.4; 95% CI, 2.4 to 8.0) were significantly associated with the status of smokers, whether experimenters or established. The strongest association was found with established smokers. Further analysis showed that male gender was significantly associated with high levels of PSC.

**Conclusions:** These results show that a high percentage of adolescents perceived sexual content in the tobacco advertisement, which, independent of the subject’s receptivity, plays a role in the process of smoking, especially in male adolescents.

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**Key words:** adolescents; sexuality; tobacco advertisements

**Abbreviations:** CI = confidence interval; OR = odds ratio; PSC = perception of sexual content

Cigarette smoking is a major worldwide public health problem, associated with a growing number of illnesses and responsible for > 4 million deaths annually.¹ This is of concern, as smoking prevalence among high school students appears to be increasing.² The mainstream of public health efforts to curb the smoking epidemic should be focused both on encouraging addicted smokers to quit and on preventing adolescent nonsmokers from starting. In order to decrease the overall prevalence of smoking and its concomitant morbidity and mortality, it is imperative to prevent the onset of smoking. This is particularly important in adolescents because smoking initiation at an early age is associated with greater daily cigarette consumption, and a lower cumulative probability of quitting.³

It has been estimated that an important number of smokers start to smoke when < 17 years of age.⁴–⁶ In the United States, 90% of adult smokers begin by the age of 18 years.⁷ The tobacco industry has targeted youth and women particularly in lower socioeconomic groups and developing countries, as they represent a major untapped market. This group is being targeted with aggressive advertising, marketing, and promotional campaigns and sponsorships.⁸,⁹ Since consumers are aware that smoking may pose significant health risks, the evident success of the tobacco industry in manipulating consumer risk perception is particularly strong evidence of the power of market manipulation.¹⁰ In the past, cigarette advertisements directly alluded to physical traits, such as the rugged, virile men at work in the advertisements.

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for Marlboro (Philip Morris U.S.A.; New York, NY). The Camel brand (R. J. Reynolds Tobacco Company; Winston-Salem, NC) in turn emulated Marlboro with the men-at-work theme, but did not meet with much success until the “Joe Camel” character was invented. The Joe Camel campaign, which was presented to the US market in 1988, introduced a different sort of advertising that alluded indirectly to human characteristics and was interpreted as having sexual undertones and overtones. The National Cancer Institute correctly predicted in 1991 that the new generation of cartoon advertisements promoting Camel cigarettes would only serve to recruit millions of adolescents to the smoking ranks. To this end, subtle advertising techniques have increased in usage and are commonly accepted, particularly regarding cigarette smoking. While the message in the advertisement may not be evident at first view, it registers in the subconscious mind, where it influences perception and hence preference.

In a series of studies aimed at determining the causes of smoking initiation, there was a positive association between the promotional campaigns of tobacco companies and sharp rises in tobacco consumption among adolescents. It was also found that the possession or desire to acquire a promotional article of the tobacco industry is a risk factor for experimenting with cigarettes. Less attention, however, has been paid to the factors determining the attraction of adolescents to the promotional and advertising items of the tobacco companies. Given the concern that the Joe Camel advertising campaign had sexual overtones, we tested this belief. To this end, our principal interest was to determine, first, whether the adolescents perceived a sexual message in the advertisements and, second, the potential impact of the advertisements on tobacco smoking in adolescents who are receptive and susceptible to messages of the tobacco industry.

Materials and Methods

Study Population

The study was conducted between September 1998 and March 1999 by the Department of Research in Tobacco Smoking of the National Institute of Respiratory Disease in Mexico City. The study population consisted of 1,186 adolescents who ranged from 12 to 16 years of age. The subjects were students in grades 1, 2, and 3 of high school. The study sample was drawn from five private schools and three public schools situated in the south and the north of Mexico City.

Study Design

This was a cross-sectional questionnaire-based study. Students were briefed and assured of the confidentiality of the survey before administration of the questionnaire in their classrooms by the researcher and the teacher. The questionnaire included items related to general data, current smoking status, parent’s smoking status, smoking behavior of friends, receptivity to promotions by the tobacco industry, the presence of depressive symptoms, and anxiety. The questionnaire assessed the perception of sexual content related to previous exposure of the students to advertisements by using a slide projection of the advertisements.

School Category: In Mexico, students going to private school are more likely to be of a higher social class than students in a public school. Therefore, schools were classified as either private or public, and school category was used as a surrogate for social class to control for its potential as a confounder.

Parental Smoking and Education: The history of parental smoking was determined according to the question, “Does your father or mother smoke?” The answer was categorized as no or yes, and if yes whether it was only one parent or both who smoked. The educational level attained by both parents was determined according to the following categories: a high parent educational level was equivalent to at least one parent having a university education at the level of a masters or doctorate, or both parents at the level of a bachelors degree (first degree). An intermediate parent educational level was assigned if only one parent had a university education at the level of a bachelor (first degree), and a low parent educational level was assigned if neither parent had a university education.

Depression and Anxiety: The last section of the questionnaire consisted of the Hospital Anxiety and Depression Scale, which evaluated the presence of anxiety and depressive symptoms. A score > 8 in the corresponding section indicated the presence of anxiety or depressive symptoms.

Smoking History and Susceptibility to Promotions by the Tobacco Industry: Based on the work of Pierce et al, a respondent was classified into one of four mutually exclusive categories: (1) established smokers, (2) experimenters, (3) non-susceptible never-smokers, and (4) susceptible never-smokers. An established smoker was defined as an adolescent giving a positive response to the questions, “Do you presently smoke?” and “Have you smoked at least 100 cigarettes in your life?” An experimenter was defined as an adolescent giving an affirmative response to “Have you ever used a cigarette?” or “Have you tried cigarette smoking even though you were under 18?” A non-susceptible never-smoker was classified as an adolescent who had never smoked. A non-susceptible never-smoker, most recently named as committed never-smoker, was distinguished from other never-smokers by responses to three questions about future smoking: “Do you think you would ever smoke a cigarette?” “If one of your best friends asked you to smoke a cigarette, would you accept?” and “At any time during the following year do you think that you would smoke a cigarette?” The possible answers were yes, no, or I don’t know. To be classified as a susceptible never-smoker, the adolescent needed to respond no to all three questions. Any other response led to the adolescent being categorized as susceptible to smoking.

Receptivity: This was defined in the same terms used by Pierce et al, and is a measure of the individual tendency to use a promotional article of the tobacco industry. Respondents were graded as being nonreceptive, minimally receptive, and highly receptive, according to their responses to the following questions: “Have you ever bought or received an item that advertises a certain brand of cigarettes or that was distributed by a tobacco company?” and “Do you think that you would ever use a promotional article of the tobacco industry such as a T-shirt or cap?” A respondent that was not receptive replied negatively to both questions. Minimal receptiveness was judged as a positive reply to one of the two questions, and highly receptive was a positive reply to both questions.
Perception of Sexual Content in Advertisements: In order to determine the potential sexual content and its impact on advertising, the respondents were exposed for 2 min at two images of well-known cigarette brands, the Marlboro advertisement in which a cowboy is smoking a cigarette, and the traditional Camel advertisements that shows a camel next to a pyramid (Fig 1). According to the experts, one of these images had an unquestionable sexual content (the camel) [Fig 2] and the other image was devoid sexual content (the smoking cowboy). An advertisement was categorized as having unquestionable sexual content when 10 members of our department were in agreement after viewing a series of advertisements. The images were projected in color onto a 1.5 × 1.5-m screen, and the impact of the commercial was evaluated at the same time in the questionnaire. The responses of the students were graded as absent, minimal, and high perception of sexual content (PSC) according to their answers to the questions, “Does the camel figure attract your attention?” “Do you believe that the camel figure contains any sexual content?” and “Do you think that the image of the camel contains a naked man and a naked woman?” A high PSC was a positive response to all three questions; a minimal PSC was a positive response to one or two of the three questions; and a negative response to all three questions was equivalent to absence of PSC. These images were previously tested in a pilot study with a focus group of 47 Boy Scouts (mean age, 14 years old), who were asked these questions in order to ensure the clarity of the questionnaire. We found that the respondents easily understood the questions, as there were no requests for clarification. Sixty-seven percent of them perceived sexual content in the image that was deemed to have it by the experts, while only 4% of the respondents perceived sexual content in the image that did not have any sexual content. For the purposes of this article, we are only reporting the results with the image having a clear sexual content.

Statistical Analysis

Descriptive statistics were performed on all data and consisted of means and 95% confidence intervals (CIs) for continuous variables, and frequency distributions for noncontinuous variables. A statistical software package (SPSS 8.0; SPSS; Chicago, IL) was employed to perform the overall analysis. The importance of factors affecting the status of experimental and established smokers was determined by logistic regression analysis. Likewise, a similar model determined the factors associated with PSC.

Results

The 1,186 students who completed the questionnaire represent 96% of the population that was initially invited to participate. In this group, the response rate for individual questions in the entire
questionnaire ranged from 90.3 to 100% depending on the type of question. Table 1 presents the general characteristics of the study population. The mean ± SD age was 13 ± 1 years. There were a greater proportion of male respondents (62%) and students attending private schools (74%). However, the school category was not a significant factor to predict smoking, and no significant differences were found, in terms of age, between male and female respondents. A slightly larger proportion of respondents had parents with a medium educational level (52%). Fifty-seven percent had parents who smoked; according to the Hospital Anxiety and Depression Scale, 9% and 35% of respondents had depressive symptoms and anxiety, respectively.

Smoking Status, Receptivity, and PSC in the Advertisements

Forty-seven percent were experimenter smokers, 12% were established smokers, 16% were susceptible nonsmokers, and 25% were nonsusceptible nonsmokers (Table 1). Sixty-six percent of respondents had minimal or high degree of receptivity to the promotional activity of the tobacco companies, whereas 34% had no receptivity. Seventy-seven percent reported perceiving a minimal or high degree of sexual content in the advertisement, whereas 23% did not. The results of the logistic regression analysis of predictors on which adolescents were experimenters and established smokers are presented in Table
2. Both models included the demographic and personal variables. The odds ratios (ORs) were adjusted for the effects of these variables. The presence of receptivity (minimal plus high) to tobacco industry and PSC in advertisement were significantly associated with the status of experimenter smokers. Among the different categories of PSC, those who had a high or minimal levels of PSC were 4.4 times and 2.6 times, respectively, more likely to be experimenter smokers. For the status of established smoker, a stronger association with receptivity and PSC was found (Table 2).

Factors Associated With PSC

When a multiple regression model was constructed to identify who had high levels of PSC, male gender was found to be a significant factor, after adjusting for school grade, anxiety parental smoking, and parent education (Fig 3).

DISCUSSION

The main results of this study showed the following: (1) cigarette advertisements are perceived by adolescents as having a clear sexual content, (2) they cause a significant impact on adolescents who are receptive and susceptible, encouraging them to experiment with smoking and eventually become established smokers, and (3) male gender is the main target of the publicity campaigns of the tobacco industry.

In 1991, Pierce et al\textsuperscript{18} reported that tobacco advertisements of Camel cigarettes have been effective in targeting adolescents in the United States, whereas in 1998 they demonstrated that there exists a relationship between the receptivity to promotional items of tobacco companies and the status of experimenter smokers.\textsuperscript{15} The occurrence of a major increase in smoking uptake among young people had been previously evidenced in tobacco advertising targeting adolescent girls.\textsuperscript{13} However, the issue that has not been addressed is why some adolescents are receptive to promotions and advertisements from the tobacco companies. What do the advertisements...
contain? What is so attractive about them that adolescents become receptive to their messages? We postulated that the advertisements include sexual content that is appealing to youth. DiFranza et al\(^ \text{19} \) demonstrated that the “Old Joe Camel” cartoon advertisements are more successful at marketing Camel cigarettes to children than to adults. Likewise, they have estimated that sales of Camel cigarettes to children < 18 years of age rose from $6 million per year, prior to the launching of the “Smooth Character” cartoon advertisements in 1988, to $476 million per year up to 1991. In another study, Fischer et al\(^ \text{20} \) reported from a sample of 229 young children (aged 3 to 6 years) that they see, understand, and remember advertising, particularly those of the Disney Channel and Old Joe Camel. They also showed that the Disney logo recognition was higher for children aged 3 to 5 years in comparison with children 6 years of age, in whom the rate of recognition was around 90% for both logos. The same study showed that the attraction for “Old Joe” clearly appears from the age of 3 years. Moreover, as the children grow up, the rate of recognition of Old Joe increases from 30% at age 3 years to 90% at age 6 years. According to our hypothesis, we speculated that this is due to the sexual content of the advertisements, which is already perceived at age 6 and older. Our results showed that a large proportion (76%) of boys and girls perceived some sexual content in the advertisements (Fig 2). The key issue was to test whether these perceptions were related to smoking status. In order to show this, we considered confounders such as gender, parent smoking and education, school category, receptivity, anxiety, and depressive symptoms. This is the first study that confirms previous observations suggesting that advertisements appealing to sexuality to gain new users.

It has been demonstrated that as the tobacco industry increases the portion of its marketing budget for sales promotion, the number of minors starting to smoke increases as well.\(^ \text{21} \) Although in developing countries there are no formal studies indicating the association between sales and smoking prevalence among adolescents, the problem might be worse than in the United States, where the tobacco advertising industry is more controlled. In a national survey in Mexico in 1993,\(^ \text{6} \) it was found that the main factors associated with cigarette experimentation were curiosity and imitation. It is possible that part of the strategy of the tobacco industry is to create images or models of behavior that would arouse the observer’s curiosity and lead him or her to imitate the behavior promoted. However, it is also possible that curiosity and imitation are aroused by the subtle, implicit messages that the advertisements contain. According to Pierce et al.\(^ \text{15} \) in California in 1993, 34.3% of experimentation was attributable to tobacco advertising and promotional activities. In markets in which the tobacco industry has employed this type of patronage, the number of smokers has increased by 24%, mostly children and adolescents.\(^ \text{15} \)

Our data also showed that male gender remained significantly associated with PSC after controlling for other variables. This increased PSC in male subjects is not explained by differences in age between male and female subjects as the regression model shows. These data, therefore, indicate that publicity is apparently addressed to young male subjects and suggest that the tobacco industry entices them to experiment with smoking at an age when they cannot fully appreciate the health risks associated with tobacco smoking.

In addition, this is the first study to examine the concepts of receptivity as well as the different stages of smoking, such as experimenters and established smokers, among adolescents in a city of a developing country such as Mexico City. In terms of receptivity, our findings (OR, 3.3) are very similar to that reported by Pierce et al\(^ \text{15} \) (OR, 2.9). Although our methods were different (the results reported by Pierce et al\(^ \text{15} \) are derived from a cohort of youths followed up in time and surveyed 3 years after the first interview), the similarity between his and our results support our observations.

Although this study is based on a large population, there exists the possibility of selection bias as the population of adolescents who do not attend school may differ significantly from the population under study. Furthermore, the study population is upper class (74% attend private school) and is not
representative of the general population. It is, however, the population that has money to spend on cigarettes, that sets trends in society, and that is easier to follow up. Like all cross-sectional studies, it has the disadvantage of being a snapshot in time. It would be of great value to follow up the respondents in order to gauge the change in their smoking status and to see to what extent our predictions hold true. It is unlikely that the small number of students (4.1%) who refused to participate in the study could have biased the results in any direction. Likewise, the items that were not answered by all the respondents (parent educational level, parental smoking, smoking status, and PSC) might have been due to at least two reasons. Firstly, because of lack of knowledge of the particular question (eg, parent educational level), and secondly because of fear of being discovered (eg, smoking status). In any case, the maximum number of unanswered items (9.7% for smoking status) is unlikely to have biased the trend of the results.

The results of this work are currently of paramount importance. Public and medical opinion has provoked a reaction such that Joe Camel has been removed from advertisements in the United States. However, the image with which this study was done, is the current worldwide trading presentation of Camel cigarettes. Furthermore, in developing countries like Mexico, Joe Camel may be starting a campaign similar to that which was responsible for the effect on 6-year old children observed in the study by Fischer et al.20 This is, therefore, an opportune moment to prevent this type of tobacco advertising in developing countries, where issues of cost-effectiveness are often crucial in deciding whether a health program is instituted or not. Considering that the majority of smokers begin their addiction before the age of 20 years and that early smoking initiation predicts longer duration of smoking, heavier daily consumption, and increased chances of nicotine dependence, it is imperative that public health programs also focus on avoiding or at least delaying smoking initiation in adolescents. The results of this work indicate that tobacco advertisements have a sexual content that must be considered when campaigns to prevent adolescent initiation of smoking are designed. In addition, our results suggest that advertisements should be also regulated by government or at least observed more critically.

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