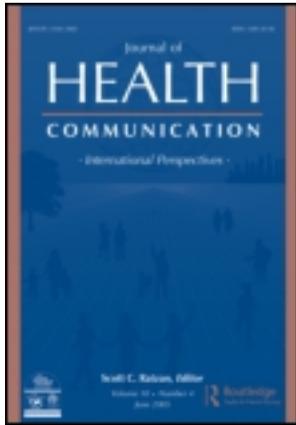


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Interpretations of Cigarette Advertisement Warning Labels by Philadelphia Puerto Ricans

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This study examined Philadelphia Puerto Ricans' interpretations of the Surgeon General's warnings that appear on cigarette packaging and in advertisements. In-home family focus groups in which participants were asked to comment on magazine cigarette advertisements showed a great variety of interpretations of the legally mandated warning labels. These findings (a) corroborate and add to research in public health and communications regarding the possibility of wide variations in message interpretations and (b) support the call for public health messages to be carefully tested for effectiveness among different social groups. The article's focus on Puerto Ricans addresses the problem of misleading conclusions that can arise from aggregating all Latino subpopulations into one group. The use of a naturalistic setting to examine interpretations of messages about smoking departs from the experimental methods typically used for such research and provides new evidence that even a seemingly straightforward message can be interpreted in multiple ways. Understanding and addressing differences in message interpretation can guide public health campaigns aimed at reducing health disparities.

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This study examines perceptions of cigarette warning labels as they appeared in magazine advertisements, focusing on one demographic group: Philadelphia Puerto Ricans. This focus responds to the Surgeon General's statement that "[c]ultural, ethnic, religious, and social differences are clearly important in understanding patterns of tobacco use" (U.S. Department of Health and Human Services, 2000, p. 436). These differences are also important in understanding variations in interpretations of tobacco warning labels. It has long been recognized that readers of a text may not take away the meaning that the text's creators intended (McQuail, 2000, p. 56), and researchers acknowledge the need to examine how different individuals interpret the messages they receive and how membership in different social groups affects their interpretations (Brown & Walsh-Childers, 1994). The possible gaps between message intention and subsequent interpretation are particularly acute when the originators of a message are members of dominant social groups, as is the case with most mass media institutions and public health organizations, but the message receivers are members of nondominant groups such as ethnic minorities.

The focus on Philadelphia Puerto Ricans—a comparatively homogeneous subset of the demographically complex population of U.S. Latinos—allows a deeper examination of the relationship between demographics and message interpretations. The principles discussed here are applicable to tobacco warning labels and to any public health campaign or other persuasive messages.

Latinos¹ are now the largest ethnic minority in the United States, comprising around 15% of the population (U.S. Census Bureau, 2002, p. 16; U.S. Census Bureau, 2006). Although Latinos share many characteristics, this is a problematic group to study as a whole because the U.S. Latino population is heterogeneous, encompassing people originating in some 20 countries, among them long-time citizens and immigrants of varying durations of residence.

Although Latino smoking prevalence is lower than the overall U.S. smoking rate, combining all Latinos into one category masks differences between subgroups. As Vega and Amaro (2002) noted, "data on Hispanics as an aggregate group do not represent an accurate picture . . . and loose generalizations can lead to erroneous conclusions and faulty public health strategies" (p. 51). Yet most statistics do not disaggregate Latino subgroups. The Philadelphia Health Management Corporation (2007), for example, reported a smoking rate of 22.1% for Philadelphia-area Latino adults, but figures specifically for Puerto Ricans are not available.

There are approximately 4.1 million Puerto Ricans in the United States (Pew Hispanic Center, 2010). Uniquely among U.S. Latinos, all Puerto Ricans hold U.S. citizenship because of Puerto Rico's relationship with the United States. Many alternate periods of residence in Puerto Rico and the U.S. mainland in what has been termed "circular migration" (Duany, 2000; Falcón, 2004, p. 5). There is scant detailed current information on different Latino groups' smoking prevalence, but existing data indicate that Puerto Ricans in the mainland U.S. smoke more than other Latino groups and than the U.S. population as a whole, and that Puerto Rican women have a far higher smoking rate than other Latinas (Centers for Disease Control and Prevention, 2004; Pérez-Stable et al., 2001).

¹The terms *Latino* and *Hispanic* refer to U.S. residents with Latin American roots; *Latino* is used in this article.

Cigarette Warning Requirements

Since 1965, United States tobacco companies have been required to include health warning labels on packaging. The Comprehensive Smoking Education Act of 1984 (Public Law 98-474) amended the regulations to include advertising, and specified four health warnings to be used on a rotating basis, preceded by the notation “SURGEON GENERAL’S WARNING” in uppercase letters.² The dimensions, format, and placement of the labels were regulated by the same law. In June 2009, the regulations were amended again. The Family Smoking Prevention and Tobacco Control Act placed tobacco under Food and Drug Administration control, specified nine warning texts to be used on cigarette packages and in advertising, and mandated that the warning labels be larger and more prominently placed than before (U.S. Congress, 2009). Before those changes were implemented, tobacco companies challenged them on free speech grounds. The case could be in litigation for years, and it is expected ultimately to be decided by the Supreme Court (Kesmodel, Etter, & Mundy, 2009; Sorrel, 2009). In the meantime, the warning labels on which this study is based will continue to be used.

Literature Review: Health Disparities and Warning Labels

This study links cigarette warning labels and message interpretations, specifically among Philadelphia Puerto Ricans. The significance of the link between these topics is their intersection with public health disparities among demographic groups, in this case disparities associated with smoking. There is considerable evidence that smoking-related health disparities are not merely coincidences of demography. The Centers for Disease Control and Prevention (2009) noted that “tobacco products are advertised and promoted disproportionately to Hispanics and other racial/ethnic minority communities.” Numerous examinations of tobacco company documents have uncovered the ways that these companies have targeted specific racial and ethnic populations (Fellows & Rubin, 2006; Muggli, Pollay, Lew, & Joseph, 2002; Pollay & Lee, 1992). Studies have examined cigarette companies’ targeting of other demographic categories including women, homosexuals, and even social conservatives (Boyd, Boyd, & Greenlee, 2003; Murphy, 2009; Toll & Ling, 2005; Washington, 2003). Researchers have also documented tobacco companies’ efforts to persuade teens to take up smoking, despite 1998 legislation prohibiting the targeting of youth (Arnett, 2005; Biener & Albers, 2004; Glanz, Sutton & Jacob Arriola, 2006; Krugman, Quinn, Sung, & Morrison, 2005; Ling & Glantz, 2003).

Scholarly interest in the effect of warning labels on the basis of advertising context has been sporadic and limited (Bhalla & Lastovicka, 1984). Research has largely measured the warning labels’ visibility, and audience awareness (Fox, Krugman, Fletcher, & Fischer, 1998; Krugman, Fox, Fletcher, Fischer, & Rohas, 1994; Marín, 1997). Muggli et al. (2002) found that extended exposure to product warning labels increased both awareness and control behaviors, raising questions about the potentially greater vulnerability of recent immigrants or those with limited language skills.

²The four approved warning label texts were “Smoking Causes Lung Cancer, Heart Disease, Emphysema, and May Complicate Pregnancy”; “Quitting Smoking Now Greatly Reduces Serious Risks to Your Health”; “Smoking by Pregnant Women May Result in Fetal Injury, Premature Birth, and Low Birth Weight”; and “Cigarette Smoke Contains Carbon Monoxide.”

Hammond et al. (2006) found health warnings on cigarette packages ineffective for improving consumer knowledge about smoking risks. The specific question of varying interpretations of the warning labels by members of minority subcultures has not been well-studied, despite evidence that cultural factors play a significant role in health-related behaviors, media choices, and message interpretations (Alcalay et al., 1987; Caetano, 1987; Del Valle, 2005; Markides, Ray, Stroup-Benham, & Treviño, 1988; Marín, Marín, & Pérez-Stable, 1989; Neff, Hoppe, & Perea, 1987; Solis, Marks, Garcia, & Shelton, 1990).

The semiotic notion of polysemy—multiple meanings that can be drawn from fixed texts—is well understood by marketers, who recognize that although texts' creators may believe that texts convey a certain message, consumers may not respond in the same way as message designers (Del Valle, 2005; Hall, 1980; Puntoni, Schroeder, & Ritson, 2009). This study probes a specific instance of that phenomenon. The cigarette warning labels considered here contained brief, seemingly straightforward messages conveyed in an unadorned fashion. Yet interviewees produced numerous instances of readings other than the intended one about the health hazards of smoking.

Method

This study differs from previous research on warning label interpretations in two key ways. First, it used a qualitative technique—discussions conducted in a naturalistic setting—rather than an experimental or survey design. Second, the warning labels were not the focus of the discussion, and were not mentioned by the interviewees. Therefore, interviewees' observations about the warning labels were spontaneous and undirected.

The examination of warning label interpretations arose from a larger research project concerning the relations among smoking behaviors and attitudes, media use, and interpretations of media messages about smoking (Temple University, 2005). The Philadelphia-based researchers selected the Puerto Rican population for this study because Latino health issues are underresearched (Rodríguez & Vega, 2009; Vega & Amaro, 2002), because Puerto Ricans are Philadelphia's largest and most established Latino subgroup (U.S. Census Bureau, 2003; Vázquez-Hernández, 2005), and because of the U.S. Puerto Rican population's high smoking rate. This project responds to calls to address health-related disparities (U.S. Department of Health and Human Services, 2003) by generating "a more solid evidence base . . . that that involves both quantitative and qualitative data" (Fagan et al., 2004, p. 216).

The research was conducted in the area of Philadelphia with the highest concentration of Latinos—greater than 75% according to the 2000 Census (Philadelphia City Planning Commission, 2008). The Latino population in this area is principally Puerto Rican (Historical Society of Pennsylvania, n.d.). A study commissioned by the Puerto Rican Federal Affairs Administration notes that such residential segregation is typical of Puerto Rican populations in Northeastern U.S. metropolitan areas, and is "associated with high poverty conditions, and a host of other social problems, including low-performing schools, poor health, and low-paying jobs" (Falcón, 2004, p. 9). This description applies to this area of Philadelphia. Its public school test scores are poor, and more than 90% of the students are categorized as low-income (*Philadelphia Inquirer*, 2008). Just 20% of adults in this study had completed high school and an additional 2% had completed college, a far lower rate than

the overall U.S. Puerto Rican population, of which 53% have completed high school and an additional 9.9% have graduated from college (Falcón, 2004, p. 13). This confirms the social marginality of the sample; Puerto Ricans with higher levels of education and income are likely to live in less residentially segregated areas. Overall, Puerto Ricans in the United States fare worse than the U.S. population as a whole on these social variables, and often worse than other U.S. Latino groups (Falcón, 2004, pp. 13–14). According to the Pew Hispanic Center (2010), the poverty rate of Puerto Ricans in the U.S. is 22.6%, almost double the overall U.S. rate of 12.7%. All of these statistics are consistent with Puerto Ricans' high smoking prevalence, as tobacco use has become "increasingly concentrated in low income and marginalized communities" (Haviland & Heaton, 2003, p. ix).

To examine message interpretations in this community, we held group interviews with 36 families for a total of 141 participants. This number of participants was sufficient to provide a range of responses and perceptible patterns among those responses. The method of family interviews was selected to allow identification of patterns of interpretations taking place with group interaction and because of the important role of family communication in social understandings, the establishment of norms, and smoking behavior (Bauman et al., 2001; Lewis, DeVellis, & Sleath, 2002, pp. 251–253). The quasi focus group approach was meant to engender the sorts of "data and insights that would be less accessible without the interactions found in a group" (Morgan, 1988, p. 12), in this case a family group. Families were signed up by bilingual recruiters at a neighborhood supermarket, church, and social service agency, with a small cash payment offered as an incentive to participate. As the cross-generational family communication dynamic was central to the larger study from which the data for this article were drawn, all members of participating families aged 9 and older were invited to take part. (Researchers felt it was not appropriate to expose younger children to cigarette advertisements.) The project and instruments were approved by the Temple University Institutional Review Board.

Participating families were given a choice of interview settings. Of the 36 families, 3 selected a local Latino social service agency; the other 33 interviews took place at participants' homes. Within the great range of data collected, there was no identifiable difference attributable to the two different settings of data collection. All of the interviewers were bilingual and all materials were prepared in Spanish and English; family members chose their preferred language for the interview and a supplemental questionnaire. Questionnaire responses showed Spanish as the primary language in 47% of interview households, English as the primary language in 16%, and both languages used about equally in the remaining 37% of households. Most of the interviews were conducted primarily in Spanish. When mixed language preferences were expressed by a family, in general children preferred English, whereas their parents preferred Spanish. The interview recordings were transcribed and translated by a professional agency.

The 36 family groups ranged in size from two to six participants. The 141 participants' ages ranged from 9 to 70, with 46% aged 9–19, 39% between the ages of 20 and 50, and 14% over 50. The sample was 54% female and 46% male.

The central activity of the interviews was a structured discussion of family members' reactions to media material concerning smoking, including two magazine advertisements for cigarettes. These advertisements were selected because they were different from one another, and because both appeared in mainstream Spanish and English-language publications, contributing to the naturalistic approach of this study.

One of the stimulus pieces was a two-page advertisement for Virginia Slims from a Spanish-language campaign for the cigarettes, which appeared, among other places, in the December 1999 issue of the magazine *Glamour en Español*. In the advertisement, the head and shoulders of a dark-haired woman appear against a powder blue background. The text says, in Spanish, "I am able to say everything without saying a word. Virginia Slims: Seek your truth." The Spanish-language warning label, in the lower left-hand corner, states, "Cigarette Smoke Contains Carbon Monoxide." Aside from the warning label, the ad contains no mention or images of cigarettes or tobacco.

The other selection was a full-page English-language advertisement for Kool cigarettes. The page is dominated by a stylized drawing of a Kool package, open to show the cigarettes inside. The background is black, the vivid green package is surrounded by microphones, and large silver graffiti-style letters spell out "Check the Levels: Blended and Optimized." The bottom third of the page contains white text on a black background extolling Kool's taste, with the black-on-white warning label in the lower left-hand corner. The label reads "Smoking Causes Lung Cancer, Heart Disease, Emphysema, and May Complicate Pregnancy." This advertisement ran, among other places, in the November 29, 2004 issue of *People Magazine*. Similar English-language ads ran in the bilingual "Latin entertainment and style" magazine *Estylo* and the English-language *Latina* magazine.

In the family discussions, the interviewers followed a script that asked participants' impressions of the advertisements with broad open-ended questions such as "What is the first thing you think about when you look at this?" and "Why do you think this was made?" To avoid leading the responses, the questions were deliberately vague, asking, for instance, "What do you like about this?" without specifying "this ad," "this cigarette," or "this picture." The questions did not single out any aspect of the advertisements, and no mention was made of the warning labels. Despite the absence of direct cues, in 24 of the 36 groups, one or more family members spontaneously commented on some aspect of the warning labels. The prevalence of these unprompted comments led inductively to the decision to do a substudy of this aspect of the interview data.

For this study, the first author culled every comment about warning labels from the interview transcripts. The resulting 34 comments were read by the first two authors, who independently categorized each response, placing responses that contained more than one theme in all applicable categories. The researchers then compared their category tags. The initial pass resulted in eight categories of comments, three of which—"misinterpreted," "anti-smoking," and "balanced"—were common to both researchers. Within these three categories, there was one instance of different categorization: the comment "you can see, in this little box here, that it's hazardous to your health. They're letting you know that these cigarettes give you cancer." One researcher had tagged this comment as indicating balance in the ad, while the other had termed it "anti-smoking." Upon conferring, the researchers felt that this comment fit better with the "balanced" comments than with the comments that indicated that the interviewees believed the entire advertisement conveyed an antismoking message.

In other instances of differing category tags, the researchers agreed about the tenor of the comments but had labeled them differently. For example, one researcher used the label "inadequate" and the other "inconspicuous" for the comment "hardly anyone reads what's below, the warning." After discussion, the "inadequate" and

“inconspicuous” labels were folded together with seven comments that the warning was too small (“they don’t make [the label] big enough”) or that the wording of the warning was too mild (“it should say that it does cause cancer”). Together, these comments constituted the “inadequate” category. Similarly, initial tags of “positive” (“that helps us, because it gives us a warning”), “balanced” (“the picture is trying to tell that Kool smoke is good for you, but . . . it warns that smoking can cause you cancer”) and “both” (“it tells you . . . how cigarettes are harmful to your health but at the same time it is advertising the cigarette”) were consolidated into the category labeled “balanced.”

This process resulted in an overall scheme of five general categories of reactions to the warnings: (a) the labels were perceived as inadequate, (b) the labels were perceived as a balancing element of the advertisement, (c) the warning was perceived as the central message of the advertisement, (d) the label was entirely misread, and (e) the presence of the label was overlooked completely. Each category of remarks will be discussed in turn, with interview comments originally in English reported verbatim, and Spanish-language comments translated. All participants quoted were Philadelphia residents from Puerto Rico or of Puerto Rican descent with the exception of one woman from the Dominican Republic. The age and gender of respondents are noted to show that these varied interpretations were found across study participants. Self-reported smoking status is provided for adult and teenage participants; none of the children under 12 years of age in the study claimed to be smokers. Because smoking status was based on self-report, as is typically the case in smoking-related studies, the figures may not be accurate. This is particularly the case for young people: Given the family setting of the interview, children may not have wanted to identify themselves as smokers with their parents present. Nonetheless, 15% of participants 13–19 years of age reported being smokers. The adult smoking rate in the sample was 31.8%, consistent with the Centers for Disease Control and Prevention’s reported rate of U.S. Puerto Rican smoking of 30.4% (2004).

Findings

Category 1: Labels Perceived as Inadequate

Participants in 11 families interpreted the warning label as intended: They understood the labels to be meant to discourage smoking. However, they found the warning labels to be inadequate. Their comments centered on two different aspects of the warning labels—that they were too small in proportion to the rest of the advertisement or that they lacked color. Of the 11 “inadequate” comments, 6 occurred in response to the Kool advertisement, 2 were prompted by the Virginia Slims advertisement, and the remaining 3 did not single out either advertisement.

Looking at the Kool advertisement, a 34-year-old woman smoker noted “the little writings, they don’t tell you . . . they don’t make it big enough.” A 61-year-old female nonsmoker noted, “First of all, they only see the ad, but . . . well, not even young people, not even adults themselves – they don’t read the very small writing of the warning.” A 30-year-old man said of the Virginia Slims ad, “The warning is really small there. It’s not noticed. You notice everything else more.” A 54-year-old man said, “The Surgeon General says it, the thing is I don’t see the small print. Now they make it smaller, so that you keep smoking without realizing . . .” Regarding the Kool ad, a 14-year-old male nonsmoker noted, “My opinion on

the picture is that they use bright colors to catch people's attentions, and in the bottom left corner there is a little warning sign, but it is not big enough for people to read it." A 10-year-old boy made a similar comment about the Virginia Slims ad, noting the size and colorlessness of the warning label:

One of my teachers, he told me that the Surgeon General warning is small and black and white 'cause the rest is in color 'cause your eyes will attract the color part and not the Surgeon General warning. That's why they make them real small and not colorful.

Members of one family also commented that the labels were inadequate in terms of the information that was included. The warning label in the Virginia Slims ad stated "cigarette smoke contains carbon monoxide." A 14-year-old girl felt this was "not enough. It does say what the cigarettes contain, but it doesn't show what it does and since it's for women, it should . . . mainly have the risk of losing a baby or underweight for pregnancy." Her 12-year-old sister noted, "It doesn't say nothing about like it causes you heart diseases or something like that."

Category 2: Labels Perceived as a Balancing Element

In contrast with the "inadequate" theme, participants in an equal number of family groups—11—felt that the ad presented information fairly, because the warning label balanced the enticing sales message. Only two comments reflected awareness that the warning label was a legal requirement. An 18-year-old female nonsmoker stated, "They're putting the warning because they have to, because of the law. But they're still pushing people to smoke." A 51-year-old male smoker remarked that in past cigarette advertising, "they didn't tell you about the damage it did. These days, they tell you about the harm there is. Because of the lawsuits that are out there."

Other comments suggested the belief that the warning label was voluntarily included in the ad by the cigarette company to educate consumers. A 17-year-old male nonsmoker commented:

I think the idea of the people who created this was to manipulate people and make them buy cigarettes, But their intention is also to have a place where it says: 'This cigarette might cause you to get cancer,' so, you were warned that it causes you harm.

A 52-year-old female smoker stated, "As you can see, in this little box here, it's hazardous to your health. They're letting you know that these cigarettes give you cancer. You don't have to smoke them." A 17-year-old male nonsmoker acknowledged the persuasive dimension of the Kool's advertisement, but found the warning label to be a fair counterweight: "I think that the ad is completely well-organized. It tells you to use cigarettes, but it also warns you that cigarettes cause cancer and that they are bad for your health." Reflecting the balance view, a 61-year-old female smoker stated, "It says about lung cancer and all that, so there's nothing left out." Her subsequent comment, however, indicated second thoughts: ". . . only that you get addicted to it."

Also placed in the "balance" category were comments from several interviewees who noted that the warning label is present but that people ignore it. A 12-year-old

boy stated, "What I think is that they have those ads and they put a warning on them, but people don't care about it and buy them anyway." A 47-year-old male smoker said, "The box says at the bottom that the Surgeon General determines that cancer is damaging to health. So if someone smokes it's because [he or she] want[s] to. Nobody is forcing [him or her]."

Category 3: Warning Perceived as the Central Message of the Advertisement

The comments in the inadequate and balance categories indicate participants recognized the warning label and understood its purpose. A striking finding of this research was that members of seven families perceived that the advertisements themselves were antismoking messages based around the warning labels. This interpretation is less surprising with the Virginia Slims piece, which contained no overt references to cigarettes except the warning label, but it occurred with both advertisements, the Virginia Slims advertisement eliciting this response three times and the Kool advertisement four times.

To a person unfamiliar with the Virginia Slims brand name, the advertisement's Spanish-language text, "I am able to say everything without saying a word," could be read in conjunction with the warning label to produce a completely different meaning from that intended by the advertiser. A 52-year-old female nonsmoker whose native language was Spanish commented, "For me this is a warning.... Because it says that she can say it all without saying a word... advertising of the damage that cigarettes cause." A 17-year-old Spanish-speaking female nonsmoker in a different family suggested that the Virginia Slims advertisement was aimed at teenagers, "advising them not to smoke."

The English-language Kool advertisement, with its eye-catching picture of a cigarette package, prompted participants in four groups to draw a similar conclusion about the purpose of the ad. A 67-year-old Spanish-speaking male smoker asserted, "This is an ad so we don't smoke cigarettes." A 64-year-old Spanish-speaking woman in another family, who was a former smoker, said the message of the advertisement was "that people shouldn't smoke." Language may have been an issue here, as these comments were from Spanish speakers, but a similar comment came from a household in which the preferred language was English: an 18-year-old male nonsmoker said the message of the ad was "Stop smoking! No one taste this cigarette!"

Category 4: Label Misread

While participants in seven groups misinterpreted the overall advertisement as anti-smoking, participants in two families displayed drastic misreadings of the warning label text. These two comments seem to have been due to difficulties with vocabulary or language. A 61-year-old Spanish-speaking woman with a ninth-grade education misread the Spanish-language warning label "el humo del cigarillo contiene monóxido de carbon" ("Cigarette smoke contains carbon monoxide") in the Virginia Slims advertisement. In an interview conducted in Spanish, she seemed confused as she read, "The warning says, 'Surgeon General's warning, smoking causes...' what does it say here? 'Cigarettes contain a lot of carbohydrates...'"³

³In Spanish, as in English, the words *carbon monoxide* and *carbohydrates* are similar: *monóxido de carbono* and *carbohidrato*.

The Kool advertisement evoked another serious misreading. One of the four interviewees with a college degree was a 42-year-old Spanish-speaking female nonsmoker. Reading the English-language warning, she took it to mean that the Surgeon General was endorsing smoking. Speaking Spanish in the interview, she commented:

This picture, well, supposedly there's a caution from the Surgeon General that says that smoking does not cause harm but we know that it causes harm . . . Well, I don't know if they have paid him off, because . . . he is a physician. A physician knows, he has to take an oath when he graduates, to save lives, and we know that what nicotine does is cause harm . . . So he cannot ever say that it is not harmful, like he says in that box at the bottom. Because we know that it's harmful. Especially because he is a surgeon.

This participant was clearly trying to reconcile her misreading of the warning label in the Kool advertisement with what she knew about smoking and about the role of physicians. She was one of the best educated participants in the sample, but she had been in the U.S. mainland for less than 1 year. It is probable that her misreading was the result of her lack of command of the English language.

Category 5: Label Overlooked

Confirming the comments of those participants who suggested that the warning labels were inadequate because they were not prominent enough, participants in two groups evidently did not notice the Kool advertisement's warning label at all. One 34-year-old male nonsmoker looking at the ad, in which the warning label states "Smoking Causes Lung Cancer, Heart Disease, Emphysema, And May Complicate Pregnancy" said, in Spanish, "I think they should put a warning sign, you know?" Similarly, a 28-year-old female nonsmoker whose family chose English as the interview language stated that what was missing from the Kool ad was "that it's extremely dangerous to your health." Both of these participants had a good command of English, so their overlooking the warning label cannot be attributed to language difficulties. It could, however, be attributed to the design of the advertisement, which is dominated by a colorful illustration. The lower third of the page, including the warning label, is mainly in black and white with a lot of dense text, creating a visual environment in which the warning might be missed.

Given that the warning labels were not the focus of the interviews, and were not mentioned by the interviewers, there is no way of knowing how many other participants did not notice their presence in the ads, but it is worthy of note that two people remarked that cigarette advertisements should carry warnings.

Discussion

This collection of unprompted comments about warning labels that occurred in two thirds of the 36 family interviews contains a range of responses. The two most common categories of responses are near-opposites of each other: the "inadequate" category describes statements from those who felt that the warning label in the advertisement was insufficient, while the "balance" category describes responses

from those who felt that the warning label counteracted the fact that the advertisement was for a deadly product. Two other sets of responses also were near-opposites: some participants thought that the advertisements were themselves antismoking messages, while others did not see the warning labels and stated that health warnings should be present. The remaining two responses were misreadings that differed from the other categories and from one another in startling ways.

The central findings of this study are that it cannot be assumed that consumers notice warning labels in cigarette advertising, and, if they do, it cannot be assumed that they interpret the warnings in the spirit intended. The specifics of the laws concerning the size, typeface, and wording of the warning labels presumably were intended to ensure that the meaning was clear and not amenable to manipulation or disguise. Yet, as Hall (1980) and others have suggested, audience members cannot be counted on to reliably produce the intended meaning.

Explanations for multiple readings of the same message identify individual and group differences as causing variations in interpretations. In this study, such differences include language barriers or uncertainties, educational levels, cultural variation and degree of familiarity with conventions, and the interview setting itself. In general, these interviewees had a low education level, typical of their neighborhood and U.S. Puerto Rican communities (Falcón, 2004, p. 9). Lower education levels may involve lower reading skills and also unfamiliarity with labeling requirements and conventions. In addition, some interpretations were generated by people responding to material that was not in their native language. Further, the interview context could affect comments. Although the interviewers were careful to present material and questions neutrally, family members may have produced normative responses.

Warning label designers and the legislators who directed them probably selected the stark format and unembellished wording to convey the notion that the message was official and serious. This study—using unaltered advertisements in a nonlaboratory setting in which participants' attention was not directed toward the warning labels—showed that the intended message was not always received.

Antismoking and public health advocates should recognize that seemingly basic messages are not always seen or understood as intended, and they must take into account differences between different population groups in program planning. Even the simplest messages need to be tried out with different audiences, as many market researchers and public health campaign analysts insist (Del Valle, 2005; Dutta, 2007; Grandpre, Alvaro, Burgoon, Miller, & Hall, 2003, p. 363; Pechmann & Reibling, 2006). Krugman, Fox, and Fischer (1999) suggested that cigarette warning labels should be treated “like an ad campaign that is tested and monitored” (p. 101). Message-testing using different methods can also strengthen program design (Whittingham, Ruiter, Zimbile, & Kok, 2008). Overall, testing may need to be both broader and deeper than is often conceived (or budgeted for), as even within the narrow demographic of this study, multiple readings occurred. Researchers and campaign designers should be aware of the likelihood of encountering such within-group variation. As a group of health education researchers note, “most professionals *do* pay attention to population differences but often at only a superficial level, and most of us can do so more carefully and thoroughly.” (Resnicow, Braithwaite, Dilorio, & Glant, 2002, p. 505, emphasis in original). Antismoking advocates' calls for “tailored messages designed to reach highly targeted audiences” (Haviland & Healton, 2003, p. viii) are applicable in this case. Such careful targeting must take

into account the vocabulary likely to be understood by different audiences, and the likelihood of familiarity with labeling norms. Although many interviewees in this study understood the labels and got the message, targeted testing could catch possible misinterpretations like those quoted here and help clarify the messages for different audiences.

The 2009 legislation bringing tobacco under Food and Drug Administration oversight mandates changes to tobacco warning labels. If implemented, the changes would be steps toward addressing the question of how much cigarette advertisers may do to adhere to the letter of the law but thwart its spirit by, for example, embedding the warning label in a block of dense text, as with the Kool ad used in this study. Some advocates have suggested devising more dramatic and graphic warnings, such as those used in Canada and the European Union (Goodall & Appiah, 2008; Hammond, Fong, McDonald, Brown, & Cameron, 2004; Hammond et al., 2007), but such pictorial warnings are not provided for in the recent legislation. In any case, if warning labels are to contribute to reducing health disparities, they will need to be widely tested on diverse audiences and adjusted to best convey the desired message. As this study demonstrates, no matter how straightforward a message may appear to its creators, audience members are likely to interpret it in unintended and unanticipated ways.

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