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# Self-Reported Awareness of the Presence of Product Warning Messages and Signs by Hispanics in San Francisco

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## Synopsis.....

*This study investigated the self-reported awareness of the presence of product warning messages and signs among random samples of Hispanics in San Francisco surveyed in 1990 and in 1991. The messages that were tested related to cigarettes, alcoholic beverages, and other consumer products.*

*A random sample of 1,204 Hispanics (43.5 percent males) were interviewed by telephone in 1990. The*

*corresponding figure for the second survey in 1991 was 1,569 Hispanics (41.1 percent males). In general, respondents reported low levels of awareness of the presence of product warning messages and signs. The exception was warning messages on cigarette packets which approximately 70 percent of the respondents reported having seen within the 12 months before the survey. There was an increase from 1990 to 1991 in the reported awareness of warning messages for wine, beer, and cigarettes.*

*Smokers and drinkers of alcoholic beverages reported the highest levels of awareness of the relevant warning messages and signs. Length of exposure to warning messages and multiplicity of sources (for example, advertisements and products) seem to produce greater levels of awareness of the presence of product warning messages. Less acculturated, Spanish-speaking Hispanics are less likely to report being aware of the warnings, particularly those that appear only in English (for example, alcoholic beverages).*

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**P**RODUCT WARNING MESSAGES have been used in the United States for a number of years on products as varied as contraceptives, cigarettes, and diet sodas. These messages have usually been mandated by Federal or State authorities as a way to alert consumers of possible dangers inherent in the use of the products. Currently, legislation exists at the Federal and State levels for products that contain ethanol, saccharin, tobacco, lead, phenylalanine, sulfites, and other chemicals. In addition, certain States (New York, California) mandate that product warning signs be placed in establishments that sell or serve alcoholic beverages or wherever cigarette smoking is permitted.

Despite these efforts to inform consumers about the dangers of certain products, little is known about the level of awareness of the existence of or the content of the warning messages or about the content's effects on people's behaviors and attitudes (1-8). Recent evidence (8) seems to indicate that there is a gradual increase in awareness of the labels as time passes. Within the context of these studies, there is

almost no information on the awareness or effectiveness of product warning messages among Hispanics, despite the fact that they account for more than 9 percent of the total population of the country.

An analysis of the awareness of the presence of warning messages among Hispanics is important because the literature shows that Hispanics are suffering the damaging effects associated with consumption of the products that carry warning messages. Various studies have shown, for example, that Hispanics, particularly Mexican Americans, have some of the highest rates of consumption of alcoholic beverages among the various ethnic groups of the United States (9-14), and that Hispanics are suffering of the effects of alcohol abuse and of alcoholism, such as chronic liver disease (15) and drunk driving (16-18). In addition, national (19) and local surveys (20) have shown significantly high levels of cigarette use among Hispanics, in general, and among Mexican Americans and Cuban Americans, in particular.

In a sense, warning messages are not a new phenomenon; they have been legislated for cigarettes

since 1965. Furthermore, there is the belief that they could be an effective component in changing people's behavior by making them aware of implied health risks (21). In 1984 (Public Law 98-474), for example, all cigarette packages and advertising were required to include one of four rotating messages that warn consumers of more specific dangerous health effects compared with the original 1965 text. More recently, Federal regulations (Public Law 100-690) mandated that any alcoholic beverage manufactured, bottled, or imported after November 1, 1989, must carry a message that warns consumers about the dangerous effects of alcoholic beverage consumption.

The evidence regarding recall of the cigarette warning labels is rather scant. A study (3) of college students showed that a fairly large proportion, 85.7 percent, were able to recognize the warning message that appeared on cigarette packages and advertisements although only 28.6 percent were able to remember the message. In addition, a 1986 survey of a random sample of more than 1,000 adults in the United States, cited in the 1989 Surgeon General's report on smoking, showed that a fairly large proportion of all respondents, 64 percent, reported being aware of one or more of the rotating warning labels. Among smokers, the corresponding figure was 77 percent. When asked about a specific message, recall ranged between 28 percent and 46 percent of respondents (40 percent to 55 percent for smokers) with 10 percent of the sample recalling a fictitious message.

The effectiveness of warning messages has been supported by studies of prescription medications and some consumer goods. A review of the literature (22) on patient information—inserts with prescription medications—showed that, in general, the inserts improved patient compliance with treatment as well as the patient's level of information regarding precautions and side effects. In addition, recent studies have shown that the messages influence consumers' behavior (23) and that, generally, products that carry warning messages are perceived as safer (24) than those that do not. An initial study on the effectiveness of the alcohol warning labels (25) shows that there was an increase between 1989 and 1990 in the proportion of persons who indicated that they decided not to drive because they had had too much to drink.

Among Hispanics in San Francisco, this study measured at two points in time the level (a) of reported awareness of warning messages in various consumer products (for example, alcoholic beverages, cigarettes, diet sodas, aspirin) and (b) of warning signs at points of sale. The first survey was con-

ducted in 1990, approximately 6 months after the implementation of the federally-mandated warning labels for alcoholic beverages. The second survey was carried out 12 months later. The timing of these surveys allowed for an analysis of the effect of continuity of exposure to a warning message beyond its initial appearance (in the case of alcoholic beverages) and of long-term exposure to other warning messages (as in the case of cigarettes and diet sodas). In addition, awareness of warning signs dealing with environmental tobacco smoke and the consumption of alcoholic beverages by pregnant women was also measured in this study as a way of contrasting differential levels of awareness between product warnings and warning signs at points of sale.

In analyzing the following data, the acculturation level of the respondents was emphasized. This strategy reflects the fact that acculturation seems to be related to a number of behaviors of Hispanics including alcohol drinking patterns (26-29), smoking behavior (20), use of preventive health services (30), and media preferences (31). Furthermore, acculturation is related to the ability and proficiency to understand the English language, and monolingual Spanish-speaking Hispanics may be prevented from becoming aware of the warning messages since many of the messages appear only in English.

## Methods

**Respondents.** A total of 1,204 (43.5 percent males) Hispanics were interviewed by telephone in 1990 (Survey One). The corresponding figure for 1991 (Survey Two) was 1,569 Hispanics (41.1 percent males). All respondents in the two surveys were residents of the same census tracts in San Francisco, CA. The average level of education for the 1990 respondents was 11.1 years with 60.4 percent reporting that they had graduated from high school. In 1991, the average level of education was also 11.1 years with 61.2 percent of the respondents reporting that they had completed high school. Overall, 69.8 percent of the 1990 respondents and 65.4 percent of the 1991 sample reported having worked for pay in the 2 weeks prior to the survey. The average household income was between \$20,000 and \$25,000 in 1990 and 1991.

The majority of the Hispanic respondents in both surveys (77.2 percent in 1990 and 77.0 percent in 1991) reported being born outside the United States. Of those, the largest proportions were born in Central America or Mexico. The foreign-born Hispanic respondents reported having lived in the United States for an average of 13.6 years in 1990 and 13.4 years

in 1991. The majority of the Hispanic respondents (64.0 percent in 1990 and 65.0 percent in 1991) were classified as low in acculturation given their responses to the acculturation scale included in the survey (32).

**Instruments.** Respondents answered an interview schedule that included questions on patterns of use of cigarettes and alcoholic beverages, awareness of product warning messages and of environmental warning signs, as well as standard demographic questions. The respondents answered the questionnaire in the language of their choice (English or Spanish). Questions were double-translated (33,34).

Respondents were asked to report, using a dichotomous response scale, their awareness of the presence of product warning labels regarding possible harmful effects in a variety of consumer goods: deodorants, diet sodas, aspirins, beer, fruit juices, cigarettes, and wine. Respondents also were asked to report awareness of health warning signs that may be displayed in various types of establishments (bars, supermarkets, restaurants, gas stations, department stores, fast food restaurants, and drug stores) regarding the possible dangers of exposure to unspecified consumer products or to environmental hazards. The State of California mandates such signs wherever people may be exposed to harmful or carcinogenic compounds (for example, gasoline stations, places that allow cigarette smoking), or where alcoholic beverages are sold (supermarkets, bars).

Cigarette consumption was established by asking respondents to report the usual number of cigarettes they smoked in a day. Those respondents who reported smoking at least one cigarette per day at the time of the survey were considered to be "smokers"; those who reported not smoking at the time of the survey (because they had quit smoking or because they had never smoked) were considered "non-smokers."

The questions dealing with consumption of alcoholic beverages had been previously utilized by the National Center for Health Statistics in carrying out the Hispanic Health and Nutrition Examination Survey. Respondents were asked to report the number of days when they drank beer within the 30 days prior to the survey, the number of beers consumed per day, and the total number of beers drunk during the same 30-day period. Similar questions were asked separately for wine and distilled spirits. Respondents were classified as "drinkers" of alcoholic beverages if they reported having drunk at least one beer, or one glass of wine, or one drink of spirits within the 30 days before the survey. Respondents who had

*'The data reported in this paper could be perceived as supporting the continued and widened legislation of product warning messages and signs with the object of raising the level of awareness of community members to the dangers inherent in certain products and, particularly, in the use of tobacco and alcoholic beverages.'*

abstained from alcoholic beverages for the 30 days prior to the survey were labeled "nondrinkers."

Acculturation to the United States culture for Hispanic respondents was measured utilizing a four-point acculturation scale that has been found to be highly valid and reliable (32). The four items measure language preference and use (at home, work, with friends) and are answered on a five-point Likert-type scale that ranges from "mostly English" to "mostly Spanish."

Based on previous studies (20,32), respondents who averaged 2.99 or less in the acculturation scale were considered to be part of a less acculturated group; those scoring above 2.99 were considered to be more highly acculturated. Although this acculturation scale does not measure the possible range of acculturative experiences of Hispanics, it has been shown (32,35) to be not only a reliable measure but also a good predictor of specific health behaviors (20,36).

**Procedures.** Respondents were sampled using the Mitofski-Waksberg method (37) for random digit dialing. This procedure reduces the number of unproductive dialings by eliminating nonworking prefixes and avoids the use of directories with their inherent problem of the exclusion of unlisted numbers while guaranteeing equal probability of selection for all telephone numbers. Such an approach has been used in a number of telephone surveys with Hispanics and has been shown to be not only feasible but also very efficient (38).

A household was considered to be eligible if those answering the telephone self-identified as Hispanics. Within a given household, the respondent was selected by asking for the Hispanic resident who had most recently celebrated a birthday and who was between 18 and 65 years of age. Interviews were

Table 1. Awareness of product warning messages by survey (percentages)

Product	Survey One, 1990 (N = 1,203)	Survey Two, 1991 (N = 1,569)
Deodorants .....	28.0	29.7
Diet sodas.....	27.7	27.2
Aspirin.....	32.3	36.7
Beer .....	23.6	31.5
Wine .....	16.5	27.6
Cigarettes .....	63.6	69.3
Fruit juice .....	7.3	8.0

Table 2. Awareness of the presence of product warning messages by sex (percentages)

Product	Survey One, 1990		Survey Two, 1991	
	Males (N = 519)	Females (N = 674)	Males (N = 644)	Females (N = 924)
Deodorants...	30.6	25.7	33.4	27.2
Diet sodas...	23.1	30.9	24.6	29.1
Aspirin.....	30.7	33.7	34.5	38.3
Beer.....	29.0	31.0	39.3	26.2
Wine .....	19.8	11.8	33.3	23.6
Cigarettes....	70.3	58.3	76.8	64.1
Fruit juice....	7.3	7.0	8.1	8.0

<sup>1</sup> P<.01.    <sup>2</sup> P<.05.    <sup>3</sup> P<.001.

conducted in the language of preference of the respondent (English or Spanish) by bilingual, bicultural interviewers.

## Results

The results of this study are presented in terms of the levels of self-reported general awareness of the presence of warning labels and of warning signs in each of the two surveys. The results of logistic regressions with the data from both surveys are reported as a way to identify the effect of various demographic variables (sex, acculturation level, education) and of behavioral patterns (drinking or smoking status) on the level of awareness of the presence of the various warning messages and signs. The year when the surveys were conducted was also entered in the logistic regressions (as a dichotomous variable) to identify possible changes in awareness after 12 months of exposure to the warning messages for alcoholic beverages and for cigarettes. The chi-square statistic is reported for comparisons carried out within surveys to determine the significance in the differences between specific proportions of respondents reporting awareness of the warning messages or signs within groups of females or males and within acculturation levels of Hispanics.

**Awareness of product warning messages.** Overall, self-reported awareness of the presence of a warning message was higher for cigarettes (table 1) than for any other product regardless of the year of the survey. For alcoholic beverages, the awareness of the presence of warning messages was higher for beer than for wine. Of particular interest is the fact that a moderately large proportion of each sample reported awareness of warning messages on aspirin, deodorant, and diet soda containers. In some instances, the proportion of respondents who reported being aware of warning messages on the containers for aspirin, deodorants, and diet sodas were similar or higher to those who reported being aware of messages on alcoholic beverages. When asked to report if they had seen a warning message on a fruit juice container, a number of respondents (7.3 percent in 1990 and 8.0 percent in 1991) reported being aware of such a fictitious message.

Table 1 shows an increase, albeit small, across years in the reported awareness of warning messages in most of the products mentioned in the survey with the exception of diet sodas. Nevertheless, these increases in reported awareness across surveys were not statistically significant in the logistic regressions, with the exception of the increase in awareness of a warning message on wine bottles (odds ratio [OR] = .49, standard error [SE] = .09,  $P < .001$ ); beer (OR = .62, SE = .09,  $P < .001$ ); and cigarette packages (OR = .69, SE = .10,  $P < .001$ ).

Sex (table 2) was found to be an important predictor of awareness of the presence of warning messages on cigarette packets (OR = 1.54, SE = .09,  $P < .001$ ); beer containers (OR = 1.51, SE = .09,  $P < .001$ ); and wine bottles (OR = 1.50, SE = .09,  $P < .001$ ). During the first survey, Hispanic men reported awareness in greater proportion than Hispanic women of warning messages on beer containers,  $\chi^2(1) = 16.16$ ,  $P < .001$ ; wine bottles,  $\chi^2(1) = 7.54$ ,  $P < .01$ ; and cigarette packets,  $\chi^2(1) = 18.08$ ,  $P < .001$ . Further, the second survey showed a number of statistically significant differences between Hispanic men and women in awareness of warnings on various products: females reported in greater proportion than males being aware of warning messages on diet sodas,  $\chi^2(1) = 3.94$ ,  $P < .05$ ; but men reported in greater proportion than women being aware of warning messages on deodorants,  $\chi^2(1) = 7.14$ ,  $P < .01$ ; beer,  $\chi^2(1) = 29.77$ ,  $P < .001$ ; wine,  $\chi^2(1) = 17.71$ ,  $P < .001$ ; and cigarettes,  $\chi^2(1) = 28.70$ ,  $P < .001$ .

In general, the more acculturated respondents tended to report awareness of the presence of a product warning message in greater proportions than

the less acculturated, and this pattern was similar in both surveys (table 3). A significant exception was found that the more acculturated and the less acculturated did not differ statistically in their awareness of the warnings on beer and wine containers. Interestingly, awareness of the presence of warning messages on cigarettes (which are printed in English as well as Spanish) was affected by the acculturation level of the respondents (OR = .73, SE = .13,  $P < .02$ ). In each survey, more acculturated Hispanics reported awareness of the presence of a cigarette-related message in greater proportions than the less acculturated,  $\chi^2 (1) = 8.40$ ,  $P < .01$  for 1990, and  $\chi^2 (1) = 20.17$ ,  $P < .001$  for 1991.

The smoking status of the respondents also affected their awareness of warning messages in cigarette packages (OR = .24, SE = .18,  $P < .001$ ). Hispanic respondents who reported smoking cigarettes consistently reported being aware of the presence of a warning message on cigarette packets in greater proportions (86.8 percent in 1990 and 89.9 percent in 1991) than nonsmokers (57.5 percent and 64.6 percent, respectively).

Drinking status affected levels of reported awareness of a warning sign on beer containers (OR = .52, SE = .09,  $P < .001$ ) as well as wine bottles (OR = .78, SE = .09,  $P < .01$ ). Hispanic drinking respondents reported awareness of the warning message on beer bottles or cans in greater proportions (32.4 percent in 1990 and 42.5 percent in 1991) than nondrinkers (18.0 percent and 25.3 percent, respectively). A similar pattern was found for wine containers; drinkers reported awareness of the warning messages in greater proportions (17.5 percent in 1990 and 33.6 percent in 1991) than nondrinkers (15.6 percent in 1990 and 24.1 percent in 1991).

**Awareness of warning signs at points of sale.** Table 4 shows the proportion of respondents who reported having seen, within the 12 months prior to the survey, a warning sign indicating that the State of California had determined that exposure to certain products may be dangerous to people's health. Overall, awareness of these warning signs was low in both years. The most frequently cited warning signs were those placed in restaurants, supermarkets, and drug stores. California requires warning signs wherever alcoholic beverages are sold (regarding the prohibition of sales to minors and the dangers faced by pregnant women who drink). Drug stores, supermarkets, and restaurants in California can sell alcoholic beverages. Supermarkets and drug stores are also required to carry warning signs regarding the prohibition of sale of tobacco products to minors, as

Table 3. Awareness of the presence of product warning messages by acculturation level (percentages)

Product	Survey One, 1990 acculturation		Survey Two, 1991 acculturation	
	Low (N = 763)	High (N = 431)	Low (N = 1019)	High (N = 548)
Deodorants...	27.3	29.1	32.4	124.8
Diet sodas...	23.9	134.7	27.0	27.7
Aspirin.....	27.8	140.1	34.7	240.5
Beer.....	22.4	24.9	30.5	33.6
Wine.....	16.8	15.2	26.8	29.0
Cigarettes....	60.4	368.8	65.5	176.5
Fruit juice....	8.3	25.1	9.5	35.3

<sup>1</sup>  $P < .001$ .    <sup>2</sup>  $P < .05$ .    <sup>3</sup>  $P < .01$ .

Table 4. Awareness of product warning signs at points of sale by survey (percentages)

Place	Survey One, 1990 (N = 1,203)	Survey Two, 1991 (N = 1,569)
Bars.....	20.7	24.9
Supermarkets.....	26.6	37.0
Restaurants.....	26.9	37.6
Gasoline stations.....	25.9	31.7
Department stores.....	10.4	15.5
Fast food restaurants...	13.1	18.1
Drug stores.....	26.6	35.4

well as warnings about the dangers of saccharine.

The year when the survey was taken produced statistically significant differences in awareness (table 4) showing an increase in awareness for signs in bars (OR = .72, SE = .09,  $P < .001$ ); supermarkets (OR = .60, SE = .09,  $P < .001$ ); restaurants (OR = .71, SE = .09,  $P < .001$ ); gasoline stations (OR = .74, SE = .09,  $P < .001$ ); department stores (OR = .61, SE = .12,  $P < .001$ ); fast food restaurants (OR = .65, SE = .11,  $P < .001$ ); and drug stores (OR = .72, SE = .10,  $P < .001$ ).

In the logistic regressions, the sex of the respondents was found to affect awareness of the warning signs placed in bars (OR = 1.66, SE = .10,  $P < .001$ ) and in gasoline stations (OR = 1.57, SE = .09,  $P < .001$ ). Men were more likely (26.6 percent in 1990 and 33.6 percent in 1991) than women (16.0 percent and 18.8 percent, respectively) to report awareness of the warning signs in bars and in gasoline stations (30.4 percent and 37.9 percent for males in 1990 and in 1991 and 22.6 percent and 27.4 percent for women).

Logistic regressions showed that the acculturation level of the Hispanic respondents (table 5) affected the level of awareness of warning signs in bars (OR = .45, SE = .10,  $P < .001$ ); supermarkets (OR = .73, SE = .09,  $P < .001$ ); restaurants (OR = .52, SE =

Table 5. Awareness of product warning signs at points of sale by acculturation level (percentages)

Place	Survey One, 1990, acculturation		Survey Two, 1991, acculturation	
	Low (N = 764)	High (N = 431)	Low (N = 1,019)	High (N = 548)
Bars.....	14.7	131.2	18.7	136.3
Supermarkets.....	23.3	131.7	33.2	144.3
Restaurants.....	20.5	138.3	32.7	146.6
Gasoline stations...	24.9	27.6	32.5	30.2
Department stores..	10.3	10.0	17.3	212.1
Fast food restaurants.....	12.2	114.2	17.5	119.4
Drug stores.....	25.6	27.8	34.9	36.1

<sup>1</sup> P < .001.   <sup>2</sup> P < .01.

.11, P < .001); and fast food restaurants (OR = .65, SE = .13, P < .001). In these cases, the more acculturated tended to report greater levels of awareness of the signs than the less acculturated.

Logistic regressions also showed that the drinking status of the Hispanic respondents affected their awareness of warning signs in bars (OR = .44, SE = .10, P < .001) and restaurants (OR = .77, SE = .09, P < .01). Drinkers were more likely to report awareness of warning signs, as the following data show:

Category	Percent	
	Survey One	Survey Two
Drinkers:		
Bars.....	32.1	39.2
Restaurants.....	32.6	44.1
Nondrinkers:		
Bars.....	13.2	16.5
Restaurants.....	23.2	33.8

## Discussion

The results of the two surveys summarized in this study showed that Hispanics in San Francisco reported moderate levels of awareness of the presence of product warning messages and signs. Nevertheless, the overall proportion of respondents aware of these messages is quite low. As a matter of fact, although approximately 51 percent of the general population have reported awareness of the alcohol-related labels (5), our data show that 31.5 percent reported awareness of the labels on beer containers and 27.6 percent on wine bottles during a similar period. A noteworthy exception to this pattern is the level of reported awareness of warning messages on cigarette packets, where approximately 70 percent of the respondents reported having seen such a message within the 12 months prior to the survey.

The results of this study also show an increase in reported awareness of warning messages and signs even among those who could benefit less from the messages due to linguistic limitations (for example, the less acculturated) or to their lack of contact with the product (those who do not drink alcoholic beverages). This increase in awareness over time parallels results found among other groups of respondents in the country (6–8). These findings are of significance because an argument can be made that the information disseminated through product warning messages and signs is an important step in the process of behavior change (21), in so far as the perception of risk is a precursor of actual change (39). Awareness of the dangers involved in a given behavior or in the consumption of a particular product could force a person to become a “contemplator” of change and reinforce the search for appropriate behavior change strategies.

Although the surveys did not include a measure of the respondents’ level of exposure to each of the various warning messages and signs, it can be expected that the differences in awareness across products may be a function of actual exposure to the messages. Given the large sums spent on cigarette promotion and advertising (40–44), it can be expected that the respondents were more frequently exposed to the warning messages on cigarette packets and in cigarette advertising than to any of the other warning messages and signs regardless of their actual consumption of tobacco products.

Two other factors can also be expected to contribute to the saliency of the cigarette messages and to the high level of awareness of such warning message as reported in this study. One is the fact that current legislation mandates the appearance of the rotating warning messages on cigarette packets as well as in all advertising. This makes it possible for smokers and nonsmokers to see the warning message not just when looking at a cigarette packet but also while walking or driving (on billboards) and when reading magazines and newspapers (in advertisements).

A second possible factor is the fact that cigarette warning messages have been appearing since 1965. This higher exposure rate to the cigarette warning message could be directly responsible for the heightened levels of awareness of the existence of a warning message on cigarette packets that was found in this study as compared with other product warning messages.

Of particular interest in analyzing data on awareness of the presence of warning messages is the identification of the possible effect of continued exposure to a message or a sign. The fact that the

surveys showed an increase from 1990 to 1991 in the reported awareness of warning messages for wine, beer, and cigarettes can be expected to argue for a cumulative effect on awareness of length of exposure. Unfortunately, it is difficult to estimate how unstable these rates of reported awareness are among the respondents surveyed in this study. Nevertheless, the data can be perceived as supportive of a hypothesis that postulates higher awareness as a function of continued exposure and of the passing of time. Longer periods of analysis would of course provide a better measure of the effect of length of exposure on reported awareness.

The differences in awareness found in terms of the acculturation level of the respondents can be hypothesized to be the product of an English language fluency hypothesis. As reported earlier, the more highly acculturated Hispanic respondents tended to report awareness of the warning messages and signs in greater proportions than the less acculturated. Since acculturation is closely related to linguistic fluency, the more highly acculturated, by their greater fluency in English, can be expected to understand the warning messages and signs in greater proportions than the less acculturated (less fluent in English) and to report awareness of the presence of warning messages and signs in greater proportions than the less acculturated Hispanic respondents. This explanation is based on the fact that most of the messages and signs appear only in English (cigarette advertising is the only product mandated to include Spanish-language warning messages).

The statistically significant effects of contact or use of the product whereby smokers and drinkers of alcoholic beverages were more likely to report awareness of the relevant product warning messages and signs may indicate that the warning messages are reaching the respondents most at risk. Nevertheless, issues of linguistic comprehension (as mentioned earlier for Spanish speakers) and of saliency (for example, placement, frequency of appearance) and ease of reading comprehension need to be addressed to further enhance a health promoting intervention that initially can be expected to have limited power to change behavior.

The data reported in this paper could be perceived as supporting the continued and widened legislation of product warning messages and signs with the object of raising the level of awareness of community members to the dangers inherent in certain products and, particularly, in the use of tobacco and alcoholic beverages. Awareness of the dangers inherent in the use of these products may be expected to serve as a process of "agenda setting" for persons who may be

*'Given the fact that language fluency may be an important explanation for the lower levels of awareness found among the less acculturated Hispanics, it is possible that mandating the appearance of warning messages and signs in Spanish may increase the level of awareness to these signs among Hispanics.'*

moved to curtail or limit their consumption or to take steps toward those final, health-enhancing outcomes.

Given the fact that language fluency may be an important explanation for the lower levels of awareness found among the less acculturated Hispanics, it is possible that mandating the appearance of warning messages and signs in Spanish may increase the level of awareness to these signs among Hispanics. Increased awareness of the warning messages can in turn be expected to promote health-enhancing behaviors that are implied in the warning messages and signs (23,24,45). Given the prevalence of alcoholic beverage consumption and the high rates of related health problems experienced among Hispanics, these data could be used to support legislation that mandates the appearance in Spanish of the warning messages on alcohol containers and in advertising as well as the display of point-of-sale warning signs in Spanish.

The level of awareness of warning messages and signs as reported in this study may have been influenced by some cultural and environmental factors that may limit their generalizability to other communities in the United States. First, a number of Hispanic respondents may have been affected by social desirability and by a motivation to acquiesce (46) when responding to the survey. This may have been particularly important among the less acculturated Hispanics who were more likely to report awareness of a fictitious product warning message on fruit juices. It should be pointed out, nevertheless, that reports of the existence of fictitious product warning messages have also been found among non-Hispanics in proportions similar to those reported in this paper (8). If the level of awareness of this bogus message were subtracted as a "correction factor" of the reported awareness of the actual warning messages, the data would show a yet lower level of awareness of the messages. These "corrected" findings would further support the need for targeted interventions for Hispanics that, as a minimum, must

be available in Spanish. In any case, social desirability can be hypothesized to be as significant in the responses to the survey in 1990 as it may have been in 1991, so that the increase in reported self-awareness of the messages may not be totally artifactual.

Another limitation to the generalizability of these data is the fact that they come from California, a State that has experienced massive community-wide interventions in health promotion—more recently in the control of tobacco products (47). It is possible, therefore, that the respondents sampled in this study may have been sensitized to health promoting messages to a greater extent than residents of other States. The relatively low rates of awareness, even among Californians, could be assumed to argue for continued efforts at changing patterns of control of alcohol and tobacco products through a variety of health promotion interventions. Product warning labels and signs are just one of many activities that should be developed to achieve the national objectives of lowering the levels of ethanol consumption and cigarette smoking by the year 2000.

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