Are Condom Instructions in Spanish Readable? Implications for AIDS Prevention Activities for Hispanics

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Almost half of the 10,544 cases of AIDS reported among Hispanics are associated with sexual transmission of the human immunodeficiency virus. As a result, the use of condoms has assumed a central role in the prevention of AIDS. In order to determine the readability of Spanish instructions provided with condoms, twenty-five brands were purchased in Los Angeles. Only half of the manufacturers of condoms available in Los Angeles provided instructions in Spanish. Seven different Spanish texts were identified from the thirteen marketed brands. Readability tests indicate that these texts pose difficulties in comprehension for anyone whose reading skills are below the ninth grade level. These instructions inadequately serve the majority of the Hispanic community whose limited reading skills inhibit comprehension of high school level materials. These results suggest the need to modify AIDS education and prevention materials to increase the level of information available to the Hispanic community.

By the end of August 1988, 72,024 cases of acquired immunodeficiency syndrome (AIDS) had been reported to the Center for Disease Control (CDC), with over 30,000 of these cases reported in the previous 12 months alone (CDC, 1988c). The actual number of AIDS cases may, in fact, be greater by 25% or more due to delays in reporting and nonreporting of cases (Gail & Brookmeyer, 1988). Hispanics have accounted for 10,545 cases of AIDS nationwide. In total, 15% of reported AIDS in adults and adolescents and 23% of cases in children have occurred among Hispanics, whereas Hispanics account for only 8.1% of the U.S. population, excluding territories. Hispanic male adult were three times more likely to have contracted AIDS than non-Hispanic whites, while Hispanic female adults have rates of nine times and children seven times as high as non-Hispanic whites (Curran et al., 1988). The disproportionate number of AIDS case reflects higher rates of AIDS among Hispanic intravenous drug users, their sex partners, and infants.

When homosexual and bisexual men with AIDS are excluded, Hispanic male adults are nine times more likely to have AIDS than their non-Hispanic white counterparts. Similarly, the prevalence of infection with human immunodeficiency virus (HIV) in blood donors, military recruits, and other groups participating in seroprevalence studies show disproportionate rates compared to non-Hispanic whites (CDC, 1986b, 1987b). Almost half of the cases of AIDS among Hispanics were related to sexual transmission, independent of intravenous drug use. Sexual transmission of HIV may also occur among intravenous drug users and their sexual partners, raising the proportion of cases where sexual transmission may have played a role to over 90%.

Recent literature reviews suggest that condoms reduce the sexual transmission of the AIDS virus (CDC, 1988a; Feldblum & Fortney, 1988; Friedland & Klien, 1987; Padian, 1987), as well as preventing other sexually transmitted diseases such as herpes simplex, hepatitis B, and gonorrhea (Stone, Grimes, & Madger, 1986). As a result, the use of condoms has assumed an increasingly important role in the national strategy for prevention of sexual transmission of the human immunodeficiency virus (HIV). Since 1986, the U.S. Surgeon General and officials of the Federal Centers for Disease Control have called for the use of condoms to protect Americans from developing AIDS (CDC, 1986a; Francis & Chin, 1987; Koop, 1986, 1988).

Condom use represents a complex health-related behavior. The effectiveness of condoms in preventing sexually transmitted diseases depends on the degree to which they are used correctly, as well as a number of other diverse factors, including their rate of mechanical

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failure, an individual's ability to negotiate their use with their partner, and knowledge of the partner's HIV serostatus (Feldblum & Fortney, 1988; Henry & Crossley, 1986; Valdiserri et al., 1988). The condom user's understanding of proper condom use, therefore, obviously plays an important role in the effectiveness of condoms (Fiumara, 1972). As a result, officials responsible for "safe sex" campaigns have recommended that clear instructions on use be made available whenever condoms are distributed (Wellings, 1986).

Readability formulas provide a measure of the reading ability necessary to comprehend written materials such as health education messages or prescription package inserts (Freimuth, 1979; Kanouse, Berry, Hayes-Roth, Rogers, & Winkler, 1981; National Cancer Institute, 1984). Using the linguistic characteristics of the text, and index of probable difficulty for the reader can be calculated (Klare, 1974-1975). In this way, readability formulas suggest the minimum reading grade level required to understand a specific text or, in some cases, a number that is associated with a qualitative rating of the difficulty of the text (e.g., easy, moderately difficult, difficult).

Most of the readability formulas have been developed using English-language materials. Research on languages other than English, however, suggest that readability is affected in translation from English to Spanish (Dye, 1971; Gilliam, Pena, & Mountain, 1980). Often, texts are translated literally, posing additional problems for comprehension. There are, however, a small number of readability formulas that are considered reliable for written materials in Spanish (Klare, 1974-1975).

In this study, we used three readability formulas designed for use with Spanish-language materials to determine the reading grade level necessary to understand the Spanish instructions provided with condoms. This research is part of a series of studies examining condom use in a variety of settings (Richwald et al., 1988a; Richwald, Wamsley, Coulson, & Morisky, 1988b).

Methods

Twenty-five brands of condoms manufactured by seven U.S. companies and one Japanese company were purchased in October 1987 at pharmacies in Los Angeles. Readability tests were performed on the instructions for use provided by the manufacturers. These instructions were on the packaging materials or separate package inserts. Promotional information was excluded from analysis.

Only four of the eight manufacturers provided condom instructions in Spanish. Seven different Spanish texts were identified for the thirteen brands of condoms produced by these manufacturers (Table 1). A set of condom instructions in Spanish designed by the authors after reviewing the manufacturers' texts was also evaluated.

Readability was assessed using three different methods: the Spaulding formula, the Flesch formula, and the Fry Readability Graph, modified for Spanish. The Spaulding formula uses sentence length and the frequency of words not found on a list of 1,500 of the most frequently used Spanish words to determine readability (Spaulding, 1951, 1956). The Flesch formula uses sentence length and number of syllables per 100 words to calculate the reading grade level (Flesch, 1948; Grundner, 1978; Henkin, Singleton, & Nguyen, 1984). The Spaulding and Flesch formulas can be found at the end of Table 2. The Fry Readability Graph uses the same linguistic characteristics as the Flesch formula. After an adjustment in the number of syllables for Spanish, the grade level score is read directly from a graph (Fry, 1968, 1977; Gilliam et al., 1980). In terms of correlating with reading difficulty, the Spaulding formula and Flesch formula demonstrate reliable agreement with reading difficulty assessments (e.g., correlations of .87 and .70, respectively, Klare, 1974-1975). No data on reliability are available for the Fry Readability Graph.

Results

In total, 13 (52%) of the 25 brands of condoms studied had instructions available in Spanish. The linguistic variables used to determine the reading grade level or text rating for the seven different sets of condom instructions can be found in Table 1. The mean number of sentences was twelve, with a range of 7 to 21. The mean sentence length was 16.1 words with a standard deviation (SD) of 1.3. There were an average of 229 syllables (range: 222-246) for every 100 words (SD = 8). One-fifth (20) of every 100 words used could not be found on Spaulding's Density Word List of familiar words (SD = 1.9).

The Spaulding formula rated six of the seven texts as difficult, the second highest category on a six-point reading scale (Table 2). The other two readability methods provide comparable assessments of readability as reflected in grade levels. Even using the most favorable score for each condom, all of the seven texts pose difficulties in comprehension for anyone whose reading skills are below the ninth grade level. Alter-

Table 1. Selected Characteristics of Condom Instructions in Spanish Provided by Manufacturers

Manufacturer	Brand	Number of Sentences	Number of Words	Mean Sentence Length[a]	Number of Syllables Per 100 Words	Number of Unfamiliar Words[b] per 100 Words
Ansell	Conture, Nuda, Stimula, Tahiti	7	114	16.3	229	18.4
	Prime	12	204	17.0	226	20.1
	Lifestyles–Nuda Plus	21	337	16.1	223	20.7
Circle Rubber	Embrace Her, Pleaser, Saxon	6	87	14.5	246	19.5
National Sanitary	Arouse	17	265	15.6	232	20.4
	Contracept Plus	10	185	18.5	222	16.2
Schmid	Ramses Nuform, Ramses Sensitol Lubricated	14	204	14.6	223	23.0
Richwald, Schneider-Muñoz, & Valdez		16	188	11.8	201	17.6

a. Number of words per sentence.
b. Words not found on the Density Word List (Spaulding, 1956).

Table 2. Reading Grade Level or Text Rating for Condom Instructions in Spanish Provided by Manufacturers, Determined by Three Methods of Readability Testing

		Reading Grade Level		Text Rating
Manufacturer	Brand	Flesch[a]	Modified Fry Graph	Spaulding[b]
Ansell	Conture, Nuda, Stimula, Tahiti	9-11	11	Difficult
	Prime	9-11	10	Difficult
	Lifestyles-Nuda Plus	9-11	9	Difficult
Circle Rubber	Embrace Her, Pleaser, Saxon	12-15	16	Difficult
National Sanitary	Arouse	9-11	11	Difficult
	Contracept Plus	9-11	10	Difficult
Schmid	Ramses Nuform, Ramses Sensitol Lubricated	9-11	9	Exceptionally Difficult
Richwald, Schneider-Muñoz, & Valdez		5	6	Moderately Difficult

a. Flesch formula: Reading grade level (years) = 206.835 – .846 (WL) – 1.015 (MSL); WL is word length: [Number of syllables per 100 words] – 67; MSL is the mean sentence length: Total number of words divided by the total number of sentences.

Reading grade level:

0-30	⩾ 16 years	70-80	6 years
30-50	12-15 years	80-90	5 years
50-60	9-11 years	90-100	4 years
60-70	7-8 years		

b. Spaulding formula: Difficulty score = 1.609 (MSL) + 331.8 (DS) + 22.0; MSL is the mean sentence length: Total number of words divided by the total number of sentences; DS is the density score: Number of words not on the density word list divided by the total number of words.

Difficulty scores:

⩾ 121	Exceptionally difficult	60-80	Easy
101-120	Difficult	40-60	Very easy
81-100	Moderately difficult	< 40	First primer level

natively, an examination of the highest score for each condom provides a "worst case" analysis. Six of the seven texts require eleventh grade

level reading skills and the seventh the reading skills of a college graduate.

In order to address the issues around readability raised by this study, the authors designed a new set of Spanish condom instructions. A copy of these instructions with an English translation can be found in the Appendix. These instructions have shorter sentences (11.8 words per sentence), fewer unfamiliar words (17.6 per 100 words), a reading grade level in the five to six range, and a text rating of "moderately difficult." These values are considerably less than those of the seven sets of Spanish condom instructions examined in the study (Table 1 and 2).

Discussion

Only half of the manufacturers of condoms available in Los Angeles provided instructions in Spanish. Readability tests performed on these instructions suggest that high school level reading ability is required to comprehend them fully.

A significant number of Hispanics are not literate in English or Spanish. Findings from the 1976 National Chicano Survey, consisting primarily of residents in the Southwest, suggest that over one-third of those between 15 and 45 are by self-report illiterate in English, and almost 40% report they are illiterate in Spanish (Tomas Rivera Center, 1985). The 1985 Adult Literacy Survey showed that among Hispanics between 21 and 25, the rate of illiteracy was substantially higher than that of non-Hispanic whites. Illiteracy was most pronounced among those who terminated their education early (Kirsch & Jungebeut, 1986). Data from the 1980 Census indicates that only 74% of Hispanics had completed ninth grade and 58% had completed high school (U.S. Department of Commerce, 1983). Actual reading grade level, however, is frequently less than the formal grade of schooling completed due to problems with reading achievement (Hunter & Harmen, 1979).

Condom instructions available in English usually have a reading grade level between two to four years greater than the level for Spanish instructions for the same brand of condoms (Richwald et al., 1988b). Therefore, these two findings suggest that most Hispanics would have difficulty in understanding the written materials provided with condoms. Difficulty in understanding how to use condoms could reduce their effectiveness in preventing HIV infection and other sexually transmitted diseases (CDC, 1988b).

The greatest impact of the AIDS epidemic on Hispanics has been felt primarily in the Northeast with a disproportionate number of cases reported among intravenous drug users. Although the AIDS epidemic in other Hispanic communities has been less severe, epidemics of non-HIV sexually transmitted diseases, including gonorrhea and syphilis, continue to be a problem and may play a role in facilitating HIV transmission (Bakeman, McCray, Lumb, Jackson, & Whitney, 1987; CDC, 1988b; Curran et al., 1988). Information about AIDS and HIV infection among intravenous drug users suggests that Hispanic communities throughout the United States may increasingly experience a larger number of infected individuals, partially as a result of secondary spread to sexual partners and infants (Chaisson, Moss, Onishi, Osmond, & Carlson, 1987; Marin, 1988; Richwald et al., 1988a).

Attempts to control the AIDS epidemic are further complicated by other difficulties associated with the use of condoms by Hispanics. The National Survey of Family Growth (1982) found Hispanics less likely to have ever reported use of condoms than non-Hispanics (40% versus 53%), although approximately 90% of both groups reported using some form of contraception (Mosher & Bachrach, 1986). Data from the National Health Interview Survey showed that individuals with less than 12 years education were less likely to identify condoms as being effective in preventing AIDS transmission (67% versus 82%), and a study of teens in San Francisco found that Hispanics knew less than other groups about AIDS prevention (Dawson & Thornberry, 1988; DiClimente, Boyer, & Morales, 1988).

Cultural attitudes may also play a role in explaining condom use patterns among Hispanics. It may be uncomfortable to discuss the use of condoms openly because of the privacy that sexual matters frequently demand (Amaro, 1988). Suggesting condom use may expose a woman to the risk of rejection by her partner or conflict concerning beliefs about contraception.

Given the strong element of homophobia in Hispanic communities (Carrier, 1976a, 1976b), Hispanic men who engage in high-risk sexual behaviors are likely to disregard AIDS prevention strategies that are targeted to "gays" (Carrier, 1985). Issues related to prostitution may also effect condom use. The use of prostitutes, the negative association of condoms with prostitution, and higher rates of HIV infection among prostitutes are all areas requiring further delineation to assess their impact fully (Carrier, 1985; CDC, 1987a).

The seriousness of the AIDS epidemic requires that potentially life saving information, such as that on proper condom use, be available using language that can successfully influence behavior (Fineberg, 1988). A recent study of AIDS health education materials found that the average reading grade level was 14, the equivalent of two years of college, significantly limiting their usefulness in AIDS prevention activities (Hochhauser, 1987). Continued failure to provide appropriate health education materials could have a serious impact on the health of the Hispanic community (Osborn, 1988). We offer an example of a simply worded message about proper condom use that should be more accessible to the Hispanic community.

We recommended the following guidelines for preparing Spanish instructions for drugs, medical devices, and other commonly used health care products (e.g., tampons, contraceptive sponges, toothbrushes):

- Use standard Spanish vocabulary; avoid local colloquialisms unless a particular community is targeted.
- Keep messages short and simple.
- There is little advantage gained by exaggerating risks. Say only what is important.
- Outline formats will reach a larger audience.
- Graphic or pictorial instructions reduces translation problems and improves comprehension (Bartlett, 1987; Doak, Doak, & Root, 1985; Marin, 1988).

Appendix. Como Usar El Condón

(1) Cada acto sexual requiere el uso de un condón nuevo. El uso de los condones disminuye el riesgo de las enfermedades como SIDA y herpes, si se usan correctamente.	(1) Use a new condom every time you have sex. Condoms help to prevent diseases like AIDS and herpes, if you use them right.
(2) Coloque el condón en el pene tan pronto como el pene esté erecto. En general, los condones vienen enrollados en los paquetes. Si el condón no tiene una punta, que sirve para recoger el semen, desenróllelo un poco antes de ponerlo en el pene.	(2) Place condom on penis as soon as it is hard. Most condoms come rolled up. If your condom does not have a tip end, unroll a half inch before putting it on penis. This leaves space to collect sperm and liquid.
(3) Apriete la punta del condón cuando esta enrollandolo en el pene erecto.	(3) Squeeze the tip of the condom as you roll the condom down the erect penis as far as you can.
(4) La lubricación puede impedir el rompimiento del condón. Si necesita más lubricación use espuma, jalea, o crema anti-conceptiva. También puede usar "KY jelly" o agua. No use vaselina, aceite, grasa, ni crema para los manos.	(4) If you need more lubrication, use contraceptive foam, jelly, or cream. This will help prevent the condom from tearing. You can also use water or water soluble lubricant like KY jelly. Do not use Vaseline, oil, grease, or hand cream.
(5) Immediatamente después del acto sexual agarre el condón contra al pene para retirarlo. No espere hasta que el pene esté flojo, ya que el condón puede deslizarse y dejar salir el semen.	(5) After sex, hold the condom tightly against the penis as you withdraw it. Do not wait until your penis becomes very soft or the condom may slip off and leak semen.
(6) Agarre el condón y quítelo con cuidado.	(6) Hold open end of condom and gently pull it off penis.
(7) No use el mismo condon más de una vez.	(7) Do not use the same condom twice.
(8) Guarde los condones en un lugar fuera de calor y luz. No use un condón que parece roto o estropeado.	(8) Keep condoms in a cool, dry place. Do not use a condom that looks broken or damaged.

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