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Perceptions of Cancer Risk/Efficacy and Cancer-related Risk Behaviors: Results from the HCHS/SOL Sociocultural Ancillary Study

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Perceptions of Cancer Risk/Efficacy and Cancer-related Risk Behaviors:

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Abstract

This study evaluated the associations among perceived risk, perceived efficacy, and engagement in six cancer-related risk behaviors in a population-based Hispanic/Latino sample. Interviews were conducted with 5,313 Hispanic/Latino adults as part of the Hispanic Community Health Study/Study of Latinos (HCHS/SOL) Sociocultural Ancillary Study. Participants were recruited from the study's four field centers (Bronx, NY; Chicago, IL; Miami, FL; San Diego, CA) between February 2010 and June 2011. Perceived risk and perceived efficacy were assessed with questions drawn from the Health Interview National Trends Survey. More than half of the sample endorsed perceived risk of cancer associated with the six evaluated behaviors, as well as general perceived efficacy for preventing cancer. Adjusted logistic regression analyses demonstrated significant differences across Hispanic/Latino background groups for perceived risk associated with high consumption of alcohol and saturated fat, low consumption of fruits and vegetables, and insufficient exercise, but not for smoking or low consumption of fiber. Differences were also found for the belief, "It seems like everything causes cancer," but not for other perceived efficacy items. Perceived cancer risk and perceived efficacy for preventing cancer were neither independently nor interactively associated with engagement in cancer-related risk behaviors after controlling for sociodemographic covariates. Results suggest perceptions of risk and efficacy with regard to cancer vary across Hispanic/Latino background groups, and therefore background group differences should be considered in prevention efforts. Perceived risk and perceived efficacy were not related to cancer-related risk behaviors among Hispanics/Latinos. Further work is needed to evaluate determinants of cancer-related risk in this population.

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Perceptions of Cancer Risk/Efficacy and Cancer-related Risk Behaviors:

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Cancer is the leading cause of mortality among Hispanics/Latinos (American Cancer

Society [ACS], 2014), and tends to be diagnosed at more advanced stages among

Hispanics/Latinos as compared to non-Hispanic/Latino whites (ACS, 2015). Given the rapid

growth of the U.S. Hispanic/Latino population (Humes, Jones, & Ramirez, 2011; Passel, Cohn,

& Lopez, 2011), understanding determinants of cancer-related risk behaviors is of significance to

the public health of this growing population.

Lifestyle behaviors have been identified as major contributors to preventable cancers in

the United States (U.S.; ACS, 2014). Several theoretical models including the Transtheoretical

Model (Prochaska & DiClemente, 1983), the Social Cognitive Theory (Bandura, 1986), the

Health Belief Model (Rosenstock, 1974, 2005), and the Theory of Reasoned Action (Ajzen,

1991; Ajzen & Fishbein, 1980) help explain why individuals engage in cancer-related risk

behaviors. Two common constructs across these models are perceived risk and perceived

efficacy. Within the context of cancer, perceived risk refers to the degree to which individuals

believe they are susceptible to cancer. Perceived efficacy refers to the degree to which

individuals believe they are capable of diminishing the likelihood of cancer. The Risk Perception

Attitude (RPA) model postulates that perceived efficacy moderates the relationship between

perceived risk and cancer-related risk behavior (Rimal, 2001; Rimal & Real, 2003). Specifically,

the model hypothesizes that perceived efficacy will have a weak association with behaviors

perceived to be low risk, but a strong association with behaviors perceived to be more risky for

cancer.

Several studies conducted across multiple countries have evaluated the relationship between perceived risk and cancer-related risk behaviors; however, few have been conducted with large, national samples. Studies that have used an observational design on a national scale have examined diet (Harnack, Block, Subar, Lane, & Brand, 1997; Hawkins, Berkowitz, & Peipins, 2010; Kristal, Hedderson, Patterson, & Neuhauser, 2001; Patterson, Kristal, Lynch, & White, 1995; Patterson, Kristal, & White, 1996; Sullivan et al., 2010; van Assema, Pieterse, Kok, Eriksen, & de Vries, 1993; Watters & Satia, 2009; Watters, Satia, & Galanko, 2007), physical activity (Hawkins et al., 2010), sun exposure (Hamilton et al., 2012; Sullivan et al., 2010; van Assema et al., 1993), alcohol consumption (van Assema et al., 1993), and smoking (Hawkins et al., 2010; van Assema et al., 1993). Some studies have found support for an association between risk perceptions and behavior, while others have not. None of these studies, however, have examined the relationship between cancer-risk perceptions and cancer-risk behaviors in a large and diverse sample of Hispanics/Latinos.

Perceived efficacy, or the belief that cancer risk is modifiable, has been labeled in the literature in multiple ways. For example, Cameron (2008) operationalized this belief as "perception of personal control over prevention," and found no association between control beliefs and skin cancer prevention behaviors among university students. Conversely, Niederdeppe and Levy (2007) operationalized the belief that cancer risk is modifiable as "fatalism," and reported that fatalistic beliefs about cancer prevention were associated with less exercise, less consumption of fruits and vegetables, and more smoking in a U.S. population-based sample. However, although some research has explored self-efficacy in the general population, the relationship between perceived efficacy and health behaviors has not been examined specifically among Hispanics/Latinos at the population level.

A primary limitation of most studies examining Hispanics/Latinos in the U.S. is that they categorize Hispanics/Latinos as a single ethnic group. However, there are important health-related differences across Hispanic/Latino background groups. For example, women of Dominican background have been shown to be more likely to receive mammograms, and individuals of Puerto Rican, Central American, and South American background have been shown to be less likely to engage in colorectal cancer screening, as compared to other Hispanic/Latino background groups (Gorin & Heck, 2005). Additionally, individuals of Cuban background have demonstrated greater knowledge of mammography guidelines than those of Mexican background, and greater knowledge of pap smear guidelines than those of Puerto Rican background (Ramirez, Suarez, Laufman, Barroso, & Chalela, 2000). Accordingly, it has been recommended that studies evaluate Hispanic/Latino background groups distinctively, rather than as a homogenous population, to capture such differences (Weinick, Jacobs, Stone, Ortega, & Burstin, 2004; Zsembik & Fennell, 2005).

The present study evaluated the associations among perceived risk, perceived efficacy, and cancer-related risk behaviors in a population-based Hispanic/Latino sample. Six lifestyle-based cancer-related risk behaviors were examined: smoking, saturated fat intake, fruit and vegetable intake, fiber intake, alcohol consumption, and physical activity. The specific aims were to 1) describe perceptions of which behaviors are risky for cancer, and perceived efficacy for preventing cancer; 2) compare Hispanic/Latino background groups (i.e., Central American, Cuban, Dominican, Mexican, Puerto Rican, South American, More than one race/Other) on the perceptions of which behaviors are risky for cancer and perceived efficacy for preventing cancer; and 3) examine the association between perceived risk and perceived efficacy with cancer-related risk behaviors, both independently and in interaction. It was hypothesized that both

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perceived risk and perceived efficacy would independently be associated with engagement in

cancer-related risk behaviors, and that perceived efficacy would moderate the relationship

between perceived risk and cancer-related risk behavior in accordance with the RPA model.

Methods

Study Design

The current study was a cross-sectional, population-based study conducted with 5,313

persons enrolled in the Hispanic Community Health Study/Study of Latinos (HCHS/SOL)

Sociocultural Ancillary Study (SCAS). HCHS/SOL is the largest prospective, population-based

cohort of Hispanic/Latino adults living in the U.S. ($N = 16,415$) assessing the prevalence and

incidence of chronic illness, as well as risk and protective factors thereof. The SCAS examined

the relationship of sociocultural and psychosocial factors to the prevalence of cardiovascular

disease and metabolic syndrome among Hispanics/Latinos.

Participants

Participants were representative of the broader HCHS/SOL study, as the households

involved with the parent study were randomly sampled for the SCAS to form three waves and

years of recruitment (Gallo et al., 2014; LaVange et al., 2010), and were recruited from four field

centers (Bronx, NY; Chicago, IL; Miami, FL; San Diego, CA). The HCHS/SOL methodology

for the parent study (LaVange et al., 2010; Sorlie et al., 2010) and the SCAS (Gallo et al., 2014),

have been published elsewhere. Participants included immigrants from various countries in Latin

America, with varying numbers of years living in the U.S., second and third generation U.S.-

born individuals, and individuals identifying Puerto Rico as their background group.

Procedures

All participants in the HCHS/SOL completed an in-person baseline clinic visit and yearly

follow-up telephone assessments, and are currently participating in a second clinic visit (October

2014 – September 2017). The SCAS invited individuals from the parent study who had

completed the baseline visit to participate; of the 7,321 individuals who were invited 5,313

(72.6%) participated between February 2010 and June 2011. Individuals who enrolled and

provided informed consent completed a separate interviewer-administered standardized

assessment. Perceptions of which behaviors are risky for cancer and general perceived efficacy

for preventing cancer were assessed at this appointment. The HCHS/SOL and SCAS were

approved by Institutional Review Boards at all participating institutions.

Measures

Perceived risk. Participants completed questions from the Health Interview National

Trends Survey (HINTS; Nelson et al., 2004) to evaluate the degree to which individuals believed

certain behaviors are associated with cancer risk. HINTS questionanires were developed

according to scientific validity and reliability criteria and have previously been evaluated for

psychometric rigor (Cantor, Covell, Davis, Park, & Rizzo, 2005). Specifically, participants were

asked "Do you think that _____ increase(s) a person's chance of getting cancer?" Items

evaluated in the present study addressed: 1) smoking; 2) eating a high fat diet; 3) not eating

many fruits and vegetables; 4) not eating much fiber; 5) drinking a lot of alcoholic beverages;

and 6) not getting much exercise. Responses marked as "a lot" or "a little" were coded to

indicate agreement, while those marked as "not at all" or "no opinion" were coded to indicate

disagreement, consistent with previous research (Lykins et al., 2008).

Perceived efficacy. Questions from the HINTS (Nelson et al., 2004) were also used to

assess beliefs about whether or not a person can influence cancer risk. Participants were asked to

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rate their agreement with the following statements: "It seems like everything causes cancer;"

"There's not much you can do to lower your chances of getting cancer;" and "There are so many

different recommendations about preventing cancer, it's hard to know which ones to follow."

Responses marked as "strongly agree" or "agree" were coded to indicate agreement, while those

marked as "disagree" or "strongly disagree" were coded to indicate disagreement, following

previous research (Lykins et al., 2008).

Cancer-related risk behaviors.

Smoking. In accordance with prior research (Daviglus et al., 2012), participants who

reported currently smoking on some or all days were categorized as *current smokers*. Those who

reported smoking fewer than 100 cigarettes in their lifetime and those who reported smoking 100

or more cigarettes during their lifetime but were not currently smoking were categorized as

nonsmokers/former smokers.

Saturated fat intake. Intake of saturated fatty acids, fruits and vegetables, and fiber were

evaluated via two separate 24-hour dietary recalls, administered six weeks apart. See Siega-Riz

et al. (2014) for a comprehensive description of the dietary data collection for the HCHS/SOL.

Participants were assigned a score of one to five to reflect their gender-specific quintile of daily

saturated fat intake. Individuals who fell into the lowest 40th nutritional percentile were

characterized as *healthy*, while those in the highest 60th percentile were characterized as

unhealthy (Daviglus et al., 2012).

Fruit and vegetable intake. Participants were classified as *adherent* or *nonadherent* to

the 5-A-Day for Better Health guidelines, based on the program sponsored by the National

Cancer Institute and the Produce for Better Health Foundation (Daviglus et al., 2012).

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Fiber intake. Participants were assigned a score of one to five reflecting their gender-specific quintile of daily fiber intake. Individuals who fell into the highest 40th nutritional percentile were characterized as having a *healthy* intake of fiber, while those in the lowest 60th percentile were characterized as *unhealthy* (Daviglus et al., 2012).

Alcohol consumption. Participants who reported currently consuming alcoholic beverages on some days or daily were categorized as *drinkers*, while those who reported drinking no alcohol were categorized as *nondrinkers*.

Physical activity. Based on responses to the Global Physical Activity Questionnaire (GPAQ; Bull, Maslin, & Armstrong, 2009) individuals who reported engaging in a minimum of 150 minutes of moderate-intensity activity or 75 minutes of vigorous-intensity activity per week, or the equivalent combination of moderate and vigorous activity, in episodes of at least 10 minutes, were classified as *active*, while those who engaged in less activity were classified as *inactive*. The GPAQ has been shown to have acceptable psychometric properties (Bull et al., 2009).

Covariates.

Sociodemographic variables. Sociodemographic variables including age, sex, income, education, and years spent living in the U.S. were collected via self-report.

Acculturation. Acculturation was measured with a modified version of the Short Acculturation Scale for Hispanics (SASH; Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987). For the present analysis, the four-item social subscale and the five-item language subscale were used. Subscale scores range from one to five, with higher scores indicating greater acculturation to the U.S. Internal consistency reliability for the current data was acceptable (Language: $\alpha = .93$; Social: $\alpha = .72$).

Statistical Analyses

For all analyses inferential statistics accounted for the complex survey design and sample weights to produce weighted population estimates (LaVange et al., 2010). To describe the perceptions of which behaviors are risky for cancer, and perceived efficacy for preventing cancer (Aim1), descriptive statistics were calculated for all study variables. To compare Hispanic/Latino background groups on the perceptions of which behaviors are risky for cancer and perceived efficacy for preventing cancer (Aim2), a series of logistic regression analyses were conducted to evaluate potential differences across background groups (independent variable) for each of the six perceived risk and three perceived efficacy variables (dependent variables). To control for confounding of study site with Hispanic/Latino background group, because people of specific Hispanic/Latino backgrounds tend to concentrate in specific geographic areas, models were fit using a background group-by-center variable, with levels corresponding to the ten combinations of background group and center that had at least 100 participants according to unweighted counts. To examine perceived risk and perceived efficacy as correlates of cancer-related risk behaviors, both independently and in interaction (Aim3), logistic regression models were fit for each of the six cancer-related risk behaviors, in which each behavior was regressed simultaneously onto the associated perceived risk variable, one of the three perceived efficacy variables, and the interaction of the perceived risk and perceived efficacy variables. The logistic regression models that were run to address the second and third study aims controlled for age, sex, income, education, years spent living in the U.S., and the SASH language and social subscale scores. To account for multiple testing, a Bonferroni correction ($\alpha = .001$) was utilized in the analyses for these aims. Full information maximum likelihood (FIML) was used to address missing data. This approach has been shown to be preferable to listwise deletion and multiple

imputation, and has demonstrated production of unbiased parameter estimates and standard

errors under various missing data conditions (Enders, 2010; Enders & Bandalos, 2001). All

analyses were conducted in IBM Statistical Package for the Social Sciences (SPSS) Version 20.0

and MPlus version 7.2 using complex survey procedures.

Results

Sociodemographic Characteristics

Average scores on the SASH language ($M = 2.1$, $SD = 1.2$) and social ($M = 2.2$, $SD = 0.6$)

subscales indicated that participants identified more strongly with the Hispanic/Latino culture

than the U.S. culture. The majority was categorized as unhealthy with regard to consumption of

fiber (77.1%) and fruits and vegetables (96.0%), while the majority was categorized as healthy

with regard to physical activity (64.6%), consumption of saturated fat (60.9%), and smoking

(79.3%). Half was categorized as unhealthy (49.6%) with regard to alcohol consumption (Table

1).

Perceived risk and perceived efficacy

For each of the evaluated cancer-related risk behaviors, more than half agreed that the

behavior was associated with increased risk for cancer (Table 1). The smallest percentage

(56.5%) held this belief for the relationship between insufficient exercise and cancer risk,

whereas nearly all (97.7%) did so for the relationship between smoking and cancer risk.

Approximately seventy percent agreed that "There are so many different recommendations about

preventing cancer, it's hard to know which ones to follow," demonstrating lower perceived

efficacy, and approximately 40 percent agreed that "It seems like everything causes cancer," and

"There's not much you can do to lower your chances of getting cancer."

Perceived cancer risk and perceived cancer efficacy across Hispanic/Latino background groups

After controlling for covariates, logistic regression analyses demonstrated significant ($p \leq$ .001) differences across Hispanic/Latino background groups for perceived cancer risk associated with consumption of alcohol, fruits and vegetables, and saturated fat, as well as insufficient exercise, but not for perceived cancer risk associated with smoking or consumption of fiber. Differences were also found for the belief, "It seems like everything causes cancer," and "There are so many different recommendations about preventing cancer, it's hard to know which ones to follow," but not for the belief "There's not much you can do to lower your chances of getting cancer." Percentages of participants from each background group that endorsed the perceived risk and perceived efficacy beliefs are presented in Table 2, and significant findings from the logistic regression analyses are presented in Table 3. For the majority of perceived risk and perceived efficacy beliefs assessed, differences were either not found or were observed among only a few groups. However, the likelihood of reporting high perceived cancer risk associated with insufficient exercise was found to significantly differ in nine pairwise comparisons, and the belief that "There are so many different recommendations about preventing cancer, it's hard to know which ones to follow" significantly differed in five pairwise comparisons. In general, individuals of Mexican background from San Diego (odds ratios (*ORs)* ranged from 1.93 [95% confidence interval (*CI*) = 1.43, 2.61] to 2.03 [95% *CI* = 1.37, 3.02]) and individuals of South American background from Chicago (*ORs* ranged from 2.87 [95% *CI* = 1.54, 5.36] to 4.08 [95% *CI* = 2.14, 7.81]) were significantly more likely to report high perceived cancer risk associated with insufficient exercise as compared to other groups. Additionally, individuals of South American background from Chicago were significantly less likely to disagree with the statement

that that "There are so many different recommendations about preventing cancer, it's hard to

know which ones to follow" as compared to other groups (*ORs* ranged from 0.23 [95% *CI* =

0.11, 0.51] to 0.29 [95% *CI* = 0.13, 0.61]).

Relationships of perceived risk and perceived efficacy to engagement in cancer-related risk

behaviors

Two-way interaction analyses demonstrated no significant interactions (*p* > .001)

between perceived risk and perceived efficacy in predicting the engagement in cancer-related

risk behaviors after controlling for covariates. In addition, no associated significant main effects

of perceived risk or perceived efficacy in predicting cancer-related risk behaviors were found.

Discussion

The first aim of the present study was to describe perceptions of behavior as risky for

cancer, and general perceived efficacy for preventing cancer, among Hispanics/Latinos.

Perceived cancer risk was lowest with regard to insufficient exercise, providing further support

that physical inactivity is under-recognized as a cancer-related risk behavior (Ramirez, Finney

Rutten, Vanderpool, Moser, & Hesse, 2013). Rates of perception of smoking, low fiber

consumption, and alcohol consumption as risky for cancer were relatively similar to those

reported by 2003 HINTS participants (National Cancer Institute, 2003). Perceived risk of

saturated fat consumption was higher, and perceived risk of low fruit and vegetable consumption

and physical inactivity were lower for participants in the present study. The rates of agreement

with the three perceived efficacy items evaluated in the present study were relatively similar to

those observed among 2003 HINTS participants. Of note, HINTS is comprised of a nationally

representative sample consisting of individuals from a variety of racial and ethnic backgrounds.

Thus, the present results suggest that Hispanics/Latinos may have slightly different perceptions

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of cancer risk than the general U.S. population, though perceived efficacy for preventing cancer

was more congruent.

The second aim was to compare Hispanic/Latino background groups on perceptions of

which behaviors are risky for cancer and perceived efficacy for preventing cancer. Overall, as

compared to other background groups, individuals of Mexican background from Chicago and

San Diego, and individuals of South American background from Chicago, were more likely to

perceive the evaluated behaviors, with the exception of alcohol consumption, as risky for cancer.

Conversely, individuals of Puerto Rican background from the Bronx were less likely to do so.

Interestingly, no differences were found across background groups with regard to perceived risk

of smoking or low consumption of fiber. Regarding perceived efficacy for preventing cancer,

individuals of Puerto Rican background from Chicago were more likely to agree that everything

causes cancer as compared to individuals of Cuban background from Miami. Moreover,

individuals of South American background from Chicago were significantly more likely to agree

that it is hard to know which recommendations should be followed to prevent cancer as

compared to other groups. These results augment prior research demonstrating that there are

discrepant health beliefs across different Hispanic/Latino background groups (Caban & Walker,

2006), and advance the literature by identifying which cancer-related risk and efficacy beliefs are

discrepant and how they vary across geographic regions.

The third study aim was to examine the association of perceived risk and perceived

efficacy with cancer-related risk behaviors, both independently and in interaction. In the present

study, contrary to the RPA model (Rimal, 2001; Rimal & Real, 2003), perceived risk and

perceived efficacy did not interact to predict cancer-related risk behaviors. Of note, prior studies

evaluating the RPA model have measured risk and efficacy in similar ways. For example, studies

that have assessed risk associated with particular behaviors have evaluated self-efficacy for

performing those behaviors (e.g., Rimal & Real, 2003; van Assema et al. 1993), and studies that

have assessed more general self-efficacy for preventing a disease such as cancer have assessed

more general perceived risk of disease (e.g., Sullivan, Beckjord, Rutten, & Hesse, 2008). The

present study extends the literature regarding the RPA model by suggesting that this model may

not apply to situations in which perceived risk is assessed more specifically, while perceived

efficacy is assessed more broadly.

After controlling for covariates, perceived risk and perceived efficacy were not

significantly associated with cancer-related risk behavior. This is partially consistent with prior

research, which has supported a relationship between risk perceptions and smoking, but not other

behaviors (Sullivan et al., 2010; van Assema et al., 1993). Also, prior studies have found an

association between cancer-related risk perceptions and behavior when examining this

relationship bivariately, but not after adjusting for covariates, as was done in the present analysis

(Hamilton et al., 2012; Kristal et al., 2001). With regard to generalized perceived efficacy for

preventing cancer, Cameron (2008) found no relationship with skin cancer prevention behaviors,

similar to the present results. However, Niederdeppe and Levy (2007) found that individuals

demonstrating high perceived efficacy were less likely to exercise weekly, less likely to consume

sufficient fruits and vegetables, and more likely to be smokers. Of note, the sample evaluated by

Niederdeppe and Levy was comprised of individuals of diverse racial and ethnic backgrounds,

which may contribute to this discrepancy. Additionally, while Niederdeppe and Levy controlled

for sociodemographic variables, they did not evaluate perceived risk. Finally, while some of

these prior studies did have large sample sizes and utilized random or probability sampling, most

did not have a sample size similar to that in the present analysis, and none utilized a community-

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defined and –directed sampling procedure such as that utilized by the HCHS/SOL to ensure

recruitment of a sample representative of a particular minority population.

Study Limitations

Limitations of the present study should be considered. First, the data were cross-

sectional, precluding determination of causality. Second, it is possible that environmental factors

such as access to healthy food options and family members' health behaviors, which were not

accounted for directly, may have impacted cancer-related risk behaviors. Furthermore, due to

sample size restrictions, it was not possible to evaluate whether the relationships of perceived

risk and perceived efficacy to cancer-related risk behaviors were consistent across

Hispanic/Latino background groups. Finally, results cannot be generalized to the U.S.

Hispanic/Latino population at large. However, it is important to note that the community-based

probability sample strategies utilized in the HCHS/SOL do enable inferences to the larger

Hispanic/Latino populations in the four HCHS/SOL field centers from which the present sample

was drawn (LaVange et al., 2010). The HCHS/SOL cohort has good representation of various

Hispanic/Latino background groups. The majority of the Hispanic/Latino population in the

United States lives in urban areas, and the four field centers are in cities with large

Hispanic/Latino populations (ranking of these cities among the metropolitan areas in the US with

largest Hispanic population are New York #1, Chicago #5, San Diego #9, and Miami #11 (US

Census Bureau, 2010). Florida is the state with the largest population of Cubans (68% of all

Cubans), and Miami-Dade County is the county with highest proportion of Hispanics in Florida.

Conclusions and Implications for Health Promotion Practice

In sum, the present findings identified differences across Hispanic/Latino background

groups regarding perceptions of which behaviors are risky for cancer, and perceived efficacy for

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preventing cancers. Ways in which Hispanics/Latinos have different perceptions of cancer risk as

compared to the general U.S. population were also clarified. These results are consistent with

prior research suggesting that Hispanic/Latino background groups should be viewed distinctly,

and expand upon the existent literature by identifying which cancer-related beliefs are discrepant

across different background groups, and which background groups may be at high risk for

specific cancer-related beliefs. The present findings also suggest that targeting perceived risk and

perceived efficacy may not effectively diminish cancer-related risk behaviors among

community-dwelling Hispanic/Latino adults, although further research involving prospective

designs is needed.

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Declaration of Conflicting Interests

The Authors declare that there is no conflict of interest.

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PERCEIVED RISK, EFFICACY, AND CANCER RISK BEHAVIORS   25

Table 1.

Percentage of engagement in cancer-related risk behaviors, perceived cancer risk and efficacy, and sociodemographic characteristics in the HCHS/SOL Sociocultural Ancillary Study

	Unweighted *n*	Weighted percent or mean (*SD*)
Engagement in Cancer-related Risk Behaviors		
Alcohol use: Drinker	2,425	49.6%
Exercise: Inactive	1,994	35.4%
Fiber: Unhealthy	3,880	77.1%
5-A-Day: Non-adherent	5,005	96.0%
Saturated fat: Unhealthy	1,680	39.1%
Cigarette use: Smoker	974	20.7%
High Perceived Cancer Risk		
Alcohol	4,190	79.9%
Exercise	2,993	56.5%
Fiber	3,433	62.3%
Fruits and Vegetables	3,384	62.6%
Saturated fat	4,204	78.6%
Smoking	5,120	97.7%
High Perceived Efficacy to Avoid Cancer		
Everything	3,032	60.5%
Not Much	2,985	59.7%
Confusing	1,468	29.2%
Sex		
Women	3,299	54.9%
Hispanic/Latino Background Group		
Central American	553	7.6%
Cuban	775	20.3%
Dominican	534	11.7%
Mexican	2080	36.5%
Puerto Rican	880	15.8%
South American	350	4.8%
More than one race/Other	137	3.3%
Annual Household Income		
< $10,000	888	17.7%
$10,001-15,000	988	20.1%
$15,001-20,000	685	13.5%
$20,001-25,000	568	11.3%
$25,001-$29,999	386	7.5%
$30,000-$40,000	623	12.9%
$40,001-$50,000	299	6.4%
$50,001-$75,000	257	5.6%
$75,001-$100,000	105	2.8%
> $100,000	73	2.2%
Education		
< High school/GED	1,923	32.5%

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High school/GED	1,383	28.0%
> High school/GED	1,998	39.4%
US Born		
Not born in 50 US states	4,393	78.1%
Language of Interview		
Spanish	4,296	75.4%
Years in United States among Foreign Born	4,384	17.3 (13.9)
Age, years	5,313	42.5 (15.0)
SASH Social Score	5,118	2.2 (0.6)
SASH Language Score	5,306	2.1 (1.2)

Note. Variations in total sample size across variables were due to missing data; GED = General Education Development Test; US = United States; SASH = Short Acculturation Scale for Hispanics.

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Table 2.
Cancer perceived risk and efficacy beliefs across Hispanic/Latino background groups (Weighted percent)

	Dom – Bronx (*n* = 496)	C Am – Chicago (*n* = 153)	C Am – Miami (*n* = 323)	Cuban – Miami (*n* = 745)	Mex – Chicago (*n* = 752)	Mex – San Diego (*n* = 1249)	PR – Bronx (*n* = 570)	PR – Chicago (*n* = 253)	S Am – Chicago (*n* = 116)	S Am – Miami (*n* = 149)
High Perceived Risk										
Alcohol	79.3	80.0	82.4	89.2	79.7	76.5	72.7	73.6	85.6	85.0
Exercise	50.2	65.3	57.3	52.4	63.3	67.0	45.7	49.4	80.2	58.1
Fiber	61.1	64.7	66.5	60.6	65.7	68.0	51.9	59.2	68.1	65.1
Fruits/Veg	59.9	71.3	62.4	60.7	63.7	71.2	54.1	61.1	69.3	66.1
Saturated fat	76.4	82.7	81.6	80.6	85.0	80.8	64.3	74.8	85.1	80.3
Smoking	98.4	97.8	98.8	96.7	98.5	98.4	96.9	96.4	97.6	99.0
High Perceived Efficacy										
Everything	65.7	51.6	68.2	67.3	56.4	59.2	51.1	47.2	59.2	64.6
Not Much	57.7	57.9	55.3	54.5	51.3	64.7	64.7	63.9	42.5	56.2
Confusing	31.0	29.8	29.4	29.8	24.4	32.9	27.4	22.0	12.4	29.1

*Note. n*s for each Hispanic/Latino background group are unweighted. Dom = Dominican; C Am = Central American; Mex = Mexican; PR = Puerto Rican; S Am = South American; Fruits/Veg = Fruits/Vegetables; Everything = "It seems like everything causes cancer"; Not Much = "There's not much you can do to lower your chances of getting cancer"; Confusing = "There are so many different recommendations about preventing cancer, it's hard to know which ones to follow". For risk variables values refer to percentages of participants who agreed that the referenced behavior is risky for cancer. For efficacy variables values refer to the percentages of participants who disagreed with the referenced statement.

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Table 3.
Significant findings from logistic regression analyses comparing Hispanic/Latino background groups on cancer perceived risk and efficacy beliefs

Comp	Ref	Risk or Efficacy Outcome											
		Exercise Risk		Alcohol Risk		Fruits/Veg Risk		Saturated Fat Risk		Everything Efficacy		Confusing Efficacy	
		OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Mex – SD	Cuban – Miami	1.93	1.43, 2.61	0.47	0.33, 0.67	1.75	1.30, 2.36	---	---	---	---	---	---
	Dom – Bronx	1.99	1.36, 2.92	---	---	---	---	---	---	---	---	---	---
	PR – Bronx	2.03	1.37, 3.02	---	---	1.80	1.28, 2.52	---	---	---	---	---	---
	S Am – Chicago	---	---	---	---	---	---	---	---	---	---	4.04	1.96, 8.36
Mex – Chicago	Cuban – Miami	1.79	1.33, 2.40	0.53	0.37, 0.78	---	---	---	---	---	---	---	---
	PR – Bronx	---	---	---	---	---	---	2.58	1.61, 4.14	---	---	---	---
Cuban – Miami	PR – Bronx	---	---	2.51	1.64, 3.86	---	---	---	---	---	---	---	---
	PR – Chicago	---	---	---	---	---	---	---	---	2.16	1.36, 3.42	---	---
	S Am – Chicago	0.26	.14, .47	---	---	---	---	---	---	---	---	3.94	1.91, 8.13
S Am – Chicago	Dom – Bronx	4.00	2.12, 7.58	---	---	---	---	---	---	---	---	0.29	0.13, 0.61
	C Am – Miami	2.87	1.54, 5.36	---	---	---	---	---	---	---	---	0.26	0.12, 0.55
	PR – Bronx	4.08	2.14, 7.81	---	---	---	---	---	---	---	---	0.23	0.11, 0.51
	PR – Chicago	3.83	1.94, 7.56	---	---	---	---	---	---	---	---	---	---

Note. Only pairwise comparisons that were statistically significantly different are presented in this table (all $ps \leq .001$). Comp = Comparison group; Ref = Reference group; C Am = Central American; Dom = Dominican; Mex = Mexican; PR = Puerto Rican; S Am = South American; SD = San Diego; Fruits/Veg = Fruits/Vegetables. For all models the Comparison group was coded as 1 and the Reference group was coded as 0.