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The Relationship of Chronic Pain to Attitudes Toward Suicide and Physician-Assisted Suicide Among Latino and Non Hispanic White Elders

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Abstract

The objective of this study was to examine differences between Latino and White older adults in attitudes toward suicide and physician-assisted suicide in chronic pain scenarios.

We used a cross sectional study design at four outpatient care sites in San Antonio, Texas. The study sample included 204 subjects (106 Whites and 98 Latinos), 60 years of age and older, with Mini Mental State Examination scores of 24 or higher. No statistically significant between ethnic group differences in attitudes toward suicide or physician-assisted suicide in chronic pain scenarios were found. However, separate analyses by ethnic group showed that the factors associated with these attitudes differed between ethnic groups, with attitudes among Whites significantly and negatively associated with religiosity and those among Latinos significantly and positively associated with depression, while acculturation was significantly and negatively associated with attitudes toward physician-assisted suicide in chronic pain scenarios. This study's findings suggest that depression and acculturation among Latino elders and religion among White elders are determinant factors of these attitudes in chronic pain, end-of-life scenarios. Further research is needed with more heterogeneous study samples, including Latino subgroups (e.g. Mexican Americans, Puerto Ricans, Cubans) and more diverse ethnic groups in terms of socioeconomic status and educational level characteristics.

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INTRODUCTION

Making end-of-life (EOL) decisions (e.g., resuscitation, prolonging treatments, suicide or physician-assisted suicide) is a difficult experience that is influenced or motivated by many factors, including an individual's depression status, religion/spirituality issues, pain level, and race/ethnic factors [1] [2] [3] [4]. Much of the literature on EOL decisions has focused solely on non-Hispanic Whites. There is little literature about attitudes toward chronic pain and suicide or physician-assisted suicide (PAS) in various ethnic groups. [5] found that Mexican Americans were more likely to have positive attitudes toward PAS than non-Hispanic Whites. Consequently, more studies should to focus on the attitudes of Latino elders regarding EOL decisions and about the determinant factors that are associated with those attitudes.

When studying end of life decisions, pain and depression can be individually- or jointly-considered vulnerability factors for asking not to be resuscitated (DNR), or having more favorable attitudes toward suicide, and/or physician assisted suicide (PAS) [6] [7] [8] [9] [10]. With regard to pain, patients who reported moderate or severe pain were more likely to consider euthanasia or PAS [11] or to pursue assisted suicide [12]. However, an important aspect to take into account when performing pain-related studies is to note how pain is measured and perceived. Specifically, EOL decisions motivated by pain might be moderated by race/ethnicity. For example, research suggests that Latinos in the U.S. have more pain sensitivity and report higher pain severity [13], or lower heat and cold pain tolerance than non-Hispanic Whites [14]. Also, there appears to be a positive association between depression and favorable suicide attitudes [15] [16] [17] [18], as well as with favorable attitudes toward PAS [19] [20]. However, Latinos' negative attitudes toward mental illness or mental health services can delay or prevent them from seeking mental health treatments, or can affect treatment outcomes [21] [22].

Just as pain and depression has been shown to be positively associated with decisions and attitudes toward suicide, PAS, and life shortening palliation, religiosity has been negatively associated with these attitudes [23] [24] [25] [26] [27]. In a study with non-Hispanic White and Latino elders, religiosity was associated with attitudes toward PAS among non-Hispanic White elders only [28]. Another study, [29], found that quality of life was central to considering not pursuing treatment, however, religion mediated this decision by swaying perceptions toward pursuing treatment. Further, [30] found that Latinos were more likely non-Hispanic Whites to rely on prayer as a way of coping with pain.

Another motivational factor related to EOL attitudes is prognosis. For example, a study among metastatic colorectal cancer patients found that those who perceived a better prognosis (estimated their 2-month survival to be ≥90%) were more likely to want cardiopulmonary resuscitation (CPR) than their counterparts [31]. Based on the research findings of prior research, our study sought to expand upon previous studies by focusing on older Latinos and pursuiing two main goals: 1) to examine possible race/ethnic (non-Hispanic Whites and Latinos) differences among older adults (60 years or older) in terms of (a) attitudes toward suicide and (b) attitudes toward PAS, in *chronic pain* scenarios where the chance of managing the pain and the prognosis varied, and 2) to examine the factors associated with Latino attitudes (a) toward suicide and (b) toward PAS in scenarios of chronic pain.

METHODS

Study Design and Study Sample

The sampling approach in this cross-sectional study involved the recruitment of older adults (≥ 60 years old) from four community-based outpatient care sites in the metropolitan area of San Antonio, Texas. The study population consisted of 222 older adults. The inclusion criteria included a cognitive assessment that was administered immediately after the consent form was signed. The cognitive assessment was measured using Folstein's Mini-Mental State Examination (MMSE) [32]. Scores between 18 and 24 indicate mild cognitive impairment, and those greater than 24 are considered cognitively intact. Only those subjects with a MMSE score equal or higher to 24 were included in this study sample. The MMSE has been shown to be a valid indicator of cognitive impairment in older Mexican Americans [33]. From the

study sample 1) 18 participants were excluded for further analysis (i.e., younger than 60 years old 2) requiring a companion to complete the interview; missing attitudes toward PAS 3) MMSE score less than 24 points 4) reported another race/ethnicity besides Anglo, non-Hispanic White, Mexican, Mexican American or Chicano. Overall, the final sample consisted of 204 subjects. The study protocol was reviewed and approved by institutional review boards for human research subjects protection at the University of Texas Health Science Center in San Antonio, the University of Texas at San Antonio, and Nix Health. All participants signed a consent form for the face-to-face interview, which was conducted in the participant's preferred language (English or Spanish) by bilingual trained interviewers.

Measurements

All of the measures were translated into Spanish as part of the Decision Making at the End of Life among Mexican Americans (DELMA) pilot study. All of the measurements were previously used in a pilot study with Mexican Americans conducted by the Division of Geriatrics of the Department of Family and Community Medicine of the University of Texas Health Science Center in San Antonio. The key response variables (main outcomes) in this study were (a) attitudes toward suicide when framed in the context of extreme chronic pain; and (b) attitudes toward PAS when framed in the context of extreme chronic pain. The questions that assessed these attitudes were part of a modified version of a Life-Support Questionnaire (LSQ) developed by the Hispanic Established Population for the Epidemiologic Study of Elders. The LSQ included questions related to the course of treatment the person would prefer during the last week of life, if the person would like to be revived when his/her heart stops beating, and how he/she would like to be revived, consideration of physician-assisted suicide or suicide if the person were experiencing extreme chronic pain, what the person would want if he/she were diagnosed with a terminal illness, and whether the person has made plans with his/her doctor about how to be treated when dying. The modified LSQ had 11 items, with a Chronbach's alpha of 0.80 for this study sample. However, only those questions related with attitudes toward suicide (AS) and attitudes toward PAS in the context of hypothetical extreme chronic pain were used for hypothesis testing.

The LSQ sub-section that assessed AS and PAS had four items using a four-point Likert-type ranging from *strongly agree* to *strongly disagree*. The participants indicated their level of agreement with two chronic pain statements where the prognosis changed: (AS1) "If you were experiencing extreme chronic pain and there was a *chance of managing it through long-term treatment*, would you consider suicide"; (AS2) "If you were experiencing extreme chronic pain and there was *only a slight chance of managing it*, would you consider suicide." The same statements were presented for physician-assisted suicide (PAS1 and PAS2). Answers to each of these items were dichotomized with *strongly agree/agree* in one category and *strongly disagree/disagree* in the other.

The main predictors were depression and religiosity. Depression was measured with the Short Version of the Geriatric Depression scale (GDS-15) [34] [35]. Depression was a continuous variable from 0 to 15. A person with a score greater than 5 was considered to have screened positive for depression. The Chronbach's alpha for the 15 items of the GDS-15 in this study sample was 0.77. Previous studies have shown that GDS is an accurate instrument to be administered in community-based clinicians' offices [36]. The religiosity index was measured using an 11 item questionnaire adapted from the Brief Multidimensional Measure of Religiosity/Spirituality [37]. This index assesses religious/spiritual beliefs and behaviors, as well as involvement in organized religion. The index has a range from 14 to 39 where the higher the score, the greater the religiosity of the person. The Chronbach's alpha for these 11 items was 0.86 in this study sample. In addition to depression and religiosity, several factors that might be associated with older adults' attitudes toward suicide or toward PAS were assessed in the face-to face interview. These factors included daily living functioning, self-reported health, acculturation (Latinos only), and other socio-demographic characteristics [i.e., race/ethnicity (non-Hispanic White/Latino), gender, income, education, and marital status].

Daily life functioning and self-reported health status were used as control variables and assessed different components of the current participant's health status. Daily living functioning was measured with the Instrumental Activities of Daily Living Scale (IADL) [38].

This instrument measures use of the telephone, shopping, food preparation, housekeeping, laundry, transportation, medication, and finances. Each one of the IADL functions was dichotomized as needing help with the activity versus needing no help with the activity. The dichotomized items were summed to create a continuous variable (from 0 to 8), where the higher the score, the less functionality on activities of daily living. Self-reported current health was measured by asking participants, "*In general, how do you see your health today?,"* and answers were scored on a four-point Likert scale ranging from *poor* to *excellent*. The scale was recoded as a dichotomous variable, with *good or excellent health* in one category and *fair or poor health* in the other.

For the Latino study sample, acculturation level was assessed using the Modified Cuellar Acculturation Scale [39]. This instrument measures several dimensions of the language of the person (speaking, language preferences, self-reported English reading and writing proficiency), ethnic identification of the subject and the parents, and the place of birth of the subject and the parents. Acculturation was a continuous variable (range of 7 to 35), where the higher the score, the higher the mainstream acculturation level [40]. This study is part of a broader study where the participants were randomized into two groups and received one of two interview forms, where the order of the questions varied. For that reason, we are controlling for the interview form administered (Form A or Form B).

Statistical Analysis

In the initial analysis step, the task was to estimate if the main outcome variables were normally distributed. Histograms, skewness and kurtosis test results implied the AS and PAS did not attain normality. For analysis purposes, AS and PAS were dichotomized. The second step was to examine the distribution of the study sample's descriptive characteristics, for which our statistical approach was means, frequencies, and percentages for the individual level variables. Bivariate analyses including t-test, Chi-square, and Pearson correlation were conducted to test differences, and to assess relationships among variables and between groups as appropriate (non-Hispanic Whites and Latinos; Form A and Form B; Spanish survey and English survey). In subsequent analysis steps, the statistical approach involved unadjusted and adjusted logistic regression, individually, for the attitudes toward suicide and attitudes toward PAS (dichotomous variables) as the main dependent variables.

We examined the association of the main independent variables (AS and PAS) with potential motivational factors of those attitudes in three models. Model 1 examined the total study sample (n=204), Model 2 examined the non-Hispanic White study sample (n= 106), and Model 3 examined the Latino study sample (n=98). The first step involved including only those variables in the models which resulted in $p \leq .20$. For this purpose, we used forward selection stepwise modeling, beginning with a full logistic regression model with all of the independent variables: race/ethnicity, gender, education, income, marital status, religiosity, self-reported current health, depression scale, MMSE, IADL, and form. Because the questions that assessed AS and PAS were four different questions, and in order to obtain comparable models, we kept the variables that resulted in a $p \leq .20$ after running the forward selection stepwise modeling (religiosity, depression, form, education) as well as the variables that were theoretically relevant to our analysis (race, gender and Latino acculturation level) in our final models. Overall, the final model controlled for race, depression, religiosity, self-reported health, form, educational level and gender. The second step involved examining the association of the main outcomes with potential determinant factors. We ran logistic regression for PAS and AS statements to achieve this study aim.

In this analysis, we stress precision of the study estimates with a focus on 95% confidence intervals and *p*-values are presented as an aid to interpretation. All analyses were conducted using Stata/IC 11.1.

RESULTS

Descriptive statistics and bivariate associations

Table 1 presents the descriptive characteristics for our study sample. The study sample had an average age of 71 years, 46% were men, Latinos represented 48% of the study sample, and 82% of the Latino study sample consisted of Mexican Americans. In terms of depression, the range of the score was 0-10, 92% had a score of 4 or less, and of those with a score higher than 5 in the Depression scale, there were no subjects with severe depression (score 12-15). In this study sample, the mean of MMSE was 29 and 85% of the participants

did not need help with any of the IADL. There were significant ($p < .05$) differences between non-Hispanic Whites and Latinos in terms of educational level, income, self-reported current health, AS, PAS, and IADL. In general, the non-Hispanic White study sample had a higher academic level, income level, and better perceived current health. Only 17% of Latinos preferred Spanish language for the interview, so data were examined to determine if the language used in the survey was associated with the main dependent and the independent variables, and no significant association was found ($p > .05$) The mean of the acculturation scale for Latinos was 21.56 (6.73 SD; range 7-35) (not shown in tables). The interview form was equally distributed among participants, with 52% of non-Hispanic Whites and 48% of Hispanics receiving Form A (not shown in tables).

Table 2 and Table 3 present the questions that assessed attitudes toward suicide and PAS. We divided the sentences in sections: (1) context; (2) chance of managing the pain (AS1 and PAS1) an alternate treatment (AS2 and PAS2); and (3) alternate statement of suicide (AS1 and AS2) or physician-assisted suicide (PAS1 and PAS2). In general, a higher proportion of Latinos agreed with the alternatives of suicide and PAS compared to non-Hispanic Whites. The bivariate analyses showed a significant difference between non-Hispanic Whites and Latinos in both attitudes. A higher proportion of Latino participants strongly agree or agree with both of the PAS statements (PAS1: 39% Latinos vs. 22% non-Hispanic Whites; PAS2: 32% Latinos vs. 14% non-Hispanic Whites), and with the suicide statement when there was a *slight chance of managing the pain* (AS1:27% Latinos vs. 13% non-Hispanic Whites).

Multivariate analysis

Contrary to what the bivariate analysis results (Table 2 and Table 3) suggested, there were no statistically significant differences among race/ethnic groups in the AS or PAS statements in the chronic pain scenarios, after controlling for gender, education, depression level, religiosity, form, and acculturation (for Latinos only) (Table 4 and Table 5). However, the results suggest some patterns or consistencies in the determinant factors of the attitudes toward suicide or PAS by race/ethnic groups. For example, Table 4 presents the factors associated with the attitudes toward suicide in chronic pain scenarios by race/ethnic group. After separate analyses by ethnic group, there were some consistencies within the non-Hispanic White and Latino models in the determinants of the attitudes toward suicide in chronic pain (Table 4). In the non-Hispanic White study sample, after controlling for other potential confounders, religiosity was significantly and negatively associated with both of the measures of attitudes toward suicide (AS1 and AS2). In the Latino study sample, after controlling for other potential confounders, depression was significantly and positively associated with both of the measurements of attitudes toward suicide in chronic pain scenarios. Specifically, the higher on the depression scale, the greater the likelihood that Latino respondents agreed with suicide as an alternative in chronic pain scenarios.

In terms of attitudes toward PAS (PAS1 and PAS2), and similar to the AS results, in the non-Hispanic White study sample religiosity was significantly and negatively associated with both of the measures of attitudes toward PAS in chronic pain scenarios after controlling for other potential confounders (Table 5). In the Latino study sample, after controlling for other potential confounders, acculturation was significantly and negatively associated with both of the measurements of attitudes toward PAS in chronic pain scenarios (Table 5). Specifically, the more acculturated a Latino respondent scored, the lower the likelihood they agreed with PAS as an alternative to ending chronic pain.

DISCUSSION

These study findings are consistent with previous studies, suggesting that there are ethnic differences in terms of the factors associated with attitudes toward suicide and PAS [41] [42] [43]. The findings extend knowledge from these previous studies in that after controlling for potential confounders (i.e., gender, educational level, religiosity, and acculturation level), depression was positively associated with Latinos' attitudes toward suicide in chronic pain scenarios, but not with non-Hispanic Whites' attitudes toward suicide. Suicidal thoughts are possible symptom of depression, which could explain part of the positive relationship with suicide scenarios among older Latinos. These findings support the importance of screening for depression in primary care settings. Depression screening can save lives [44]. Yet, depression may not be what influences

Table 1. Description of the Study Sample Stratified According to Ethnic Group (N=204)

Characteristic	Total sample		n-H White		Latinos	
	M(SD)	%	M(SD)	%	M(SD)	%
Age, mean(SD)	71 (8)		72 (8)		70.(8)	
Gender						
Male		46%		49%		43%
Female		54%		51%		57%
Educational level***						
≤Grade 10		19%		3%		36%
> Grade 10		81%		97%		64%
Income***						
< $20,000		35%		12%		60%
≥ $20,000		65%		88%		40%
Marital Status						
Married		68%		71%		64%
Widow		17%		13%		21%
Divorced or Separated		11%		12%		10%
Never married		4%		4%		5%
Self-reported health*						
Good or excellent health		69%		75%		62%
Fair or poor health		31%		25%		38%
Religiosity and Spirituality score	33 (5)		33 (5)		33 (4)	
Depression Scale (range 0-15),	1.5 (2.)		1.3 (2.)		1.7 (2.)	
MMSE score	29 (1.4)		29 (1.2)		29 (1.6)	
Functional status assessment scale	0.4 (1.2)		0.2 (0.7)		0.6 (1.5)	

Notes: $^{*}p \leq .05$, $^{**}p < .01$, $^{***}p < .001$; SD = standard deviation

Table 2. Attitudes toward Suicide in Extreme Chronic Pain Scenarios by Race/Ethnic Group[a]

Suicide (AS) questions			Strongly agree or Agree		Strongly disagree or Disagree		p
Context	Chance of managing pain	Alternative means	n-H White	Latino	n-H White	Latino	
AS1. If you were experiencing extreme chronic pain	and there was only a slight chance of managing it,	Would you consider suicide?	13%	27%	87%	73%	0.02
AS2. If you were experiencing extreme chronic pain	and there was a chance of managing it through long-term treatment,	Would you consider suicide?	9%	14%	91%	86%	0.31

Notes: Total sample=204, non-Hispanic Whites (n-H Whites) =106, and Latinos = 98
[a] Significant differences between ethnic groups (using χ^2 and two-tailed t-tests).
[a] Significant differences between ethnic groups (using χ^2)
$^{*}p \leq .05$; $^{**}p < .01$; $^{***}p < .001$

Table 3. Attitudes Toward Physician-Assisted Suicide in Extreme Chronic Pain Scenarios by Race/Ethnic Group[a]

Physician-assisted suicide (PAS) questions			**Strongly agree or Agree**		**Strongly disagree or Disagree**		**p**
Context	**Chance of managing pain**	**Means to eliminate pain**	**n-H White**	**Latino**	**n-H Whites**	**Latino**	
PAS1. If you were experiencing extreme chronic pain	and there was only a slight chance of managing it,	would you consider physician-assisted suicide?	22%	39%	78%	57%	0.02
PAS2. If you were experiencing extreme chronic pain	and there was a chance of managing it through long-term treatment,	would you consider physician-assisted suicide?	14%	32%	86%	68%	0.01

Notes: [a] Significant differences between ethnic groups (using χ^2)
$^{*}p \leq .05$; $^{**}p < .01$; $^{***}p < .001$
n-H White=non-Hispanic White

the attitudes toward suicide, but rather the combination of depression with chronic pain scenarios.

We suspect that there are potential mediating factors between Latinos' attitudes toward suicide in chronic pain scenarios and depression. For example, among Latinos, depression might be related with other co-morbidities, with behaviors in terms of seeking health care, and with delaying health care [45] [46] [47]. All of these factors can also influence attitudes about suicide or PAS. In terms of PAS, Latinos' acculturation level was negatively associated with attitudes toward PAS in chronic pain scenarios (PAS1 and PAS2). Further research is needed to investigate if the term "physician-assisted suicide" has a different meaning for Latinos compared to other ethnic groups, and if there are differences among Latinos based on their acculturation level, as acculturation was a stronger predictor of attitudes toward PAS than depression. It may be that those same factors that we believe are related to depression and attitudes toward suicide (co-morbidities; behaviors in terms of seeking health care, and with delaying health care) are also mediators in the association between acculturation and the consideration of PAS in chronic pain scenarios.

In terms of the non-Hispanic White study sample, religiosity was the most consistent factor associated with non-Hispanic Whites' attitudes toward suicide and PAS. Results from previous studies lead us to argue that the examination of individual indicators (instead of composite scores) of religiosity and/or spirituality measurements might lead to different conclusions [48] [49]. For example, attitudes and knowledge about PAS are negatively associated with the *belief in the afterlife* (indicator of religiosity) [50], and specific religious affiliations (i.e., Protestants, Catholics) might be associated with greater opposition to suicide [51]. Religion is a coping strategy among patients with depression and pain [52]; however, there are race differences in the use of this strategy. Latinos might use some aspects of religion (e.g., praying and hoping) as coping strategies more than non-Hispanic Whites [53]. These findings call for future research with individual indicators of religion or spirituality, instead of a scale of religiosity/spirituality.

Study Limitations

The level of analyses in this study was mainly at the individual level (health related and socio-demographic characteristics). Therefore, adding other social, cognitive, affective and behavioral factors at both the individual and community level would help to explain and understand the ethnic/cultural differences [54] that this study's findings suggest. For example, this study found ethnic/cultural differences in the meaning of pain, levels of social support from family and community, and the experiences in access to services at both the individual and group levels. The Latino sample for the seemed to be on the higher acculturation range, further research would be needed to include those lesser acculturated.

The design of this study was cross-sectional and it is not clear whether attitudes toward suicide were present before depressive symptoms appeared of were a result of such symptoms. Future longitudinal or prospective research is necessary to confirm our study findings and to examine possible pathways between access to services, depression, pain, religiosity, acculturation and attitudes toward suicide or PAS among Latinos. Lastly, the study did not use a sample of patients with active pain symptoms, which may have influenced their responses.

CONCLUSION

In summary, even when there might not be differences among ethnic groups in their attitudes toward suicide and PAS in chronic pain scenarios, the motivational factors of those attitudes are different for non-Hispanic White and Latino elders. This study's findings suggest that depression and acculturation among Latino elders, and religion among non-Hispanic White elders, are determinant factors of these attitudes in chronic pain scenarios. The sample in this study was relatively highly acculturated, which should have made it more similar to White populations, however, the significant difference points to a possible cultural or educational disparity in interpreting the communication of chances for survival. Future research is needed to confirm our findings with more heterogeneous study samples, including Latinos from different countries of origin (e.g., Mexican Americans, Puerto Ricans, Cubans), and more heterogeneous ethnic groups regarding socioeconomic status and educational level characteristics. This study's findings suggest that in the extreme chronic pain scenarios, the order in which the attitude questions were presented (Form A vs. Form B) influenced the attitudes toward PAS only among

Table 4. Attitudes toward Suicide in Extreme Chronic Pain Scenarios (Adjusted Models)

	AS1. If you were experiencing extreme chronic pain and there was ***only a slight chance of managing it,*** *would you consider suicide?*			AS2. If you were experiencing extreme chronic pain and there was ***a chance of managing*** *it through long-term treatment, would you consider suicide?*		
Potential Determinant Factors	AdOR Model 1	AdOR Model 2	AdOR Model 3	AdOR Model 1	AdOR Model 2	AdOR Model 3
		n-H White	Latino		n-H White	Latino
FORM						
Form A (ref)						
Form B	3.2*	1.5	3.1	1.7	2.9	1.3
Race/Ethnicity						
n-H Whites (ref.)						
Latino	1.5	__	__	1.4	N/A	N/A
Gender						
Male (ref.)						
Female	0.6	1.8	0.4	0.4*	0.3	0.4
Educational level						
≤Grade 10 (ref.)						
> Grade 10	0.2**	0.4	0.5	0.6	0.2	0.9
Religiosity	0.9**	0.6**	1.0	0.9	0.8*	1.1
Depression Scale	1.2	1.10	1.3*	1.3*	1.1	1.5*
Acculturation level	__	__	0.9**	N/A	N/A	1.0

Notes: AdOR= Adjusted Odds Ratios
*p≤.05; **p <.01; ***p <.001
n-H White=non-Hispanic White

Table 5. Attitudes toward Physician-Assisted Suicide in Extreme Chronic Pain Scenarios (Adjusted Models)

	PAS1. If you were experiencing extreme chronic pain and there was ***only a slight chance of managing it,*** *would you consider physician-assisted suicide?*			PAS2. If you were experiencing extreme chronic pain and there was ***a chance of managing it*** *through long-term treatment, would you consider physician-assisted suicide?*		
Potential Determinant Factors[+]	AdOR	AdOR	AdOR	AdOR	AdOR	AdOR
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
		n-H White	Latino		n-H White	Latino
FORM						
Form A (ref)	2.1*	1.0	2.6	1.9	4.5*	1.2
Form B						
Race						
n-H Whites (ref.)	1.4	N/A	N/A	2.2	N/A	N/A
Latino						
Gender						
Male (ref.)	0.8	1.6	0.6	0.8	0.4	1.1
Female						
Educational level						
≤Grade 10 (ref.)	0.3*	1.0	0.7	0.6	0.2	1.0
> Grade 10						
Religiosity	0.9**	0.8**	1.0	0.9*	0.8*	0.9
Depression Scale	1.1	1.11	1.2	1.2*	1.14	1.26
Acculturation level	N/A	N/A	0.9*	N/A	N/A	0.9*

Notes: AdOR= Adjusted Odds Ratios
*p≤.05; **p <.01; ***p <.001
n-H White=non-Hispanic White

non-Hispanic Whites, suggesting different effects on the ethnic groups. In the non-Hispanic White study sample, those who received Form B had significantly higher attitudes toward PAS when there was chance of managing the chronic pain with long-term treatment. Future research is necessary to determine which question(s) had the most effect on these attitudes. However, this was outside of the scope of this study. Research in this area is warranted.

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