

The Role of Ethnic Matching Between Patient and Provider on the Effectiveness of Brief Alcohol Interventions With Hispanics

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Background: Evaluating the effectiveness of treatments such as brief alcohol interventions among Hispanics is essential to effectively addressing their treatment needs. Clinicians of the same ethnicity as the client may be more likely to understand the culture-specific values, norms, and attitudes and, therefore, the intervention may be more effective. Thus, in cases in which Hispanic patients were provided intervention by a Hispanic clinician improved drinking outcomes were expected.

Methods: Patients were recruited from an urban Level I Trauma following screening for an alcohol-related injury or alcohol problems. Five hundred thirty-seven Hispanics were randomly assigned to brief intervention or treatment as usual. Hierarchical linear modeling was used to determine the effects of ethnic match on drinking outcomes including volume per week, maximum amount, and frequency of 5 or more drinks per occasion. Analyses controlled for level of acculturation and immigration status.

Results: For Hispanics who received brief motivational intervention, an ethnic match between patient and provider resulted in a significant reduction in drinking outcomes at 12-month follow-up. In addition, there was a tendency for ethnic match to be most beneficial to foreign-born Hispanics and less acculturated Hispanics.

Conclusion: As hypothesized, an ethnic match between patient and provider significantly enhanced the effectiveness of brief intervention among Hispanics. Ethnic concordance between patient and provider may have impacted the effectiveness of the intervention through several mechanisms including cultural scripts, ethnic-specific perceptions pertaining to substance abuse, and ethnic-specific preferred channels of communication.

Key Words: Brief Intervention, Hispanics, Ethnic Matching, Acculturation, Immigration Status.

THE EMPIRICAL SUPPORT for brief alcohol interventions in the medical care setting is fairly robust. Numerous clinical trials have demonstrated that brief interventions in the medical care setting are effective at decreasing alcohol consumption and its consequences (Bien et al., 1993; Burke et al., 2003, 2004; Moyer et al., 2002). These studies have predominately been conducted using nonminority samples or have neglected the effectiveness of such interventions among racial and ethnic minority populations. One criticism of empirically supported treatments including brief alcohol

interventions is the inadequate representation of ethnic/racial minorities (Atkinson et al., 2001; Bernal and Scharron-del-Rio, 2001; Chambless et al., 1996; Hall, 2001; Hohmann and Parron, 1996; Miranda et al., 2005; Munoz and Mendelson, 2005; Vera et al., 2003). Moreover, interventions found to be effective in one population cannot be assumed to be equally effective among ethnic minorities (Marin et al., 1995).

One strategy for promoting the empirical foundation of existing interventions is to apply a standard intervention to a specific ethnic/racial group without significant modifications (Lopez et al., 2002). With this in mind, a randomized controlled trial of a brief intervention based on motivational interviewing was conducted to assess the effectiveness of this intervention across Whites, Blacks and Hispanics. The results of this trial indicated that brief intervention did not significantly reduce average volume consumed per week, maximum amount consumed in 1 day or percent days heavy drinking among Whites or Blacks (Field et al., 2009). In contrast, brief intervention significantly reduced drinking outcomes among Hispanics at 6- and 12-month follow-up (Field et al., 2009).

The findings from the parent study have important implications because Hispanics report higher rates of heavy drinking

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and alcohol-related problems (Caetano et al., 1998; Galvan and Caetano, 2003) than other minority groups. In comparison to non-Hispanics, Hispanics have higher rates of alcohol-related consequences such as driving while intoxicated (Caetano and Clark, 1998a,b; Galvan and Caetano, 2003) and lifetime arrests for driving under the influence of alcohol (Caetano and Clark, 2000). Life course studies further suggest that alcohol problems are more stable over time among Hispanic men in comparison to Whites and that, once they experience problems, they are more susceptible to developing new problems (Caetano and Kaskutas, 1995, 1996). Given the growth of the Hispanic population and the their increased risk for developing alcohol-related problems, evaluating the effectiveness of treatments such as brief alcohol interventions in this population is essential to effectively addressing this health disparity (Atkinson et al., 2001; Bernal and Scharron-del-Rio, 2001).

A number of studies have shown that level of acculturation and birthplace are associated with increased drinking, alcohol problems, and other mental health problems among Hispanics (Balls-Organista et al., 2002; Caetano and Medina-Mora, 1988; Markides et al., 1990). Increased acculturation to U.S. society often results in more liberal drinking norms and attitudes (Black and Markides, 1993; Caetano, 1997; Caetano and Medina-Mora, 1988; Markides et al., 1990). As a result, highly acculturated Hispanics have lower rates of abstinence and increased drinking and alcohol-related problems (Caetano, 1987a,b; Caetano and Medina-Mora, 1988; Markides et al., 1988, 1990; Neff et al., 1987). With regard to birthplace, U.S.-born Hispanics have a higher likelihood of reporting driving under the influence of alcohol than their foreign-born counterparts (Caetano and Clark, 2000; Caetano and McGrath, 2005). Grant et al. (2004) reported that Mexican Americans born in the United States had higher rates of abuse (16% vs. 9.1%) and dependence (14.5% vs. 6.2%) than those who were foreign born. Thus, when considering the potential influence of alcohol treatment and intervention among Hispanics it is important to take into account both the level of acculturation and immigration status.

Another factor that may explain the effectiveness of brief intervention with Hispanics reported above is the environment in which the intervention took place or the manner by which the intervention was administered. In particular, ethnic matching between client and therapist is one of the factors to be considered. Previous studies show that Hispanics are likely to be more comfortable when matched with therapists similar to them culturally (Casa et al., 2002; Vasquez, 2007). Clinicians of the same ethnicity of the client may be more likely to understand the culture-specific values, norms, and attitudes and, therefore, the intervention may be more effective (Comas-Diaz, 2006; Marin, 1989; Marin et al., 1995; Peterson and Marin, 1988; Vasquez, 2007). Further, ethnic matching between patient and provider may facilitate intervention among immigrants who may be distrustful and less likely to discuss their alcohol use with non-Hispanics (Vasquez, 2007). Recruiting and engaging Hispanics necessitates some cultural

adaptation of the intervention including providing care in settings that they are more likely to use and feel safe, and providing care in the preferred language of the patient (Miranda et al., 2005; Whaley and Davis, 2007).

Unfortunately, the effect of patient-provider matching has not been addressed in a randomized controlled trial using an evidenced based treatment such as brief opportunistic interventions in a medical care setting. Thus based on findings from the main study, it is hypothesized that an ethnic match between patient and provider would facilitate treatment outcomes following brief intervention as a function, in part, of cultural scripts. That is, in cases in which Hispanic patients were provided intervention by a Hispanic clinician improved drinking outcomes were expected. Because acculturation to U.S. society and birthplace are risk factors for heavier alcohol use and alcohol problems and these risk factors are also closely related to potential responses to ethnic matching between provider and patient, the analysis controls for the influence of these patient characteristics.

METHODS

Study Recruitment

Patients were recruited from an urban Level I trauma center between May 2003 and May 2005. Written informed consent was obtained by study clinicians following medical stabilization and prior to discharge from the hospital. All subjects had to demonstrate orientation to person, place and time and adequate recall of recent and remote events prior to obtaining written informed consent. Subjects were compensated \$25 for the baseline assessment and \$50 for the 6- and 12-month follow-up assessments. The study was approved by the Committee for the Protection of Human Subjects at the University of Texas Health Science Center at Houston and the Institutional Review Board of the hospital where data were collected. A certificate of confidentiality from the National Institute on Alcohol Abuse and Alcoholism (NIAAA) was also obtained to protect patient confidentiality.

Screening and Enrollment

Because the primary aim of the study was to evaluate potential ethnic differences in the effectiveness of a brief motivational intervention (BMI) among injured patients, sampling was limited to patients who identified themselves as Black, White, or Hispanic. The current study is limited to an examination of the Hispanics recruited for participation in this study ($n = 537$).

Patients were excluded from participation for the following reasons: (i) they were less than 18 years of age, (ii) they spoke neither English nor Spanish, (iii) they had no identifiable residence, (iv) they were under arrest or in police custody at the time of admission or during their hospital stay, (v) they were judged by the trauma care or research staff to be actively suicidal or psychotic, (vi) they were victims of sexual assault, or (vii) had a medical condition that precluded a face-to-face interview. Patients who were intoxicated at the time of their injury or presented with a Glasgow Coma Scale (GCS) ≤ 14 were monitored by research staff for inclusion in the study. Patients with a GCS ≤ 14 that did not resolve prior to discharge were not eligible for screening or enrollment.

Twenty-four hours, 7 d/wk coverage was not feasible and, therefore, patient recruitment was limited to Thursday through Monday from 9 AM to 6 PM. Recruitment during prior studies conducted at this trauma center as well as the implementation phase of this study suggested that these hours were the most efficient times to screen and

enroll patients (Field and O'Keefe, 2004; Field et al., 2001). To minimize the impact of screening procedures on medical care, a sequential screening process was employed. e.g., subsequent screening procedures were only implemented if the patient screened negative on prior screening criteria. Screening consisted of 4 sequential criteria: (i) Clinical indication of acute intoxication or positive blood alcohol concentration; (ii) self-reported drinking 6 hours prior to injury; (iii) at risk drinking per NIAAA guidelines (e.g., 7 drinks/wk women, 14 drinks/wk men; more than 4 drinks/d in men; more than 3 drinks/d in women; NIAAA, 2001a,b); or (iv) positive on one or more items of the CAGE (cut down, annoyed, guilty, eye-opener; Ewing, 1984; Kitchens, 1994). An assessment of the screening procedures including strengths and limitations has been discussed elsewhere (Field et al., 2009).

Treatment as Usual With Assessment and Assessment With BMI

Patients were randomized to either treatment as usual with assessment (TAU+) or an assessment with BMI using a permuted block design (block size 6) to ensure approximately equal distribution of patients according to their race/ethnicity. Treatment assignment was generated off site and was provided to study clinicians in sealed opaque envelopes. To reduce interviewer bias, study clinicians were blinded to patient randomization prior to completion of the baseline assessment. All patients, regardless of treatment assignment received information regarding hospital and community services relevant to the injured patient. This information included, but was not limited to, substance abuse treatment and self-help groups and the availability of drug and alcohol counselors. Information pertaining to hospital and community resources relevant to the care of injured patients was also provided. All patients were also provided handouts regarding the effects of alcohol, definition of at risk drinking, and strategies to quite or cut down.

Treatment as Usual With Assessment. Following the initial assessment, all patients assigned to TAU+ were provided patient handouts. This was consistent with general practice for treating patients with alcohol problems at the Level I trauma center at the time the clinical trial was conducted.

Brief Motivational Intervention. BMI with injured patients has been described elsewhere (Dunn et al., 2005; Field et al., 2005). In short, brief intervention is based on motivational interviewing and the primary components consist of acknowledging the patients responsibility for changing drinking, encouraging the patient to explore pros and cons of drinking, assessing importance, confidence and readiness to change drinking behavior, reinforcing patient's sense of self-efficacy, and providing support for any efforts or intention to quit drinking or reduce harm associated with drinking including injury. Following BMI, patients were provided the handouts described above. This information was either provided by request of the patient or was given to the patient with their permission (e.g., per the guidelines of motivational interviewing).

Training and Supervision. Clinicians were master's level or degreed and were certified in brief intervention following the successful completion of training. All clinicians received 3 days of training in Motivational Interviewing from a trainer in the Motivational Interviewing Network of Trainers. In addition, clinicians received 2 days of training regarding the application of Motivational Interviewing principles in the trauma care setting from a trainer in the Motivational Interviewing Network of Trainers. Successful completion of the certification process required submission of 3 audio taped interventions with clients which exceeded threshold proficiency as indicated by coding on the Motivational Interviewing Skill Code v1.0. Ten percent of interventions were randomly selected to be audio taped. Clinicians were required to submit an audio tape at least once

per month. In all, 113 of the 736 intervention were taped and coded using the Motivational Interviewing Skill Code v1.0. The mean of the Global Therapist Rating ($M = 5.8$, $SE = 0.08$), Reflection to Question Ratio ($M = 1.6$, $SE = 0.13$), Percent Open Questions ($M = 0.55$, $SE = 0.02$), Percent Complex Reflections ($M = 0.41$, $SE = 0.02$) and Percent Motivational Interviewing (MI) Consistent ($M = 0.97$, $SE = 1.3$) behaviors counts were determined from the Motivational Interviewing Skills Coding (MISC) ratings. With the exception of the percent of complex reflections in which some audio tapes were below threshold proficiency ($>40\%$), the mean and 95% CI indicated that therapist behaviors were at or above the threshold or expert proficiency levels.

Assessment

Patients who qualified for the study and agreed to participate were interviewed by research staff as soon after consent as possible. The interview took ~30 to 40 minutes. The assessment including items related to socioeconomic status, consumption, ethnicity, and acculturation.

Ethnic Identification. Respondents who identified themselves as "black of Hispanic origin (Latino, Mexican, Central or South American, or any other Hispanic origin)" and "white of Hispanic origin (Latino, Mexican, Central or South American, or any other Hispanic origin)" were classified as Hispanic. Respondents also identified their national origin. However, the small number of participants in Hispanic national groups other than Mexican Americans precludes an analysis by national origin. Ethnic identification of providers was also determined through self-report using identical procedures. An ethnic match was considered present when patients and providers were both of Hispanic origin.

Acculturation. The scale is built from 12 questions covering the following information: daily use of and ability to speak, read, and write English and Spanish; preference for media (books, radio, and TV) in English or Spanish; ethnicity of people with whom respondents interacted at church, at parties, and in the neighborhood respondents live in now and while growing up, and finally a series of questions about values thought to be characteristic of the Hispanic life style. With the exception of the items used to assess language use, all other items are coded in a 4-point Likert (strongly agree to strongly disagree) scale. The scale's reliability was assessed with Cronbach's alpha (0.91) and the split-half method (0.87, Guttman split-half coefficient). The scale correlates positively with being U.S. born (0.58) and with number of years of life in the United States (0.22), and correlates negatively with age (-0.36). It also has positive correlations with drinking and alcohol problems. All these correlations are in the expected direction and empirically confirm the scale's construct validity. Respondents' scores on the scale were divided into 3 groups representing low, medium and high levels of acculturation. The cut off points for these groupings were based on results from previous national household surveys of Hispanics in which 33% of the respondents were categorized in each group. The level of acculturation of the providers who described themselves as Hispanic was not determined due to restrictions imposed by the Institutional Review Board.

Alcohol Use. As intentional and unintentional injuries have been found to depend on patterns of drinking in addition to average volume of alcohol consumption (Rehm et al., 2003), several measures of alcohol consumption were assessed at intake and follow-up. Quantity and frequency of alcohol consumption was determined at baseline, 6- and 12-month follow-up using a graduated frequency which assess frequency of intake of combined alcohol with 7 quantity levels and 8 frequency levels in descending order (Greenfield, 1998, 2000; Hilton, 1989; Midanik, 1994; Rehm et al., 1999). This is a preferred method

that reduces underreporting of alcohol consumption and is used in standardized national alcohol surveys (Greenfield, 2000). One standard drink was defined as 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of hard liquor (Dawson, 2003). Weekly alcohol volume was calculated using the basic quantity/frequency approach (Dawson, 2003) by multiplying usual quantity of drinks per occasion by frequency of drinking. In addition, the maximum number of standard drinks consumed in 1 day was determined by asking, "Now think of all kinds of alcoholic beverages combined, that is, any combination of beer, wine, or liquor. During the past 12 months, what was the largest number of drinks that you had in a single day?" For maximum amount consumed in 1 day response categories were not provided. Finally, the frequency of drinking 5 or more per at baseline, 6-, and 12-month follow-up was determined by asking, "During the past 12 months, how often did you have 5 or more drinks of any kind of alcoholic beverage at one time (i.e., any combination of cans of beer, glasses of wine, or drinks containing liquor of any kind)?" Respondents were provided 9 response categories indicating various frequencies of this drinking behavior in descending order including never, 1 to 5 times per year, 6 to 11 times per year, 1 time per month, 2 or 3 times per month, 1 or 2 times per week, 3 or 4 times per week, nearly everyday, and everyday.

Follow-Up Assessment

Research staff blind to treatment assignment conducted follow-up assessments by telephone at 6 and 12 months. Of patients eligible, 324 or 60% of Hispanics completed 6-month follow-up and 262 or 49% completed 12-month follow-up. Hispanics (OR = 0.59, 95% CI = 0.43–0.83) were significantly less likely to complete 6-month follow-up. There were no significant predictors of loss to follow-up at 12 months. Among Hispanics, participants who were U.S. born were significantly less likely to be lost to follow-up at 6 and 12 months (OR = 0.44, 95% CI = 0.27–0.71; OR = 0.44 95% CI = 0.28–0.72, respectively). Neither treatment assignment nor level of acculturation was significant predictors of loss to follow-up among Hispanics.

Statistical Analysis

Longitudinal analyses were conducted using hierarchical linear modeling (HLM) of drinking outcomes with random effects for subject and time within subject using HLM version 6.06 (Raudenbush and Bryk, 2002, 2004). Volume per week and maximum amount were log transformed. Frequency of 5 or more per occasion was treated as a continuous variable from 0 to 8. Analyses controlled for age, gender, employment status, marital status, education, baseline alcohol use, prior alcohol treatment, type of injury, and injury severity. HLM was used to model the effects of treatment, ethnicity and covariates of interest on change in drinking outcomes from baseline to the 6 and 12-month follow-up. Because preliminary analysis indicated clearly nonlinear time paths, time was categorical, with dummy variables indicating the contrasts between baseline and 6-month follow-up and between baseline and 12-month follow-up. These time effects for changes in drinking outcomes were dependent on intervention, immigration status, and level of acculturation of the patient, ethnic match between patient and provider, an interaction between patient and provider ethnic match and brief intervention other covariates described above.

The analyses were conducted in stages by first (i) examining the effect of intervention, immigration status and level of acculturation, (ii) then the main effect of ethnic match was included, and (iii) finally the interaction between patient and provider match on ethnicity and intervention. The effect size and magnitude of change are reported when intervention is significant. The observed effect sizes were calculated by dividing the difference between the observed mean changes for TAU+ and BMI by the pooled standard deviation (Rosnow and

Rosenthal, 1996). Effect sizes ranged from small (approximately $d = 0.20$) to medium ($d = 0.50$) (Cohen, 1988).

RESULTS

Hispanics make up 36% of the total sample recruited for participation in this study. The final sample of Hispanic patients randomized to TAU+ or BMI consisted of 537 Hispanics. Forty-seven percent ($n = 253$) of the Hispanic population identified Spanish as their preferred language and were interviewed by a bilingual clinician who also conducted the brief alcohol intervention in Spanish following randomization. Table 1 presents the demographic characteristics of the Hispanic patient population. Throughout the study period there were 9 providers conducting assessment and intervention. Six of the providers identified themselves as Hispanic and conducted 70% of the assessments or assessment and interventions (depending upon random assignment to TAU± or BMI) with Hispanic patients. There was an ethnic match between patient and provider for 71% of the 259 BMIs.

Volume per Week

Table 2 shows changes in volume per week across time by treatment group and presence or absence of an ethnic match between patient and provider. As observed in Table 3, BMI was significant at 12-month follow-up (Step 1). Hispanics who received BMI drank significantly less on average in comparison to Hispanics who did not receive BMI ($d_{12} = 0.13$). Foreign-born Hispanics were significantly less likely to drink more on average at 12 months than their U.S. born counterparts ($p = 0.01$). In addition, Hispanics who were less acculturated drank significantly less on average at 6- and 12-month follow-up than highly acculturated Hispanics ($p_6 = 0.02$ and

Table 1. Demographic Characteristics

	<i>n</i>	%
Total enrolled	537	
Age	29 (9) ^a	
Male	475	88.5
Marital status		
Single, never married	254	47.3
Married or cohabitating	179	33.3
Separated, divorced, or widowed	104	19.4
Education		
More than high school	68	12.7
High school or GED	120	22.3
Less than high school	349	65.0
Employed for wages	414	77.1
Language preference		
English	286	53.3
Spanish	251	46.7
U.S. born	246	45.8
Years in U.S. ^a	18 (13)	
Acculturation		
Low	184	34.3
Medium	172	32.0
High	181	33.7

^aMean (SD).

Table 2. Volume per Week at Baseline and Follow-Up as a Function of Treatment Assignment and Ethnic Match

	BMI			TAU+		
	Baseline	6 Months	12 Months	Baseline	6 Months	12 Months
Ethnic match	16.5 (20.4)	6.5 (14.2)	6.6 (16.9)	14.3 (21.0)	6.9 (12.9)	10.5 (22.9)
No ethnic match	16.0 (26.6)	7.6 (13.6)	8.9 (15.3)	18.7 (42.3)	8.8 (17.2)	8.9 (14.3)

BMI, brief motivational intervention; TAU+, treatment as usual with assessment.

Table 3. Effect of Ethnic Match Between Patient and Provider on Volume per Week

	6 Months			12 Months		
	Coefficient	SE	<i>p</i> value	Coefficient	SE	<i>p</i> value
Step 1						
Treatment	-0.38	0.22	0.08 ^c	-0.57	0.23	0.02 ^d
Immigrant status ^a	-0.30	0.28	0.28	-0.75	0.30	0.01 ^e
Low acculturation ^b	-0.75	0.32	0.02 ^d	-0.97	0.33	0.004 ^e
Medium acculturation ^b	-0.13	0.27	0.64	-0.05	0.29	0.86
Step 2						
Treatment	-0.38	0.21	0.08 ^c	-0.58	0.23	0.01 ^e
Immigrant status ^a	-0.22	0.29	0.44	-0.54	0.31	0.09 ^c
Low acculturation ^b	-0.70	0.32	0.03 ^d	-0.82	0.34	0.02 ^d
Medium acculturation ^b	-0.10	0.27	0.71	0.03	0.30	0.91
Ethnic match	-0.23	0.27	0.38	-0.63	0.29	0.03 ^d
Step 3						
Treatment	-0.02	0.38	0.97	0.16	0.40	0.69
Immigrant status ^a	-0.23	0.29	0.42	-0.55	0.32	0.08 ^c
Low acculturation ^b	-0.70	0.32	0.03 ^d	-0.82	0.34	0.02 ^d
Medium acculturation ^b	-0.15	0.28	0.60	-0.07	0.30	0.80
Ethnic match	0.03	0.35	0.94	-0.07	0.37	0.85
Ethnic match × intervention	-0.52	0.47	0.27	-1.15	0.50	0.02 ^d

^aU.S. born.

^bHigh acculturation.

^c $p \leq 0.10$.

^d $p \leq 0.05$.

^e $p \leq 0.01$.

$p_{12} = 0.004$, respectively). A priori planned contrast also indicated that less acculturated Hispanics drank less on average at 6- and 12-month follow-up than Hispanics with a medium level of acculturation ($p_6 = 0.04$ and $p_{12} = 0.006$; results not shown).

In Step 2, an ethnic match between patient and provider was significantly associated with volume per week at 12 months ($p = 0.03$). BMI, immigration status, and low acculturation remained significant after controlling for an ethnic match between patient and provider. No main effect was observed for an ethnic match between patient and provider at 6-month follow-up.

Even after controlling for an interaction between intervention and ethnic match between patient and provider (Step 3), the effect of low acculturation remained significant at 6- and 12-month follow-up ($p_6 = 0.03$ and $p_{12} = 0.02$, respectively). For Hispanics who received BMI, an ethnic match between patient and provider resulted in a significant reduction in average amount consumed per week at 12 months ($p = 0.02$).

Frequency of 5 or More Drinks per Occasion

Table 4 shows changes in frequency of 5 or more per occasion across time by treatment group and presence or

absence of an ethnic match between patient and provider. As observed in Table 5, BMI was significantly associated with less frequent heavy drinking (i.e., 5 or more per occasion) among Hispanics at 12 months (Step 1). Hispanics who received BMI drank 5 or more per occasion significantly less often than Hispanics who did not receive brief intervention ($d_{12} = 0.23$). Hispanics who were less acculturated also drank 5 or more drinks per occasion less frequently at 12 months than highly acculturated Hispanics ($p = 0.04$). A priori contrast also indicated that less acculturated Hispanics drank less on the heaviest drinking day at 12-month follow-up than Hispanics with a medium level of acculturation ($p_{12} = 0.02$; results not shown).

In Step 2, no main effect was observed for ethnic match at either 6- or 12-month follow-up. After controlling for an interaction between brief intervention and an ethnic match between patient and provider (Step 3), an ethnic match between the patient and provider resulted in less frequent heavy drinking at 12 months ($p = 0.04$) among Hispanics receiving BMI.

Maximum Amount Consumed in 1 Day

Table 6 shows changes in maximum amount consumed in 1 day across time by treatment group and presence or absence

Table 4. Frequency of 5 or More per Occasion at Baseline and Follow-Up as a Function of Treatment Assignment and Ethnic Match^a

	Frequency of 5 or more	BMI			TAU+		
		Baseline	6 Months	12 Months	Baseline	6 Months	12 Months
Ethnic match	Never	2 (1.1)	53 (53.0)	41 (54.7)	1 (0.5)	38 (35.8)	29 (34.9)
	1–11×/yr	24 (13.0)	16 (16.0)	16 (21.3)	34 (17.9)	32 (30.2)	19 (22.9)
	1×/month	35 (18.9)	12 (12.0)	7 (9.3)	28 (14.7)	11 (10.4)	6 (7.2)
	2–3×/month	29 (15.7)	12 (12.0)	7 (9.3)	49 (25.8)	18 (17.0)	22 (26.5)
	1 or 2×/wk	64 (34.6)	1 (1.0)	1 (1.3)	54 (28.4)	4 (3.8)	5 (6.0)
	3–4×/wk	18 (9.7)	3 (3.0)	1 (1.3)	15 (7.9)	1 (0.9)	0 (0)
No ethnic match	Nearly everyday/everyday	13 (7.0)	3 (3.0)	2 (2.7)	9 (4.7)	2 (1.9)	2 (2.4)
	Never	0 (0)	24 (44.4)	16 (33.3)	0 (0)	24 (46.2)	18 (36.7)
	1–11×/yr	25 (32.9)	9 (16.7)	12 (25.0)	22 (28.2)	11 (21.1)	11 (22.4)
	1×/month	8 (10.5)	6 (11.1)	6 (12.5)	11 (14.1)	4 (7.7)	9 (18.4)
	2–3×/month	11 (14.5)	9 (16.7)	9 (18.8)	18 (23.1)	7 (13.5)	6 (12.2)
	1 or 2×/wk	15 (19.7)	4 (7.4)	2 (4.2)	13 (16.7)	4 (7.7)	3 (6.1)
	3–4×/wk	12 (15.8)	1 (1.9)	1 (2.1)	5 (6.4)	2 (3.8)	2 (4.1)
	Nearly everyday/everyday	5 (6.6)	1 (1.9)	2 (4.2)	9 (11.5)	0 (0)	0 (0)

BMI, brief motivational intervention; TAU+, treatment as usual with assessment.
^aFrequency (%).

Table 5. Effect of Ethnic Match Between Patient and Provider on Frequency of 5 or More per Occasion

	6 Months			12 Months		
	Coefficient	SE	<i>p</i> value	Coefficient	SE	<i>p</i> value
Step 1						
Treatment	-0.33	0.21	0.12	-0.52	0.23	0.02 ^d
Immigrant status ^a	-0.31	0.27	0.25	-0.44	0.29	0.14
Low acculturation ^b	-0.47	0.31	0.13	-0.67	0.33	0.04 ^d
Medium acculturation ^b	0.21	0.27	0.43	0.21	0.28	0.47
Step 2						
Treatment	-0.33	0.21	0.12	-0.53	0.23	0.02 ^d
Immigrant status ^a	-0.22	0.28	0.43	-0.33	0.31	0.29
Low acculturation ^b	-0.41	0.31	0.19	-0.59	0.33	0.08 ^c
Medium acculturation ^b	0.23	0.27	0.38	0.24	0.29	0.40
Ethnic match	-0.26	0.26	0.32	-0.33	0.28	0.24
Step 3						
Treatment	0.10	0.38	0.79	0.12	0.39	0.75
Immigrant status ^a	-0.23	0.28	0.41	-0.33	0.31	0.28
Low acculturation ^b	-0.41	0.31	0.19	-0.59	0.33	0.08 ^c
Medium acculturation ^b	0.18	0.27	0.51	0.15	0.29	0.61
Ethnic match	0.05	0.35	0.87	0.16	0.37	0.66
Ethnic match × intervention	-0.63	0.46	0.17	-1.0	0.49	0.04 ^d

^aU.S. born.
^bHigh acculturation.
^c*p* ≤ 0.10.
^d*p* ≤ 0.05.
^e*p* ≤ 0.01.

of an ethnic match between patient and provider. As observed in Table 7, BMI significantly reduced the maximum amount consumed in 1 day at 6- and 12-month follow-up (*p*₆ = 0.006 and *p*₁₂ = 0.003, respectively). Hispanics who received BMI drank significantly less on their heaviest drinking day than Hispanics who did not receive BMI at 6 and 12 months (*d*₆ = 0.27 and *d*₁₂ = 0.28, respectively). Foreign-born Hispanics consumed significantly less on the heaviest drinking day than their U.S. born counterparts at 12-month follow-up (*p* = 0.001). In addition, Hispanics who were less acculturated drank significantly less on the heaviest drinking day at

6- and 12-month follow-up than highly acculturated Hispanics (*p*₆ = 0.02 and *p*₁₂ = 0.001, respectively). A priori contrast also indicated that less acculturated Hispanics drank less on the heaviest drinking day at 12-month follow-up than Hispanics with a medium level of acculturation (*p*₁₂ = 0.03; Results not shown).

In Step 2, no significant main effect was observed for ethnic match at either 6- or 12-month follow-up. After controlling for an ethnic match between patient and provider, the effect of low acculturation remained significant at 6- and 12-month follow-up (*p*₆ = 0.02 and *p*₁₂ = 0.03, respectively).

Table 6. Maximum Amount Consumed at Baseline and Follow-Up as a Function of Treatment Assignment and Ethnic Match

	BMI			TAU+		
	Baseline	6 Months	12 Months	Baseline	6 Months	12 Months
Ethnic match	16.2 (11.1)	6.1 (7.2)	5.7 (7.6)	14.3 (9.2)	8.2 (7.8)	8.1 (7.7)
No ethnic match	13.6 (11.6)	6.2 (5.8)	7.2 (5.9)	14.6 (12.3)	8.5 (10.0)	9.2 (9.7)

BMI, brief motivational intervention; TAU+, treatment as usual with assessment.

Table 7. Effect of Ethnic Match Between Patient and Provider on Maximum Amount Consumed in 1 Day

	6 Months			12 Months		
	Coefficient	SE	<i>p</i> value	Coefficient	SE	<i>p</i> value
Step 1						
Treatment	-0.36	0.13	0.006 ^e	-0.43	0.14	0.003 ^e
Immigrant status ^a	-0.27	0.17	0.10	-0.61	0.18	0.001 ^e
Low acculturation ^b	-0.44	0.19	0.02 ^d	-0.52	0.20	0.01 ^d
Medium acculturation ^b	-0.17	0.17	0.30	-0.18	0.18	0.31
Step 2						
Treatment	-0.36	0.13	0.006 ^e	-0.44	0.18	0.002 ^e
Immigrant status ^a	-0.29	0.18	0.10 ^c	-0.49	0.19	0.009 ^e
Low acculturation ^b	-0.45	0.19	0.02 ^d	-0.44	0.21	0.03 ^d
Medium acculturation ^b	0.18	0.17	0.29	-0.13	0.18	0.46
Ethnic match	0.04	0.16	0.82	-0.34	0.17	0.05 ^c
Step 3						
Treatment	-0.13	0.23	0.59	-0.10	0.24	0.69
Immigrant status ^a	-0.29	0.18	0.10 ^c	0.51	0.19	0.008 ^e
Low acculturation ^b	-0.45	0.19	0.02 ^d	-0.44	0.21	0.03 ^d
Medium acculturation ^b	-0.21	0.17	0.22	-0.18	0.18	0.32
Ethnic match	0.21	0.22	0.33	-0.08	0.23	0.73
Ethnic match × intervention	-0.35	0.29	0.23	-0.53	0.30	0.08 ^c

^aU.S. born.

^bHigh acculturation.

^c $p \leq 0.10$.

^d $p \leq 0.05$.

^e $p \leq 0.01$.

After controlling for an interaction between brief intervention and an ethnic match between patient and provider (Step 3), the effect of low acculturation remained significant at 6- and 12-month follow-up ($p_6 = 0.02$ and $p_{12} = 0.03$, respectively). For Hispanics who received BMI, an ethnic match between the patient and provider had a marginally significant effect on frequent heavy drinking at 12 months ($p = 0.08$).

DISCUSSION

Between 1990 and 2003, the Hispanic population rose from about 9.1% (22 million) to 13.4% (39 million) making Hispanics the largest ethnic minority group in the United States (U.S. Census Bureau, 2003a). By 2050, current census projections predict that the number of Hispanics in the United States will double to more than 25% of the total U.S. population (U.S. Census Bureau, 2003b). Mexican Americans constitute about 60% of the U.S. Hispanic population and are currently the largest Hispanic subgroup. This underscores the importance of the studies findings indicating that brief opportunistic interventions in the trauma care setting are

effective among Hispanics, leading to significant reductions in alcohol use patterns that have been associated with intentional and unintentional injuries (Rehm et al., 2003). Findings further suggest that lower levels of acculturation and foreign birth are associated with greater reductions in alcohol use among Hispanics. Most importantly, brief intervention was significantly more effective when the intervention was conducted by a Hispanic provider independent of acculturation and immigrant status. Providing culturally adapted interventions by matching the ethnicity of the patient and provider and providing intervention in the preferred language of the patient appears to enhance the effectiveness of BMIs in the medical setting among Hispanics. Further adaptation and tailoring of brief interventions in this underserved population may further enhance drinking outcomes.

Ethnic concordance between patient and provider may have impacted the effectiveness of the intervention through several mechanisms including cultural scripts, ethnic-specific perceptions pertaining to substance abuse, and ethnic-specific preferred channels of communication. Inattention to these differences may lead to misunderstandings between

Hispanics and non-Hispanics and thereby influence treatment outcomes (Trandis et al., 1984). Comas-Diaz (2006) discussed how these interactions may be more likely to lead to “missed empathic opportunities.” Cultural scripts are patterns of social interaction that are a core characteristic of a particular cultural group (Trandis et al., 1984). More than being indicative of personal values, cultural scripts are values and beliefs that characterize a particular culture or ethnic group (Marin and Gamba, 2003). As a result, the potential impact of attending to these cultural scripts and cultural norms likely extends beyond empathy, which is a core component of interventions based on Motivational Interviewing (Miller and Rollnick, 2002). In contrast to interventions based on motivational interviewing, in the treatment as usual condition there was no opportunity to convey appreciation and understanding of cultural scripts through the use of reflections, communication of empathy or examination of personal values.

Among Hispanics 2 important cultural scripts are “simpatia” and “familism” (Sabogal et al., 1987; Trandis et al., 1984). Through “simpatia” individuals show their ability to share in other’s feelings, to behave with dignity and respect toward others, and to strive for harmony in interpersonal relations (Trandis et al., 1984). This latter characteristic implies a general acquiescence and a tendency to anticipate positive social interactions. Similarly, and perhaps more important to the context in which this study was carried out, Hispanic patients have shown greater willingness to adhere to the advice of medical professionals who are overwhelmingly perceived as one the most credible sources of information (Marin and Marin, 1990; Marin et al., 1989). These tendencies may have influenced the overall responsiveness of the patient to the intervention and lead to improved drinking outcomes.

“Familism” is another core value in the Hispanic culture and family-related consequences associated with substance abuse have been found to be of central concern to Hispanics. Hispanics more often indicate willingness to talk with family members regarding alcohol problems (Marin et al., 1990a,b; Sabogal et al., 1987). Hispanics also believe they would be less embarrassed to talk about these issues and more strongly believe the relative using substances would follow the advice given (Marin et al., 1990b). Familism may have contributed to the likelihood that additional social support would have been provided to Hispanics and that Hispanics would have been more likely to follow the advice of family members. Additional social support such as this has been suggested as an important potential mechanism of change in alcohol treatment, especially for Hispanics (Arroyo et al., 1998; Gentilello et al., 1999).

Cultural scripts including simpatia and familism tend to be strongest among foreign-born Hispanics and less acculturated patients (Marin and Gamba, 2003; Sabogal et al., 1987). The perceptions of U.S. born Hispanics and highly acculturated patients tend to resemble those held by non-Hispanic Whites, both of which differ significantly from those held by immigrants and less acculturated Hispanics (Marin, 1996; Marin and Marin, 1997). Characteristics which are commonly

ascribed to Hispanics including (i) a present time orientation that values a focus on here-and-now activities, (ii) cultural emphasis on harmony in interpersonal relationships, (iii) a strong value for respect or deference and obedience for authority figures, (iv) desires for interpersonal warmth in social relations, (v) preference for a group or familial orientation rather than an individualistic orientation, and (vi) a strong loyalty, attachment, and solidarity with family members are likely stronger among immigrants and less acculturated Hispanics (Balcazar et al., 1995; Marin, 1996; Marin and Marin, 1997). Among less acculturated Hispanics and immigrants, these characteristics, which are closely associated with simpatia and familism, may have positively influenced drinking outcomes independent of the effect of brief intervention or ethnic matching between patient and provider during brief intervention.

Despite the potential clinical significance of the current findings, there are several limitations to the current study that should be taken into account. Follow-up rates were significantly lower at 6 months among Hispanics in comparison to their non-Hispanic counterparts. Six-month follow-up was less likely among foreign-born Hispanics. However, foreign-born Hispanics who were randomly assigned to BMI were no more likely to be lost to follow-up than those randomly assigned to TAU+. In addition, because the study took place in the trauma care setting, the current sample is predominately younger males. Additionally, the current sample consists of primarily Mexican born and Mexican American Hispanics. These limitations should be kept in mind when interpreting the findings from this study and evaluating the potential generalizability of the current findings.

With regard to the observed findings and potential influence of cultural scripts as an underlying mechanism of change explaining the effect of ethnic matching, the following is worth noting. First, the assignment of Hispanic and non-Hispanic patients to Hispanic and non-Hispanic providers was not experimentally manipulated. Second, the study did not include a culturally adapted version of brief intervention. Third, the current study did not directly measure the use of cultural scripts. Finally, the current study does not take into account direct observation of therapist or client behavior and potential ethnic differences. Future research should account for these factors in the study design to better appreciate this potential mechanism of change among Hispanics.

While Hispanics are more likely to drink excessively and more prone to experience problems associated with at risk drinking, they are less likely to receive adequate treatment or intervention (Boyd-Ball, 2003; Galvan and Caetano, 2003; Schmidt et al., 2006). Despite these disparities, alcohol treatment often appears to be as successful for minority patients (Schmidt et al., 2006; Tonigan, 2001, 2003). The provision of brief intervention in medical settings such as the trauma care system provides unique opportunities to effectively intervene in this underserved population. The current findings hold significant promise for reducing alcohol problems among Hispanics using culturally tailored BMIs in the medical setting. It

is worth noting that, while it has been suggested that simply including more ethnic/racial minority patients in research is one form of cultural adaptation (e.g., Chambless et al., 1996; Hohmann and Parron, 1996), these improvements in drinking outcomes were observed with relatively modest adaptations to the intervention. However, the current findings suggest that practical adaptations of evidenced based interventions including availability of Spanish speaking providers trained in brief intervention based on motivational interviewing, ethnic matching of patient and provider and the provision of care in a medical setting outside of a substance abuse treatment context may enhance treatment outcomes among Hispanics. Improvements in drinking outcomes among Hispanics may be a function of cultural scripts. Additional adaptations which specifically take into account cultural scripts among Hispanics may further enhance treatment outcomes. Significant adaptations in terms of delivery, therapeutic process, and inclusion of cultural knowledge, attitudes and behavior may lead to increased effectiveness of empirically supported treatments among ethnic minorities such as brief interventions based on Motivational Interviewing (Atkinson et al., 2001; Miranda et al., 2005; Munoz and Mendelson, 2005; Vera et al., 2003). Training in cultural competence may further influence treatment effectiveness and may preclude the need for ethnic matching between the patient and provider. Additional research into culturally adapted evidenced based interventions among Hispanics and other ethnic minorities is clearly warranted (Whaley and Davis, 2007). Such investigations are likely to lead to more culturally competent services, improvements in treatment outcomes, increased access to formal treatment and increased involvement in self-help groups such as Alcoholics Anonymous.

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