

Acculturation, Ethnicity, and Symptoms of Schizophrenia

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Abstract

Research findings on acculturation and mental health are complex. Previous research has demonstrated mixed results indicating that an increasing level of acculturation can be associated with both detrimental and beneficial health outcomes. Research focusing on the association of acculturation and schizophrenia remains largely unexplored. This study evaluated the relationship between acculturation and symptom severity with 47 Latino, Black, and White patients with schizophrenia. Results demonstrated that an increasing level of acculturation (rated from a modified version of the Suinn-Lew Self-Identity Scale) was associated with greater severity of schizophrenia symptoms (rated from the Brief Psychiatric Rating Scale). However, the association between acculturation and symptom severity is intricate and varies by ethnicity. Study limitations are discussed.

Keywords: Cultural assimilation; ethnic groups; schizophrenia.

Aculturación, Etnia y Síntomas de Esquizofrenia

Compendio

Los hallazgos de las investigaciones sobre la aculturación y la salud mental son complejos. Investigación previa ha demostrado resultados mixtos que indican que un nivel creciente de aculturación puede estar asociado con resultados tanto perjudiciales como beneficiosos para la salud mental. Las investigaciones que se centran en la asociación de aculturación y esquizofrenia son mayormente inconclusas. Este estudio evaluó la relación entre la aculturación y la severidad de los síntomas de la esquizofrenia con 47 pacientes esquizofrénicos Latinos, Negros y Blancos. Los resultados demostraron que un nivel de aculturación creciente (clasificado en base a una versión modificada del sistema "Suinn-Lew Self-Identity Rating Scale") se asocia con una mayor severidad de los síntomas de la esquizofrenia (clasificado de acuerdo a la "Brief Psychiatric Rating Scale"). Sin embargo, la asociación entre la aculturación y la severidad del síntoma es complicada y tiene variaciones con cada grupo étnico. Finalmente, se discuten las limitaciones del estudio.

Palabras clave: Aculturación; grupos étnicos; esquizofrenia.

There are clearly genetic/biological underpinnings for schizophrenia (Berry, Jobanputra, & Pal, 2003; Joobar, Boksa, Benkelfat, & Rouleau, 2002). However, the symptoms and course of the disorder appear to be strongly shaped by sociocultural factors (Fabrega, 1990; Keith, Regier, Rae, & Matthews, 1992; Rogler, 1989; Roland & Malanda, 1988; Weisman, Lopez, Ventura, Nuechterlein, Goldstein, & Hwang, 2000). The interplay between culture and schizophrenia was demonstrated by the International Pilot Studies of Schizophrenia (IPSS) conducted by the World Health Organization (WHO, 1973, 1992) which showed that patients with schizophrenia from developing countries had a shorter course of illness and a better prognosis (Jablensky et al., 1992).

Several smaller scale studies have also observed interesting cultural patterns in psychopathology. For instance, Weisman et al. (2000) found that White patients displayed a greater frequency of persecutory delusions than did their Latino counterparts. Mounting evidence indicates that White family members are significantly more likely to express critical and hostile attitudes (termed high expressed emotion or high EE) towards a mentally ill relative with schizophrenia than are Latinos (Butzlaff & Hooley, 1998; Kavanagh, 1992; Weisman, 2005). Weisman et al. (2000) interpreted the greater frequency of persecutory delusions in Anglos as possibly reflecting that White patients internalize and exaggerate their family member's negative expressed emotions, and this process is reflected in their psychotic experiences. The comparatively low prevalence of high EE in developing societies (as opposed to more industrialized nations), may account for the better course of illness observed in these nations by the WHO. High EE attitudes in family members have been strongly linked to a poorer course of illness for their mentally ill relatives (Butzlaff & Hooley, 1998; Kavanagh, 1992).

Cross-cultural work in other populations has also yielded interesting findings when comparing symptom patterns across ethnic groups. For example, several studies have

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indicated that the prevalence of visual hallucinations is greater in non-Western cultures and auditory hallucinations tend to dominate the presentation of schizophrenia in European and White cultures (Arnold et al., 2004; Chu, Sallach, Zakeria, & Klein 1985; Ndeti & Vadher, 1985; Sartorius et al., 1986). Al-Issa (1995) has suggested that this discrepancy might be the result of non-Western cultures assigning a more positive value to the notion of "visions." For example, in certain African cultures an individual who experiences "visions" is often seen as having special powers and is venerated to a degree (Anders, 2003). Other researchers argue that Western culture tends to place a stronger emphasis on verbal communication which potentially contributes to the greater preponderance of auditory hallucinations (Fabrega, Mezzich, & Ulrich, 1988).

Studies comparing ethnic groups on symptoms of mental illness have been enlightening and are offering potential hypotheses about factors that may account for cultural differences in the presentation and course of mental illnesses. However, these studies have generally examined ethnicity only, rather than directly assessing the specific variables believed to account for ethnic differences in patterns of mental illness. Betancourt and López (1993) argue that it will be more beneficial to directly examine variables hypothesized to relate to psychopathology, rather than trying to infer this information from studies that find ethnic differences in symptoms but do not directly examine the cultural factors hypothesized to explain these differences.

Acculturation may be one construct that can offer important insights into the presentation of mental illness. Acculturation, however, is a dynamic process involving various facets of adaptation to a new culture. Researchers have been criticized for using proxy variables, such as language or generational status (Peragallo, Alba, & Fox, 2000) to measure acculturation, rather than directly examining the variables of interest in their studies. Another criticism of acculturation research is that this complex construct has not been consistently defined across studies.

Despite some controversy, in the present study, we will use the following widely accepted definition of acculturation: the social and psychological exchanges that take place when there is continuous contact and interaction between individuals from different cultures (Berry, 1997; Ryder, Alden, & Paulhus, 2000). At present, we are not aware of any empirical studies that have investigated the association between the severity of schizophrenia symptoms and an individual's level of acculturation. However, a strong and growing body of research has explored the association between acculturation and several mental and physical health variables. Findings within these areas have provided mixed results. Some research has suggested that movement towards and/or adherence to United States culture has a detrimental association with mental and physical health while others have found a beneficial association.

Several studies indicate that immigrants have better mental health profiles than U.S. born Americans of the same ethnic background (e.g., individuals born in Mexico as compared to U.S. born Mexicans), when socioeconomic variables are controlled (Escobar, Nervi, & Gara, 2000; Ortega, Rosenheck, Alegria, & Desai, 2000). Findings have demonstrated an association between an increasing level of acculturation and more severe symptoms of both depression and anxiety (Karno et al., 1989; Miranda & Umhoefer, 1998; Vega, Warheit, & Palacio, 1985). Black and Markides (1993) also found, with a mixed Latino sample of Puerto-Ricans, Cubans, and Mexicans, that greater acculturation was positively correlated with frequency of alcohol consumption as well as greater probability of being a drinker. Similarly, findings indicate that more acculturated Latinos smoke a greater quantity of cigarettes and consume marijuana more frequently (Epstein, Botvin, & Diaz, 2001; Marin, Marin, Otero-Sabogal, & Sabogal, 1989). Findings from these studies are independent of age, education, work status and generational group.

Though studies with Latino samples predominate, some research on acculturation and mental health has also focused on other ethnic groups. In Vietnamese samples, researchers have found that increasing acculturation to U.S. values and norms was associated with greater reported symptoms of depression (Nguyen & Peterson, 1993; Shen & Takeuchi, 2001). Restrictive eating disorders among Black women and more frequent alcohol consumption in mixed Black samples have also been shown to be related to greater assimilation to mainstream U.S. culture (Abrams, Allen, & Gray, 1993; Klonoff & Landrine, 1999). Rogler, Cortes, and Malgady (1991) posit that acculturation to the values of individualistic societies potentially leads to the dissolution of supportive structures. As a result, there is potential for a protracted illness course, an exacerbation of symptom expression, and an increase in psychological distress (Vinueza-Thoman & Suris, 2004).

Although acculturation may not appear to be a relevant topic of study for White Americans living in the U.S., there is some reason to speculate that greater adherence to mainstream American norms (e.g., greater acculturation to U.S. values) may be associated with a more severe illness presentation for Whites. For example, as discussed earlier, research has demonstrated that White-Americans with schizophrenia, who live in individualistically oriented, industrialized environments, tend to show a poorer course of illness, as compared to their counterparts from more traditional, less developed societies (Jablensky et al., 1992; Weisman, 2005; WHO, 1973). Based on these findings, increasing acculturation to mainstream U.S. culture may be associated with more severe symptoms of schizophrenia for White patients.

Despite the above-mentioned findings, it is important to point out that studies have also found a beneficial association between an increasing level of acculturation and mental and

physical health outcomes. For example, highly acculturated Hispanic veterans have been shown to have less symptomatic post-traumatic stress disorder profiles when compared to less acculturated veterans (Escobar et al., 1983). Moderately acculturated African-American college students were found to report greater psychological health in comparison to less acculturated African-American students (Pillay, 2005). Finally, studies focusing on the association of acculturation and depressive symptomatology with Asian samples have found a negative relationship (Lam, Pacala, & Smith, 1997; Oh, Koeske, & Sales, 2002; Westermeyer, Neider, & Callies, 1989). With regard to preventative health behavior in samples of Hispanic women, greater acculturation has been found to be associated with increased knowledge about pap smears, greater utilization of cervical cancer screenings (Harmon, Castro, & Coe, 1996) and healthier pregnancies (Balcazar, Krull, & Peterson, 2001). More acculturated individuals may have reduced social barriers, allowing them greater awareness and access to healthcare and information (Rodríguez-Reimann, Nicassio, Reimann, Gallegos, & Olmedo, 2004).

Overall, the literature investigating the association between acculturation and mental and physical health outcomes continues to be mixed with studies finding both beneficial and detrimental associations. While studies have examined the role of culture in course and symptom presentation in schizophrenia, no studies that we are aware of have examined the role of acculturation in symptom severity of the illness. Thus, based on the literature reviewed above, in the present study we test the following two competing hypotheses with respect to the association between acculturation and severity of schizophrenia symptoms using an adapted version of the Suinn-Lew Self-Identity Scale (Suinn, Ahuna, & Khoo, 1992) to rate acculturation and the Brief Psychiatric Rating Scale (Ventura, Lukoff, Nuechterlein, Liberman, Green, & Shaner, 1993) to rate symptom severity.

Hypothesis 1: Following results of several studies (e.g., Kamo et al., 1989; Shen & Takeuchi 2001) we might expect to find a

detrimental association between increasing acculturation and symptom severity in schizophrenia.

Hypothesis 2: As outlined above, results of several other studies (e.g., Escobar et al., 1983; Lam et al., 1997) might lead us to expect a beneficial association between acculturation and symptom severity in schizophrenia.

On an exploratory basis, we will examine whether the relationship between acculturation and symptom severity is moderated by ethnicity.

Methods

Participants

Data from this study was drawn from a larger project (see Weisman, Rosales, Kymalainen, & Armesto, 2005) aimed at examining psychosocial correlates of schizophrenia. Participants in this study consisted of a multiethnic sample of 47 patients (23 males and 24 females) diagnosed as having schizophrenia or schizoaffective disorder based on psychiatrist report using DSM-IV criteria. Eligible patients were required to have an ongoing relationship with a relative and must have been in regular face-to-face contact with this person for one or more hours per week, over the preceding year. Sixteen of the patients were White-American, 17 were Latino-American and 14 were Blacks. Ethnicity was based on patient self-report. Table 1 presents descriptive statistics for the sample. Educational attainment was rated on a 7-point scale ranging from 1 = advanced degree to 7 = below grade 8. Occupational differences were examined by grouping them into the following five categories (Professional/skilled, blue collar unskilled, homemaker, retired, unemployed or disabled). No significant differences were found on age, education, or occupation. A series of Pearson correlations demonstrated that these variables were not significantly correlated with BPRS scores. Based on this information, these variables were not controlled in any of the primary analyses.

Table 1
Descriptive Statistics and Zero-Order Correlations between Sociodemographic Variables and BPRS Scores

| Variable | <i>M</i> | <i>SD</i> | Zero-order correlation with BPRS score | <i>F</i> -value |
|-----------|----------|-----------|---|---------------------------|
| Age | 39.10 | 11.32 | $r = -.05, p > .05$ | $F(2,44) = 2.03, p > .05$ |
| Whites | 41.00 | 12.22 | | |
| Latinos | 34.82 | 10.76 | | |
| Blacks | 42.14 | 10.01 | | |
| Education | 4.36 | 1.22 | $r = -.24, p > .05$ | $F(2,44) = 2.81, p > .05$ |
| Whites | 3.93 | 1.24 | | |
| Latinos | 4.88 | 1.41 | | |
| Blacks | 4.21 | 0.70 | | |

Note. Lower scores indicate higher levels of education.

Procedure

Eligible patients were contacted by their social worker or mental health worker and informed of the study. Patients previously diagnosed with schizophrenia or schizoaffective disorder by a qualified mental health practitioner (e.g., licensed psychiatrist, psychologist), and who appeared to meet DSM-IV criteria based on an initial phone screening by a licensed clinical psychologist, were invited to participate in the study. The team contacted the patient, provided information, and, if interested, set up an appointment. Assessments usually occurred in the home of the patient or one of the patient's relatives, but occasionally at an alternative site, including the patient's mental health agency, if this was more convenient for the family. All assessments were conducted in interview format. Patients were compensated \$15.00 for their participation.

Language and Translation of Measures

As reported in Weisman et al. (2005), three of the four interviewers were fully proficient in Spanish. Latino participants were given a choice of completing the assessments in either English or Spanish. Fifteen of the Latino patients completed the assessments in Spanish. Translation of measures used an editorial board approach, which is considered a more effective alternative to translation back translation (Geisinger, 1994). This method accounts for the fact that there are often within-group language variations. In accordance with this procedure, the measures were first translated into Spanish by a Native Spanish speaker of Cuban descent. The original translator then met with an editorial board which included a native Spanish speaker of Honduran descent, a Native speaker of Mexican descent, and the first author, a non native Spanish speaker with extended work and personal experience in Spanish speaking countries (e.g., Cuba, Spain, Mexico) and cities in the US where Spanish is widely spoken (L.A., New York, Miami). Each member of the board carefully reviewed the Spanish translation and compared it against the English version in private. This was followed by a group meeting in which the panelists and the original translator discussed discrepancies and reconciled all differences and concerns with the translation. An attempt to develop the most language generic version of the protocol was made. That is, all panelists needed to agree that the language was clear and understandable in their own within group and that the instruments tapped the intended construct in each Latino subgroup.

Overview of Measures

Background Information: A demographic sheet was included to assess respondents' gender, age, ethnicity, occupation, caretaker occupation, length of residence in

U.S., generation in U.S., educational level, and primary language.

Acculturation: Acculturation was measured using an adapted version of the Suinn-Lew Asian Self-Identity Scale (Suinn et al., 1992) which was directly modeled after and improved upon another successful rating scale for Latinos (Cuellar, Harris, & Jasso, 1980). This 21-item measure assesses four content areas of acculturation: 1) Language familiarity, usage, and preference (sample item: What language(s) can you speak? (write in)); 2) ethnic identity (sample item: How do you identify yourself?); 3) cultural behaviors (sample item: What is your food preference at home?); and 4) ethnic interactions (sample item: Whom do you now associate with in the community?). Each item has a 5-point Likert style rating. This scale yields an overall rating of acculturation to mainstream US culture, with a rating of 1 indicating a low degree of acculturation and a rating of 5 indicating a high degree of acculturation to mainstream US culture. This study found this scale to have high internal reliability (Cronbach's alpha 0.97).

Symptom Functioning: Patient's psychiatric symptoms were rated using the Brief Psychiatric Rating Scale (BPRS) (Ventura et al., 1993). The BPRS is a 24 item semi-structured interview, which assesses the following eight primary areas: Unusual thought content, hallucinations, conceptual disorganization, depression, suicidality, self-neglect, bizarre behavior, and hostility. Each item has a score range from 1 (not present) to 7 (extremely severe). A total BPRS score was obtained by summing patients' scores across all items. The scale has been widely used in English and in Spanish and has demonstrated good reliability with Whites and minorities alike (e.g., Caram, Agraz, Ramos, & Garcia, 2001; Nuechterlein et al., 1992). For this sample, Weisman et al., (2005), reported intraclass correlation coefficients between Amy Weisman and all raters ranging from .74 to 1.00 for all scale items across 5 BPRS interviews.

Results**Preliminary Analyses**

Table 2 presents means and standard deviations for acculturation, and the subscales of acculturation, for the overall group and broken down by ethnicity. A series of one-way ANOVA's, with 2-tailed Bonferroni-corrected post-hoc t-tests, were conducted and revealed significant differences between the ethnic groups on the acculturation subscales. Follow-up comparisons revealed, not surprisingly, that Latinos were significantly less acculturated than Whites and Blacks on the four acculturation subscales including language, ethnic identity, cultural behavior, and ethnic interactions. Also, Blacks were less acculturated than Whites on the dimension of ethnic interaction. Refer to Table 3 for t-test results.

Table 2
Means and Standard Deviations for Acculturation, and the Four Subscales of Acculturation, for Overall Group and Broken Down by Ethnicity

| Variable | M | SD | F-value |
|----------------------------|------|------|-----------------------------|
| <i>Acculturation</i> | | | |
| Overall group | 3.39 | 1.11 | $F(2,44) = 82.89, p < .05$ |
| Whites | 4.26 | 0.23 | |
| Latinos | 2.10 | 0.74 | |
| Blacks | 3.96 | 0.43 | |
| <i>Language</i> | | | |
| Overall Group | 3.89 | 1.48 | $F(2,44) = 84.88, p < .05$ |
| Whites | 4.94 | 0.19 | |
| Latinos | 2.16 | 1.05 | |
| Blacks | 4.82 | .46 | |
| <i>Ethnic Identity</i> | | | |
| Overall Group | 3.39 | 1.44 | $F(2,41) = 105.74, p < .05$ |
| Whites | 4.55 | 0.62 | |
| Latinos | 1.57 | 0.93 | |
| Blacks | 4.27 | 0.86 | |
| <i>Cultural Behavior</i> | | | |
| Overall Group | 3.32 | 0.70 | $F(2,42) = 10.69, p < .05$ |
| Whites | 3.59 | 0.24 | |
| Latinos | 2.80 | 0.85 | |
| Blacks | 3.68 | 0.42 | |
| <i>Ethnic Interactions</i> | | | |
| Overall Group | 2.91 | 1.04 | $F(2,42) = 34.88, p < .05$ |
| Whites | 3.90 | 0.56 | |
| Latinos | 2.0 | 0.81 | |
| Blacks | 2.88 | 0.52 | |

Note. Higher scores indicate greater acculturation. A score of 5 indicates fully Western identified, a score of 3 indicates a bicultural orientation, and a score of 1 indicates fully non-Western identified (Suinn-Lew, 1992).

Table 3
Bonferroni-Corrected T-Tests for the Ethnic Groups on the Subscales of Acculturation

| | Whites | Blacks |
|---------------------------|--------------------------|--------------------------|
| Latino Language | $t(31) = 10.44, p < .05$ | $t(29) = -8.81, p < .05$ |
| Latino Ethnic Identity | $t(31) = 10.7, p < .05$ | $t(29) = -8.29, p < .05$ |
| Latino Cultural Behavior | $t(31) = 3.57, p < .05$ | $t(27) = -3.31, p < .05$ |
| Latino Ethnic Interaction | $t(31) = 3.57, p < .05$ | $t(27) = -3.31, p < .05$ |
| White Ethnic Interaction | | $t(26) = 4.97, p < .05$ |

Acculturation and Symptom Severity

To evaluate the association between acculturation and symptoms of schizophrenia and to determine whether this association varied by ethnicity, a hierarchical linear regression was conducted. In this analysis, acculturation was added in step 1, ethnicity in step 2, and the acculturation x ethnicity interaction term in step 3. Interaction terms (acculturation x ethnicity) were calculated using effect coding (Pedhazur, 1997). Acculturation was found to be a significant predictor of more severe symptoms of schizophrenia ($R^2 = .084, B = 0.29, p < .05$). Acculturation was not found to significantly interact with ethnicity ($p > .05$).

While these findings would appear to indicate that greater acculturation is associated with more severe symptoms regardless of ethnicity, a series of Pearson correlation coefficients stratified by ethnicity indicated that the relationship between acculturation and symptom severity varies by ethnicity. Table 4 presents the zero-order correlations between acculturation (both collectively and broken down by each subscale of acculturation) and BPRS scores for each ethnic group. Though sample sizes were too small to reach the level of significance when separated by ethnicity, for Whites greater acculturation appeared to be associated with greater schizophrenia symptoms whereas

Table 4
Zero-Order Correlations and Effect Sizes among BPRS Scores, Acculturation, and the Four Subscales of Acculturation, for the Overall Group and Broken Down by Ethnicity

| Variable | Overall Group | Whites | Latinos | Blacks |
|---------------------|---------------|--------------|---------------|---------------|
| Acculturation | 0.29* | 0.24 | -.13 | .07 |
| Language | 0.29* | .23, $d=.13$ | -.071 | -.02 |
| Ethnic Identity | .27 | .24, $d=.13$ | -.06 | .14 |
| Cultural Behavior | .20 | .48, $d=.54$ | -.02 | -.32, $d=.19$ |
| Ethnic Interactions | .17 | 0.06 | -.39, $d=.37$ | .19 |

for Latinos greater acculturation was associated with less severe schizophrenia symptoms. Interestingly, for Blacks there was essentially no relationship between acculturation and symptom severity.

On an exploratory basis, a series of linear regressions were conducted to analyze the association between the subscales of acculturation and symptom severity. The first analysis explored the association between the four subscales and overall symptomatology for the entire sample. Language was a significant predictor of more severe symptoms of schizophrenia ($R^2=.084$, $B=.29$, $p<.05$). In other words, when examining the sample collectively, increasing usage of and preference for the English language was predictive of a more severe symptom profile. The remaining subscales were not significant predictors (all $p's>.05$).

The second set of exploratory analyses explored the association between the four subscales and symptom severity for each ethnic subgroup. None of the subscales were significant predictors (all $p's>.05$). However, the relationships were again complex among ethnic groups. There was a trend for language to be positively correlated with symptom severity for Whites, but no relationship was found for Latinos or Blacks. Ethnic identity did not appear to be related to symptom severity for any ethnic group. There was a strong trend for cultural behavior to be positively correlated with symptom severity for Whites and to be negatively correlated for Blacks. Finally, ethnic interaction showed no relationship for Whites, a trend towards a positive correlation for Blacks, and a trend towards a negative correlation for Latinos. Effect sizes were calculated for correlations at or above $r=.20$ and are included in Table 4. Moderate effect sizes were found for the correlation between cultural behavior and BPRS scores for Whites ($d=.54$) and between ethnic interactions and BPRS scores for Latinos ($d=.37$) (Cohen, 1988).

Discussion

This study was, to the best of our knowledge, the first to explore the relationship between acculturation and symptoms of schizophrenia. Examining the sample collectively, our findings would appear to indicate that greater acculturation is associated with greater symptom severity. In other words, when we

combined ethnic groups, we found that increasing acculturation to mainstream White culture was predictive of a poorer schizophrenia symptom profile. This finding is consistent with previous research on depression, anxiety, eating disorders, and substance abuse with various ethnic groups (Gil, Wagner, & Vega, 2000; Miranda & Umhoefer, 1998; Nguyen et al., 1993; Shen et al., 2001)

However, findings from this study indicate that the relationship between acculturation and symptom severity is complex and varies by ethnicity. For example for Whites, there was a strong trend (power analyses indicate that this is a moderate effect size) indicating that greater acculturation to White cultural values and behaviors was associated with greater symptom severity. Some researchers may argue that acculturation is not a social process that is applicable to Whites within US mainstream culture. However, our data would appear to belie this, in that greater endorsement of mainstream American behaviors and values was associated with increased symptoms. This finding was most pronounced in the acculturation subscales of language and cultural behaviors. The high mean scores on these subscales are indicative of a strong Western orientation within the White subgroup. In contrast, Whites that are exposed to other languages and cultural genres (such as music, movies, and ethnic foods) may also have greater access to people, practices, and environments (e.g., low EE) that are associated with better mental health in other, perhaps more traditional, societies.

Interestingly, Latinos showed a trend towards an inverse relationship between ethnic interactions and schizophrenia symptoms (power analyses indicated that this is a small to moderate effect size). Latinos within this sample were relatively unacculturated and the acculturation subscale of ethnic interactions showed the most pronounced negative relationship with symptoms. This negative trend may suggest that a slight increase in acculturation (while maintaining a strong Latino orientation) can be associated with a less severe symptom profile. For example, Latinos who are more bicultural may be better at locating resources such as mental health and other services available to help them to manage their illness more effectively. This finding may also provide support for Berry (2001) and Williams and Berry's (1991) theory that an integrative acculturation strategy, which combines maintenance of some cultural beliefs, values, and practices while adopting new ones

from the host culture is more adaptive than alternative approaches, such as assimilation (completely absorbing the norms of the host group), segregation or separation (separating from the host norms altogether), or marginalization (rejecting and/or being rejected by both the host and the original culture).

With respect to Blacks, in this study there was essentially no relationship between acculturation and symptoms of schizophrenia. The strongest correlation for this ethnic group was a non-significant negative trend between the acculturation subscale of cultural behavior and symptom scores. Future research is needed to clarify whether this association would be significant with a larger sample size.

Several limitations of this study should be noted. First, the sample was quite small, particularly impacting analyses which stratified the sample by ethnicity. Given our small sample sizes when subdividing the participants by ethnicity, we see this mainly as a pilot study and, until replicated, the results should be viewed tentatively. Future longitudinal studies with larger subsamples of each ethnic group are necessary to draw more definitive conclusions of how acculturation relates to symptom severity in schizophrenia and how this association operates within different ethnicities. It should also be noted that our Latino sample was composed of people from different countries of origin. Latinos from different countries vary on a wide variety of constructs. (e.g., Cubans tend to be wealthier and more educated than their non-Cuban Latino counterparts, U.S. Census Bureau, 2000). Thus, future studies should attempt to collect larger subsamples of Latino patients to examine whether the relationship between acculturation and mental illness symptoms varies among Latino subgroups.

References

- Abrams, K. K., Allen, L. R., & Gray, J. J. (1993). Disordered eating attitudes and behaviors, psychological adjustment, and ethnic identity: A comparison of black and white female college students. *International Journal of Eating Disorders, 14*, 49-57.
- Al-Issa, I. (1995). The illusion of reality or the reality of illusion: Hallucinations and culture. *British Journal of Psychiatry, 166*, 368-373.
- Anders, S. L. (2003). Improving community-based care for the treatment of schizophrenia: Lessons from Native Africa. *Psychiatric Rehabilitation Journal, 27*, 51-58.
- Arnold L. M., Strakowski S. M., Schwiers, M. L., Amicone J., Fleck D. E., Corey K. B., & Farrow, J. E. (2004). Sex, ethnicity, and antipsychotic medication use in patients with psychosis. *Schizophrenia Research, 66*, 169-175.
- Balcazar, H., Krull, J. L., Peterson, G. (2001). Acculturation and family functioning are related to health risks among pregnant Mexican American women. *Behavioral Medicine, 27*, 62-70.
- Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology, 46*, 5-34.
- Berry, J. W. (2001). A psychology of immigration. *Journal of Social Sciences, 57*, 615-631.
- Berry, N., Jobanputra, V., & Pal, H. (2003). Molecular genetics of schizophrenia: A critical review. *Journal of Psychiatry and Neuroscience, 28*, 415-429.
- Betancourt, H., & Lopez, S. R. (1993). The study of culture, ethnicity, and race in American psychology. *American Psychologist, 48*, 629-637.
- Black, S. A., & Markides, K. S. (1993). Acculturation and alcohol consumption in Puerto Rican, Cuban-American, and Mexican-American women in the United States. *American Journal of Public Health, 83*, 890-893.
- Butzlaff, R. L., & Hooley, J. M. (1998). Expressed emotion and psychiatric relapse. *Archives of General Psychiatry, 55*, 547-552.
- Caram, A., Agraz, F. P., Ramos, V. H., & Garcia, R. R. (2001). Evaluación de la intervención psicodramática en pacientes con trastornos psicóticos. *Acta psiquiátrica y Psicológica de América Latina, 47*, 351-358.
- Chu, C. C., Sallach, H. S., Zakeria, S. A., & Klein, H. E. (1985). Differences in psychopathology between Black and White schizophrenics. *International Journal of Social Psychiatry, 34*, 252-257.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. New Jersey, USA: Lawrence Erlbaum.
- Cuellar, I., Harris, L. C., & Jasso, R. (1980). An acculturation scale for Mexican American normal and clinical populations. *Hispanic Journal of Behavioral Sciences, 3*, 199-217.
- Epstein, J. A., Botvin, G. J., & Diaz, T. (2001). Linguistic acculturation associated with higher marijuana and polydrug use among Hispanic adolescents. *Substance Use and Misuse, 36*, 477-499.
- Escobar, J. I., Nervi, C. H., & Gara, M. A. (2000). Immigration and mental health: Mexican Americans in the United States. *Harvard Review of Psychiatry, 8*, 64-72.
- Escobar, J. I., Randolph, E. T., Puente, G., Spivak, F., Asamen, J. K., Hill, M. A., et al. (1983). Post-Traumatic Stress disorder in Hispanic Vietnam veterans: Clinical phenomenology and sociocultural characteristics. *Journal of Nervous and Mental Disease, 171*, 585-596.
- Fabrega, H. (1990). Psychiatric practice and the exigencies of the state: An ethnomedical view. *Journal for the Study of Interpersonal Processes, 53*, 246-261.
- Fabrega, H., Mezzich, J., & Ulrich, R. F. (1988). Black and white differences in psychopathology in an urban psychiatric population. *Comprehensive Psychiatry, 29*, 285-297.
- Geisinger, K. F. (1994). Cross-Cultural normative assessment: Translation and adaptation issues influencing the normative interpretation of assessment instruments. *Psychological assessment, 6*, 304-312.
- Gil, A. G., Wagner, E. F., Vega, W. A. (2000). Acculturation, familism and alcohol use among Latino adolescent males: Longitudinal relations. *Journal of Community Psychology, 28*, 443-458.
- Harmon N. P., Castro F. G., & Coe K. (1996). Acculturation and cervical cancer: Knowledge, beliefs, and behaviors of Hispanic women. *Women's Health, 24*, 37-57.
- Jablensky, A., Sartorius, N., Ernberg, G., Ankar, M., Korten, A., Cooper, E., et al. (1992). Schizophrenia: Manifestations, incidence and course in difference cultures. *Psychological medicine, 20*(Suppl), 1-97.
- Joobar, R., Boksa, P., Benkelfat, C., & Rouleau, G. (2002). Genetics of schizophrenia: From animal models to clinical studies. *Journal of Psychiatry and Neuroscience, 27*, 336-347.
- Kamo, M., Golding, J. M., Burnam, M. A., Hough, R. L., Escobar, J. I., Wells, K. M., et al. (1989). Anxiety disorders among Mexican Americans and non-Hispanic Whites in Los Angeles. *Journal of Nervous and Mental Disease, 177*, 202-209.
- Kavanagh, D. J. (1992). Recent developments in expressed emotion and schizophrenia. *British Journal of Psychiatry, 160*, 601-620.
- Keith, S., Regier, D., Rae, D., & Matthews, S. (1992). The prevalence of schizophrenia: Analysis of demographic features, symptom patterns, and course. In A. H. Esman & A. Z. Schwartzberg (Eds.), *International annals of adolescent psychiatry* (Vol. 2, pp. 260-284). Chicago, USA: University of Chicago Press.
- Klonoff, E. A., & Landrine, H. (1999). Acculturation and alcohol use among blacks: The benefits of remaining culturally traditional. *The Western Journal of Black Studies, 23*, 211-217.

- Lam, R. E., Pacala, J. T., & Smith, S. L. (1997). Factors related to depressive symptoms in an elderly Chinese American sample. *Clinical Gerontologist, 17*, 57-70.
- Marin, G., Marin, B. V., Otero-Sabogal, R., & Sabogal, F. (1989). The role of acculturation in the attitudes, norms, and expectancies of Hispanic smokers. *Journal of Cross Cultural Psychology, 20*, 399-415.
- Miranda, A. O., & Umhoefer, D. L. (1998). Acculturation, language use, and demographic variables as predictors of the career self-efficacy of Latino career counseling clients. *Journal of Multicultural Counseling and Development, 26*, 39-51.
- Ndetei, D. M., & Vadher, A. (1985). Content of grandiose phenomenology across cultures. *Acta Psychiatrica Scandinavica, 72*, 38-39.
- Nguyen, L., & Peterson, C. (1993). Depressive symptoms among Vietnamese-American college students. *Journal of Social Psychology, 133*, 65-71.
- Nuechterlein, K. H., Dawson, M. E., Gitlin, M., Ventura, J., Goldstein, M. J., Snyder, K. S., et al. (1992). Developmental processes in schizophrenia disorders: Longitudinal studies of vulnerability and stress. *Schizophrenia Bulletin, 18*, 387-425.
- Oh, Y., Koeske, G. F., & Sales, E. F. (2002). Acculturation, stress and depressive symptoms among Korean immigrants in the United States. *Journal of Social Psychology, 142*, 511-526.
- Ortega, A. N., Rosenheck, R., Alegria, M., & Desai, R. A. (2000). Acculturation and the lifetime risk of psychiatric and substance use disorders among Hispanics. *Journal of Nervous and Mental Disease, 188*, 728-735.
- Pedhazur, E. (1997). *Multiple regression in behavioral research*. New York, USA: Thomson Learning.
- Peragallo, N. P., Fox, P. G., & Alba, M. L. (2000). Acculturation and breast self-examination among immigrant Latina women in the U.S. *International Nursing Review, 47*, 38-45.
- Pillay, Y. (2005). Racial identity as a predictor of the psychological health of african american students at a predominantly white university. *Journal of Black Psychology, 31*, 46-66.
- Rodríguez-Reimann, D. I., Nicassio, P., Reimann, J., Gallegos, P. I., & Olmedo, E. L. (2004). Acculturation and health beliefs of mexican americans regarding tuberculosis prevention. *Journal of Immigrant Health, 6*, 51-62.
- Rogler, L. H. (1989). The meaning of culturally sensitive research in mental health. *American Journal of Psychiatry, 146*, 296-303.
- Rogler, L. H., Cortes, D. E., & Malgady, R. G. (1991). Acculturation and mental health status among Hispanics. Convergence and new directions for research. *American Psychologist, 46*, 585-97.
- Roland, A., & Malanda, N. (1988). Hysterical manifestations in Africa and Europe: A comparative study. *British Journal of Psychiatry, 152*, 112-115.
- Ryder, A. G., Alden, L. E., & Paulhus, D. L. (2000). Is acculturation unidimensional or bidimensional? A head-to-head comparison in the prediction of personality, self-identity, and adjustment. *Journal of Personality and Social Psychology, 79*, 49-65.
- Sartorius, N., Jablensky, A., Korten, A., Ernberg, G., Anker, M., Cooper, J. E., et al. (1986). *Early manifestation and first contact incidence of schizophrenia in different cultures: A preliminary report on the initial evaluation phase of the WHO collaborative study on determinants of outcome of severe mental disorders*. Geneva, Geneva, Switzerland: World Health Organization.
- Shen, B. S., & Takeuchi, D. T. (2001). A structural model of acculturation and mental health status among Chinese Americans. *American Journal of Community Psychology, 29*(3), 387-418.
- Suinn, R. M., Ahuna, C., & Khoo, G. (1992). The suinn-lew Asian self-identity acculturation scale: Concurrent and factorial validation. *Educational and Psychological Measurement, 52*, 1041-1046.
- U.S. Census Bureau. (2000). *States ranked by Hispanic population*. Washington, D.C.: Elizabeth M. Grieco and Rachel C. Cassidy.
- Vega, W., Warheit, G., & Palacio, R. (1985). Psychiatric symptomatology among Mexican American farmworkers. *Social Science and Medicine, 20*, 39-45.
- Ventura, J., Lukoff, D., Nuechterlein, K. H., Liberman, R. P., Green, M., & Shaner, A. (1993). Appendix 1: Brief Psychiatric Rating Scale BPRS Expanded Version 4.0 scales, anchor points and administration manual. *International Journal of Methods in Psychiatric Research, 3*, 227-243.
- Vinuesa-Thoman, L., & Suris, A. (2004). Acculturation and acculturative stress as predictors of psychological distress and quality of life functioning in Hispanic psychiatric patients. *Hispanic Journal of Behavioral Sciences, 26*, 293-311.
- Weisman, A. G. (2005). Integrating culturally-based approaches with existing interventions for Hispanic/Latino families coping with schizophrenia. *Psychotherapy: Theory Research, Practice, Training, 42*, 178-197.
- Weisman, A. G., Lopez, S. R., Ventura, J., Nuechterlein, K. H., Goldstein, M. J., & Hwang, S. (2000). A comparison of psychiatric symptoms between White-Americans and Mexican-Americans with schizophrenia. *Schizophrenia Bulletin, 26*, 817-824.
- Weisman, A. G., Rosales, G., Kymalainen, J., & Armesto, J. (2005). Ethnicity, family cohesion, religiosity and general emotional distress in patients with schizophrenia and their relatives. *Journal of Nervous and Mental Disease, 193*, 359-368.
- Westermeyer, J., Neider, J., & Callies, A. (1989). Psychosocial adjustment of Hmong refugees during their first decade in the United States: A longitudinal study. *Journal of Nervous and Mental Disease, 177*, 132-139.
- Williams, C. L., & Berry, J. W. (1991). Primary prevention of acculturative stress among refugees: Application of psychological theory and practice. *American Psychologist, 46*, 632-641.
- World Health Organization. (1973). Report of the international pilot study of schizophrenia (Vol. 1). Geneva, Italy: World Health Organization.
- World Health Organization. (1992). *Schizophrenia: An international follow-up study*. New York, USA: Wiley.

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