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Acculturation styles and their associations with psychiatric symptoms and quality of life in ethnic minorities with schizophrenia

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ABSTRACT

This study examined whether Berry's model of acculturative stress would predict psychiatric symptom severity and quality of life (QoL) in ethnic minorities with schizophrenia. Tested extensively in non-psychiatric populations, Berry's framework generally suggests that integration, or engagement with both the host and minority culture, is most adaptive. Using the Abbreviated Multidimensional Acculturation Scale (AMAS), we tested the hypothesis that individuals with schizophrenia who employed an integrative acculturation strategy would have the highest QoL and lowest symptom severity, followed by the assimilation and enculturation groups, then the marginalized group. Psychiatric symptoms and QoL were regressed on AMAS assimilation scores, enculturation scores, and the interaction term in a sample of 128 Hispanic and Blacks with schizophrenia (*M* age = 41.28; 70% male). Acculturation strategy was not found to relate to psychiatric symptoms (measured from the Brief Psychiatric Rating Scale). However, acculturation strategy did predict QoL (measured from the Quality of Life Inventory), and results were in line with Berry's model. Marginalization may exacerbate issues surrounding social identity in schizophrenia, including low self-concept clarity and internalized stigma. Encouraging bicultural individuals with schizophrenia to interact with the host culture while also practicing traditions from their minority culture may help improve their quality of life.

1. Introduction

Schizophrenia is a serious mental disorder that takes a toll on one's quality of life (QoL), with suicide rates estimated to be over ten times higher than in the general population (Carlborg et al., 2010). This may be further compounded in patients who are ethnic minorities and dealing with the many challenges of straddling two cultures. Adverse social experiences of ethnic minority patients with schizophrenia, such as perceptions of discrimination and exclusion, may contribute to elevated risk for poor mental health (Veling et al., 2009). On the other hand, social and institutional support systems provided by one's minority culture (e.g., church) may provide additional resources to minority patients that may improve the quality of their lives and aid in coping with the illness (Weisman de Mamani et al., 2014a). In response to rapidly changing demographics, many psychologists are beginning to focus their efforts on better understanding the impact of culture and acculturation on symptom presentation in people suffering from mental illness (Koneru et al., 2007).

Several researchers have theorized about the dimensions of acculturation and its relationship to mental health. Acculturation refers to the dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members (Berry, 2005). Widely cited in acculturation literature, Berry (Berry, 2006; Sam and Berry, 2006) has adopted a framework that posits four potential acculturation strategies for bicultural individuals. *Integration* refers to engaging with the host society while also maintaining the minority cultural identity. *Assimilation* refers to relinquishing the minority culture and engaging primarily in relationships with the host society. *Separation* refers to maintaining the minority culture and living with limited interaction with those of the host culture. It is important to clarify that another term, “enculturation,” will be used frequently in this paper, but does not refer to a specific category of Berry's model. Enculturation can be defined as the degree to which one maintains the customs of his or her culture of origin. Unlike the term “separation,” however, the term enculturation does not necessary imply that one also lives with limited interaction with the host culture. For example, a person can be high on both enculturation and assimilation (which is the definition of integration). *Marginalization* refers to establishing a limited number of relationships with the host culture but also relinquishing many of the values and traditions of the

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minority culture.

A number of researchers have posed questions regarding the relationships between acculturative strategy, quality of life, and psychiatric symptoms. In several studies on non-psychiatric samples (Berry (2006); Sam and Berry, 2006Berry (2006); Berry and Sabatier (2010), Berry has found that integration is the strategy associated with the most positive psychological well-being, followed by assimilation, separation, and marginalization (as the least adaptive strategy). Other researchers testing Berry's model have reported similar patterns. For example, in a sample of Turkish immigrants who relocated to the Netherlands, Ince et al. (2014) found that those who actively participated in Dutch society while simultaneously maintaining their home culture (integration) had a lower risk of developing a depressive disorder, in comparison to those who adopted other acculturation strategies. Recently, Han et al. (2016) examined the relationship between acculturation strategies and resilience, defined as a personal characteristic that allows for success in the face of adversity. In support of Berry's model, the authors found that integration was the most optimal style to promote the development of resilience, whereas marginalization was the least effective style. Other researchers also offer support for Berry's model that go beyond mental health. For example, Curran (2003) found that Irish immigrants who utilized an integrative strategy had better physical health than those who utilized any other strategy, particularly marginalization.

Berry's model has yet to be examined in bicultural populations with serious mental illness such as schizophrenia. However, one study found that ethnic minorities with schizophrenia identified less positively with their own ethnic group than did ethnic minorities in a non-psychotic control condition (Veling et al., 2009). This study did not examine the relationship between ethnic identity and psychiatric symptoms or more general psychological well-being, an important consideration given the serious toll that schizophrenia takes on the QoL of those afflicted (Carlborg et al., 2010). Ethnic minorities in the United States often report facing racial/ethnic discrimination across multiple domains (Lewis et al., 2015), and those with schizophrenia are further disadvantaged by major health disparities (Bresnahan et al., 2007). Moreover, individuals with schizophrenia often struggle with issues surrounding self-concept clarity, defined as the extent to which beliefs about oneself are internally consistent, stable, and clear (Cicero et al., 2016), which is likely due in part to internalized stigma (Mathur et al., 2014). For marginalized, bicultural individuals, low self-concept clarity may be exacerbated by the identity void associated with feeling disconnected from both their minority and the majority cultures, which in turn may make them more likely to latch on to other aspects of their identity, such as being a person with a mental illness. A better understanding of the associations between ethnic identity and psychological well-being in patients with schizophrenia may yield insights into how best to treat minorities suffering from the illness.

In this study, we employ Berry's model to test the hypotheses that for Black and Hispanic ethnic minorities with schizophrenia, those with a more integrative acculturative strategy will display the least severe psychiatric symptoms and the greatest QoL, whereas those with a primarily marginalized strategy will display the most severe psychiatric symptoms and the lowest QoL (with those using the primarily assimilative and separative acculturative strategies falling in the middle). We chose to focus on Blacks and Hispanics because they are the two largest minority groups in the United States. In addition, Blacks and Hispanics in the U.S. share certain characteristics impacting acculturative stress, such as experiencing more racial discrimination than their White counterparts, a greater tendency to hold collectivistic self-construals, and a greater reliance on religious and spiritual forms of coping with distress (Weisman de Mamani et al., 2014b; Hayward and Krause, 2015).

2. Methods

2.1. Subjects

Participants from this study were drawn from a larger project that examined the efficacy of a culturally-informed therapy for schizophrenia (Weisman de Mamani and Suro, 2016; Weisman de Mamani et al., 2014b). Given the focus of the current study, only ethnic minority patients were included. The sample consisted of 66 Hispanics (51.6%) and 62 Blacks (48.4%) diagnosed with schizophrenia or schizoaffective disorder as confirmed by the Structured Clinical Interview for the DSM-IV, Version 2.0, Patient Edition, (SCID-I/P; First et al., 2002). Participants ranged in age from 19 to 65 (M = 41.28, SD = 10.91), and 90 (70.3%) were male.

2.2. Procedures

Study procedures and materials were approved by the Institutional Review Board of the authors' university. Participants were recruited through hospitals, mental health centers, newspaper advertisements, and advertisements on Miami's above-ground rail system. If participants appeared to meet criteria during a phone screen, they were scheduled for a more extensive assessment. If patients met study criteria, a baseline assessment was conducted. All data from the current study is drawn from this assessment, before any intervention began. In order to control for variability in participants' level of reading comprehension, assessments were conducted in an interview format.

2.3. Language and translation of measures

All measures were translated from English to Spanish using the editorial board approach, a method considered to be more effective than the translation-back translation approach (Geisinger, 1994), because it better accounts for within-group language variations. Measures were first translated by a native Spanish speaker of Cuban descent, who then met with the editorial board. This editorial board was comprised of native Spanish speakers of Cuban, Nicaraguan, Costa Rican, Columbian, Mexican, and Puerto Rican descent, as well as the primary investigator of this study, who is a non-native Spanish speaker with personal and professional experience in Spanish speaking countries (e.g., Mexico, Cuba, Spain) and U.S. cities where Spanish is frequently spoken (Los Angeles, Miami). The members of the board independently reviewed the translations and carefully compared them with the original English versions. The board then met with the original translator and discussed any concerns or discrepancies with the Spanish translations in order to create the most language-generic version of the measures. Board members independently reviewed the measures for a second time before meeting again to make final revisions in which all members agreed that the language was clear and targeted the intended constructs.

2.4. Measures

2.4.1. Diagnosis confirmation

Schizophrenia or schizoaffective disorder diagnosis was confirmed using the psychotic disorders module of the SCID-I/P (First et al., 2002). The SCID-I/P is a widely used semi-structured interview that adheres to DSM-IV criteria and has demonstrated high inter-rater reliability on both individual symptoms and overall diagnosis (Ventura et al., 1993a). All interviewers were trained by the Principal Investigator (PI) and demonstrated better than 80% agreement on diagnosis confirmation for five videotapes prior to beginning SCID-I/P assessments. For this study, final inter-rater agreement was assessed by having all interviewers, as well as the study's PI, watch six videotaped interviews and independently rate each item to determine an overall diagnosis (in four of the training tapes a diagnosis was present and in two it was absent).

Inter-rater agreement using Cohen's Kappa was 1.0. In other words, there was perfect agreement in determining whether a diagnosis of schizophrenia/schizoaffective disorder was present or absent.

2.4.2. Symptoms of schizophrenia

Psychiatric symptoms were rated using the Brief Psychiatric Rating Scale (BPRS; Ventura et al., 1993b). The BPRS is a 24-item semi-structured interview that assesses the following eight primary areas: Unusual thought content, hallucinations, conceptual disorganization, depression, suicidality, self-neglect, bizarre behavior, and hostility. Questions are scored on a 7-point Likert-type scale ranging from 1 (not present) to 7 (extremely severe). A total BPRS symptom severity score was obtained by summing across all 24 items. After completing a BPRS training and quality assurance program (Ventura et al., 1993a) and demonstrating excellent reliability with the standard established by Ventura et al. (1993a,b), the PI trained all interviewers in the current study. Interviewers then coded six training videotapes provided by Dr. Ventura. Intraclass correlations between interviewers and consensus ratings of Dr. Ventura ranged from 0.79 to 0.98 for all items and for total BPRS scores. In our sample, the BPRS also demonstrated adequate internal reliability (Cronbach's alpha = 0.77).

2.4.3. Assimilation and enculturation

Assimilation and enculturation were assessed using the Abbreviated Multidimensional Acculturation Scale (AMAS; Zea et al., 2003). This scale consists of 42 items on a 4-point Likert-type scale and has demonstrated adequate validity and reliability in previous studies (Zea et al., 2003). Assimilation was measured using 21 items that assess three main factors: U.S. American cultural identification, English language competence, and U.S. American cultural competence. A total assimilation score was obtained by averaging these 21 items, with a higher score indicating greater adherence to U.S. American culture. Although Zea et al. (2003) used the term “acculturation” to refer to this subscale, Berry (2005) uses the term “assimilation” to describe increasing knowledge of and identification with the host culture. Thus, Berry (2005) reserves the term “acculturation” as a broader description of the dual process of cultural and psychological change that takes place as a result of contact between two or more cultural groups and their individual members. Given that we are testing Berry's model, we have relabeled Zea and et al. (2003) “acculturation” subscale as “assimilation” in the current study to avoid confusion. In our study, Cronbach's alpha for assimilation was 0.92. Enculturation was measured using 21 items from the AMAS that measure three main factors: Culture-of-origin identification, culture-of-origin language competence, and culture-of-origin competence. A total enculturation score is obtained by averaging thee 21 items with a higher score indicating greater adherence to culture-of-origin. In the current study, Cronbach's alpha for enculturation was 0.92.

2.4.4. Quality of life

Quality of life was measured with 22-items from the Quality of Life Inventory (QOLI; Frisch et al., 1992). This scale asks respondents to rate the perceived importance of certain life domains and to rate their satisfaction with these domains (i.e. health, self-esteem, love, etc.). Importance items are rated on a 3-point Likert-type scale ranging from zero (not important) to two (extremely important). Satisfaction items are rated on a 6-point Likert-type scale ranging from zero (very dissatisfied) to five (very satisfied). Total scores were obtained by multiplying the importance and satisfaction rating for each domain and then averaging ratings across all 11 domains. The QOLI has been shown to be related to other measures of subjective well-being and to have negative correlations with measures of general psychopathology (Frisch et al., 1992). In the current study, Cronbach's alpha for the QOLI was 0.89.

2.5. Statistical analyses

All statistical analyses were performed in SPSS Version 22. To test Berry's model of acculturation strategies, two statistical approaches were taken. First, using the PROCESS macros in SPSS (Hayes, 2013), moderation analyses were performed for each of the outcome variables (symptom severity (BPRS) and quality of life (QoL)). In separate moderation models, symptom severity (BPRS) and quality of life (QoL) were examined as outcome variables and assimilation, enculturation, and their cross-products (created within the PROCESS macros) were used as predictor variables. The interaction term of assimilation with enculturation was used to examine Berry's acculturation strategies within a regression framework. When probing a significant interaction, the PROCESS macros examines the relationships between variables at $+/-1$ standard deviation (SD) of the moderator variable. In the following analyses, enculturation was used as the moderator variable. Thus, individuals who were 1SD above the mean on enculturation and higher in acculturation represent more integrated strategies. Individuals 1SD above the mean on enculturation and lower in acculturation represent more separated strategies. Individuals 1SD below the mean on enculturation and higher in acculturation represent more assimilated strategies. Finally individuals 1SD below the mean on enculturation and lower in acculturation represent more marginalized strategies.

The second approach used to test outcomes for Berry's acculturation strategies was to place individuals into four distinct categories based on their enculturation and assimilation scores, rather than thinking about assimilation and enculturation linearly. Median splits were used to determine whether participants were high or low on assimilation and enculturation and then placed into categories one of the four acculturation strategies. Those above the median on both were classified as integrated; those above the median on assimilation and below the median on enculturation were classified as assimilated; those above the median on enculturation and below the median on assimilation were classified as separated; and those below the median on both were classified as marginalized. We then conducted ANOVAs and *t*-tests to compare groups on QoL. Ethnicity was entered as a covariate for primary analyses along with any other covariate that related to the dependent variable.

3. Results

3.1. Preliminary analyses

As all study variables had a skewness and kurtosis value within the normal range (skewness statistical value of < 3 and a kurtosis statistical value of < 10, as suggested by Kline, 2015), no transformations were conducted. To determine whether statistical controls were needed for covariates, we examined the relationships between the following demographic variables and scores on the BPRS and QOLI: age, gender, length of time in the U.S., education, and primary language. Education and length of time in the U.S. were significantly related to symptom severity scores ($b = 2.37$, $S.E. = 0.98$, $t(121) = 2.41$, $p = 0.02$; $b = 0.16$, $S.E. = 0.08$, $t(121) = 2.08$, $p = 0.04$, respectively), so these variables were used as controls in all analyses examining symptom severity. No relationships were found between any of these demographic variables and QoL. In general, we only controlled for covariates that were significantly related to a dependent variable. However, given that the study focus is on acculturation, we thought that it was important to control for ethnicity in all primary analyses, even when it was not related to the dependent variable. Missing data were present for outcome variables on four participants but appeared to be missing at random with no indication of systematic response biases. Little's Missing Completely At Random (MCAR) test was non-significant and supported the presence of MCAR data for both the symptom severity and quality of life measures (X^2 (68) = 76.14, $p = 0.23$; X^2 (79) =

Table 1
Summary of regression analysis for variables predicting symptom severity.

Variable	β	S.E.	Difference tests	Significance	Effect size	C.I.		
Assimilation	0.05	0.11	$t(115) = 0.43$	$p = 0.67$	$\eta^2 = 0.04$	−0.17	–	0.27
Enculturation	−0.03	0.07	$t(115) = -0.39$	$p = 0.70$	$\eta^2 = 0.04$	−0.16	–	0.11
Assim × Encult	0.0	0.01	$t(115) = 0.04$	$p = 0.97$	$\eta^2 = 0.004$	−0.12	–	0.12

86.48, $p = 0.26$ respectively). A listwise deletion approach was used for these four cases.

4. Primary analyses

4.1. Symptom severity

BPRS scores were regressed on assimilation scores, enculturation scores, and the interaction term, as well as ethnicity, education, and length of time in U.S. as control variables. The overall model was not significant ($R^2 = 0.09$, $F(6, 115) = 1.88$, $p = 0.090$). There were no significant main effects of assimilation or enculturation on BPRS scores and the effect of the interaction term on BPRS scores was non-significant. See Table 1 for results of regressions with BPRS as the outcome variable. Additionally, there was no difference in BPRS scores between Blacks and Hispanics ($t(115) = 0.94$, $p = 0.36$, $\eta^2 = 0.08$).[1] The ANOVA also revealed non-significant differences in BPRS scores according to acculturation group, $F(3115) = 0.23$, $p = 0.86$, $\eta^2 = 0.01$ (Integration $M = 52.85$, $SD = 12.18$; Assimilation $M = 55.19$, $SD = 14.33$; Separation $M = 51.39$, $SD = 14.22$; Marginalization $M = 54.03$, $SD = 12.90$).

4.1.1. Quality of Life

QoL was regressed on assimilation scores, enculturation scores, and the interaction term, as well as ethnicity. The overall model was significant ($R^2 = 0.13$, $F(4, 119) = 4.46$, $p = 0.002$). There was a positive main effect of assimilation on QoL, with a large effect size, indicating that greater assimilation scores were associated with greater QoL. See Table 2 for results of regression analyses with QoL as the outcome. Enculturation was also positively related to QOLI scores, with a medium effect size, such that greater enculturation was associated with greater QoL. Moreover, the interaction between assimilation and enculturation was significant, with a medium effect size, indicating that for individuals who were low on assimilation, QOLI scores became further reduced as enculturation scores declined (marginalization). In addition, ethnicity was significantly related to QOLI scores, such that Hispanics rated their quality of life lower than Blacks ($t(119) = -2.20$, $p = 0.030$, 95% CI: −2.12 to −0.12), with a medium effect size ($\eta^2 = 0.19$).

In line with the regression analyses, an ANOVA also revealed significant group differences in QoL, with patterns directly in line with Berry's model even after controlling for ethnicity, $F(3119) = 3.18$, $p = 0.026$, $\eta^2 = 0.07$ (Integration $M = 6.24$, $SD = 2.36$; Assimilation $M = 5.83$, $SD = 2.73$; Separation $M = 5.62$, $SD = 2.39$; Marginalization $M = 4.49$, $SD = 2.25$). See Fig. 1. Follow up tests indicated that the marginalized group had significantly lower QoL than the integrated group ($t(56) = 2.89$, $p = 0.005$), the assimilated group ($t(77) = 2.23$, $p = 0.027$), and the separated group ($t(47) = 2.02$, $p = 0.045$). However, the other groups were not significantly different from each other ($p > 0.05$ for all other between-group comparisons).

[1] We re-ran all analyses broken down by four symptoms dimensions derived by Ventura et al. (2000), which include positive symptoms, negative symptoms, manic symptoms, and depression/anxiety symptoms (citation is below). Because acculturation strategy did not relate to symptom cluster in any format, we only report total BPRS scores throughout this paper.

5. Discussion

The present study examined whether a model of acculturation developed by Berry (2005) yields insight into correlates of psychiatric symptom severity and QoL in ethnic minority patients with schizophrenia. Results of this study offer partial support for Berry's model. Although no linkages were found between acculturative strategy and schizophrenia symptoms, we did find that acculturation strategy related to QoL, with both greater acculturation and enculturation relating to a better reported QoL. Not surprisingly, individuals who were low on both acculturation and enculturation (marginalized) reported the lowest QoL. Although the other groups did not differ statistically from one another, all means were in the direction predicted by Berry's model, with the integrated group reporting the highest QoL and the marginalized group reporting the lowest QoL. It is unclear why acculturation styles affected quality of life, but not psychiatric symptoms. While prior research in expressed emotion and other areas indicates that cultural and environmental factors can influence the course of schizophrenia and the severity of symptoms (e.g., Hashemi and Cochrane, 1999; Weisman de Mamani et al., 2007), schizophrenia symptoms are also highly influenced by genetics and biological factors (Escudero and Johnstone, 2014). Thus, cultural influences may have an even bigger impact on more general areas of psychological functioning, such as QoL

Selten and Cantor Graae (2005) discuss the high prevalence of social defeat in patients with schizophrenia and point out that this is especially common in immigrants and minorities. For ethnic minorities, not having a strong connection to either one's minority culture or one's host culture may intensify this sense of defeat and result in an identity void. This is likely exacerbated in individuals with schizophrenia, who, due to internalized stigma, often struggle with issues surrounding social identity and sense of self (Mathur et al., 2014). Disturbances in self-perception are thought to be salient to the development of psychosis: As noted earlier, Cicero et al. (2016) found that people with schizophrenia generally have low levels of self-concept clarity. The effects of low self-concept clarity may be further compounded in bicultural patients with schizophrenia who fall in the marginalized group. For these patients, the void that accompanies already feeling socially defeated and detached from both the minority and the majority cultures may make them more likely to hold on to other aspects of their identity, such as being a person who is mentally ill. On the other hand, individuals who adopt an integrative strategy of acculturation not only have more cultural resources to utilize when coping with the stresses and tribulations associated with having schizophrenia, but they are also likely to have a more complex identity from the start (as they can draw from two different cultures). Thus, their identity as a person with a mental illness may take on less salience and may therefore be less detrimental to their sense of self and overall QoL We did not examine resiliency per se in the current study. However, drawing from Han et al.'s. (2016) research, ethnic minority patients with schizophrenia who employ a greater variety of coping resources, through both their culture of origin and their host culture, may be more resilient when managing their symptoms and the other challenges associated with having schizophrenia.

Although not primary foci of this study, several patterns emerged that point to directions for future study. For instance, our findings indicated that Hispanics rated their quality of life lower than did Blacks. While the reasons for this remain beyond the scope of the present study, some research suggests that African Americans are more likely to

Table 2
Summary of regression analysis for variables predicting quality of life.

Variable	β	S.E.	Difference tests	Significance	Effect size	C.I.
Assimilation	0.06	0.02	$t(119) = 2.84$	$p = 0.005$	$\eta^2 = 0.24$	0.02 – 0.10
Enculturation	0.03	0.01	$t(119) = 2.47$	$p = 0.015$	$\eta^2 = 0.21$	0.01 – 0.05
Assim x Encult	−0.003	0.001	$t(119) = -2.33$	$p = 0.021$	$\eta^2 = 0.20$	−0.005 – 0.0004

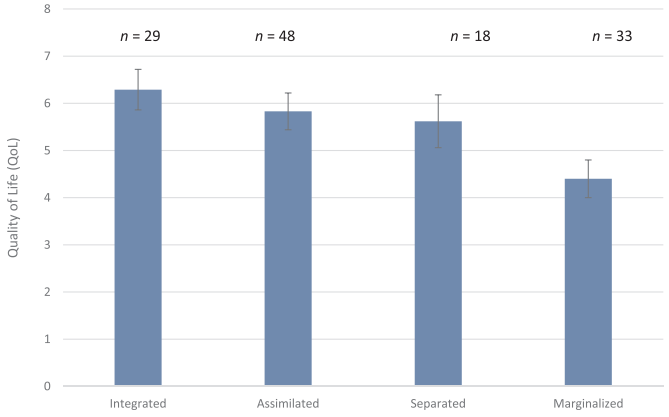

Fig. 1. Quality of life by acculturation strategy in individuals with schizophrenia.

detach global self-esteem from situation- or domain-specific self-evaluations (Twenge and Crocker, 2000). Consequently, African Americans may be less likely than Hispanics to integrate a diagnosis of schizophrenia into their global self-concept. As such, African Americans with schizophrenia may maintain a higher quality of life than other ethnic groups, despite having a serious mental illness.

Sampling bias presents a concern in research on acculturation strategies, as it is conceivable that people who feel marginalized might be less likely to enroll in a research study. Surprisingly, as indicated by the frequencies listed in Fig. 1, the marginalized group in the current study ($n = 33$; 26% of the study sample) represented the second largest number of participants in the sample (only the assimilated group reported more). Thus, marginalized individuals with schizophrenia do seem willing to participate in research studies. It is unclear whether this pattern is unique to people with schizophrenia, or whether patterns would be similar in samples of marginalized individuals from non-clinical populations. Of note, in a non-psychiatric sample of Turkish immigrants, Ince et al. (2014) found that only 11.4% of those enrolled in the study fell in the marginalized group. Thus, it is possible that, given the social isolation that often accompanies schizophrenia, participants who are also marginalized may be more likely to seek out social interaction in any form than are marginalized individuals from the general population. This point merits further investigation.

On another note, it is important to point out that Berry refers to his four acculturation categories as “strategies,” which implies intentionality. However, for individuals with schizophrenia (and even those without a psychiatric illness) who are trying to adapt to a new culture, some social isolation may be inevitable despite their best efforts to guard against it. Thus, rather than reflecting an individual's choice to reject his or her culture of origin and host culture, marginalization may rather point to the manner in which society treats that individual (e.g., he or she is rejected by both the host culture and the culture of origin). In future research, it will be important to determine the extent to which these constructs can be called “strategies”—that is, whether an acculturation strategy is self-imposed versus imposed by the treatment, personality traits, and limitations or biases of others in the society at large.

This study is marked by several limitations. First of all, the data is cross-sectional, making it impossible to determine whether acculturation strategies actually impacted QoL in the manner theorized by Berry, as it could be the other way around (or even a spurious association). In other words, rather than marginalization leading to poor QoL, it is possible that when patients are unhappy with their lives, they are simply less receptive to engaging in their home traditions or those of their host culture, and they may be similarly disinterested in interacting with people from either cultural background. In future research, it will be important to assess whether acculturative strategies at one point in time actually predict QoL in line with Berry's model over time. Data from intervention studies that successfully target acculturative strategies and subsequently impact QoL would be most convincing. Another study limitation includes our reliance on self-report measures of acculturation strategies and QoL, as patients with schizophrenia may not be the most reliable historians. Verifying these findings with interview or more objective measures (e.g., tests of language proficiency or knowledge of historical figures) would increase confidence in the results. Finally, assessing the question of differences in these relationships according to ethnicity in a larger and more diverse sample (e.g., Asian-Americans, Native Americans), and examining whether the model applies to cultural identities based on attributes other than ethnicity (e.g., LGBT versus heterosexuals) would further enhance our understanding of the role of acculturative strategy on QoL in patients with schizophrenia.

The results of this study offer important clinical implications with respect to the treatment of bicultural individuals with schizophrenia. In particular, providing information about the protective benefits of cultural maintenance and social support, while also encouraging clients to engage in traditions and practices from the host culture, may help mitigate some of the negative impact that schizophrenia has on quality of life. Beyond increasing opportunities for social encounters, helping patients identify more strongly with their host culture may make them feel more confident and more entitled to navigate institutional systems and other resources associated with the host culture (e.g., hospitals, educational centers, the judicial system) that could assist them in managing their illness and could improve other aspects of their lives. Similarly, continuing to identify strongly with one's culture of origin can offer a range of traditions (e.g., foods, music, art) and resources (e.g., spiritual institutions, community cultural centers, activities) to enrich the QoL in patients that might otherwise feel alienated from society due to their illness. In short, drawing upon values and traditions from two sets of cultures may broaden patients’ coping resources and give greater meaning and richness to their lives. Berry's research shows that this is true of the general population, and the present study replicates and extends this finding to ethnic minorities suffering from a serious mental illness. Given the results of the current study, approaches aimed at decreasing marginalization and increasing integrative strategies in bicultural patients with schizophrenia may result in an improved QoL for these patients.

Though not explicitly designed to target acculturation strategies, Weisman de Mamani et al. (2014a,b) have recently developed a culturally informed therapy for schizophrenia (CIT-S) that has demonstrated efficacy in reducing patient psychiatric symptoms in both a single-family (Weisman de Mamani et al., 2014a,b) and multifamily format (Maura and Weisman de Mamani, in press), and in decreasing caregiver burden (Weisman de Mamani et al., 2016). When delivering CIT-S, therapists encourage patients and their loved ones to draw upon beliefs, values, and behaviors from all aspects of their cultural background to help better manage schizophrenia symptoms and improve

functioning in the family. Approaches like this might be explicitly tailored in future schizophrenia interventions to decrease marginalization and promote more adaptive acculturation strategies.

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