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An exploration of how psychotic-like symptoms are experienced, endorsed, and understood from the National Latino and Asian American Study and National Survey of American Life

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Objective. To examine racial-ethnic differences in the endorsement and attribution of psychotic-like symptoms in a nationally representative sample of African-Americans, Asians, Caribbean Blacks, and Latinos living in the USA.

Design. Data were drawn from a total of 979 respondents who endorsed psychotic-like symptoms as part of the National Latino and Asian American Study (NLAAS) and the National Survey of American Life (NSAL). We use a mixed qualitative and quantitative analytical approach to examine sociodemographic and ethnic variations in the prevalence and attributions of hallucinations and other psychotic-like symptoms in the NLAAS and NSAL. The lifetime presence of psychotic-like symptoms was assessed using the World Health Organization Composite International Diagnostic Interview (WMH-CIDI) psychotic symptom screener. We used logistic regression models to examine the probability of endorsing the four most frequently occurring thematic categories for psychotic-like experiences by race/ethnicity ($n > 100$). We used qualitative methods to explore common themes from participant responses to open ended questions on their attributions for psychotic-like symptoms.

Results. African-Americans were significantly less likely to endorse visual hallucinations compared to Caribbean Blacks (73.7% and 89.3%, $p < .001$), but they endorsed auditory hallucinations symptoms more than Caribbean Blacks (43.1% and 25.7%, $p < .05$). Endorsing delusions of reference and thought insertion/withdrawal were more prevalent for Latinos than for African-Americans (11% and 4.7%, $p < .05$; 6.3% and 2.7%, $p < .05$, respectively). Attribution themes included: *supernatural, ghosts/unidentified beings, death and dying, spirituality or religiosity, premonitions, familial* and *other*. Respondents differed by race/ethnicity in the attributions given to psychotic like symptoms.

Conclusion. Findings suggest that variations exist by race/ethnicity in both psychotic-like symptom endorsement and in self-reported attributions/understandings for these symptoms on a psychosis screening instrument. Ethnic/racial differences could result

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from culturally sanctioned beliefs and idioms of distress that deserve more attention in conducting culturally informed and responsive screening, assessment and treatment.

Keywords: psychotic symptoms; system endorsement; hallucinations; delusions; culture; ethnicity; race

Introduction

Characterized most commonly by visual and auditory hallucinations, symptoms of psychosis also include delusions, disordered thinking, disorganized speech, and sometimes physical and and/or social impairment (APA 2000). Amongst racial and ethnic minorities, even when they do not meet the full criteria for the disorder, Black Americans are significantly more likely to endorse hallucinations and be diagnosed with schizophrenia than their White counterparts (Robins and Regier 1991; Ihara 2009; Strakowski et al. 1996; Arnold et al. 2004; King et al. 2005). Similar patterns have also been observed in non-US-based studies of Caribbean Blacks and European Whites (Cohen, Berment, and Magai 1997; Xanthos 2008).

The different pathways by which a patient is introduced to mental health services and treatment is not well understood (Jarvis 2007). Upon closer examination, complex patterns seem to emerge regarding the mental health status of Black Americans, with varying patterns emerging for different indicators of mental health (Williams et al. 2007; Williams and Earl 2007). For example, compared to Whites, Blacks have lower rates of mood, anxiety, and substance disorder, but elevated rates of schizophrenia. Blacks also have lower levels of psychological well-being (happiness and life satisfaction) than Whites, but higher levels of psychological distress (Williams and Earl 2007).

It remains unclear whether the observed findings reflect true clinical differences, a sociocultural phenomenon, or whether there are biases in the diagnosis of psychiatric disorders for Black patients as compared to Whites and other racial and ethnic minorities (Adebimpe 1981; Bell and Mehta 1981; Kessler et al. 2005; Trierweiler et al. 2006). For instance, some evidence suggests that the same symptom presentation can lead to a diagnosis of schizophrenia in African-Americans and a diagnosis of depression in Whites (Neighbors et al. 1989; Snowden and Cheung 1990; West et al. 2006). Although the evidence to highlights several factors that could influence the assignment of a psychiatric diagnosis, including the race of the diagnosis provider (Trierweiler et al. 2006), the clinical setting (Hampton 2007), or the type of diagnostic tool (Neighbors et al. 1999), African-Americans often have less desirable routes into mental health services as compared with Whites (Merritt-Davis and Keshavan 2006). Delays in accessing treatment can contribute to more severe distress and symptoms at presentation. This can result in increased rates of hospitalization, lengths of stay, long-term functional disability, and poor outcomes. Furthermore, African-Americans are reportedly more likely than Whites to present mental health related concerns to primary care providers, with limited to no training in mental health assessment, than Whites (Merritt-Davis and Keshavan 2006).

The potential pathways to psychiatric care can result in either a higher rate of psychotic-like symptom presentation due to acuity and severity at presentation, or complicated and suboptimal clinical assessments, which impair appropriate diagnosis of psychotic-like behavior in African-Americans. This may be particularly salient for Black Americans who, during clinical encounters, may be perceived as being less engaged or resistant when exercising a level of caution, skepticism, or 'healthy cultural paranoia' as a result of

previous perceptions of negative, discriminatory, or racist interactions, both within and outside of clinical settings (Ridley 1984; Whaley 2001).

Hallucinations presenting in the context of certain sociocultural and spiritual experiences can complicate the clinical assessment and appraisal process (Trierweiler et al. 2006). In fact, several population studies have shown that 10–25% of the general (non-psychiatric) population has had hallucinatory experiences including visions or voices with no psychiatric basis (Menezes and Moreira-Almeida 2010). There is a growing body of research that suggests that elevated rates of hallucinations by Latinos are deeply embedded within a culture-bound phenomenon (Geltman and Chang 2004; Olfson et al. 2002; Vega et al. 2006). Yet, little is known about whether it truly reflects or indicates mental illness (Pierre 2001).

The predisposition to experience hallucinations is multidimensional and could be attributed to a number of factors. Menezes et al. (2010) discovered that individuals who exhibit high religiosity are more likely to endorse experiencing hallucinations without manifesting the decline in functioning that is often associated with psychotic disorders (i.e., schizophrenia). On the other hand, individuals affected by psychotic disorders can also report religious/spiritual content as part of their delusions and hallucinatory experiences (Siddle et al. 2002). The distinction between religion as culture and religion as pathology within the context of psychosis creates difficulty in assessing whether observations of compromised functioning represents underlying pathology (Pierre 2001).

Diagnostic criteria for psychosis that are based on Western standards may not account for ‘non-traditional’ ways in which people of other racial or ethnic backgrounds express external distress. For instance, limited information is available on Asian Americans and psychosis; yet some have found that on initial presentation, psychotic symptomatology may be more severe among Asian Americans as compared to other groups (Durvasula and Sue 1996). Some reasons for this disparity have been linked to feelings of stigma and shame around issues of mental health that leads to a delay in appropriate and timely care (Ferron, Barron, and Chen 2002). It is also possible that for Asian cultures, believing in the interplay of spirituality and supernatural forces are more connected to cultural practices and beliefs rather than psychopathology (Kim 2006).

Given the potential depth and breadth of the ways in which culture can mediate the expression of what might be considered psychotic-like experiences, the accuracy of diagnosis and efficacy of treatment for psychotic disorders depends on the recognition of potential racial, ethnic and cultural variations and influences on symptom presentation. Not attending to sociocultural influences, limits diagnostic accuracy and the quality of psychiatric care for those who are most in need. The objective of the current study is to take a mixed method analytical approach to examining the prevalence, sociodemographic, and attributional differences in endorsement of psychotic-like symptoms by race-ethnicity using a nationally representative sample of African-Americans, Asians, Caribbean Blacks, and Latinos living in the USA.

Methods

Parent studies

Data were drawn from the National Latino and Asian American Study (NLAAS; Alegria et al. 2004) and the National Survey of American Life (NSAL; Jackson et al. 2004). Both studies were a part of the National Institute of Mental Health Collaborative Psychiatric

Epidemiology Surveys (Pennell et al. 2004) and provide a previously unavailable opportunity to explore the heterogeneity of racial and ethnic categories within the US with regards to the prevalence of psychiatric disorders and psychotic-like symptomatology. The surveys include non-institutionalized, US household residents 18 years and older. As described elsewhere (Heeringa et al. 2004; Pennell et al. 2004), data collection for both the NLAAS and NSAL studies were conducted independently using an adaptation of a multiple frame-approach to estimation and inference for population characteristics (Hartley 1974). This process allows for design-based analysis weights that combine the two datasets for the quantitative portion of this analysis (Heeringa et al. 2004). Institutional Review Board approval was obtained from Harvard University, the University of Michigan, and the University of Washington.

The NSAL, initiating in February 2001 and ending in June 2003, is the largest study of Black mental health in the USA. The NSAL included a national sample of Caribbean Blacks ($N = 1438$; 29.7%) and African-Americans ($N = 3570$; 70.3%), allowing for within-race comparisons. The response rate was 70.9% for the African-American sample and 77.7% for the Caribbean Black sample (Heeringa et al. 2004; Neighbors et al., 2007). African-American respondents self-identified as Black and did not report Caribbean ancestry. Caribbean Blacks self-identified as Black and answered affirmatively to: (1) being of West Indian or Caribbean descent, (2) being from a Caribbean country, or (3) having parents or grandparents who were born in a Caribbean country (Neighbors et al. 2007).

Starting May 2002 and continuing through November 2003, the NLAAS includes a national sample of Asian ($N = 2095$; 45.1%) and Latino ($N = 2554$; 54.9%) Americans. The response rates were approximately 73% for the total sample, 76% for Latinos, and 66% for Asians (Heeringa et al. 2004). Professional interviewers from the University of Michigan Survey Research Center conducted interviews for the studies, with 93% of interviews in English and 8% in other languages (Spanish, Mandarin, Cantonese, Tagalog, and Vietnamese; Pennell et al. 2004). Interviewers and respondents were matched by race/ethnicity in the NSAL and by cultural background and language preferences in the NLAAS (Pennell et al. 2004). Interviewers were trained to be sensitive to issues of cultural, racial, and socioeconomic diversity when asking and dealing with sensitive questions and information. Interviews were conducted in-person and lasted between two and a half to three hours for each study (Pennell et al. 2004).

Psychosis screen

The lifetime presence of psychotic-like symptoms was assessed using the World Health Organization Composite International Diagnostic Interview (WMH-CIDI) psychotic symptom screener (Kessler and Üstün 2004). The structured diagnostic instrument was used to screen for proxy data on the prevalence of psychotic disorders. Included sections asked about six symptoms that the DSM-IV-TR (APA 2000) considers as predictors of non-affective psychosis (NAP; Kessler et al. 2005). They are: (1) visual hallucinations, (2) auditory hallucinations, (3) thought insertion/withdrawal, (4) delusions of control, (5) delusions of reference, and (6) persecutory delusions.

Administered using a skip patterned sequence, each section began by asking the respondents if they have ever experienced the symptom (i.e., seeing a vision, hearing voices, etc.). An affirmative response led to a series of questions asking whether the symptom occurred when dreaming, half-asleep, or under the influence of alcohol or drugs.

If the experience occurred when the person was alert and under no influence of substances, the lifetime frequency of the particular experience was asked. In an effort to obtain additional information about the person's experience, two open-ended questions, that were not a part of the original WMH-CIDI instrument, were included in psychosis screen sections of the NLAAS and NSAL. If the sequence of responses led to an endorsement of a particular experience when the respondent was alert and not under the influence of substances, the two open-ended questions were asked. These questions requested a brief explanation of: (1) a time when the experience happened and (2) what the respondent believed caused the experience to happen. For the purposes of this study, hereafter, this will be referred to as attribution.

Inclusion criteria

Respondents were included in the current study if they: (1) positively endorsed at least one psychotic-like symptom; (2) were 18 years of age or older; (3) indicated that they were not half asleep, dreaming; or under the influence of substances at the time of the experience; and (4) responded to at least one of the open-ended sections of the psychosis screen (Kessler and Üstün 2004). Respondents who did not endorse a psychotic-like symptom were not included in the sample. Approximately, 10% ($n = 979$) of the pooled sample met inclusion criteria. Of these respondents, 427 were African-American (12% of the total NSAL African-American sample), 152 were Caribbean Black (10.6% of the total NSAL Caribbean Black sample), 121 were Asian (5.8% of the total NLAAS Asian sample), and 279 were Latino (10.9% of the total NSAL Latino sample). In the NSAL non-Latino Whites were not administered the psychosis screen questions and the NLAAS did not include a White sample, and thus, this study does not include a White sample.

Analysis

Qualitative data analysis

We began with open coding to identify the content of the open-ended interview responses and to develop an initial set of thematic categories (Miles and Huberman 1994). Using Microsoft Excel software, individual responses were read and coded by two independent researchers. Rather than code for segments within the explanations, researchers were trained to consider the entire content of the open-ended response. For instance, the following is a response related to a coding category called 'death and dying' under the visual hallucination symptom: 'when my grandpa passed away, a week after his burial I came in my room and he was standing there.' In many instances, respondents provided responses for more than one psychotic-like symptom. Out of the total 979 respondents who endorsed psychotic symptoms, 696 (71%) endorsed at least one psychotic-like symptom, 216 (22%) endorsed at least two symptoms, and 67 (7%) endorsed at least three or more psychotic-like symptoms.

Respondents sometimes provided complex answers that could be coded into multiple categories; therefore, some categories are not mutually exclusive. To assist with coding, the first author and her research team followed six basic components put forth by MacQueen et al. (1998) to develop a codebook. The process involved naming the code, developing both a brief and full definition, developing a set of guidelines for when and not to apply the code, and providing some examples for the coding team. Using the codebook, two graduate-level researchers coded a randomly selected subset of cases to

establish reliability. The process yielded statistically significant kappa coefficients above 0.7, thus, enabling a decision on the final coding categories for each symptom.

Quantitative data analysis

All statistical estimates were weighted specific to NSAL and NLAAS samples to adjust for differential probabilities of selection and non-response. Analyses were conducted using STATA10 software (StataCorp 2007) to account for the complex sampling design. First, design-based F-tests derived from the Rao-Scott chi-square technique were performed to examine differences in thematic content of each symptom across the four race/ethnic groups. A probability threshold of $p < .05$ represents the cut-off value for assessing statistical significance. Next, we ran pairwise post-hoc comparisons, with African-Americans as the reference group, to further detect within race/ethnic group differences. Of the four race/ethnic groups that we included, African-Americans had been most researched in the literatures, and thus this group was selected as the reference category. In doing this, we were also able to examine for differences between African-Americans and Caribbean Blacks. Prior to the inception of the NSAL, few nationally representative studies reported within group differences for individuals of African descent residing in the USA. Due, in part, to limited sample sizes and self-reports, these groups are usually collectively categorized as 'Black,' 'Black American' or African-American. Finally, we ran logistic regression models to examine the association related to the probability of endorsing the four most frequently occurring thematic categories ($n > 100$) by race/ethnicity across any psychotic-like experience. The strength of the associations is presented as odds ratios with 95% confidence intervals. Logistic regression models were run independently for attributions characterized as *supernatural/spirits/ghosts* ($n = 280$), *spirituality/religion* ($n = 182$), *death/dying* ($n = 161$), and *premonition* ($n = 123$) on race and ethnicity. In order to examine the influence of SES and demographic factors we ran each model twice. First, we only adjusted for demographic differences (age, gender, marital status, geographic region, birthplace, and type of disorder) (Panels 1 and 1a). Then, covariates measuring the respondent's education level and annual household income were added to each model as a proxy for SES differences (Panels 2 and 2a).

Results

Study sample

Respondents were between 18 and 97 years old with a median reported age of 40 years (SD = 15.95). However, there were no significant differences in age amongst the four race/ethnic groups. There were significantly more Asian and Latino males (55% and 51%) than African-American males (40%). In comparison to the other samples, African-Americans were less likely to be married. In terms of education level, Asians were over three times more likely to report 16 or more years of education than African-Americans (37% vs. 11%). As illustrated in Table 1, the overall distribution of sociodemographic variables were examined across the four race/ethnic groups and subsequently analyzed using African-Americans as the reference category to determine differences between the race/ethnic groups that may not have been detected.

Reflective of the sampling design, the majority of African-Americans were from the southern region of the USA (46%), Caribbean Blacks were mostly from the northeast

Table 1. Sociodemographic characteristics of respondents who endorsed at least one psychotic-like symptom by race/ethnicity (weighted).

	African American	Caribbean Black	Asian	Latino	AA vs. Caribbean Black ^a	AA vs. Asian ^a	AA vs. Latino ^a
	<i>n</i> = 427 (%)	<i>n</i> = 152 (%)	<i>n</i> = 121 (%)	<i>n</i> = 279 (%)			
Age category (years)							
18–34	36.6	55.0	48.0	45.2			
35–49	32.9	25.0	28.4	31.8			
50+	30.6	20.0	23.6	23.0			
Overall chi-square (ns)					ns	ns	ns
Gender							
Male	40.1	48.3	54.6	50.7	ns	*	*
Female	59.9	51.7	45.4	49.3			
Overall chi-square*							
Marital status							
Married	31.5	41.7	42.3	42.5	*	**	**
Divorced/ separated/ widowed	35.3	15.8	14.4	22.0			
Never married	33.3	42.5	43.3	35.5			
Overall chi-square**							
Education level							
11 years or less	30.2	30.9	14.7	38.5	ns	***	ns
12 years	32.3	30.1	11.5	23.7			
13–15 years	26.9	25.4	37.0	25.9			
16+ years	10.6	13.6	36.8	11.8			
Overall chi-square***							
Region							
Northeast	16.4	57.2	11.6	17.5	***	***	***
Midwest	24.5	10.1	18.6	5.7			
South	46.2	25.8	6.2	20.9			
West	12.9	6.9	63.5	55.9			
Overall chi-square***							
Birthplace ^b							
Born in USA	98.4	50.9	32.4	53.0	***	***	***
Born outside USA	1.6	49.1	67.6	47.0			
Overall chi-square***							
Annual household income \$							
\$0–\$14,999	35.4	31.0	18.6	34.7	ns	***	**
\$15,000– \$34,999	35.3	31.1	10.7	21.3			
\$35,000– \$74,999	23.3	32.8	26.7	29.6			

Table 1 (Continued)

	African American	Caribbean Black	Asian	Latino	AA vs. Caribbean Black ^a	AA vs. Asian ^a	AA vs. Latino ^a
	<i>n</i> = 427 (%)	<i>n</i> = 152 (%)	<i>n</i> = 121 (%)	<i>n</i> = 279 (%)			
\$75,000+	6.1	5.2	44.1	14.3			
Overall chi-square***							
Type of disorder							
Any anxiety disorder*	37.5	33.2	22.4	28.4	ns	**	*
Any mood disorder (ns)	24.6	28.5	17.6	26.4	ns	ns	ns
Any substance disorder (ns)	18.8	19.6	11.8	23.0	ns	ns	ns
Composite disorder							
Any disorder	53.3	53.1	33.6	52.0	ns	**	ns
No disorder	46.7	46.9	66.4	48.0			
Overall chi-square*							

^aAfrican-Americans are the omitted/reference category group in the chi-square analyses.

^bFor the birthplace variable, there were two missing cases for the African-American sample and one missing case for the Asian sample.

Note: ns, not statistically significant.

* $p < .05$; ** $p < .01$; *** $p < .001$.

(57%), and most Asians (63%) and Latino (56%) resided in the western region of the USA. African-Americans overwhelmingly reported being born in the USA (98%) whereas 68% of Asians was born abroad. Close to half of Caribbean Blacks and Latinos reported being born outside the USA. Using African-Americans as the reference group, the distribution of the average annual household income varied. For instance, most Asians reported an annual household income of \$75,000 or more as compared to African-Americans whose annual income clustered below \$35,000. Compared to African-Americans, a higher percentage of Latinos reported an annual household income of \$75,000 or higher (6% vs. 14%, respectively). No significant difference in annual household income was observed between African-Americans and Caribbean Blacks.

Endorsement of psychotic-life symptoms across race/ethnicity

For lifetime prevalence of psychiatric disorders, Asians and Latinos reported lower prevalence rates of any anxiety disorder (22% and 28%) than African-Americans (38%). Moreover, Asians were less likely to report having any disorder than African-Americans (34% vs. 53%). No significant differences were observed for the prevalence of any mood disorder or for any substance disorder across racial/ethnic groups.

Table 2 provides useful information about the lifetime prevalence of endorsing specific psychotic-like symptoms within the sample of persons who endorsed at least one symptom across race/ethnicity ($n = 979$). Overall, some significant differences in endorsement of

Table 2. Lifetime prevalence of endorsing psychotic-like symptoms across race/ethnicity (weighted).

	African-American <i>n</i> = 427 (%)	Caribbean Black <i>n</i> = 152 (%)	Asian <i>n</i> = 121 (%)	Latino <i>n</i> = 279 (%)	AA vs. Caribbean Black ^a	AA vs. Asian ^a	AA vs. Latino ^a
Visual hallucinations*	73.7	89.3	68.2	65.4	**	ns	ns
Auditory hallucination (ns)	43.1	25.7	39.4	48.5	*	ns	ns
Persecutory delusions (ns)	10.2	16.7	6.8	9.7	ns	ns	ns
Delusions of reference (ns)	4.7	8.8	8.2	11.0	ns	ns	*
Thought insertion/withdrawal (ns)	2.7	6.7	5.4	6.3	ns	ns	*
Delusions of control (ns)	3.0	5.3	2.6	3.2	ns	ns	ns

^aAfrican-Americans are the omitted/reference category group in the chi-square analyses.

Note: ns, not statistically significant.

* $p < .05$; ** $p < .001$.

particular symptoms were observed for African-Americans compared to both Caribbean Blacks and Latinos. African-Americans were significantly less likely to endorse visual hallucinations compared to Caribbean Blacks (73.7% and 89.3%, $p < .001$), but they endorsed auditory hallucinations symptoms more than Caribbean Blacks (43.1% and 25.7, $p < .05$). Endorsing delusions of reference was more prevalent for Latinos than for African-Americans. (11% and 4.7%, $p < .05$), as was endorsing thought insertion/withdrawal (6.3% and 2.7%, $p < .05$).

Results presented in Table 3 include the prevalence of symptom endorsement and attribution of themes by race/ethnicity. In this particular table, any respondent who endorsed the symptoms was reported. Therefore, it is possible that an individual could endorse more than one symptom. The six psychotic-like symptoms are discussed according to the frequency of endorsement. For example, across race/ethnicity, visual ($n = 701$) and auditory ($n = 425$) hallucinations were most frequently endorsed, followed by persecutory delusions ($n = 84$), delusions of reference ($n = 71$), thought insertion/withdrawal ($n = 55$), and delusions of control ($n = 36$).

Visual hallucinations

Of the 701 individuals who endorsed visual hallucinations, about 9% ($n = 63$) were Caribbean Black, 8% ($n = 56$) were African-American, 6% ($n = 42$) were Latinos, and about 4.6% ($n = 32$) were Asian. Visual experiences were attributed to five major thematic categories: *supernatural*, *ghosts/unidentified beings*, *death and dying*, *spirituality or religiosity*, *premonitions*, and *other*. Respondents differed significantly in attributions of

Table 3. Prevalence of symptom endorsement and attribution of themes by race/ethnicity (weighted).

	African- American (%)	Caribbean Black (%)	Asian (%)	Latino (%)	Total <i>n</i>	%	Comparison across four racial/ethnic groups (<i>p</i> value)
<i>Visual hallucinations</i> (n = 701)							
Prevalence in population	8.4	9.4	4.6	6.1			
Thematic categories							
Supernatural, ghost/ unidentified being	25.9 ^{de}	40.4	53.8 ^a	50.6 ^a	269	38.8	.000
Death and dying	28.1 ^{de}	24.4	12.2 ^a	15.1 ^a	148	21.4	.016
Spirituality/ religiosity	17.8	14.3	8.6	14.2	102	15.3	ns
Premonition	11.7	11.1	6.1	8	87	9.7	ns
Other	16.5	9.8	19.3	12.1	95	14.8	ns
<i>Auditory hallucinations</i> (n = 425)							
Prevalence in population	4.9	2.6	2.7	4.5			
Thematic categories							
Unidentified voice	33.9 ^{be}	58.7 ^a	40.2	49.4 ^a	187	41.9	.055
Spirituality/ religiosity	24.2 ^e	15.4	19.1	11.4 ^a	74	17.8	.050
Familial	15.1	13.6	10.6	24.9	68	18.9	.081
Premonition/ warning	6.2	3.3	3	3.2	29	4.5	ns
Other	20.6	9	27.2	11.2	67	16.8	ns
<i>Persecutory delusions</i> (n = 84)							
Prevalence in population	1.2	2.2	0.5	0.9			
Thematic categories							
Concerns based on actions/ intentions of Others	57.4	50.4	39.2	41.8	38	49.5	ns
Concerns about personal/bodily safety	17.5	34.1	10.5	28.2	18	22.2	ns
Didn't explain/ refused to answer	8.8 ^d	11.9	38.2 ^a	14.8	17	13.6	ns
Other	16.2	3.6	12.1	15.3	11	14.8	ns
<i>Delusions of reference</i> (n = 71)							
Prevalence in population	0.5	0.9	0.6	1			
Thematic categories							
Communication with unidentified forces	17.4	13.1	37.2	31.6	23	27.6	ns

Table 3 (Continued)

	African-American (%)	Caribbean Black (%)	Asian (%)	Latino (%)	Total <i>n</i>	%	Comparison across four racial/ethnic groups (<i>p</i> value)
Communication related to spirituality/religiosity	37.7	52.7	23.3	12.4	14	22.3	ns
Other	44.9	34.2	39.6	56	34	50.1	ns
<i>Thought insertion/withdrawal (n = 55)</i>							
Prevalence in population	0.1	0.9	0.4	0.6			
Thematic categories							
Forces related to an uncomfortable command or control	23.6	11.9 ^e	38.7	58.5 ^b	12	44.2	ns
Stressful/traumatic situation	21.9 ^e	7.6	12.2	3.5 ^a	11	9.7	.094
Other	54.5	80.5	49.1	38	32	46.1	ns
<i>Delusions of control (n = 36)</i>							
Prevalence in population	0.1	0.7	0.2	0.3			
Thematic categories							
Did not explain/refused to answer	65.1	0	25.1	22.6	12	40.2	ns
Other	34.9	100	74.9	77.4	24	59.8	ns

^aDifferent from African-American.

^bDifferent from Caribbean Black.

^cDifferent from Black American (AA + CB).

^dDifferent from Asian; and

^eDifferent from Latino.

**p* < .05, pairwise post-hoc chi-square test for differences within race/ethnicity.

supernatural, ghosts/unidentified beings and death and dying. The four race/ethnic groups differed on the categories of *supernatural, ghosts/unidentified beings and death and dying.*

The following demonstrates some of the meaning (attributions) that respondents attached to their experiences of visual hallucinations. Some considered their visual hallucinations as part of their unique 'ability.' For instance, one Asian respondent used his 'ability' to see and 'tap into' the future by becoming an online psychic, while a Latina considers the fact that she has the ability to 'see' and 'sense' the spirits of those who 'come back to ask for guidance' as normal because it runs in her family. Visions of ghosts and other beings were also discussed by way of celestial beings like angels, who as one Latina describes, *it looked like smoke...an angel protected me, [it] pushed me out of the way and about a minute later a car sped 100 miles an hour behind me.*

On the other hand, visions of death and dying were more common for African-Americans as compared to the other groups. Death and dying was often associated with

seeing a friend or family member during a time when the person experienced some form of stress or trauma. To illustrate, while reporting being under distress to the point of 'giving up,' the following African-American male saw his deceased grandfather and aunt, *when I'm in harm's way or when I'm going through something traumatic. My grandfather and Aunt Fannie come to me and let me know everything is going to be okay.* Around the time of the September 11th attack in New York, an African-American woman, reported seeing her dead husband: *it was at night [on] September 11th. I was yelling for help.... when husband died something touch my breast, I saw and felt him touching me.* Although it is not clear from her interview, this woman appears to have experienced some form of trauma as a result of losing her husband to the attacks.

Auditory hallucinations

The following five thematic categories emerged for auditory hallucinations ($n = 425$): *unidentified voices, spirituality or religiosity, familial, premonition/warning, and other.* Within the population, the prevalence of hearing voices while being awake, not dreaming or under the influence of substances, was about five percent for African-Americans and Latinos and about three percent for Caribbean Blacks and Asians. Compared to African-Americans, Caribbean Blacks and Latinos reported more unidentified voices. Spiritual and religious types of voices were nuanced and more commonly reported for African-Americans than Latinos. Furthermore, for African-Americans hearing voices seemed to provide a form of emotional or physical guidance from God as described by one male: *a voice was told me that God didn't know me, but he was going to get me. I was trying to get to know Christ at that time in my life and this confirmed my decision.*

Another African-American woman receives a signal from her prayers: *it was a second opinion for me to follow [referring to the voice]. It usually happens when I do not want to do something and I know that I should. That's when I'll hear the voice telling me what I should do. The voice is in my head, but I think that it is God answering my prayers. I prayed and told him to send me a signal.*

On the other hand, for Latinos, voices were more conversational. To illustrate, one woman describes a conversation she had about ten years ago: *it was 1999 [in] June. That night I heard a beautiful man's voice telling me beautiful things to do. I got up and wrote them down, but I did not do those things... [later] I asked God to give me life so I could do it [referring to the previous tasks]. I heard a man's voice and he said, 'I have returned to you twice and gave you some orders. You have not done them yet.' He said I will find love, valor, justice and truth.*

In Table 4 we focused exclusively on examining sociodemographic differences using four models of attributions that were most commonly endorsed for auditory and visual hallucinations – supernatural, spirits and ghosts, spirituality and religiosity, death and dying and premonition. Sociodemographic differences were divided into two panels. Panel 1 includes findings adjusted for age, gender, marital status, geographic region, birthplace and type of disorder. Findings in Panel 2 were adjusted using a combination of the previous demographic variables and SES variables (education level and annual household income). We examined African-Americans as the reference group in Panels 1 and 2. The four commonly discussed attributions: (1) emerged across each of the six symptoms (including the data included in the 'other'¹ category); and (2) had a sample size greater than 100.

Table 4. Demographic and SES differences in attribution of select psychotic-like symptoms by race/ethnicity.

	Model 1: supernatural/spirits/ghosts (<i>n</i> = 280)	Model 2: spirituality/religiosity (<i>n</i> = 182)	Model 3: death/dying (<i>n</i> = 161)	Model 4: premonition (<i>n</i> = 123)
	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)	Odds ratio (95% CI)
<i>Panel 1: demographic differences^a</i>				
Race/ethnicity				
African-American	1	1	1	1
Caribbean Black	1.91 (0.74, 4.95)	1.23 (0.51, 2.97)	1.03 (0.40, 2.60)	0.85 (0.40, 1.81)
Asian	2.16 (0.94, 5.01)	0.51 (0.21, 1.22)	0.34 (0.10, 1.19)	0.80 (0.24, 2.66)
Latino	1.80 (1.01, 3.20)*	0.45 (0.24, 0.83)*	0.42 (0.20, 0.89)*	0.84 (0.37, 1.89)
<i>Panel 2: demographic and SES differences^b</i>				
Race/ethnicity				
African-American	1	1	1	1
Caribbean Black	2.15 (0.83, 5.59)	1.19 (0.49, 2.89)	0.95 (0.36, 2.53)	0.80 (0.37, 1.74)
Asian	3.24 (1.31, 8.04)*	0.45 (0.18, 1.09)	0.30 (0.07, 1.29)	0.66 (0.20, 2.21)
Latino	2.09 (1.16, 3.78)*	0.46 (0.24, 0.86)*	0.36 (0.17, 0.78)*	0.81 (0.36, 1.83)

^aModels adjusted for demographic variables: age, gender, marital status, region, birthplace, and type of disorder.

^bModels adjusted for demographic variables + SES variables: education level and annual household income.

**p* < .05.

When the models were run with the demographic variables, the patterns of attribution were consistent between African-Americans and Latinos. Compared to African-Americans, Latinos were less likely to consider spirituality/religiosity (OR = 0.45, 95% CI = 0.24–0.83) or death and dying (OR = 0.42, 95% CI = 0.2–0.89) as related to their psychotic-like experiences. Similarly, this table confirms that Latinos were more likely than African-Americans to associate their experiences (Panel 1) to something related to the supernatural/spirits or ghosts (OR = 1.80, 95% CI = 1.01–3.20). After adjusting for demographic and SES variables, Asians were more than three times (OR = 3.24, 95% CI = 1.31–8.04) as likely to mention supernatural/spirits or ghosts compared to African-Americans.

Discussion

Visual hallucinations are relatively common in prevalence across race/ethnicity and in this non-clinical community sample. The prevalence of hearing voices while being awake, not dreaming or under the influence of substances is less common. Our findings suggest that variations exist by race/ethnicity in both psychotic-like symptom endorsement and self-reported attributions/understandings for these symptoms using a psychosis screening instrument. Motivated by previous studies that indicate significantly more frequent endorsement of psychotic-like symptom by Blacks, including African-Americans and Caribbean Blacks (Arnold et al. 2004; Ferron, Barron, and Chen 2002; King et al. 2005), this study demonstrates the importance of examining heterogeneity within the Black American population and across other racial/ethnic minority populations in the USA.

Furthermore, our results suggest that psychotic like symptoms could be indicative of underlying distress, depression, and even coping with discrimination and other stressful circumstances, which if better understood and better assessed could assist in providing culturally responsive care. Issues of racism, discrimination, and other race-based microaggressions for Black people have long been linked with the mental health and mental illness (see Fanon 1952 [1991]; Grier and Cobbs 1968; Pierce 1970). Several population-based studies have associated perceptions of discrimination to mental health status (Williams and Mohammed 2009; Pascoe and Smart Richman 2009; Pieterse et al. 2007). Even after adjusting for factors like income, education, gender and age, reports of higher levels of discrimination for Blacks, within and outside of the US, are associated with the endorsement of psychotic-like symptoms and poorer mental health status, as compared to their White counterparts (Janssen et al. 2003; Veling et al. 2006). Moreover, longitudinal studies have found that discrimination precedes illness (Williams and Mohammed 2009; Pascoe and Smart Richman 2009).

African-Americans were more likely than some of the other ethnic-racial groups to attribute some of their hallucinatory experiences, specifically visual hallucinations, to issues of death and dying (i.e., seeing a dead relative), which could stem from religious or socially transmitted, cultural schema for coping with death and dying as seen in the literature (Alim et al. 2006). If an African-American patient reports that s/he is experiencing visual hallucinations of a recently deceased family member, then further inquiry regarding the meaning of that hallucination for the patient before assigning a diagnosis of psychosis is likely to be important. If other psychotic symptoms and functioning deficits are not present, then this supports exploring the presentation of normal grief or loss. The results of this study are not meant to encourage stereotypes for identifying psychosis in specific ethnicity groups, but to support the idea that in the presence of these symptoms or experiences, their

meaning and presentation can vary by race/ethnicity. The specific themes that we found among different groups may suggest thematic points of entry for discussing the meaning of hallucinatory experiences and other potential psychotic-like symptoms with diverse patients.

Although significant differences were not found by race regarding having concerns about the intentions and actions of others, it was the third most commonly induced symptom; this can be an important issue for racial and ethnic minority communities with histories of oppression and discrimination (Morgan et al. 2009). For example, *responsive paranoia* has been used to describe how communities of color function as an adaptive mechanism for coping with a life plagued by prejudice and discrimination (Williams, Neighbors, and Jackson 2003). This may be particularly relevant for Blacks who may exercise a level of caution, skepticism, or 'healthy cultural paranoia' as a result of previous perceptions of negative, discriminatory, or racist interactions, both within and outside of clinical settings (Ridley 1984; Whaley 2001). This information could have important implications for understanding how feelings of caution, skepticism, distrust, or self-preservation concerning the actions and intentions of others affects, how minority groups interpret and disclose information about perceptual experiences such as hallucinations during the clinical assessment. Practitioners who are uninformed about another culture and their experiences of racism, or who harbor negative stereotypes about that culture, may tend to diagnose psychosis or paranoia when symptoms are better accounted for by coping strategies for underlying stressors. To complicate issues, some research has suggested that chronic experiences of discrimination and racism can be a risk factor for the development of psychosis in vulnerable individuals (Veling et al. 2006). This, further points to the importance of examining adversity, discrimination and distress, and their potential impact on the presentation of psychotic like symptoms among ethnic minorities.

There is a body of evidence that supports the notion that Asians have strong beliefs in the ability of spirits to influence their lives (Uba 1994). Although the Uba study was not specific to severe mental illness, it helps to provide a cultural context for mental health providers to better anticipate these types of explanations from Asian patients. Diversity for Asian Americans spans across language, ethnicity, and spirituality/religiosity. There are various forms of faith within the culture that could influence the way certain symptoms are shared and understood. For example, Buddhism, Taoist, and Animist to some extent believe in the existence of some type of external force or being (animal or otherwise). Therefore, contextualizing an experience with descriptions that may seem abnormal or related to non-human beings could reflect culturally sanctioned experiences and not necessarily psychotic illness. Undoubtedly, this topic could flourish from a more detailed examination with the patient, but may require overcoming stigma or mistrustfulness. In our Asian sample, there was evidence that socioeconomic status is an important factor in determining the odds of endorsing psychotic like symptoms. This may be an indication of how connected SES is to acculturation or beliefs or symptom presentation, particularly for Asian subgroups. This is another important area for further investigation.

Also using a sample of Latinos from the NLAAS study, Lewis-Fernández et al. (2009) examined the relationship between the prevalence of psychotic symptoms and mental health outcomes. In that study, 9.5% of Latinos in the total sample population endorsed one or more lifetime psychotic symptoms, yet 93% of endorsers did not meet Structured Clinical Interview for DSM-IV criteria for psychotic disorders. This supports

the idea that in most cases the endorsement of psychotic-like symptoms among Latinos does not indicate or support the presence of a psychotic disorder.

To add to the findings by Lewis-Fernández, our study allowed us to explore common themes related to the participant endorsements of psychotic-like symptoms and suggests that Latinos tend to endorse ideas of the supernatural, including spiritual themes for their hallucinations, although to a lesser extent than the African-American sample. Latinos were more likely to attribute unidentified voices to their hallucinations and many of the themes fell into the realm of unidentified spirits, or forces which at times serve as protections or provide ominous warnings. Many of these themes fall into the context of spiritualist belief systems prevalent in many Latino cultures and are not considered ‘abnormal’ or ‘uncommon’ within those cultures and in some cases may actually represent a spiritual gift as opposed to a disorder. (Gaviria and Wintrob 1976; Moreira-Almeida and Koss-Chioino 2009). Latinos also reported that they felt something was controlling or stealing their minds. It remains unclear whether these reports represent true psychosis or culturally influenced idioms of distress which reflect an expression of losing control over one’s mind or life. The diagnosis of psychosis relies to a great extent on the evaluation of a person’s language, behavior, thoughts, and perceptions in context. We can see from the results of this study that attributions of meaning for these symptoms can vary between race/ethnicity. There is also a richness of culture and context underlying those experiences that warrant close assessment in each and every individual patient presenting with symptoms that would potentially screen them in for a psychosis diagnosis. A critical aspect of that assessment should include understanding the function if these experiences in regards to the cultural, psychological, social, and spiritual saliency for the individual experiencing it.

Limitations

This is a retrospective study, which asked respondents to reflect back on a non-specified time in their life and to describe and attribute meaning to their experiences. It is possible that some respondents were not able to recall their experiences as clearly as others. Also, this was a cross-sectional study that did not include in-depth narrative interviews. The researchers were not able to follow up with respondents to clarify or probe for a more detailed explanation of their experiences. The qualitative coding process did not include clinical judgment, thus limiting the opportunity to identify explanations that might be considered clinically significant by a mental health clinician. For some of the thematic categories, the cell sizes were not sufficiently large to stand alone for some of our analysis, thus yielding smaller, non-interpretable, categories that could include information that would be descriptively of interest to the field if they were larger. Although we mentioned Black Americans, future research would benefit from including an African sample to better distinguish heterogeneity in psychotic-like endorsement amongst people of African descent living in the USA. Along those lines, due to small sample sizes, the current study was not able to explore heterogeneity amongst Asians and Latino Americans.

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Note

1. The “other” category included residual categories with small sample/cell sizes.

Key messages

- (1) Culture presents an avenue for clinicians to explore psychotic-like symptoms, their significance and meaning in context, thus improving their understanding of and relationship with the patient.
- (2) Ethnic/racial differences in psychotic-like symptom endorsement could result from culturally sanctioned beliefs, behavior and idioms of distress that are not well-understood and deserve more attention during clinical encounters and in practice.
- (3) Future epidemiological and clinical research should examine the prevalence of psychotic-like symptom endorsement and how it is correlated or not with DSM-IV psychotic and non-psychotic disorders, social functioning and coping.
- (4) It is crucial to improve screening instruments and tools that inform relevance of culture during clinical evaluations where psychotic-like symptoms are commonly discussed and potentially misinterpreted.
- (5) Cross-culturally, future research and training programs should begin to acknowledge the limitations of clinical assessment methods given the non-equivalence in language, concepts, and norms. For instance, discussing and believing in supernatural/ghosts and guiding spirits or exhibiting paranoia could be misinterpreted as psychotic symptoms by the standards of our assessment methods in minority and historically oppressed people. Acknowledging such differences could effectively reduce the disproportionate prevalence of psychotic disorder diagnoses in minority populations.

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