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Differential Impact of Isolated Psychotic Symptoms on Treatment Outcome of Major Depressive Disorder in the STAR*D cohort of Whites, Blacks and Latinos

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Abstract

Objective—To determine whether isolated psychotic symptoms are more likely to be endorsed by depressed Latinos as opposed to other ethnic-racial groups; whether these symptoms affect Latinos similarly to other ethnic-racial groups in terms of treatment response; and whether they are more likely to be associated with anxiety disorders in depressed Latinos.

Methods—We analyzed data from STAR*D subjects who self identified as White, Black, or Latino. Rates of isolated psychotic symptoms were assessed by the self-rated Psychiatric Diagnostic Screening Questionnaire (PDSQ) and compared between ethnic-racial groups. Depressive remission outcomes were compared within each ethnic-racial group between subjects who endorsed psychotic symptoms versus no psychotic symptoms. Associations between isolated psychotic symptoms and anxiety disorders were also examined.

Results—Among 2,597 eligible subjects with at least one post-baseline assessment and available PDSQ data excluding first-rank symptoms, the prevalence of auditory-visual hallucination was 2.5% in Whites (n=49 /1,928), 11.3% in Blacks (n=45 /398) 6.3% in Latinos (n=17 /270) ($\chi^2=64.9$; df=2; $p<.001$). Prevalence of paranoid ideation was 15.5% in Whites (n=299 /1927), 31.5% in Blacks (n=126 /400), and 21.1% in Latinos (n=57 /270) ($\chi^2=57.3$; df=2; $p<.001$). Among Whites and Blacks but not Latinos, depressive remission rates were worse in subjects with auditory-visual hallucinations compared to those without them. Paranoid ideation had a significant negative impact on remission in Whites only. In all ethnic-racial groups, a significant association was found between auditory-visual hallucinations and PTSD and panic disorder.

Limitations—the STAR*D study did not include any structured clinician-based assessment of psychotic symptoms.

Conclusion—Latinos do not appear to have worse outcomes when treated for MDD with auditory-visual hallucinations, differently from Whites and Blacks.

Keywords

Latinos; Hispanic; Major Depressive Disorder; Psychosis-like Symptoms; Antidepressants; Remission

Background

Previous research has shown that endorsement of psychotic symptoms in subjects diagnosed with non-psychotic major depressive disorder (MDD) is associated with poor outcome with antidepressant treatment (Perlis et al., 2010). This finding resulted from an analysis conducted on a diverse pool of patients, which included a majority of Whites as well as Blacks, Latinos and other ethnic-racial groups. The clinical relevance of the finding is clear:

© 2013 Elsevier B.V. For instance, depressed patients who might not appear frankly psychotic but endorse
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Contributors

All the authors have participated to the design of the study, to a lesser extent Maurizio Fava. Lee Baer gave critical advice on the statistics to be used in the study. Paolo Cassano performed all the analyses and wrote the first draft of the manuscript and prepared the tables and the graphs. Trina Chang was particularly involved in the subsequent revisions. All the authors contributed to the final draft and approved it.

Retraction Policy

We are fully aware of this and other policies governing publications in the Journal of Affective Disorders.

Conflict of Interest

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Dr. T. Chang

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features on the psychotic spectrum, such as suspiciousness, might be less likely to respond to treatment (van Os, 2003, Sbrana et al., 2005, Shevlin et al., 2007).

There is growing evidence that Latinos disproportionately endorse isolated psychotic symptoms, and the actual psychotic nature of their experience may be questioned (Lewis-Fernandez et al., 2009, Vega et al., 2006, Olfson et al, 2002, Minsky et al., 2003, Geltman and Chang, 2004). In fact, putative psychotic symptoms in Latinos could turn out to be psychosis-like manifestations, with noticeably different phenomenological presentations (Cassano et al., 2012). Clinicians who lack cultural training or experience with this population might misinterpret these manifestations as genuine psychotic symptoms. The potential for misinterpretation is even greater when the patient endorses these symptoms on a self-report rating scale, because this format does not allow exploratory follow-up questions aimed at characterizing the psychotic nature of the experience. Examples of psychosis-like symptoms include hearing “someone calling”, “knocking at the door” or the “phone ringing in the house” and then realizing it was a false impression, after checking or after asking others.

In this report we investigated whether Latinos in the STAR*D cohort (Sequenced Treatment Alternatives to Relieve Depression) were more likely to endorse isolated psychotic symptoms (presumably psychosis-like symptoms) compared to other ethnic-racial groups. We also examined the impact of isolated psychotic symptoms on treatment outcome of depression in Whites, Blacks and Latinos. In addition, we studied the association of isolated psychotic symptoms with PTSD and other comorbid anxiety disorders in the same three ethnic-racial groups. We hypothesized that isolated psychotic (presumably psychosis-like) symptoms would be more prevalent in Latinos (Olfson et al., 2002, Minsky et al., 2003) and that their impact on treatment outcome of depression would be less prominent in Latinos. Finally, we predicted that isolated psychotic symptoms would be associated with trauma and PTSD (Lewis-Fernandez et al., 2010), and possibly with other anxiety disorders, at higher rates in Latinos than in other ethnic-racial groups (Olfson et al., 2002, Vega et al., 2006, Lewis-Fernandez et al., 2009).

Methods

Study aims and analyses for this new examination of the STAR*D cohort database were derived from an initial consensus among the authors (PC, DM, TC, NHT, LB). The NIMH reviewed our proposal and approved it prior to study initiation.

STAR*D cohort

STAR*D is an NIMH-sponsored multicenter trial on non-psychotic MDD that involved fourteen regional centers and forty-one clinical sites across the United States. The goal of the parent trial was to compare different treatment strategies such as antidepressant augmentation and antidepressant switch, pharmacological augmentation and cognitive-behavioral therapy for the treatment of resistant depression. The treatment algorithm did not include any antipsychotic medication. Subjects were diagnosed with MDD by clinical interview and could enter the study if their depressive severity was at least moderate (as indicated by a Hamilton Depression Scale - 17 (HAM-D₁₇) score of 14 or higher). Lifetime psychosis, mania or hypomania was exclusionary, as was current obsessive-compulsive disorder or any eating disorder. Substance or alcohol use disorders were allowed unless acute treatment interventions were required. Intolerance or resistance to any of the medications used in the level 1 or level 2 of the trial was exclusionary; therefore subjects who had been already unsuccessfully medicated for their current depressive episode were likely to be excluded. Subjects who were pregnant or intended to conceive were excluded as

well. For more details on the STAR*D original trial, please refer to Rush et al., 2004 (Rush et al., 2004).

Isolated psychotic symptoms

We used the Psychiatric Diagnostic Screening Questionnaire (PDSQ) to define the concept of isolated psychotic symptoms, such as auditory-visual hallucinations or paranoid ideation (Zimmerman and Chelminski, 2006). The PDSQ is a self-report scale of psychiatric symptoms used as a screening tool for multiple DSM-IV axis-I disorders; the scale includes a section for psychosis as well. For every disorder explored by the PDSQ, there are published sensitivity/specificity cut-off scores. The scale was completed by each subject at study entry.

For the present study, we selected three of the six items explored by this scale for psychosis. To assess auditory-visual hallucinations, we selected subjects who endorsed: “Did you hear voices that other people didn't hear, or see things that other people didn't see?” To assess paranoid ideation, we selected subjects who endorsed at least one of the following items: “Were you convinced that other people were watching you, talking about you, or spying on you?” or “Did you think that you were in danger because someone was plotting to hurt you?” The scale explored the presence of the aforementioned symptoms in the prior 2 weeks.

Subjects who endorsed symptoms of the psychotic domain of the PDSQ that suggested first-rank Schneiderian symptoms were excluded from our analyses (namely: “Did you think that some force or power from the outside was controlling your body or mind?” and “Did you think that you had special powers other people didn't have?”). In fact our goal was to select subjects who specifically endorsed auditory or visual hallucinations or paranoid ideation. These manifestations are in fact more likely (as opposed to first-rank symptoms) to be endorsed by subjects with psychosis-like manifestations but not frank psychosis (Cassano et al., 2012).

The only additional item of the PDSQ domain that we did not include was: “Did things happen that you knew were true, but other people told you were your imagination?” We anticipated that some psychosis-like symptoms might be at times normalized by family and friends, who might offer culturally-bound explanations to the subject who experiences them. For instance, in the case of a deceased family member calling, someone might validate the experience by saying that the deceased family member is trying to communicate with the living. Due to the potential risk of false negatives, and consequent underestimation of the psychotic or psychosis-like symptoms, this item was not included in our definition of isolated psychotic symptoms.

Study sample

From the original cohort of 4,041 STAR*D subjects, we selected those who defined themselves by only one racial-ethnic background, specifically white non-Hispanic (Whites), black non-Hispanic (Blacks) and white and Hispanic (Latinos). Subjects also needed to have completed the items of the psychotic domain of the PDSQ considered in our study (items 77–81 of the STAR*D version of the PDSQ). Given that we also sought to evaluate the impact of isolated psychotic symptoms on treatment outcomes, we included only subjects who had at least one follow-up assessment of their depression (HAM-D₁₇) after the baseline visit. The assessments of depressive symptoms used for our analyses and for the selection of the study sample were carried out by phone interviews by research outcome assessors (ROA) who were blinded to the treatment assignment. Subjects were excluded from this analysis if they endorsed more than one race, did not complete the PDSQ scale, could not be reached by the ROA, or were lost to follow-up after study screen.

Analyses

Our analyses addressed three scientific questions:

1. Are isolated psychotic symptoms more likely to be endorsed by depressed Latinos as opposed to other ethnic-racial groups?
2. Do isolated psychotic symptoms affect depressed Latinos in the same way as other ethnic-racial groups in terms of clinical outcome and treatment response?
3. Are isolated psychotic symptoms more likely to be associated with PTSD and /or other anxiety disorders in depressed Latinos than in other ethnic-racial groups?

We carried out descriptive analyses to characterize the sample. The same comparisons were performed separately in each ethnic-racial group. Baseline variables, including demographics, index episode duration, and course of illness, were compared in subjects who did or did not endorse isolated psychotic symptoms. Endorsement of auditory-visual hallucinations and endorsement of paranoid ideation were tested separately for their correlations with other variables of interest. Continuous variables were compared by the independent samples t-test for equality of means (p value at .05 for 2-tailed significance with equal variance assumed); categorical (dichotomous) variables were compared by chi-square (2×2 tables with p value set at .05 for exact significance, 2-sided). Several demographic variables were derived from the STAR*D database and dichotomized for presenting the baseline characteristics of the three comparison pairs. Current marital status was defined as “married or cohabiting with partner” versus “single, separated, divorced or widowed.” Current student status included both part-time and full-time studies. Similarly, current employment status included part-time, full-time as well as self-employment versus “unemployed or retired not-working.” Language preference, English or Spanish, was defined at screening based on clinic and phone interviews and based on self-rating scales. For each subject, information on language had to be available on at least half of the screening assessments and language preference was coded only when all available assessments were concordant. For extensive description and direct comparison of the baseline characteristics of the three ethnic-racial groups, as a whole, refer to Lesser et al., 2007 (Lesser et al, 2007).

To compare prevalence of isolated psychotic symptoms across the three aforementioned ethnic-racial groups, a chi-square analysis was conducted first for endorsement of auditory-visual hallucinations and then for paranoid ideation (2×3 table with p value set at .05 for exact significance, 2-sided). Secondary chi-square analyses were performed to determine significant differences between individual groups (2×2 tables with p value set at .05 for exact significance, 2-sided).

The impact of isolated psychotic symptoms on depressive outcome was assessed separately for auditory-visual hallucinations and for paranoid ideation. Three sets of Cox regression models were constructed separately for each of the three groups of interest: Whites, Blacks and Latinos. Presence of the isolated psychotic symptom was defined as the independent variable while depressive remission was set as the dependent variable (p value at .05 for significance). Tables were plotted to show separate curves indicating the likelihood of persistent depressive symptoms overtime in subjects who did or did not endorse the specific psychotic symptom of interest. Depressive remission was defined as a HAM-D₁₇ of 7 or less at the ROA assessment. The timeframe to remission could span 48 weeks or more, since 4 sequential levels of treatment for depression were offered in STAR*D, each of which could last up to 12–16 weeks.

In subsequent exploratory analyses, the associations between auditory-visual hallucinations and anxiety disorders (PTSD, panic disorder, agoraphobia), trauma, and derealization were

tested by binary logistic regression (with p value set at .05 for exact significance) and chi-square (2×2 tables with p value set at .05 for exact significance, 2-sided). No corrections for multiple comparisons were used, given the exploratory nature of the analyses. PTSD, panic disorder, and agoraphobia were defined according to the relative domains of the PDSQ scale. Published cut-offs with high specificity (89% - 91%) were used for case definition (Zimmerman and Chelminski, 2006). We chose to test for PTSD because there is a high index of suspicion for a preferential association of auditory-visual hallucinations and PTSD in Latinos (Lewis-Fernandez et al., 2010). We included other common anxiety disorders such as panic disorder and agoraphobia because they are frequently associated with psychosis-like symptoms in Latinos (Olfson et al., 2002, Vega et al., 2006, Lewis-Fernandez et al., 2009). We intentionally excluded generalized anxiety disorder due to its high overlap with MDD. Presence of trauma was assessed by the endorsement of the following PDSQ items 29 or 30: “have you ever experienced (or witnessed) a traumatic event such as combat, rape, assault, sexual abuse, or any other extremely upsetting event?” Similarly, PDSQ item 39 was used as a proxy of derealization: “did you feel distant and cutoff from other people because of having experienced a traumatic event?”

Results

Prevalence of isolated psychotic symptoms

Of the 4,041 STAR*D subjects 3,749 identified themselves exclusively as Whites (n=2,614), Blacks (n=694) or Latinos (n=441). Among them, 3,707 had completed the PDSQ items of the psychotic domain for the assessment of the prevalence of isolated psychotic symptoms, and 3,538 were included after first-rank psychotic symptoms were ruled out. Finally, only 2,597 of these subjects had at least one follow-up assessment of their depressive symptoms (HAM-D₁₇) by an independent evaluator.

The prevalence of auditory-visual hallucinations was 2.5% in Whites (n=49 /1,928), 11.3% in Blacks (n=45 /398), and 6.3% in Latinos (n=17 /270) ($\chi^2=64.9$; df=2; p<.001). Significantly greater prevalence was found in Blacks compared to Latinos ($\chi^2=4.8$; df=1; p=.030) and in Latinos compared to Whites ($\chi^2=11.5$; df=1; p=.002). The prevalence of paranoid ideation was 15.5% in Whites (n=299 /1927), 31.5% in Blacks (n=126 /400), and 21.1% in Latinos (n=57 /270) ($\chi^2=57.3$; df=2; p<.001). As with our findings for hallucinations, the prevalence of paranoid ideation was significantly higher in Blacks than Latinos ($\chi^2=8.8$; df=1; p=.003) and in Latinos versus Whites ($\chi^2=5.5$; df=1; p=.022). When the prevalence of the same psychotic symptoms was tested in the larger sample of 3,538 STAR*D subjects, independent of outcome data, findings were similar (data not shown). Table 1–2 shows the demographic characteristics of subjects who did versus did not endorse isolated psychotic symptoms, broken down by race/ethnicity.

Isolated psychotic symptoms and treatment outcome

Rates of depressive remission were worse in White and Black subjects with auditory-visual hallucinations compared to those without them (rates in Whites: 39% vs. 56%; n=1,928; O.R.=1.70; CI_{95%}: 1.08–2.68; p=.022; rates in Blacks: 22% vs. 42%; n=398; O.R.=2.11; CI_{95%}: 1.11–4.02; p=.023) (Figures 1–2). Conversely, Latinos had nearly identical rates of depressive remission whether or not they endorsed auditory-visual hallucinations (rates: 47% vs. 51%; n=270; O.R.=.98; CI_{95%}: .48–2.00; p=ns) (Figure 3).

Paranoid ideation also had a negative impact on the likelihood of remission in Whites (rates: 45% vs. 57%; n=1,927; O.R.=1.44; CI_{95%}: 1.21–1.73; p<.001); however, the comparison did not reach significance in Blacks (rates: 36% vs. 42%; n=400; O.R.=1.34; CI_{95%}: .95–

1.89; $p=ns$) or Latinos (rates: 47% vs. 51%; $n=270$; O.R.=1.17; CI_{95%}:.77–1.78; $p=ns$). Demographic characteristics for each group comparison pair are reported in Table 1–2.

Both the analyses for auditory-visual hallucinations and for paranoid ideation were repeated after reintroducing the subjects who had been excluded due to endorsement of first-rank symptoms. Findings were essentially equivalent, except that differences in remission rates with versus without paranoid ideation approached significance in both Latinos and Blacks (data not shown).

Isolated psychotic symptoms, PTSD and other anxiety disorders

In all ethnic-racial groups, a significant association was found between auditory-visual hallucinations and PTSD and panic disorder. The association between auditory-visual hallucinations and derealization, and history of trauma, reached significance in Whites and in Blacks, but not in Latinos (data not shown). Finally, the presence of agoraphobia was similar in Latinos with and without endorsement of auditory-visual hallucinations (18% vs. 20%), but not in Whites (43% vs. 11%) and Blacks (42% vs. 17%) (statistics not shown).

Discussion

The major finding of our study is that the endorsement of auditory-visual hallucinations by Latinos did not significantly impact their response to treatment of MDD. This contrasted with what both Whites and Blacks experienced in the same STAR*D cohort.

This finding suggests that the perceptions that led to the endorsement of auditory-visual hallucinations in Latinos might have been different in nature from those of Whites and Blacks (Cassano et al., 2012). Abnormal auditory and visual perceptions are often reported by Latinos with MDD as well as by Latinos with other mood and anxiety disorders (Posternak and Zimmerman, 2005, David et al., 1999, Mischoulon et al., 2005). In a separate paper, we attempted to systematically differentiate psychosis-like manifestations from genuine psychotic presentations in Latinos (Cassano et al., 2012). Unfortunately in the STAR*D cohort these differential features were not explored.

Our unproven working hypothesis is that genuine isolated auditory-visual hallucinations in Latinos with MDD might well have the same prognostic validity as in other ethnic-racial groups; but psychosis-like perceptions are likely to mask this effect in our study results. This finding implies that at least with depressed Latinos, taking the report of isolated auditory-visual hallucinations and other psychotic symptoms at face value might be misleading and could lead to unnecessary treatment.

A second important finding of our study was that endorsement of paranoid ideation was significantly associated with treatment outcome in depressed Whites, but not in Blacks or Latinos. It is possible that the sample size and distribution were not enough to yield a significant effect. Yet the sample of subjects who endorsed paranoid ideation was larger than the sample of subjects who endorsed auditory-visual hallucinations, especially for Blacks.

Alternatively, the endorsement of paranoid ideation might reflect both cases of excessive and maladaptive suspiciousness as well as cases of justified distrust based on living circumstances. In our sample, both Blacks and Latinos appear to have a low average income level and might be living in more disadvantaged and dangerous neighborhoods (Combs et al., 2002, Shoff and Yang, 2012). In these settings a greater sense of distrust might be not only justified but also adaptive. As with the endorsement of auditory-visual hallucinations,

clinicians should not take the endorsement of paranoid ideation at face value but assess its nature carefully.

Blacks were the group that most often reported isolated psychotic symptoms. This was in contrast with our hypothesis that Latinos would endorse these symptoms the most (David et al., 1999, Olfson et al., 2002, Posternak and Zimmerman, 2005). Recently, a greater likelihood of psychosis in Blacks has been reported with assessments blind to ethnicity and race (Gara et al., 2012). In our study, presenting a parallel finding for isolated psychotic symptoms in Blacks, the self-reported nature of the collected data similarly averts a clinician bias towards psychosis.

Prior reports from the STAR*D cohort have shown that Blacks have significantly poorer outcome as compared to Whites and Latinos when treated for MDD (Lesser et al., 2007). Our findings extend the previous ones, since depressed Blacks were also more affected by concomitant, self-report auditory and visual hallucinations (O.R. 2.11 for lack of remission) than Whites (O.R. 1.70) or Latinos (O.R. .98).

The third and last aim of our study was to explore the nature of the isolated psychotic symptoms expressed by Latinos and to investigate a putative preferential association with PTSD, other anxiety disorders, trauma and derealization (Lewis-Fernandez et al., 2010, Freeman and Fowler, 2009). Our findings did not support this hypothesis. The endorsement of auditory-visual hallucinations was equally associated with several of the aforementioned conditions in both Latinos and non-Latinos.

Limitations

Our study was conducted on a large sample of subjects assessed prospectively and by independent raters, blind to treatment assignment. The cohort of patients is highly representative of everyday depressed patients seen in primary and specialty care, which makes our findings generalizable. Nonetheless, this work has several limitations. The diagnosis of non-psychotic MDD was clinical in nature, lacking a standardized assessment of psychotic symptoms, and this might have led to erroneous inclusion of some patients with pronounced psychotic features. Likewise, a sizeable proportion of STAR*D patients were enrolled from primary care settings, which suggests that the assessment of the research coordinators was reviewed by a generalist instead of a psychiatrist. Although all staff had been trained to diagnose and assess non-psychotic MDD, it could be argued that in the primary care setting there might have been a greater rate of misdiagnosis due to lack of specialty training. This bias seems unlikely, since the rates of endorsed isolated psychotic symptoms were similar in both primary and specialty care settings. It is also noteworthy that self-assessment of psychosis is far from being the gold standard. Finally, while patients at times can endorse isolated and subthreshold psychotic symptoms in the absence of full-blown psychosis (Sbrana et al., 2005), no formal diagnosis of personality disorders was conducted in STAR*D, so we could not rule out that symptoms might have been present as traits of a DSM-IV cluster A personality disorder. It is likely that in many cases a subthreshold presentation of the psychotic spectrum was present, such as vague and even excessive suspiciousness not rising to delusional quality, or fleeting and rare hallucinatory experiences as opposed to pervasive and recurrent hallucinations (American Psychiatric Association. and American Psychiatric Association. Task Force on DSM-IV., 2000).

Besides lacking any specific assessment for psychosis-like symptoms in Latinos, we were also unable to stratify patients based on their origin, immigration status, or generation and years lived in the United States. Furthermore, the gender distribution highly favored women over men in the Latino group, which is reflective of clinical practice. Yet no gender effect was seen in the prevalence of isolated psychotic symptoms.

Finally, the sample of Latinos (n=270) was much smaller than Whites (n=1,928) and Blacks (n=398). It could therefore be argued that the lack of predictive effect of endorsed auditory-visual hallucinations on remission in Latinos reflects a lack of power. Yet the effect size for the aforementioned analyses on remission is markedly different in the three ethnic-racial groups: The difference in remission rates was 4% in Latinos and 17% and 20% in Whites and Blacks, respectively. Even if the study had been powered to detect a 4% difference in rates, the same difference would not be clinically informative.

Conclusions

The lack of significant differences in outcome for Latinos, and at times for Blacks, endorsing isolated psychotic symptoms cannot be ascribed to a direct antipsychotic effect of treatment, particularly since in STAR*D antipsychotic augmentation was not used. In view of the above, we recommend avoiding preemptive antipsychotic augmentation of the treatment of MDD with isolated auditory-visual hallucinations or paranoid ideation. Instead, a careful psychopathological assessment of the nature of the psychotic symptoms is recommended prior to initiating an antipsychotic drug, especially in Latinos. If the endorsement of a psychotic symptom by itself does not translate into poorer outcome with traditional treatment strategies for MDD, the iatrogenic risks of the antipsychotic augmentation for MDD might not be justified (Henderson, 2008).

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Figure 1. Whites

Remission of MDD in subjects who did and did not endorse “seeing or hearing things that other people didn’t”

Figure 2. Blacks

Remission of MDD in subjects who did and did not endorse “seeing or hearing things that other people didn’t”

Figure 3. Latinos

Remission of MDD in subjects who did and did not endorse “seeing or hearing things that other people didn’t”

O.R. = 1.34
CI 95%: .95-1.89

Figure 4. Whites

Remission of MDD in subjects who did and did not report being “convinced that others are spying” and/or convinced they were “in danger because someone is plotting against [me]”

Figure 5. Blacks

Remission of MDD in subjects who did and did not report being “convinced that others are spying” and/or convinced they were “in danger because someone is plotting against [me]”

Figure 6. Latinos

Remission of MDD in subjects who did and did not report being “convinced that others are spying” and/or convinced they were “in danger because someone is plotting against [me]”

Table 1

Demographic characteristics of subjects who endorsed versus did not endorse auditory-visual hallucinations across racial and ethnic groups.

Baseline Variable	Whites			Blacks			Latinos		
	Yes n=49	No n=187	p-values	Yes n=45	No n=353	p-values	Yes n=17	No n=253	p-values
Endorsement of auditory-visual hallucinations									
Age (mean years $\pm$ SD)	42.3 $\pm$ 4.3	42.1 $\pm$ 3.3	n.s.	42.0 $\pm$ 1.0	42.9 $\pm$ 12.5	n.s.	41.6 $\pm$ 13.7	40.4 $\pm$ 11.9	n.s.
Gender (women)	55%	59%	n.s.	53%	69%	<.05	71%	75%	n.s.
Marital Status (married or Cohabiting with partner)	51%	44%	n.s.	36%	35%	n.s.	35%	50%	n.s.
Education (mean years of schooling $\pm$ SD)	12.0 $\pm$ 2.6	14.2 $\pm$ 2.9	<.001	12.3 $\pm$ 2.0	13.2 $\pm$ 2.7	<.05	11.8 $\pm$ 3.0	12.1 $\pm$ 4.2	n.s.
Currently a student	2%	15%	<.01	7%	15%	n.s.	12%	11%	n.s.
Language preference (Spanish)	n/a	n/a		n/a	n/a		22%	17%	n.s.
Employment (%)	39%	62%	<.005	40%	50%	n.s.	41%	59%	n.s.
Monthly Household Income (mean \$)	1,710 $\pm$ 2,104	2,938 $\pm$ 3,543	<.05	1,232 $\pm$ 1,243	1,866 $\pm$ 2,447	n.s.	1,527 $\pm$ 1,780	1,695 $\pm$ 1,677	n.s.
Care Setting Specialty (%)	71%	66%	n.s.	62%	55%	n.s.	47%	46%	n.s.
Severity of Depression (mean HRDS total score $\pm$ SD)	24.8 $\pm$ 4.3	22.0 $\pm$ 4.8	<.001	26.8 $\pm$ 5.4	23.9 $\pm$ 5.4	=.001	23.2 $\pm$ 5.3	22.4 $\pm$ 4.9	n.s.
Duration of episode (mean days $\pm$ SD)	844 $\pm$ 19	656 $\pm$ 401	n.s.	1,028 $\pm$ 1,487	936 $\pm$ 1,719	n.s.	1,146 $\pm$ 2,342	985 $\pm$ 1,746	n.s.

Baseline Variable	Whites		Blacks		Latinos	
Age of onset for MDD (mean years $\pm$ SD)	24.7 $\pm$ 3.4	25.2 $\pm$ 4.4	n.s.	23.3 $\pm$ 1.8	26.6 $\pm$ 14.2	24.9 $\pm$ 14.0
					26.2 $\pm$ 4.0	n.s.

n.s.= non-significant p-value

n/a= not applicable

Table 2

Demographic characteristics of subjects who endorsed versus did not endorse paranoid ideation across racial and ethnic groups.

Baseline Variable	Whites			Blacks			Latinos		
	Yes n=299	No n=1,628	p- values	Yes n=126	No. n=274	p- values	Yes n=57	No n=213	p- values
Endorsement of paranoid ideation									
Mean age (years $\pm$ SD)	39.2 $\pm$ 12.7	42.7 $\pm$ 13.4	<.001	41.0 $\pm$ 12.2	43.7 $\pm$ 12.3	<.05	38.3 $\pm$ 10.5	41.0 $\pm$ 12.3	n.s.
Gender (women %)	57%	60%	n.s.	60%	70%	n.s.	74%	75%	n.s.
Marital Status (married or cohabiting with partner)	44%	44%	n.s.	33%	35%	n.s.	49%	49%	n.s.
Education (mean years of schooling $\pm$ SD)	13.2 $\pm$ 2.5	14.3 $\pm$ 3.0	<.001	12.8 $\pm$ 2.5	13.3 $\pm$ 2.7	n.s.	12.1 $\pm$ 3.6	12.0 $\pm$ 4.3	n.s.
Currently a student	12%	15%	n.s.	18%	14%	n.s.	14%	11%	n.s.
Language preference (Spanish)	n/a	n/a		n/a	n/a		12%	19%	n.s.
Employment (%)	58%	62%	n.s.	54%	47%	n.s.	53%	60%	n.s.
Monthly Household income (mean \$)	2,215 $\pm$ 2193	3,037 $\pm$ 3702	<.001	1,377 $\pm$ 1,343	1,990 $\pm$ 2,673	<.05	1,656 $\pm$ 1794	1,691 $\pm$ 1653	n.s.
Care Setting Specialty (%)	68%	66%	n.s.	60%	54%	n.s.	44%	47%	n.s.

Baseline Variable	Whites			Blacks			Latinos		
	24.1±5.1	21.7±4.6	<.001	25.5±5.2	23.7±5.6	<.05	23.3±4.8	22.2±4.9	n.s.
Severity of depression (mean HRDS total score ± SD)									
Duration of episode (mean days ± SD)	636±1,391	665±1,422	n.s.	1,113±2,148	865±1,424	n.s.	924±1,468	1,014±1,863	n.s.
Age of onset for MDD (mean years ± SD)	23.0±12.9	25.6±14.6	<.005	25.5±14.4	26.6±13.9	n.s.	25.5±12.7	26.2±14.3	n.s.

n.s.= non-significant p-value

n/a= not applicable