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Quality of Life and Functioning of Hispanic Patients with Major Depressive Disorder Before and After Treatment

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Abstract

Background—Similar rates of remission from Major Depressive Disorder (MDD) have been documented between ethnic groups in response to antidepressant treatment. However, ethnic differences in functional outcomes, including patient-reported quality of life (QOL) and functioning, have not been well-characterized. We compared symptomatic and functional outcomes of antidepressant treatment in Hispanic and non-Hispanic patients with MDD.

Methods—We analyzed 2,280 nonpsychotic treatment-seeking adults with MDD who received citalopram monotherapy in Level 1 of the Sequenced Treatment Alternatives to Relieve Depression study. All subjects (239 Hispanic, 2,041 non-Hispanic) completed QOL, functioning, and depressive symptom severity measures at entry and exit.

Results—Hispanic participants had significantly worse QOL scores at entry and exit ($p < 0.01$). However, after controlling for baseline QOL, there was no difference between Hispanic and non-

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Ethical Approval: All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

Contributors: Dr. Lopez, Dr. IsHak, Mr. Steiner, and Ms. Manier were responsible for the initiation of this manuscript. Mr. Steiner and Mr. Mirocha conducted all statistical analyses. Mr. Steiner, Mr. Mirocha, Mr. Shapiro and Dr. Vanle worked on manuscript revisions. Mr. Parisi, Ms. Chang, Ms. Ganjian, and Dr. Dang were responsible for proofreading the manuscript. Lastly, Dr. IsHak and Dr. Danovitch were involved in drafting revisions, proofreading, and overseeing the entire project. All authors have approved the final version of this article.

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Hispanic patients' QOL at exit (p = .21). There were no significant between-group differences at entry or at exit for depressive symptom severity or functioning. Both groups had significant improvements in depressive symptom severity, QOL, and functioning from entry to exit (all p values < 0.01). Patients with private insurance had lower depressive symptom severity, greater QOL, and better functioning at exit compared to patients without private insurance.

Limitations—This study was a retrospective data analysis, and the Hispanic group was relatively small compared to the non-Hispanic group.

Conclusions—Hispanic and non-Hispanic participants with MDD had similar responses to antidepressant treatment as measured by depressive symptom severity scores, quality of life, and functioning. Nevertheless, Hispanic patients reported significantly worse quality of life at entry.

Keywords

Hispanic; Latino/a; Major Depressive Disorder; Quality of Life; Functioning; SSRI

Introduction

Major depressive disorder (MDD) affects 350 million people worldwide and is the leading cause of disability among mental health disorders (World Health Organization, 2016). MDD is associated with greater morbidity and mortality, both as a standalone diagnosis and in the context of other medical illnesses such as coronary heart disease, myocardial infarction and HIV/AIDS (Fawcett, 1993; Leserman, 2008; Pence, 2009; Whooley et al., 2008). Patients with MDD present symptoms of depression and impairments in functioning and quality of life (QOL) (IsHak et al., 2011). QOL is an individual's perception and satisfaction of their psychological, social and physical health (World Health Organization, 1997). In recent years, there has been increased attention on enhancing QOL, as it is strongly correlated with greater MDD symptom severity via socio-demographic factors such as employment, education, race and medical insurance status (Trivedi et al., 2006). Additionally, a number of studies have demonstrated that antidepressant monotherapy improves QOL in MDD, as measured by various validated assessment tools (Chokka & Legault, 2008; Demyttenaere, Andersen, & Reines, 2008; Ishak et al., 2011; Kocsis et al., 2002; Steiner et al., 2017).

The Hispanic population is currently the largest ethnic minority in the United States, with MDD rates similar to non-Hispanic Whites (Murray & Lopez, 1997), although some data suggest a higher prevalence among Hispanics (Blazer, Kessler, McGonagle, & Swartz, 1994; Dunlop, Song, Lyons, Manheim, & Chang, 2003). Despite the high burden of MDD, most studies suggest that Hispanics are less likely than non-Hispanic Whites to seek mental health care and are also less likely to receive appropriate treatment for depression (Simpson, Krishnan, Kunik, & Ruiz, 2007; Young, Klap, Sherbourne, & Wells, 2001). Several studies have identified factors that may predispose Hispanics to disparities for MDD treatment, including language and health literacy barriers, lower cultural acceptability and reduced adherence to antidepressants, and a higher uninsurance rate, as compared to non-Hispanic Whites (Harman, Edlund, & Fortney, 2004; Lagomasino et al., 2005; Miranda & Cooper, 2004; Schraufnagel, Wagner, Miranda, & Roy-Byrne, 2006; Young, Klap, Sherbourne, & Wells, 2001). In fact, the uninsurance rate is 2.6 times higher for Hispanics than non-

Hispanic Whites and was correlated to worse health outcomes (Denavas-Walt, Proctor, & Smith, 2011). Additionally, Hispanics are less likely to have private insurance coverage, and may contribute to MDD treatment disparity, given that publicly insured patients have greater severity of depression, greater functional impairment, and lower life satisfaction, as compared to privately insured patients (Lesser et al., 2005). Furthermore, as the demographics of United States continue to change, there are other sociocultural variables that often contribute to racial marginalization for Hispanics, such as public education disparities (Mordechay & Orfield, 2017). Numerous factors related to education inequality can have a significant influence on patients' ability to gain access to healthcare, and navigate the healthcare system, which may ultimately affect health outcomes in the landscape of American mental-health for Hispanics.

Previous studies examining antidepressant treatment response in Hispanics with MDD demonstrated similar rates of symptom remission compared to other ethnic groups (Lesser et al., 2007; Lesser et al., 2011), but few studies have compared functional outcomes such as QOL and functioning by ethnicity. A secondary analysis reported these functional outcomes among ethnicities, the Combining Medications to Enhance Depression Outcomes (CO-MED) study, which determined that symptom remission, QOL and functioning outcomes were similar among Hispanics, Whites, and Blacks, after treatment with single or combined antidepressant therapy (Lesser et al., 2011). The Sequenced Treatment Alternatives to Relieve Depression (STAR*D) study, which was funded by the National Institutes of Health (NIH), remains the largest prospective randomized, multicenter, multistep clinical trial examining treatment efficacy for nonpsychotic individuals with persistent MDD in outpatient settings to date (Fava et al., 2003; Rush et al., 2004). The STAR*D study also contains the largest number of ethnic minority patients in a single clinical trial for depression, and includes systematic collection of patient-reported QOL, functioning, and depressive symptom severity data. The STAR*D study was designed to ascertain the efficacy of various antidepressant treatments for MDD in patients who did not respond to initial treatment of MDD with citalopram, a first-line selective serotonin reuptake inhibitor (SSRI) antidepressant.

In light of an increasing recognition of QOL as an important clinical outcome, this study presents a formal comparison of QOL, functioning, and depressive symptom outcomes in the STAR*D trial between Hispanic and non-Hispanic individuals with MDD, before and after citalopram monotherapy. Based on the data suggesting similar symptom remission rates between Hispanics and other ethnic groups with MDD treated with antidepressants, we hypothesized that Hispanic patients would have comparable improvements in QOL and functioning in response to antidepressant monotherapy compared to non-Hispanic patients.

Methods

Participants

Any participants who met criteria for remission upon entry to level 1, or who were missing complete entry and exit scores, were excluded from data analyses. Level 1 of the STAR*D study was a fixed-flexible dosing schedule for citalopram monotherapy, with permitted modifications based on treatment response per individual. Any participants who were unable

to achieve remission by 14 weeks advanced to the next subsequent treatment level of the STAR*D study. Our sample included 2,280 participants stratified by ethnicity into Hispanic (N = 239) and non-Hispanic (N = 2,041) adults, who completed measures assessing depressive symptom severity, QOL and functioning before and after 12–14 weeks of citalopram monotherapy. In order to determine concurrent Axis 1 diagnoses, the Psychiatric Diagnostic Screening Questionnaire was administered (Zimmerman and Mattia, 2001a, b). All participants in the STAR*D study consented to participate in the study. To conduct data analysis for this study, we acquired a certificate from the NIH to access and use the STAR*D Pub Ver3 dataset.

Measures

QOL was assessed using the 16-item QOL Enjoyment Satisfaction Questionnaire-Short Form (Q-LES-Q) (Endicott, Nee, Harrison, & Blumenthal, 1993), which is a self-reported measure that assesses enjoyment and satisfaction across several domains, with higher scores representing better QOL. The WHO acquired community norms and found the mean value of the Q-LES-Q was 78.3 (SD = 11.3) (WHOQOL, 1997). Scores that fall within one standard deviation of the community norms (scores ≥ 67) are defined as 'within-normal' QOL. Scores less than or equal to two standard deviations below the mean (scores ≤ 55.7) were classified as 'severely-impaired' QOL (Schechter et al., 2007). The Q-LES-Q has robust psychometric properties (Cronbach's α = 0.90, test-retest reliability r = 0.74) (Endicott et al., 1993). To assess functioning, the Work and Social Adjustment Scale (WSAS) was chosen on the premises of good psychometric properties (Cronbach's α range = .70–.94, test-retest reliability r = 0.73). Scores range from 0 (best possible functioning) to 40 (worst possible functioning) (Mundt, Marks, Shear, & Greist, 2002). Previous work operationally defined within-normal scores on the WSAS as < 10 and scores ≥ 20 as severely-impaired (Mundt, Marks, Shear, & Greist, 2002). Lastly, to quantify depressive symptom severity, the Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR) (Rush et al., 2003) was selected due to its high internal consistency (Cronbach's α = .86), and convergent validity with the clinician-rated Hamilton Rating Scale for Depression (Hamilton, 1960) and the Beck Depression Inventory-II (Beck, Guth, Steer, & Ball, 1997). The range of scores for the QIDS-SR is between 0 (no depression) and 27 (severe depression); with remission defined as QIDS-SR scores ≤5 post-treatment (Rush et al., 2003).

Statistical Analyses

All raw scores (Q-LES-Q, QIDS-SR, WSAS) had approximately normal distributions for the Hispanic and Non-Hispanic group. Sample sizes in each group were sufficiently large enough to overcome normality violations. Continuous variables, means and standard deviations (SD), are represented in the tables, whereas categorical variables include frequencies and percentages. The majority of between-group comparisons were conducted using student's t-tests for independent samples and all within-group comparisons were conducted using paired samples t-tests. However, two-way ANOVAs were run to test for possible interactions between Hispanic status and private insurance status on all outcome variables at entry and at exit, and additional ANCOVAs controlling for baseline QOL scores for each outcome measure at exit were also conducted. Effect size was measured by

calculating Cohen's *d* where values were represented as .2 (small), .5 (medium), and .8 (large) effect sizes (Cohen, 1988, Kraemer et al., 2011). While Cohen's *d* values assessed treatment effects from pre- to post-treatment, we used Equation 3 from Dunlap and colleagues (1996) in order to correct for Cohen's *d* for correlated designs. To assess between-group differences of categorical variables, we used Chi-square test or Fisher exact test when necessary ($N \leq 10$ per cell). We used McNemar's test for related proportions to compare within-group entry to exit frequencies. The significance level was adjusted of 0.01 for all outcome variables, in order to control the type 1 error rate and to correct for the number of statistical tests applied. Data analysis in the current study was run using Version 22 of IBM Statistical Package for the Social Sciences software (IBM Corp., Armonk, NY).

Results

Patient Demographic and Clinical Characteristics

Demographic characteristics of Hispanic ($n = 239$) and non-Hispanic ($n = 2,041$) patients with MDD are presented in Table 1. The non-Hispanic group was 77.1% Caucasian, 17.8% African-American, 2.5% Asians 1.7% American Indian or Alaskan Native, 0.8% Native Hawaiian or Pacific Islander and 0.1% mixed ethnicity but not Hispanic. Hispanics were more commonly female and were less likely to be college graduates as compared to non-Hispanics. Age, employment rate, and percentage living with a spouse/partner were similar between the two groups. Private insurance status data was available for 98.3% of our sample, and 53.4% of the our studies population had private insurance (as seen in Table 1). Of note, non-Hispanic patients (55.3%) were significantly more likely to have private insurance compared to Hispanic patients(37.4%; $P = <.01$).

Comparisons of Depressive Symptom Severity, QOL and Functioning among Hispanics and non-Hispanics with MDD, and Interactive Effects of Private Insurance Status

Entry scores (level 1) of the STAR*D Trial in depressive symptom severity, QOL and functioning are reported among Hispanics and non-Hispanics as presented in Table 2. At study entry, QOL was significantly lower in Hispanics ($P < 0.01$) while there were no significant between-group differences for depressive symptom severity or functioning. After treatment, both Hispanic and non-Hispanic participants had significant improvements in all measures (all *P* values <0.01, Cohen's *d* value range = .68 – 1.05). However, at study exit, QOL ($P < 0.01$) remained significantly lower among Hispanics, while depressive symptom severity and functioning were similar ($P = 0.06$ and $P = 0.05$, respectively) as compared to non-Hispanics. Given the fact that baseline QOL was significantly lower for the Hispanic group, we conducted additional ANCOVAs controlling for baseline QOL for all outcome variables at exit. After controlling for baseline QOL, the findings remained the same for depressive symptom severity and functioning ($P = 0.65$ and $P = 0.76$, respectively), as there were no significant differences between Hispanics and non-Hispanics. Yet, after controlling for baseline QOL, there was no longer a significant difference between Hispanics and non-Hispanics for QOL at exit ($P = .21$).

As non-Hispanics were significantly more likely to have private insurance, we conducted two-way ANOVAs to test for main effects, and interactions between Hispanic status and

private insurance status; ANOVAs were conducted for all outcome variables (QOL, functioning, depressive symptom severity), at entry and exit. For depressive symptom severity, there were no significant interactions at entry or exit, but there was a main effect for private insurance status, such that individuals with private insurance had significantly lower depressive symptom severity at exit ($P < .01$, partial Eta-squared = .01). For QOL at entry, there was a significant interaction, such that non-Hispanic individuals with private insurance had the highest QOL scores ($P < .01$), but there was no significant interaction for QOL at exit. There was, however, a main effect for private insurance status, such that individuals with private insurance had significantly higher QOL at exit ($P < .01$, partial Eta-squared = .01). Last, there were no significant interactions at entry or exit for functioning, but there was a main effect for private insurance status, such that individuals with private insurance had significantly higher functioning at exit ($P < .01$, partial Eta-squared = .01).

Percentages of Participants with Within-Normal QOL and Functioning Before and After Treatment

Table 3 depicts the percentages of participants scoring 'within-normal' QOL (Q-LES-Q ≥67) and functioning (WSAS < 10) at entry and exit for the overall study population. At study entry, the proportion of Hispanic and non-Hispanic participants with within-normal QOL and functioning did not differ significantly. Both groups had significant increases in the percentage of patients 'within-normal' QOL and functioning. The only significant difference was at study exit, non-Hispanics had a significantly higher percentage of participants with within-normal QOL (35.0%) as compared to Hispanics (25.9%).

Percentages of Participants with Severely Impaired QOL and Functioning Before and After Treatment

The percentages of participants with severely-impaired QOL and functioning at entry and exit are displayed in Table 4. At study entry, 85.6% of the total participants in the study reported severely-impaired QOL, while 65.8% reported severely-impaired functioning. The percentage of patients reporting severely-impaired QOL and functioning did not differ between Hispanics and non-Hispanics at study entry and exit. Both groups had statistically significant improvements in the percentage reporting severely-impaired QOL and functioning after treatment ($P < 0.01$).

Discussion

In this retrospective secondary data analysis of the STAR*D trial, we hypothesized that Hispanics with MDD would respond similarly to antidepressant monotherapy as non-Hispanics with MDD. Both groups demonstrated moderate to strong improvements after treatment in severity of depressive symptoms, QOL, and functioning. Hispanics had a lower QOL at study entry, but not at exit (after controlling for baseline QOL), compared to non-Hispanics. After treatment, Hispanics also exhibited significantly lower proportions in the within-normal QOL range compared to non-Hispanics.

The findings of this study suggest that Hispanic individuals respond favorably to antidepressant treatment; however, disparities in health care access and utilization among

Hispanics may limit efforts to reduce the burden of major depressive disorder in this population. This is particularly concerning since MDD is equally, if not more prevalent, among minority groups as compared to non-minorities (Blazer, Kessler, McGonagle, & Swartz, 1994; Dunlop, Song, Lyons, Manheim, & Chang, 2003; Murray & Lopez, 1997). These disparities might explain the relatively lower QOL among Hispanic patients at study entry.

Lesser and colleagues (2005) were the first to report on the relationship between health insurance and a number of treatment outcomes (e.g., depressive symptom severity, life satisfaction, and functioning) at entry to Level 1 of the STAR*D study. We were also able to report on the findings of the observed relationship between QOL, depressive symptom severity, and functioning at entry and at exit of Level 1. Our findings are largely consistent with the previous efforts of Lesser and colleagues (2005), as there was a significant interaction between Hispanic status and private insurance status, such that non-Hispanic individuals with private insurance had the greatest QOL scores at entry, and in general, individuals with private health insurance had lower depressive symptom severity, greater QOL, and better functioning at exit compared to patients without private insurance. While there are a multitude of factors that could explain this interaction, the results certainly beg the question of whether or not access to private insurance may influence patient-reported QOL. Future investigators should certainly continue to examine this relationship, as well as other factors that place Hispanic patients at risk for worse QOL compared to other ethnic cohorts.

Whereas the countless reasons for our observed findings remains speculative, and any number of theoretical explanations without objective data would be conjecture, we greatly encourage future researchers to examine sociocultural variables that explain some of the variance in treatment responses and outcomes in antidepressant clinical trials. We strongly encourage future researchers to examine the role that demographic characteristics, particularly those that serve as proxies for marginalization and inequality, play in clinical trials. As these factors continue to be identified, interventions that directly target these factors, or help to attenuate the effect of such variables, can be applied in clinical practice. For example, while we know that pharmacotherapy in conjunction with psychotherapy has the greatest efficacy in reducing depressive symptom severity, we have yet to routinely incorporate standardized psychotherapy interventions into clinical trials. In particular, researchers should strive to incorporate interventions that are culturally-informed and culturally sensitive, as well as validated among various ethnic cohorts. While Level 1 of the STAR*D study did not include psychotherapy, Level 2 did, in order to augment treatment response. As such, there remains a number of research questions that have yet to be answered with the STAR*D dataset, which could further elucidated important relationships.

The cultural perspective on antidepressants and treatment adherence may have contributed to the lower QOL exit response (when examining proportions of patients with within-normal scores at exit), despite equivalent treatment efficacy. Conversely, after controlling for baseline QOL, there was no significant difference between Hispanics and non-Hispanics on QOL at exit. Another explanation for the relatively lower exit QOL in Hispanics is inadequate antidepressant response, under the assumption that more severely-impaired QOL

at study entry can allow for more clinical improvement. In contrast, the CO-MED study found higher Quality of Life Inventory (QOLI) scores among Hispanics as compared to Blacks and Whites, at both baseline and at exit (28 weeks) of antidepressant treatment, though the Hispanic group had a markedly higher employment rate at baseline than the other groups (Lesser et al., 2011). However, our findings of equivalent improvement in symptom remission, QOL and functioning in Hispanics corroborates similar observations in the CO-MED study. Outside of this explanation, there may be other biological explanations for Hispanics worse treatment responses, and the field of pharmacogenetics is a promising area of study that may help to elucidate the relationship between the genetics of homogeneous cohorts and treatment responses. While this is largely outside of the scope of the current study, we surely encourage future researchers to examine the role of pharmacogenetics in clinical trials for depression. In relation, we find it interesting that in the face of equivalent depressive symptom severity at entry and exit, Hispanic patients had worse QOL at entry to the study. As depressive symptom severity often has a direct negative effect on QOL, we are left to wonder what explains Hispanics report of lower QOL at entry to the study, or even the lower proportions of Hispanic patients able to achieve within-normal QOL at exit to the study, compared to non-Hispanic patients. Thus, findings like this support the assumption that there are other factors, likely psychosocial ones, which are negatively influencing Hispanic patients' report of QOL. Again, we hope to underline the importance of future investigators attempts to characterize the consequences of marginalization, inequality, and disparity from a biopsychosocial theoretical framework.

Collaborative interventions such as educational sessions, telephone sessions, family involvement and counseling are reportedly highly effective in Hispanic patients (Dwight-Johnson et al., 2010); however, it would be of interest to explore whether combined pharmacologic and non-pharmacologic treatment would result in similar QOL and functioning scores at study exit among Hispanics and non-Hispanics with MDD. Since Hispanics are less likely to receive both pharmacologic and non-pharmacologic treatments for depression as compared to Caucasians (Lagomasino et al., 2005; Schraufnagel, Wagner, Miranda, & Roy-Byrne, 2006), addressing disparities in access and care remain a crucial means of reducing the burden of MDD within this group.

These findings are consistent with previous clinical trials reporting little to no difference in treatment outcomes between minorities and predominantly Caucasian groups receiving antidepressant therapy for MDD (Lesser et al., 2007; Lesser et al., 2011; Lewis-Fernandez et al., 2006; Rollman et al., 2002; Roy-Byrne, Perera, Pitts, & Christi, 2005). A limitation of previous randomized controlled trials is the exclusion of patients with comorbid psychiatric disorders, severe medical illness, or recent drug or alcohol use. This practice may have limited generalizability to patients with MDD who so often present with comorbid conditions. By contrast, the STAR*D trial was far more inclusive and recruited patients largely from primary care settings. It is important to note that our analyses compared Hispanics to a non-Hispanic cohort comprised not only of Caucasians, but also other minority groups, including African-Americans. The benefit of this approach was that it allowed to some extent, for the comparison of the ethno-cultural factors that may predispose disparities in treatment outcomes between Hispanics and the general population.

Study Limitations and Strengths

There are several limitations of the present study. Although the STAR*D study is one of the largest of its kind, the lack of a control group and sole reliance on self-reported questionnaires for depression, QOL, and functioning are natural limitations. However, the STAR*D study was designed to evaluate treatment efficacy of a variety of pharmacological agents among patients with recurring depressive episodes, and as such, a control group was not necessitated. Although the WSAS, Q-LES-Q, and QIDS-SR have well established validity, a clinician's assessment would have strengthened the findings. Another limitation related to the STAR*D study is the concern that there was no formal monitoring of medication adherence, or dispersion recording devices used by participants. As such, this is a potential confound, as some patients may not have been fully adherent to their medication regimens, even in the context of convincing reinforcement to continue medication adherence by their treating physicians. In relation, as a fixed-flexible dosing schedule was employed, it is difficult to compare dose-dependent treatment responses with STAR*D data. Additionally, Hispanics comprised only 10% of this study population, but encompass 16% of the U.S. population (U.S. Census Bureau, 2010). While the comparison of a relatively small sample of Hispanic patients (n = 239) to a larger sample of non-Hispanic patients (n = 2,041) poses some inherent risks, all of the data remained sufficiently large enough to retain adequate power, and all outcome variables had normal distributions; all normality assumptions were met, even in the smaller group. Regarding demographic differences, previous STAR*D investigators reported that patients who were lower income, younger, less educated, and African-American were more likely to drop out of the STAR*D study (Warden et al., 2007). Thus, there is some concern pertaining to attrition, such that the external validity of the STAR*D sample may not generalize to the whole United States population; future researchers should continue to examine the contributing characteristics to attrition in SSRI clinical trials. Strengths of this study include that the STAR*D trial contains the largest number of ethnic minority patients in a clinical trial for depression, and employs validated assessments of depressive symptoms and QOL and functioning. Considering the relatively few inclusion and exclusion criteria of the trial, these findings are highly generalizable to the general population.

Conclusion

Our analysis highlights the importance for clinicians and researchers to incorporate patient-reported functional outcomes such as QOL and functioning when evaluating the efficacy of depression interventions. Hispanics and non-Hispanics showed significant improvements in symptoms of depression, QOL and functioning after treatment with citalopram for MDD, despite relatively low QOL at study entry and exit (but not after controlling for baseline QOL). The Hispanic population with MDD is a high-risk population for low QOL, and further research is needed to identify the reasons for poor QOL, and implementation of treatments that positively affect the QOL among the depressed Hispanic population; this is particularly critical, as Hispanics had worse QOL at entry. In addition to these findings, analysis revealed that Hispanic patients were less likely to have private insurance compared to non-Hispanic patients. Furthermore, patients with private insurance had lower depressive symptom severity, greater QOL, and better functioning at exit compared to patients without

private insurance. There was also a significant interaction, such that non-Hispanic individuals with private insurance had the highest QOL scores at entry. Additionally, the observed efficacy of antidepressants among Hispanics in this study provides compelling reason to address the disparity in access to healthcare among Hispanics and other minority groups.

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Highlights

1. Hispanics and non-Hispanics reported similar depression at entry and exit.
2. Hispanic had worse QOL at entry and exit (not after controlling for baseline QOL).
3. Significant improvements in QOL, functioning, and depression following treatment.
4. Hispanics were less likely to have private insurance compared to non-Hispanics.

Table 1

Baseline Characteristics of Participants with Major Depressive Disorder at level 1 Entry of the STAR*D Trial

	ALL	Hispanic	Non-Hispanic	*P*[*]
Number of Subjects	2,280	239	2,041	-
Age Range	18.1 – 75.6	18.4 – 75.0	18.1 – 75.6	
Mean Age (SD)	42.6 (13.0)	42.0 (12.7)	42.7 (13.1)	0.45
Female	1,431 (62.8%)	179 (74.9%)	1,252 (61.4%)	<0.01
College Graduate	685 (30.1%)	37 (15.5%)	648 (31.8%)	<0.01
Employed	1,301 (57.1%)	125 (52.3%)	1,176 (57.6%)	0.12
Living with Spouse/Partner	1,046 (45.9%)	116 (48.5%)	930 (45.6%)	0.39
Private Health Insurance	1196 (53.4%)	88 (37.4%)	1108 (55.3%)	<0.01

A p value of < 0.01 was considered indicative of statistical significance.

[*]Based on independent samples t-test.

Table 2

Comparisons of Depressive Symptom Severity, QOL and Functioning among Participants with Major Depressive Disorder Before and After Antidepressant Treatment

Depressive Symptom Severity (QIDS-SR)	N	QIDS-SR Entry	QIDS-SR Exit	Mean Change	*P**	Effect Size†
ALL	2,280	15.6 (4.8)	9.5 (6.5)	−6.1 (6.5)	< 0.01	1.05
Hispanic	239	16.3 (4.8)	10.2 (6.4)	−6.0 (6.3)	< 0.01	1.05
Non-Hispanic	2,041	15.6 (4.8)	9.5 (6.5)	−6.1 (6.5)	< 0.01	1.05
P‡	-	0.02	0.06	0.84	-	-
QOL (Q-LES-Q)	**N**	**Q-LES-Q Entry**	**Q-LES-Q Exit**	**Mean Change**	***P****	**Effect Size†**
ALL	2,280	41.5 (14.2)	56.6 (21.9)	15.1 (19.4)	< 0.01	0.78
Hispanic	239	38.2 (14.9)	52.6 (21.4)	14.4 (18.9)	< 0.01	0.76
Non-Hispanic	2,041	41.9 (14.1)	57.0 (22.0)	15.2 (19.5)	< 0.01	0.79
P‡	-	<0.01	<0.01	0.57	-	-
Functioning (WSAS)	**N**	**WSAS Entry**	**WSAS Exit**	**Mean Change**	***P****	**Effect Size†**
ALL	2,280	23.8 (8.9)	15.5 (12.1)	−8.3 (11.2)	< 0.01	0.77
Hispanic	239	24.3 (9.8)	16.9 (11.7)	−7.4 (12.0)	< 0.01	0.68
Non-Hispanic	2,041	23.8 (8.8)	15.3 (12.1)	−8.4 (11.2)	< 0.01	0.78
P‡	-	0.39	0.05	0.16	-	-

Abbreviations: QIDS-SR = Quick Inventory of Depressive Symptomatology – Self Report; WSAS = Work and Social Adjustment Scale; Q-LES-Q = QOL, Enjoyment, and Satisfaction Questionnaire – Short Form.

A p value of < 0.01 was considered indicative of statistical significance.

*Within-group p values comparing entry to exit, based on McNemar Test for related proportions.

†Effect Sizes with Dunlap correction (Dunlap et al., 1996).

‡Between-group p values, based on independent samples t-test.

Table 3

Proportions of Participants with Within-Normal QOL and Functioning Before and After Antidepressant Treatment

	N	Within-Normal QOL, Entry (%)	Within-Normal QOL, Exit (%)	P^*
ALL	2,280	3.2	34.0	<0.01
Hispanic	239	1.7	25.9	<0.01
Non- Hispanic	2,041	3.4	35.0	<0.01
$P^\dagger$	-	0.17	<0.01	-
Functioning (WSAS)	**N**	**Within-Normal Functioning, Entry (%)**	**Within-Normal Functioning, Exit (%)**	P^*
ALL	2,280	6.7	38.5	<0.01
Hispanic	239	9.2	33.5	<0.01
Non-Hispanic	2,041	6.4	39.1	<0.01
$P^\dagger$	-	0.10	0.09	-

Abbreviations: Q-LES-Q = QOL, Enjoyment, and Satisfaction Questionnaire – Short Form; WSAS = Work and Social Adjustment Scale.

A p value of < 0.01 was considered indicative of statistical significance.

Within-normal QOL and functioning were defined as Q-LES-Q ≥ 67 and WSAS < 10, respectively.

*Within-group significance values comparing entry to exit, based on McNemar Test for related proportions.

†Between-group significance values were calculated with Chi-square test or Fisher exact test.

Table 4

Proportions of Participants with Severely Impaired QOL and Functioning Before and After Treatment

QOL (Q-LES-Q)	N	Severely-Impaired QOL, Entry (%)	Severely-Impaired QOL, Exit (%)	*P**
ALL	2,280	85.6	50.5	<0.01
Hispanic	239	89.5	56.1	<0.01
Non-Hispanic	2,041	85.1	49.8	<0.01
p†	-	0.07	0.07	-
Functioning (WSAS)	**N**	**Severely-Impaired Functioning, Entry (%)**	**Severely-Impaired Functioning, Exit (%)**	***P****
ALL	2,280	65.8	36.2	<0.01
Hispanic	239	68.2	37.7	<0.01
Non-Hispanic	2,041	65.5	36.0	<0.01
p†	-	0.40	0.62	-

Abbreviations: Q-LES-Q = QOL, Enjoyment, and Satisfaction Questionnaire – Short Form; WSAS = Work and Social Adjustment Scale.

A p value of < 0.01 was considered indicative of statistical significance.

Severely-impaired QOL and functioning were defined as Q-LES-Q < 55.7 and WSAS > 20, respectively.

*Within-group significance values comparing entry to exit, based on McNemar Test for related proportions.

†Between-group significance values were calculated with Chi-square test or Fisher exact test.