

## *A comparison of positive and negative symptoms in Anglo, Latino, and African-American patients with schizophrenia*

Amy Weisman de Mamani<sup>1</sup>

University of Miami, USA

Tiffany Caldas

University of California, Los Angeles, USA

### Abstract

There are two main classes of schizophrenia symptoms: positive (e.g., hallucinations and delusions) and negative (e.g., flat affect and poverty of speech). Research by Crow (1980, 1985) proposes that negative symptoms indicate irreversible structural brain abnormality and therefore, unlike positive symptoms, may be less responsive to environmental factors. If Crow's theory is correct, this might lead us to hypothesize that environmental factors associated with culture and ethnicity may have more of an impact on the expression of positive rather than negative symptoms. We aimed to test this hypothesis in the current study. Our sample consisted of 47 participants (16 Anglo, 17 Latino, and 14 African-American) diagnosed with schizophrenia. In line with Crow's hypotheses, Analyses of Variance (ANOVAs) revealed ethnic differences in positive but not negative symptoms. These results suggest that efforts to target environmental and sociocultural factors may be more effective in reducing positive than negative symptoms.

*Keywords:* ethnicity, psychopathology, symptom type

### Una comparación de los síntomas positivos y negativos en pacientes Anglos, Latino/as, y afroamericanos con esquizofrenia

#### Resumen

Hay dos categorías principales de síntomas esquizofrénicos: positivos (e.g. alucinaciones y delirios) y negativos (e.g. apatía y pobreza del lenguaje). Las investigaciones de Crow (1980, 1985) proponen que los síntomas negativos indican anomalías estructurales e irreversibles en el cerebro, y por lo tanto, a diferencia de los síntomas positivos, puede ser que sean menos receptivas a factores del medio ambiente. Si la teoría de Crow es correcta, puede llevarnos a postular que los factores del medio ambiente asociados con la cultura y la etnicidad puede tener un mayor impacto en la expresión de síntomas positivos, mas que los negativos. Nuestro propósito fue probar esta hipótesis en esta investigación. Nuestra muestra consistió de 47 participantes (16 angloamericanos, 17 latinoamericanos y 14 afroamericanos) diagnosticados con esquizofrenia. De acuerdo con la hipótesis de Crow, los Análisis de Varianza (ANOVAs) revelaron diferencias étnicas en los síntomas positivos, pero no en los síntomas negativos. Estos resultados sugieren que técnicas terapéuticas enfocadas en los factores del medio ambiente y socioculturales pueden ser más efectivas en reducir síntomas positivos que los síntomas negativos.

*Palabras claves:* etnicidad, psicopatología, tipo de síntomas

Schizophrenia, one of the most debilitating psychiatric disorders (Minzenberg & Carter 2012), takes a harsh toll on both afflicted patients and their loved ones (Suro & Weisman de Mamani, 2013). There is strong evidence that schizophrenia has genetic origins (Yang et al. 2012). However, environmental stress and cultural

factors appear to contribute to the severity of the illness (Koneru & Weisman de Mamani, 2006; Mueser & Gingerich, 2006; Weisman, 2005; Weisman & Lopez, 1996; Weisman, Duarte, Koneru, & Wasserman, 2006).

Schizophrenia involves two broad categories of symptoms (American Psychological Association [APA], 1994). Positive symptoms refer to behavioral excesses such as hallucinations and delusions. Negative symptoms refer to behavioral deficits such as apathy, flattening of affect, poverty of speech and loss of drive to participate in daily activities such as cleaning, cooking, or changing clothes (APA, 1994).

<sup>1</sup> Correspondence about this article should be addressed Amy Weisman de Mamani, University of Miami, Dept. of Psych, 5665 Ponce de Leon Blvd., Coral Gables, FL 33146. Email address: aweisman@miami.edu

These two syndromes reflect separate pathological processes within schizophrenia, but are not thought to reflect separate diseases (Brekke & Barrio, 1997; Crow, 1980; Crow, 1985).

Several authors have noted different trajectories for positive and negative symptoms. For example, using data from the National Institute of Mental Health CATIE trial, Rabinowitz et al. (2012) found that in schizophrenia, negative symptoms have greater impact on functioning than positive symptoms. Several studies have also observed that negative symptoms are more treatment resistant. This supports a model presented by Crow (1980, 1985) over thirty years ago. He suggested that negative symptoms indicate structural abnormalities in the brain. As such, he purported that they are less likely than positive symptoms to respond to treatment efforts or other environmental factors such as ethnic and cultural influences.

Striking cultural and ethnic differences have also been found with respect to diagnostic and symptom patterns in schizophrenia. For example, Minsky, Vega, Miskimen, Gara, and Escobar (2003) found that African Americans are twice as likely to be diagnosed with schizophrenia than Anglos. Additionally, researchers have found that African-American patients, relative to Anglo patients, displayed more pronounced hallucinations and delusions and other symptoms such as heightened paranoia (Chu, Sallach, Zakeria, & Klein, 1985; Whaley, 1998). Some literature also suggests that Anglos have higher symptom severity than do Latinos. For example, Weisman et al. (2000) found that Anglos experienced more persecutory delusions than did Mexican Americans.

### Study Aims and Hypotheses

Our primary study aim is to test whether Crow's view can be applied to understand ethnic differences in symptom severity. Specifically, based on Crow's theory (1980, 1985) we hypothesize that positive but not negative symptom severity will differ between ethnic groups. As a secondary study aim, if ethnic differences are indeed found we will examine where these differences lie.

### Method

#### Participants

This study sample was drawn from a project examining sociocultural factors in schizophrenia (Weisman de Mamani, Kymalainen, Rosales, & Armesto, 2007). Participants included 47 patients diagnosed with schizophrenia or schizoaffective disorder based on psychiatrist reporting using Diagnostic and Statistical

Manual of Mental Disorders 4th edition (DSM-IV) criteria. In the sample, 14 of the patients were African American, 16 were Anglo, and 17 were Latino. Ethnicity was based on participant self-report.

#### Procedure

Eligible participants were contacted by their social worker or mental health worker and were informed of the study. Participants who were previously diagnosed with schizophrenia or schizoaffective disorder by a qualified mental health practitioner (e.g., licensed psychiatrist, psychologist) and who appeared to meet DSM-IV criteria based on an initial phone screening by a licensed clinical psychologist were invited to participate in the study. The team contacted the participant, provided information about the study, and if the participant was interested, set up an assessment appointment. Assessments usually occurred in the home of the patient but occasionally at an alternative site (i.e., the participant's mental health agency). Assessments lasted approximately an hour and participants were compensated \$15.00 for their participation.

#### Language translation of measures

Three of the four interviewers were fully proficient in Spanish. Latino participants were given a choice of completing the assessment in either English or Spanish; Fifteen of the Latino participants completed the assessment in Spanish. Translation of measures was done using an editorial board approach, which is considered an effective alternative to translation back translation (Geisinger, 1994). See Weisman et al (2007) for more details on the translation process.

#### Overview of measures

**Demographics.** A demographic sheet was included to assess patients' gender, age, ethnicity, educational level, primary language, and socioeconomic status (SES). Occupational differences were recorded by grouping them into the following five categories: (a) Professional/skilled, (b) blue collar unskilled, (c) homemaker, (d) retired, (e) unemployed or disabled.

**Symptom functioning.** Participant's psychiatric symptoms were rated using the Brief Psychiatric Rating Scale [BPRS] (Ventura et al., 1993). The BPRS is a 24 item semi-structured interview, which assessed the following eight primary areas: (a) Unusual thought content, (b) hallucinations, (c) conceptual disorganization, (d) depression, (e) suicidality, (f) self-neglect, (g) bizarre behavior, and (h) hostility. The scale has been widely used in English and in Spanish and has demonstrated good reliability with Anglos and minorities alike (Caram, Agraz, Ramos, & García, 2001; Nuechterlein et al., 1992). The study

Principal Investigator served as the BPRS trainer and one of the primary interviewers on the current project. She completed a BPRS training and quality assurance program at the University of California, Los Angeles. To assess her reliability at the end of this course, she was evaluated across 10 interviews and achieved a mean intraclass correlation coefficient of .93 with the trainer and an intraclass coefficient above .80 for all 24 scale items. She conducted several of the BPRS interviews herself and co-rated 20% of the remaining interviews to assess interrater reliability. Intraclass correlation coefficients on the co-rated interviews ranged from .74 to 1.00 for all scale items across assessors. In line with Guy's (1976) criteria, a positive factor score was obtained by summing across the following items: (a) Conceptual disorder, (b) grandiosity, (c) hallucinations, and (d) unusual thought content. Similarly, using Guy's (1976) criteria, a negative symptom score was obtained by summing across the following items: (a) Emotional withdrawal, (b) motor retardation, (c) blunted affect, and (d) disorientation.

## Results

### Demographic characteristics

Participants' age had a mean of 39.10 ( $SD = 11.32$ ) and ranged from 19 to 63. Percentage breakdown for

the participants' occupations were: 5.3% professional/skilled, 8.8% blue collar unskilled, 1.8% homemaker, 3.5% retired, and 63.2% unemployed or disabled (17.5% did not disclose any occupation type). A one-way analysis of variance revealed no significant differences between ethnic groups on age  $F(2, 44) = 2.03, p > .05$ . A chi square analysis revealed no differences by ethnicity on patients' current occupation  $X^2(8, N = 47) = 7.7, p > .05$ , or on the occupation of the person who served as the participant's primary support when the patient was growing up  $X^2(8, N = 45) = 8.3, p > .05$ . A one-way analysis of variance revealed no significant differences on participants' current level of education  $(2, 44) = 2.81, p > .05$ .

### Primary analyses

We conducted one-way analyses of variance (ANOVAs) to test Crow's hypothesis that positive but not negative symptoms would vary as a function of ethnicity. See Table 1 below for ethnic breakdown of the means and standard deviations of the positive and negative symptom scores. In line with expectations, an ANOVA did reveal ethnic differences in positive symptoms  $F(2, 44) = 3.53; p < .05$ . However, there were no significant ethnic differences found with respect to negative symptoms  $F(2, 44) = 1.35; p > .05$ .

Table 1  
*Means and Standard Deviations of Positive and Negative Scores*

		<i>M</i>	<i>SD</i>
Positive Scores	African American	11.21	6.31
	Anglo	8.69	5.44
	Latino	6.42	3.00
Negative Scores	African American	6.21	2.12
	Anglo	7.31	4.00
	Latino	5.59	2.60

### Post-hoc analyses

We conducted Tukey post-hoc analyses to pinpoint where ethnic differences in positive symptom severity occurred. The only statistically significant difference found ( $p < .05$ ) was between African Americans and Latinos.

### Discussion

The primary aim of this study was to test whether Crow's view can be applied to understand ethnic differences in symptom severity. Based on Crow's theory, we hypothesized that positive but not negative symptom severity would differ among ethnic groups. Results of this study do appear to support this hypothesis. Crow explains that negative symptoms are resistant to medication and other interventions because they are a result of structural abnormalities in the brain, which

are irreversible and usually less amenable to change. However, according to Crow, positive symptoms react more favorably to treatment and are otherwise malleable. Our findings support this view by suggesting that ethnic and cultural factors do appear to interact with the severity of positive but not negative symptoms.

With respect to specific ethnic differences in symptom severity, the general trends are in line with prior research suggesting that African Americans display the highest degree of symptom severity and Latinos the lowest. However, it is important to note that the only ethnic difference to reach statistical significance in the present study was between African Americans and Latinos.

The high degree of positive symptom severity observed in African Americans in the current study appears in line with previous data showing that African Americans display higher severity of hallucinations and delusions than do Anglos (Chu et al., 1985; Vitols, Waters, & Keeler, 1963) and have double the likelihood of being diagnosed with schizophrenia (Minsky et al., 2003). It is possible that social disadvantages and the stress associated with other adversities that African Americans experience, such as racism and discrimination, may account for this finding (Lin, 1996; Poussaint, 1990; Whaley, 1998). The persistent struggle related to racism has been linked to decreases in psychological well-being (James, 1994). It has also been suggested that racism may increase feelings of deprivation, which can further increase susceptibility to poor health (Nazroo, 1998). The lower severity of positive symptoms in Latinos compared to Anglos may be due to protective cultural factors, such as lower levels of hostility and criticism in familial environments (Weisman de Mamani et al. 2007), which research in the area of expressed emotion indicates is a robust marker for schizophrenia prognosis. However, it is also important to point out the racism that Latinos face at interpersonal, societal and institutional levels, can also result in psychological distress (Torres, O'Connor, Mejía, Camacho, & Long, 2011).

This study has multiple limitations. The most notable is the small sample size. Our small sample may have reduced our ability to detect subgroup ethnic differences in post hoc analyses. In other words, it is possible that Type II error or lack of power may account for the absence of significant findings when comparing African Americans to Anglos and when comparing Anglos to Latinos on positive symptom severity (especially because the mean scores are in line with prior research). Follow up studies with larger samples are needed to further evaluate specific ethnic patterns in positive and negative symptom severity. Future research is also needed to clarify the cultural/

environmental mechanisms (e.g., social stress theory) that might account for ethnic differences in symptom severity, not just between ethnic groups but within ethnic groups. Previous research has indicated that self-esteem is directly influenced by ethnic identification and interethnic attitudes even within the range of one specific ethnic group, such as Latinos (Castro, 2005). Finally, this study is limited by the cross-sectional design, which prevents us from drawing causal conclusions. Follow-up longitudinal studies that look at changes in ethnic patterns of symptom types over time would allow us to speak more broadly to the question of how ethnicity impacts the severity of positive and negative symptoms.

## References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed). Washington, DC. Retrieved from [http://books.google.com/books?id=OTpYqHjp\\_P4C&printsec=frontcover&dq=diagnostic+and+statistical+manual+of+mental+disorders+dsm+IV+fourth+edition+1994&hl=en&sa=X&ei=Cq0fUfLhE8SN0QHb2oDACw&ved=0CF4Q6AEwBg#v=onepage&q&f=false](http://books.google.com/books?id=OTpYqHjp_P4C&printsec=frontcover&dq=diagnostic+and+statistical+manual+of+mental+disorders+dsm+IV+fourth+edition+1994&hl=en&sa=X&ei=Cq0fUfLhE8SN0QHb2oDACw&ved=0CF4Q6AEwBg#v=onepage&q&f=false)
- Brekke, J. S., & Barrio, C. (1997). Cross-ethnic symptom differences in schizophrenia: the influence of culture and minority status. *Schizophrenia Bulletin*, 23, 305-316. Retrieved from <http://schizophreniabulletin.oxfordjournals.org/content/23/2/305.full.pdf>
- Caram, A., Agraz, F., Ramos, V., & García, R. (2001). Evaluación de la intervención psicodramática en pacientes con trastornos psicóticos. *Acta Psiquiátrica Y Psicológica de América Latina*, 47, 351-358.
- Castro, V. S. (2005). Discriminación percibida y autoestima en jóvenes de grupos minoritarios y mayoritarios en costa rica. *Revista Interamericana De Psicología*, 39(1), 93-106. Retrieved from <http://search.proquest.com/docview/62079919?accountid=14512>
- Chu, C., Sallach, H. S., Zakeria, S. A., & Klein, H. E. (1985). Differences in psychopathology between Black and White schizophrenics. *International Journal of Social Psychiatry*, 31, 252-257. Retrieved from <http://isp.sagepub.com/content/31/4/252.full.pdf+html?frame=header>
- Crow, T. J. (1980). Molecular pathology of schizophrenia: more than one disease process? *British Medical Journal*, 280, 66-68. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1600263/pdf/brmedj00002-0006.pdf>
- Crow, T. J. (1985). The two-syndrome concept: origins and current status. *Schizophrenia Bulletin*, 11, 471-486. Retrieved from <http://schizophreniabulletin.oxfordjournals.org/content/11/3/471.full.pdf+html>
- Geisinger, K. F. (1994). Cross-cultural normative assessment: Translation and adaptation issues influencing the normative interpretation of assessment instruments. *Psychological Assessment*, 6, 304-312. Retrieved from <http://psycnet.apa.org/journals/pas/6/4/304/>
- Guy, W. (1976). *ECDEU Assessment Manual for Psychopharmacology*. Rockville, MD: National Institute of Mental Health. Retrieved from <http://ia600503.us.archive.org/10/items/ecdeuassessmentm1933guyw/ecdeuassessmentm1933guyw.pdf>
- James, A. (1994). John Henryism and the health of African-Americans. *Culture Medicine and Psychiatry*, 18, 163-182.

- Koneru, V., & Weisman de Mamani, A. (2006). Acculturation, ethnicity, and symptoms of schizophrenia. *Interamerican Journal of Psychology, 40*, 257-264.
- Lin, K. M. (1996). Cultural influences on the diagnosis of psychotic and organic disorders. In A. Mezzich, H. Kleinman, H. Fabrega, & D. L. Parron (Eds.), *Culture and Psychiatric Diagnosis: A DSM-IV Perspective* (pp. 49-62). Washington, DC: American Psychiatric Press.
- Minzenber, J. & Carter, C. S. (2012). Developing treatments for impaired cognition in schizophrenia. *Trends in Cognitive Science, 16*, 35-42. Retrieved from <http://www.sciencedirect.com/science/article/pii/S1364661311002506>
- Minsky, S., Vega, W., Miskimen, T., Gara, M., & Escobar, J. (2003). Diagnostic patterns in Latino, African American, and European American psychiatric patients. *Archives of General Psychiatry, 60*, 637-644. Retrieved from <http://archpsyc.jamanetwork.com/data/Journals/PSYCH/5178/YOA20513.pdf>
- Mueser, K. T., & Gingerich, S. (2006). *The complete family guide to schizophrenia: Helping your loved one get the most out of life*. New York, NY: Guilford Press.
- Nazroo, J. Y. (1998). Rethinking the relationship between ethnicity and mental health: The British Fourth National Survey of Ethnic Minorities. *Social Psychiatry, 33*, 145-148. Retrieved from <http://link.springer.com/article/10.1007%2Fs001270050036?LI=true>
- Nuechterlein, K. H., Dawson, M. E., Gitlin, M., Ventura, J., Goldstein, M. J., Snyder, K. S., & ... Mintz, J. (1992). Developmental processes in schizophrenic disorders: Longitudinal studies of vulnerability and stress. *Schizophrenia Bulletin, 18*, 387-425. Retrieved from <http://schizophreniabulletin.oxfordjournals.org/content/18/3/387.full.pdf>
- Poussaint, A. F. (1990). The mental health status of Black Americans. In D. S. Ruiz (Ed.), *Handbook of Mental Health and Mental Disorder among Black Americans* (pp. 17-52). New York, NY: Greenwood Press. Retrieved from [http://books.google.com/books?id=ekOe4mVuj7QC&printsec=frontcover&dq=handbook+of+mental+health&hl=en&sa=X&ei=bagfUc\\_UMsuH0QGQ4YCWBg&ved=0CDYQ6AEwAQ#v=onepage&q=handbook%20of%20mental%20health&f=false](http://books.google.com/books?id=ekOe4mVuj7QC&printsec=frontcover&dq=handbook+of+mental+health&hl=en&sa=X&ei=bagfUc_UMsuH0QGQ4YCWBg&ved=0CDYQ6AEwAQ#v=onepage&q=handbook%20of%20mental%20health&f=false)
- Rabinowitz, J., Levine, S. Z., Garibaldi, G., Bugarski-Kirola D., Berardo C. G., Kapur, S. (2012). Negative symptoms have greater impact on functioning than positive symptoms in schizophrenia: Analysis of CATIE data. *Schizophrenia Research, 137*(1), 147-150.
- Suro, G. & Weisman de Mamani, A. (2013). Burden, interdependence, ethnicity, and mental health in caregivers of patients with schizophrenia. *Family Process, 52*, 299-311.
- Torres, H. L., O'Connor, A., Mejía, C., Camacho, Y. & Long, A. (2011). The American dream: Racism towards Latino/as in the U.S. and the experience of trauma symptoms. *Interamerican Journal of Psychology, 45*(3) 363-368. Retrieved from <http://www.redalyc.org/articulo.oa?id=28425426006>
- Ventura, J., Lukoff, D., Nuechterlein K. H., Liberman, R.P., Green, M. F., Shaner, A. (1993). Manual for the Expanded Brief Psychiatric Rating Scale. *International Journal of Methods in Psychiatric Research, 3*, 227-244.
- Vitols, M. M., Waters, H. G., & Keeler, M. H. (1963). Hallucinations and delusions in white and Negro schizophrenics. *The American Journal of Psychiatry, 120*, 472-476.
- Weisman, A. (2005). Integrating culturally-based approaches with existing interventions for Hispanic/Latino families coping with schizophrenia. *Psychotherapy: Theory, Research, Practice, Training, 42*, 178-197. Retrieved from <http://psycnet.apa.org/index.cfm?fa=buy.optionToBuy&id=2005-07703-005>
- Weisman, A.G., Duarte, E., Koneru, V., & Wasserman, S. (2006). The development of a culturally informed, family focused, intervention for schizophrenia. *Family Process, 45*, 171-186. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/j.1545-5300.2006.00089.x/pdf>
- Weisman, A. G., & López, S. R. (1996). Family values, religiosity, and emotional reactions to schizophrenia in Mexican and Anglo-American Cultures. *Family Process, 35*, 227- 237.
- Weisman, A. G., López, S. R., Ventura, J., Nuechterlein, K. H., Goldstein, M. J., & Hwang, S. (2000). A comparison of psychiatric symptoms between Anglo-Americans and Mexican-Americans with schizophrenia. *Schizophrenia Bulletin, 26*, 817-824. Retrieved from <http://psycnet.apa.org/index.cfm?fa=buy.optionToBuy&id=2000-16232-005>
- Weisman de Mamani, A. G., Kymalainen, J. A., Rosales, G. A., & Armesto, J. C. (2007). Expressed emotion and interdependence in White and Latino/Hispanic family members of patients with schizophrenia. *Psychiatry Research, 151*, 107-113. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1986718/pdf/nihms23773.pdf>
- Whaley, A. L. (1998). Cross-cultural perspective on paranoia: A focus on the Black American experience. *Psychiatric Quarterly, 69*, 325-343. Retrieved from <http://link.springer.com/article/10.1023%2FA%3A1022134231763>
- Yang, Y., Nuechterlein, K., Philips, O., Gutman, B., Kurth, F., Dinov, I., Thompson, P., Asarnow, R., Toga, A., Narr, K. (2012). Disease and genetic contributions toward local tissue volume disturbances in schizophrenia: A tensor-based morphometry study. *Human Brain Mapping, 33*, 2081-2091. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/hbm.21349/pdf>

Received: 02/15/2013  
Accepted: 01/01/2014

**Amy Weisman de Mamani.** University of Miami, USA

**Tiffany Caldas.** University of California, Los Angeles, USA