



Short Communication

Disparities in completion of substance abuse treatment among Latino subgroups in Los Angeles County, CA

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ABSTRACT

Rationale: A growing body of research has revealed disparities with respect to drug use patterns within Latino subgroups. However, the extent to which these potential disparities enable different Latino subgroups to respond favorably to treatment is unclear.

Methods: This study analyzed a subset of multicross-sectional data (2006–2009) on Latinos collected from publicly funded facilities in Los Angeles County, CA ($N = 12,871$). We used multilevel logistic regressions to examine individual and service-level factors associated with treatment completion among subgroups of first-time Latino treatment clients.

Results: Univariate analysis showed that Cubans and Puerto Ricans were less likely to complete treatment than Mexicans and other Latinos. Cubans and Puerto Ricans entered treatment at an older age and with higher formal education than Mexicans, yet they were more likely to report mental health issues and use of cocaine and heroin as primary drugs of choice respectively. Multivariate analysis showed that age, having mental health issues, reporting high use of drugs at intake, and use of methamphetamines and marijuana were associated with decreased odds of completing treatment among all Latino subgroups. In contrast, age at first drug use, treatment duration, and referral monitoring by the criminal system increased the odds of completing treatment for all members.

Conclusion: These findings have implications for targeting interventions for members of different Latinos groups during their first treatment episode. Promising individual and service factors associated with treatment completion can inform the design of culturally specific recovery models that can be evaluated in small-scale randomized pilot studies.

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1. Introduction

Disparities research has provided insight about differences in substance abuse patterns and treatment response among racial and ethnic minorities. This research has primarily focused on differences between Whites and African Americans. Despite Latinos being the fastest-growing population entering substance abuse treatment (SAT), there is limited research on treatment patterns and engagement within this population, and even less is known about variation among subgroups (i.e., Mexicans, Puerto Ricans, Cubans, etc.) (Alegria et al., 2006). Latinos report significant heterogeneity in drug of choice and drug abuse patterns, which are likely to have differential effects on treatment outcomes (Alegria et al., 2006; Amaro, Arévalo,

Gonzalez, Szapocznik, & Iguchi, 2006; Vega & Sribney, 2005). To our knowledge, no studies have examined individual and service factors that enable Latino subgroups to respond favorably to treatment.

Latinos are more likely than any other group to enter treatment at a younger age and without previous treatment experience (Fosados, Evans, & Hser, 2007; Jacobson, Robinson, & Bluthenthal, 2007; Marsh, Cao, Guerrero, & Shin, 2009). They are also more likely to drop out during early stages of treatment and report not having their service needs met (Wells, Klap, Koike, & Sherbourne, 2001). Considering the current population growth of Latinos in the United States and their documented health disparities, especially related to alcohol and drug abuse (Alvarez, Olson, Jason, Davis, & Ferrari, 2004; Amaro et al., 2006; Delva et al., 2005), this study seeks to identify individual and service factors that may enable first-time treatment participants from different Latino subgroups to successfully complete treatment.

1.1. Individual factors affecting treatment completion among Latinos

Although research on factors associated with treatment completion among Latinos is extremely limited, evidence from cross-racial/

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ethnic group analysis highlights the importance of client characteristics such as employment, family background, and addiction severity (Jacobson et al., 2007). Specifically, analysis of nationally representative data collected in 2003 pointed to seven client-level factors associated with a higher likelihood of successfully completing outpatient treatment: (1) alcohol use as primary substance, (2) employment, (3) less than daily substance use at admission, (4) female, (5) older than 40, (6) more than 12 years of education, and (7) non-Latino White (Substance Abuse and Mental Health Services Administration, 2009a).

Compared to other groups, Latinos consistently report a high representation of young males and of the lowest levels of education and employment in national and regional SAT surveys (Bluthenthal, Jacobson, & Robinson, 2007; Marsh et al., 2009; Tonigan, 2003). In addition, data from the National Household Survey on Drug Abuse highlighted different rates of recent illicit drug use among Latinos: 10% for Puerto Ricans, 3.7% for Cuban Americans, 5.5% for Mexicans, and 4% for Central and South Americans (Substance Abuse and Mental Health Services Administration, 2009b). Further, primary drug of choice also varies among Latino subgroups; Puerto Ricans reported primarily using opiates, Cubans reported using cocaine and Mexicans and Central and South Americans reported using alcohol (Office of Applied Studies, 2005). Use of illegal drugs (i.e., heroin, methamphetamines, cocaine, or marijuana) as primary drug of choice is mainly associated with a lower likelihood of engaging in and completing treatment (Bluthenthal et al., 2007; Marsh et al., 2009).

With regard to treatment receipt, national data revealed that more than one quarter of Puerto Ricans in need of treatment during the previous year received it, compared with 13% of Mexicans, 6.6% of Central and South Americans, and 9% of other Latinos (SAMHSA, 2009b). Overall, these studies suggest differences between Latinos and Whites in treatment utilization and satisfaction and differences among Latino subgroups limited to drug use patterns and receipt of services.

Moreover, although mounting evidence suggests that psychological stressors such as psychiatric and other comorbid conditions are implicated in the etiology of drug use disorders, as well as engagement in services, there is little evidence of the potential impact such factors have within Latino subgroups (Biederman et al., 1997; Compton, Thomas, Stinson, & Grant, 2007). The null findings in comparative mental health disparities are partly explained by the significant heterogeneity in client characteristics among Latinos (Vega & Lopez, 2001; Vega & Sribney, 2005), variations in regional context (Warner et al., 2006), and small analytical samples, which limit predictive power (Alegria et al., 2006; Marsh et al., 2009).

1.2. Service and system factors influencing treatment completion among Latinos

There is growing interest in specific SAT services and systems that influence treatment completion among minorities (Marsh, Shin, & Cao, 2010; Marsh et al., 2009). One system factor of interest is the administrative and individual monitoring offered by the criminal justice system through drug and probation courts. This system has been reported to increase access to substance abuse treatment and treatment completion for all ethnic groups (Evans, Li, & Hser, 2008, 2009; Longshore, Hawken, Urada, & Anglin, 2006; UCLA Integrated Substance Abuse Programs, 2007). In California, Proposition 36 was implemented to reduce drug-related crimes by requiring treatment for first- and second-time offenders with nonviolent drug possession charges (Drug Policy Alliance, 2011). Court-supervised treatment can prove effective (Guerrero et al., in press; SAMHSA, 2009a), but this type of treatment is contingent upon the needs of the individual – how effective treatment is and if they are motivated to attend and complete treatment (Albrecht, Lindsay, & Terplan, 2011; Evans, Jaffe, Urada, & Anglin, 2011). However, more evidence is needed on

the individual and service factors that contribute to effective treatment engagement among Latinos, considering their high dropout rates (Agosti, Nunes, & Ocepek-Welikson, 1996; Tonigan, 2003).

Based on the evidence presented in the introduction, we expect to find differences among Mexicans, Cubans, Puerto Ricans, and other Latinos based on severity of psychological stressors and substance use and availability of access to support services. In particular, we propose four hypotheses. H1: Latino subgroups will report significant differences in individual and service characteristics. H2: Cubans and Puerto Ricans will report the lowest treatment completion rate, as well as lower odds of completing treatment compared to Mexicans after accounting for individual and service characteristics. H3: The odds of treatment completion will also be reduced for those Latinos facing additional psychosocial stressors such as using illegal drugs as primary drug of choice (i.e., heroin, methamphetamines, cocaine, or marijuana), reporting a mental health disorder, and being homeless. H4: Service factors such as faster access to services and referral monitoring by the criminal justice system will increase Latinos' likelihood of completing treatment.

2. Methods

Los Angeles County offers unparalleled opportunities for studying differences in substance abuse treatment and outcomes among Latinos. This study analyzed a subset of data collected via the Los Angeles County Participant Reporting System (LACPRS), which secures data from all publicly funded programs in the county with the highest representation of Latinos in the United States (see Crèvecoeur, Finnerty, & Rawson, 2002). Of the 141 items in the LACPRS, more than half are standardized scales and questions derived from state (California Outcome Measure System) and federal (Treatment Episode Data Set) measurement systems.

2.1. Analytic sample

The full sample ($N = 87,719$) was restricted to adults in outpatient treatment ($n = 37,508$). We limited analysis to outpatient treatment to compare programs with the same treatment completion expectations and because outpatient is the most common treatment modality, accounting for more than 70% of all admissions (Substance Abuse and Mental Health Services Administration, 2007). We excluded methadone and related opioid maintenance therapy programs because their completion criteria differs from regular outpatient treatment. Additionally, to permit the comparison of completion rates across calendar years using multicross-sectional data (2006–2009), only clients who were admitted and discharged within the same year were included. Further, we only included clients engaged in their first substance abuse treatment episode to ensure comparison of clients at baseline. Finally, we restricted the sample to participants who self-reported as Latino. Our analytic sample consisted of 12,871 clients from 298 treatment programs, including 9,386 Mexicans (73%), 93 Cubans (0.7%), 132 Puerto Ricans (1%), and 3,243 other Latinos (25%). The category of “other Latinos” primarily represents participants from Central and South America, given the demographics of L.A. County (U.S. Census Bureau, 2009).

2.2. Measures

2.2.1. Dependent variable

Treatment completion was measured at the end of treatment or dropout. We dichotomized completion status as 1 if a client successfully completed treatment on site or was transferred, or 0 if a client left with satisfactory progress, left with unsatisfactory progress, or did not complete treatment for other reasons. Successful treatment completion indicated that respondents successfully completed the major goals set forth in their recovery plan, regardless of whether

they needed continuing care. This measure of treatment completion is congruent with recent regional (Jacobson et al., 2007) and national studies (SAMHSA, 2009a).

2.2.2. Explanatory variables

Individual demographics included age, gender, national origin (Mexican, Cuban, Puerto Rican, and other Latino), and education (years in school). Respondents also reported on psychosocial characteristics including employment status, housing status (whether client is homeless), mental health status (whether client reported having a diagnosed mental disorder), age at first drug use, drug use severity (days of primary drug use before admission), and primary drug of choice.

Respondents were also asked to describe service and system factors. Service factors included access to treatment (number of days on waiting list) and treatment duration (number of days in treatment). System factors included participation in CalWorks (a welfare-to-work program) and source of referral (self, community, Proposition 36, drug court, and social services).

2.3. Statistical analysis

We compared demographic characteristics and explanatory factors across Latino subgroups using a global analysis of variance and chi-square tests. To assess the association between explanatory variables and treatment completion rate, multilevel logistic regressions were conducted for the overall sample and each racial/ethnic group separately via the SAS procedure GLIMMIX. This procedure relies on random intercept models, which account for the hierarchical structure of the data (clients nested within facilities), as suggested in

other racial/ethnic disparities analysis (see Marsh et al., 2009). The models investigated the univariate effect of race/ethnicity and the multivariate effects of all explanatory variables. All analyses were conducted in SAS 9.2 (SAS Institute, 2008).

3. Results

Differences were found among several individual and service characteristics in Latino subgroups, partially supporting Hypothesis 1. See Table 1 for univariate differences. Cubans reported the highest mean age (39 years), highest representation of males (76.3%), and highest level of unemployment (not seeking employment) (34.4%). Cubans also reported the highest percent of homelessness (17.2%) and mental health issues (26.9%). Cubans and Puerto Ricans reported being older (21 years) at first drug use than Mexicans (19 years) and other Latinos (18 years). In addition, Cubans were more likely to report cocaine as primary drug of choice (30%), and had the shortest treatment duration (38.9 days). Finally, Cubans were most likely to be referred by Proposition 36 courts (52%) and least likely to be referred by social services (9.7%).

In contrast, referrals from Proposition 36 were found to be less common among Mexicans (36.7%) and other Latinos (27.1%). Nevertheless, with low levels of education (10.2 years) and methamphetamines as primary drug of choice (37%), Mexicans achieved higher treatment duration (43.1 days) than Cubans (38.9 days) and Puerto Ricans (38.4 days). Puerto Ricans reported the highest level of education (10.8 years), as well as the highest number of self-referrals (23.5%). But, they also reported using heroin as a primary drug (4.6%). As the youngest subgroup (27 years), the “other Latinos” category was characterized as having the longest duration in treatment

Table 1
Client characteristics by Latino origin using multi-cross sectional data (2006–2009).

Variables	Mexican (n = 9,206)	Cuban (n = 93)	Puerto Rican (n = 132)	Other Latinos (n = 3,243)
Treatment completion (%) [*]				
Complete	10.3	7.5	9.1	12.8
Incomplete (unsatisfactory progress, other)	89.7	92.5	90.9	87.2
Individual factors				
Age (mean, SD) [*]	28.2 (11.1)	39.5 (13.3)	35.1 (12.5)	27.1 (11.7)
Male (%) [*]	70.2	76.3	65.9	65.1
Years of education (mean, SD) [*]	10.2 (2.7)	10.5 (3.5)	10.8 (3.0)	10.1 (2.8)
Employment (%) [*]				
Not in the labor force	19.4	14	10.6	20.5
Full-time	14.3	17.2	9.9	11.0
Part-time	8.6	6.5	13.6	7.8
Unemployed (seeking)	32.9	28	36.4	28.5
Unemployed (not seeking)	24.8	34.4	29.6	32.1
Homeless (%) [*]	8.8	17.2	8.3	6.9
Diagnosed mental disorder (%) [*]	9.3	26.9	24.2	13.1
Age at first drug use (mean, SD) [*]	18.3 (7.3)	20.6 (8.7)	20.7 (9.0)	17.6 (7.0)
Days of primary drug use at admission (mean, SD)	5.0 (8.5)	4.7 (8.5)	6.0 (9.5)	5.3 (8.8)
Primary drug of choice (%) [*]				
Other	2	2.2	3.0	3.4
Heroin	3.6	0	4.6	1.7
Methamphetamines	37.1	30.1	32.6	29.5
Cocaine	10.4	30.1	15.2	9.9
Marijuana	27.8	16.1	27.3	33.2
Alcohol	19.1	21.5	17.4	22.4
Service and system-level factors				
Number of days on waiting list	1.4 (5.2)	1.7 (5.6)	1.5 (6.1)	1.2 (5.5)
Treatment duration (days) [*]	43.1 (37.8)	38.9 (38.4)	38.4 (38.5)	45.3 (37.7)
CALWorks (%)	1.8	0	0.0	1.7
Principal source of referral (%) [*]				
Self	12.2	14	23.5	16.1
Community	23.2	21.5	15.2	30.4
Proposition 36	36.7	52.7	37.1	27.1
Drug court	8.1	2.2	6.1	8.4
Social services	19.8	9.7	18.2	18.0

^{*}Means or frequencies are statistically significantly different across Latino origin, $p < .05$.

Table 2
Random effects logistic regressions on treatment completion using multi-cross-section data (2006–2009).

Independent Variables	Unadjusted Model	Adjusted Model
	Odds Ratio (Confidence Interval)	
Individual factors		
National/regional origin		
Mexican	Reference	Reference
Cuban	0.57 (0.26–1.26)	0.46 (0.18–1.18)
Puerto Rican	0.79 (0.42–1.47)	1.07 (0.54–2.14)
Other	1.12 (0.98–1.28)	1.14 (0.98–1.34)
Age		0.99 (0.98–0.99)
Male		1.12 (0.95–1.32)
Years of education		1.01 (0.98–1.03)
Employment		
Not in the labor force		
Full-time		1.00 (0.76–1.32)
Part-time		0.94 (0.69–1.28)
Unemployed (seeking)		0.88 (0.68–1.13)
Unemployed (not seeking)		0.91 (0.71–1.16)
Homeless		0.79 (0.58–1.09)
Diagnosed mental disorder		0.72 (0.55–0.95)
Age at first drug use		1.01 (1.00–1.03)
Days of primary drug use at admission		0.97 (0.96–0.98)
Primary drug of choice		
Alcohol		Reference
Heroin		0.93 (0.61–1.41)
Other		1.19 (0.82–1.75)
Methamphetamines		0.50 (0.40–0.63)
Cocaine		0.88 (0.67–1.15)
Marijuana		0.80 (0.65–0.98)
Service and system-level factors		
Number of days in waiting list		1.00 (0.99–1.02)
Duration		1.03 (1.03–1.03)
CALWorks		1.06 (0.56–2.02)
Principal source of referral		
Self		Reference
Community		1.06 (0.80–1.40)
Proposition 36		1.67 (1.25–2.23)
Drug court		1.45 (1.04–2.03)
Social services		0.86 (0.63–1.15)

Note: Values in bold are statistically significant based on a 95% confidence interval that does not bound 1.

(45.3 days) despite being the least likely to be referred by the Proposition 36 court monitoring system.

Findings provided partial support for Hypothesis 2 as well. Cubans (7.5%) and Puerto Ricans (9.1%) reported the lowest completion rate, followed by Mexicans (10.3%) and other Latinos (12.8%) as hypothesized (See Table 1). Yet, after accounting for individual and service factors in multivariate analyses, the odds of treatment completion were not statistically significant when comparing Latino subgroups (See Table 2).

Partial support was also found for Hypothesis 3. Only some significant individual challenges were associated with lower odds of completing treatment (see Table 2). Odds ratios were considered statistically significant ($p < .05$) if the 95% confidence interval excluded 1. Mental illness ($OR = 0.72$; $CI = 0.55–0.95$) and days of primary drug use before admission ($OR = 0.97$; $CI = 0.96–0.98$) were associated with lower odds of completing treatment. Users of methamphetamines ($OR = 0.50$; $CI = 0.40–0.63$) and marijuana ($OR = 0.80$; $CI = 0.65–0.98$) were less likely than users of alcohol to complete treatment.

Hypothesis 4 was partially supported as well. The only statistically significant system factor was referral from the criminal justice system – referral by Proposition 36 and drug court was associated with increased odds of completing treatment successfully ($OR = 1.67$; $CI = 1.25–2.23$ and $OR = 1.45$; $CI = 1.04–2.03$, respectively).

4. Conclusion and Implications

Overall, these findings indicate the heterogeneous nature of substance abuse treatment experiences and characteristics for Latino subgroups

living in the most populous and ethnically diverse county in the United States. Compared to Mexicans, who are highly represented in the publicly funded SAT system in L.A. County, Cubans, Puerto Ricans, and other Latinos show significant differences in treatment completion, human capital, drug use severity, and access to specific service systems. Our findings are consistent with epidemiological data indicating Cubans and Puerto Ricans have more severe mental health issues and use illegal drugs more often than Mexicans (Office of Applied Studies, 2005; SAMHSA, 2009b). These comorbid factors may impact their successful response to treatment. In the other hand, it is clear that other Latinos who are younger and who access treatment faster and stay in service longer are better equipped to meet their treatment goals.

We would like to recognize limitations of this analysis associated with using first-time treatment clients, relying on a small sample of Cubans and Puerto Ricans, and combining “other Latinos” in one category. Despite this limitation and unlike other studies, there was sufficient power to identify statistical differences among distinct groups. Further description, particularly of the “other Latinos” group, would be optimal. Although the analysis revealed differences among Latino subgroups, the latest recommendation from the Institute of Medicine highlights the importance of focusing on additional Latino group characteristics (i.e., limited English proficiency, acculturation) to capture factors associated with health and outcome disparities (Ulmer, McFadden, & Nerenz, 2009). Finally, further accounting for programs' cultural and linguistic competence when including racial and ethnic minority groups would be also ideal to explore determinants of substance abuse treatment adherence (Guerrero, 2010, 2012).

Treatment success for first-time clients can be attributed to several individual and program factors. Psychological stressors, such as having a mental health disorder and using methamphetamines, affect all Latinos, although Cubans report significantly higher rates of mental health issues, homelessness, and illegal drug use.

Overall, these individual and service differences need to be analyzed further to develop effective treatment interventions that account for drug use severity among certain subgroups and address potential barriers to treatment completion. This initial study points to the need to further examine and learn from procedures used by court-mandated referral programs that enable first-time clients to achieve treatment and recovery goals regardless of Latino background and drug use severity. These promising preliminary findings should be supplemented with pilot studies of targeted interventions to increase the effectiveness of initial treatment episodes.

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Contributors

Dr. Guerrero reviewed the research literature, framed the scope of the paper, and was the primary text author. Alice Cepeda provided additional literature review, critical review, and support in writing the manuscript, including revisions. Lei Duan provided primary statistical analyses, wrote the methods section, and reviewed manuscript drafts. Tina Kim provided critical review and support for all revisions. All authors reviewed and approved the final draft.

Conflict of interest

Erick Guerrero: No conflict declared
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References

- Agosti, V., Nunes, E., & Ocepek-Welickson, K. (1996). Patient factors related to early attrition from an outpatient cocaine research clinic. *The American Journal of Drug and Alcohol Abuse*, 22(1), 29–39.
- Albrecht, J., Lindsay, B., & Terplan, M. (2011). Effect of waiting time on substance abuse treatment completion in pregnant women. *Journal of Substance Abuse Treatment*, 41(1), 71–77, <http://dx.doi.org/10.1016/j.jsat.2011.01.015>.
- Alegria, M., Page, J. B., Hansen, H., Cauce, A. M., Robles, R., Blanco, C., et al. (2006). Improving drug treatment services for Hispanics: Research gaps and scientific opportunities. *Drug and Alcohol Dependence*, 84, S76–S84, <http://dx.doi.org/10.1016/j.drugalcdep.2006.05.009> (Suppl.).
- Alvarez, J., Olson, B. D., Jason, L. A., Davis, M. I., & Ferrari, J. R. (2004). Heterogeneity among Latinas and Latinos entering substance abuse treatment: Findings from a national database. *Journal of Substance Abuse Treatment*, 26(4), 277–284, <http://dx.doi.org/10.1016/j.jsat.2004.02.003>.
- Amaro, H., Arévalo, S., Gonzalez, G., Szapocznik, J., & Iguchi, M. Y. (2006). Needs and scientific opportunities for research on substance abuse treatment among Hispanic adults. *Drug and Alcohol Dependence*, 84, S64–S75, <http://dx.doi.org/10.1016/j.drugalcdep.2006.05.008> (Suppl.).
- Biederman, J., Wilens, T., Mick, E., Faraone, S. V., Weber, W., Curtis, S., et al. (1997). Is ADHD a risk factor for psychoactive substance use disorders? Findings from a four-year prospective follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36(1), 21–29, <http://dx.doi.org/10.1097/00004583-199701000-00013>.
- Bluthenthal, R. N., Jacobson, J. O., & Robinson, P. L. (2007). Are racial disparities in alcohol treatment completion associated with racial differences in treatment modality entry? Comparison of outpatient treatment and residential treatment in Los Angeles County, 1998 to 2000. *Alcoholism: Clinical & Experimental Research*, 31(11), 1920–1926, <http://dx.doi.org/10.1111/j.1530-0277.2007.00515.x>.
- Compton, W. M., Thomas, Y. F., Stinson, F. S., & Grant, B. F. (2007). Prevalence, correlates, disability, and comorbidity of DSM-IV drug abuse and dependence in the United States. *Archives of General Psychiatry*, 64(5), 566–576.
- Crèvecoeur, D., Finnerty, B., & Rawson, R. A. (2002). Los Angeles County Evaluation System (LACES): Bringing accountability to alcohol and drug abuse treatment through a collaboration between providers, payers, and researchers. *Journal of Drug Issues*, 32(3), 865–879, <http://dx.doi.org/10.1177/002204260203200309>.
- Delva, J., Wallace, J. M., Jr., O'Malley, P. M., Bachman, J. G., Johnston, L. D., & Schulenberg, J. E. (2005). The epidemiology of alcohol, marijuana, and cocaine use among Mexican American, Puerto Rican, Cuban American, and other Latin American eighth-grade students in the United States: 1991–2002. *American Journal of Public Health*, 95(4), 696–702, <http://dx.doi.org/10.2105/AJPH.2003.037051>.
- Drug Policy Alliance (2011). California Proposition 36: The Substance Abuse and Crime Prevention Act of 2000. Retrieved from: <http://www.prop36.org/>
- Evans, E., Jaffe, A., Urada, D., & Anglin, M. D. (2011). Differential outcomes of court-supervised substance abuse treatment among California parolees and probationers. *International Journal of Offender Therapy and Comparative Criminology*, <http://dx.doi.org/10.1177/0306624X11404827> (Advance online publication).
- Evans, E., Li, L., & Hser, Y. -I. (2008). Treatment entry barriers among California's Proposition 36 offenders. *Journal of Substance Abuse Treatment*, 35(4), 410–418, <http://dx.doi.org/10.1016/j.jsat.2008.03.003>.
- Evans, E., Li, L., & Hser, Y. -I. (2009). Client and program factors associated with dropout from court mandated drug treatment. *Evaluation and Program Planning*, 32(3), 204–212, <http://dx.doi.org/10.1016/j.evalprogplan.2008.12.003>.
- Fosados, R., Evans, E., & Hser, Y. -I. (2007). Ethnic differences in utilization of drug treatment services and outcomes among Proposition 36 offenders in California. *Journal of Substance Abuse Treatment*, 33(4), 391–399, <http://dx.doi.org/10.1016/j.jsat.2007.02.005>.
- Guerrero, E. G. (2010). Managerial capacity and adoption of culturally competent practices in outpatient substance abuse treatment organizations. *Journal of Substance Abuse Treatment*, 39(4), 329–339, <http://dx.doi.org/10.1016/j.jsat.2010.07.004>.
- Guerrero, E. G. (2012). Organizational characteristics that foster early adoption of cultural and linguistic competence in outpatient substance abuse treatment in the United States. *Evaluation and Program Planning*, 35(1), 9–15, <http://dx.doi.org/10.1016/j.evalprogplan.2011.06.001>.
- Guerrero, E. G., Marsh, J. C., Duan, L., Oh, C., Perron, B., & Lee, B. (in press). Between and within Racial and Ethnic group disparities in completion of substance abuse treatment.
- Jacobson, J. O., Robinson, P. L., & Bluthenthal, R. N. (2007). Racial disparities in completion rates from publicly funded alcohol treatment: Economic resources explain more than demographics and addiction severity. *Health Services Research*, 42(2), 773–794, <http://dx.doi.org/10.1111/j.1475-6773.2006.00612.x>.
- Longshore, D., Hawken, A., Urada, D., & Anglin, M. D. (2006). *Evaluation of the Substance Abuse and Crime Prevention Act: SACA cost analysis report (first and second years)*. Los Angeles, CA: UCLA Integrated Substance Abuse Programs.
- Marsh, J. C., Cao, D., Guerrero, E. G., & Shin, H. -C. (2009). Need-service matching in substance abuse treatment: Racial/ethnic differences. *Evaluation and Program Planning*, 32(1), 43–51, <http://dx.doi.org/10.1016/j.evalprogplan.2008.09.003>.
- Marsh, J. C., Shin, H. -C., & Cao, D. (2010). Gender differences in client-provider relationship as active ingredient in substance abuse treatment. *Evaluation and Program Planning*, 33(2), 81–90, <http://dx.doi.org/10.1016/j.evalprogplan.2009.07.016>.
- Office of Applied Studies (2005). *Hispanic substance abuse treatment admissions: 2003*. (DASIS Report). Rockville, MD: Office of Applied Studies, Substance Abuse and Mental Health Administration Services.
- SAS Institute (2008). *SAS/STAT 9.2 user's guide*. Cary, NC: SAS Institute.
- Substance Abuse and Mental Health Services Administration (2007). *Results from the 2006 National Household Survey on Drug Use and Health: National findings*. Rockville, MD: Office of Applied Studies, Substance Abuse and Mental Health Services Administration.
- Substance Abuse and Mental Health Services Administration (2009a). *Predictors of substance abuse treatment completion or transfer to further treatment, by service type*. (TEDS report). Rockville, MD: Office of Applied Studies, Substance Abuse and Mental Health Services Administration.
- Substance Abuse and Mental Health Services Administration (2009b). *Substance use treatment need and receipt among Hispanics*. (NSDUH report). Rockville, MD: Office of Applied Studies, Substance Abuse and Mental Health Services Administration.
- Tonigan, J. S. (2003). Project Match treatment participation and outcome by self-reported ethnicity. *Alcoholism, Clinical and Experimental Research*, 27(8), 1340–1344, <http://dx.doi.org/10.1097/01.ALC.0000080673.83739.F3>.
- U.S. Census Bureau (2009). Census Bureau releases state and county data depicting nation's population ahead of 2010 census. (Press release). Retrieved from Census Bureau website: <http://www.census.gov/newsroom/releases/archives/population/cb09-76.html>
- UCLA Integrated Substance Abuse Programs (2007). *Evaluation of the Substance Abuse and Crime Prevention Act: Final report*. Los Angeles, CA: UCLA Integrated Substance Abuse Programs.
- Ulmer, C., McFadden, B., & Nerenz, D. R. (Eds.). (2009). *Race, ethnicity, and language data: Standardization for health care quality improvement*. Washington, DC: National Academies Press.
- Vega, W. A., & Lopez, S. R. (2001). Priority issues in Latino mental health services research. *Mental Health Services Research*, 3(4), 189–200, <http://dx.doi.org/10.1023/A:1013125030718>.
- Vega, W. A., & Sribney, W. M. (2005). Seeking care for alcohol problems: Patterns of need and treatment among Mexican-origin adults in Central California. *Alcoholism Treatment Quarterly*, 23(2–3), 29–51, http://dx.doi.org/10.1300/J020v23n02_03.
- Warner, L. A., Valdez, A., Vega, W. A., de la Rosa, M., Turner, R. J., & Canino, G. (2006). Hispanic drug abuse in an evolving cultural context: An agenda for research. *Drug and Alcohol Dependence*, 84, S8–S16, <http://dx.doi.org/10.1016/j.drugalcdep.2006.05.003> (Suppl.).
- Wells, K., Klap, R., Koike, A., & Sherbourne, C. (2001). Ethnic disparities in unmet need for alcoholism, drug abuse, and mental health care. *The American Journal of Psychiatry*, 158(12), 2027–2032, <http://dx.doi.org/10.1176/appi.ajp.158.12.2027>.