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Improving Coordination of Addiction Health Services Organizations with

Mental Health and Public Health Services

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Abstract

In this mixed-method study, we examined coordination of mental health and public health services in addiction health services (AHS) in low-income racial and ethnic minority communities in 2011 and 2013. Data from surveys and semistructured interviews were used to evaluate the extent to which environmental and organizational characteristics influenced the likelihood of high coordination with mental health and public health providers among outpatient AHS programs. Coordination was defined and measured as the frequency of interorganizational contact among AHS programs and mental health and public health providers. The analytic sample consisted of 112 programs at Time 1 (T1) and 122 programs at Time 2 (T2), with 61 programs included in both periods of data collection. Forty-three percent of AHS programs reported high frequency of coordination with mental health providers at T1 compared to 66% at T2. Thirty-one percent of programs reported high frequency of coordination with public health services at T1 compared with 54% at T2. Programs with culturally responsive resources and community linkages were more likely to report high coordination with both services. Qualitative analysis highlighted the role of leadership in leveraging funding and developing creative solutions to deliver coordinated care. Overall, our findings suggest that AHS program funding, leadership, and cultural competence may be important drivers of program capacity to improve coordination with health service providers to serve minorities in an era of health care reform.

Keywords: coordination; mental health services; public health services; funding; leadership

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1. Introduction

Roughly half of all Americans will have a behavioral health disorder during their lifetime, the majority of whom will also experience co-occurring health problems; 44% will have at least one co-occurring physical health or mental health condition (Butler et al., 2008). In light of the overlapping nature of these conditions, studies have shown that the most effective treatment addresses physical and behavioral health in tandem through integrated service provision (Blount, 2003; Butler et al., 2008; Grella, Stein, Weisner, Chi, & Moos, 2010). However, there is broad recognition that, at present, integrated care for individuals receiving AHS rarely happens in practice (McLellan & Woodworth, 2014). One recent study found that 69% of AHS programs were only in the early stages of developing an integrated continuum of care or had not even begun such efforts (Molfenter, 2014).

AHS programs face many barriers to effective integration with primary care and other health and behavioral health services (Guerrero, Aarons, & Palinkas, 2014; McLellan & Woodworth, 2014). Two of the main documented barriers are limited capacity to bill public and private insurance that could finance such services (Andrews, 2014; Substance Abuse and Mental Health Services Administration, 2011) and a lack of medical and other professionals needed to provide truly integrated care (Abraham, Knudsen, Rieckmann, & Roman, 2013).

Recognizing these constraints, policy makers have identified a continuum of approaches for improving accessibility and integration of AHS and other health services, ranging from basic coordination among service providers residing in separate locations to colocation of services in a single facility to service integration, in which comprehensive health services are provided in a

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cohesive manner (Collins, Hewson, Munger, & Wade, 2010; Heath, Wise Romero, & Reynolds, 2013). Ideally, providers will progress along this continuum from coordination to integration. Yet at present, relatively little is known about the organizational and environmental factors that influence AHS programs' capacity to coordinate services with other health service providers. Even less is known about the capacity of AHS programs to respond to the unmet service need for integrated care in racial and ethnic minority communities (Guerrero, Aarons, Grella, et al., 2014; Guerrero & Kao, 2013; Marsh, Cao, Guerrero, & Shin, 2009).

We used a mixed-method approach to explore factors associated with high coordination of mental health and public health services in AHS programs serving low-income racial and ethnic minority communities in Los Angeles, CA, between 2011 and 2013. In this study, public health services were broadly defined to include all health services provided to individuals receiving AHS, including primary care and prevention and treatment of infectious diseases such as HIV and hepatitis. We examined whether AHS programs reported a different frequency of interorganizational coordination with public health and mental health services between these two years. Additionally, we explored environmental (outer context) and organizational (inner context) characteristics that may be associated with the likelihood of high coordination. Semistructured qualitative interviews with AHS clinical supervisors were conducted to describe the activities associated with high coordination and explore program efforts to progress along the continuum from coordination to integration.

1.1. Framework

Recent conceptual models of implementation in public sector services (Aarons, Hurlburt, & Horwitz, 2011) have suggested that the implementation of new practices requires addressing outer (i.e., system and interorganizational) and inner (i.e., intraorganizational) context factors

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that influence the delivery of evidence-based practices (Aarons et al., 2011; Center for Substance Abuse Treatment, 2006, 2009a, 2009b; Damschroder et al., 2009; Simpson & Flynn, 2007). However, there has been limited research exploring how outer and inner context factors contribute to the implementation of coordinated mental health and public health services.

1.2. Outer context factors supporting service coordination and integration

AHS programs rely heavily on their regulatory and funding environment for financial and nonfinancial (e.g., professional expertise) resources, making them vulnerable to the expectations of funders and regulators (D'Aunno, 2006; Guerrero, 2010; Pfeffer & Salancik, 1978). Studies have identified funding, regulation, and accreditation as outer context factors associated with provision of a broad range of evidence-based practices (D'Aunno, 2006; Knudsen, Abraham, & Roman, 2011; Roman, Abraham, & Knudsen, 2011), including coordinated health (Friedmann, Lemon, Durkin, & D'Aunno, 2003) and mental health (Friedmann, Alexander, & D'Aunno, 1999; Guerrero, Aarons, & Palinkas, 2014) services. However, no studies have examined how outer context factors have affected AHS programs' coordination with public health and mental health services.

In this study, we examined whether funding and regulatory factors shown to be important in prior literature are associated with service coordination among minority-serving AHS programs. We posited that outer context factors will increase AHS programs' likelihood of coordinating with mental health and public health services. Specifically, in Hypothesis 1, we posited that higher public funding and receipt of licensure and professional accreditation will be associated with higher odds of high coordination with mental health and public health services.

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1.3. Inner context factors supporting service coordination and integration

Research on implementation of integrated care in AHS has also highlighted inner context factors that affect practice implementation. Effective leadership is associated with increased staff buy-in relative to facilitating early practice implementation (D'Aunno, 2006; Edwards, Knight, Broome, & Flynn, 2010; Guerrero, 2010, 2012; Simpson & Flynn, 2007). In particular, staff perceptions of leadership behavior are associated with implementation of mental health treatment practices (Claus, Gotham, Harper-Chang, Selig, & Homer, 2007). The organizational process associated with the implementation of new practices in AHS has also been described and tested using the organizational readiness-for-change framework (Lehman, Greener, & Simpson, 2002; Simpson & Flynn, 2007). This framework highlights the inner context of AHS programs, represented by staff characteristics such as motivation, program resources, and climate.

Implementing coordinated mental and public health services for racial and ethnic minority clients also requires cultural competence. Culturally responsive practices, such as delivering services in a bilingual, culturally diverse, and inclusive setting, are associated with more accurate diagnosis, a positive therapeutic alliance, and greater client satisfaction (Brach & Fraser, 2000; Cross, Bazron, Dennis, & Isaacs, 1989; González, Vega, & Tarraf, 2010; Saha, Komaromy, Koepsell, & Bindman, 1999; Saha, Taggart, Komaromy, & Bindman, 2000; Sue, Fujino, Hu, Takeuchi, & Zane, 1991). However, prior research did not consider the role of organizational cultural competence in AHS programs' coordination with mental and public health services (Guerrero et al., 2013). In light of this, in Hypothesis 2 we posited that a higher degree of directorial leadership, readiness for change, and cultural competence will be associated with higher odds of high coordination with mental and public health services.

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2. Methods

2.1. Sampling frame and data collection

The sampling frame for both the quantitative and qualitative samples encompassed all 408 AHS programs funded by the Department of Public Health in Los Angeles County, CA, between January 1, 2011, and December 31, 2013. The initial sampling procedure involved a random selection in 2010 of 147 outpatient programs drawn from the 350 programs located in communities with a population composition of 40% or more Latino or African American residents or both in Los Angeles County. Latino residents represent more than 48.3% of the county's population (U.S. Census Bureau, 2014). An outpatient program was defined as a treatment unit that provided at least 75% of its services in an outpatient setting.

2.2. Sample

Data were gathered at two time points from a random sample of program managers and direct-service staff members. Data collection at Time 1 (T1) in 2011 relied on clinical supervisors as key informants of program structure and practices, an approach consistent with other exploratory studies (see D'Aunno, 2006; Knudsen, Ducharme, & Roman, 2006; Roman et al., 2011), whereas Time 2 (T2) information collected in 2013included data from an average of three direct-service providers per program (one supervisor and two counselors). T1 data were collected from 147 programs, but we excluded 14 programs that had inconsistent data on variables of interest and 11 programs that had recently closed. Thus, the T1 sample consisted of 122 eligible programs with full and verified information. The final analytic sample used both T1 and T2 data (122 and 112 programs, respectively), resulting in an analytic sample of 234 programs. Sixty-one programs had both T1 and T2 data. The analytic sample excluded 51 programs that had closed, stopped providing services to adults, or changed names at the time of

the T2 survey. These included 25 programs at T1 and 26 programs at T2. These 51 excluded programs did not differ from the analytic sample in terms of main independent variables ($p > .05$).

The T2 sample differed from the T1 sample in sample size (122 vs. 112 programs); measures (61 programs had both T1 and T2 measures); and respondent type (one supervisor at T1 vs. one supervisor and two counselors at T2). However, differences at T2 between programs (included and excluded from the T2 survey) and within programs (supervisors versus counselors) were not statistically significant ($p > .05$). Our power analysis using program-level data suggested that data from at least 99 programs featuring 15 variables would have 80% power to detect a standardized effect size of $d = .24$ (Cohen, 1988).

Data collection involved four steps to increase the validity of measures: (a) online survey responses from supervisors; (b) a review of program characteristics and service delivery information reported to the funding organization (Los Angeles County Department of Public Health); (c) qualitative interviews with a subsample of counselors and clinical supervisors ($n = 30$ programs); and (d) a review of printed material available at each provider site (e.g., brochures, group activities, posted signs). For example, for each dependent variable, we used a matrix (Excel sheet) with key program features to cross-check consistency of supervisor reports on survey measures. Our investigative team conducted in vivo observations and systematically collected qualitative reports from counselors related to those measures during site visits (e.g., number and type of activities related to high coordination). Consistent information regarding our measures of interest from at least three of the four sources of data was necessary to include data for each program in the analytic sample. In particular, interview data allowed us to confirm programs reporting a high level of coordination with mental and public health in surveys. The

average age of participants in our sample was 46 years and 34% were men. Most managers were African American (45%) or Latino (32%), as were counselors (43% and 47%, respectively).

From the final sample of 122 supervisors included in the T1 survey analysis, 30 were selected for qualitative follow-up interviews in 2013 to confirm survey findings and explore changes from 2011 to 2013 in greater detail, as suggested for mixed-method approaches (Palinkas et al., 2011). The maximum variation approach to purposive sampling (Teddlie & Yu, 2007) was used to select a cross-section of clinical supervisors who worked in agencies that reported high and low levels of integration and coordination with mental health and primary care. In addition, the sample of supervisors varied by population served, geographic location, capacity to accept insurance, program requirements, and organizational capacity. Agencies that used both outpatient drug-free and medication-assisted treatment models were also included in the qualitative sample. Participant recruitment for semistructured interviews stopped after 30 interviews, when the data reached saturation and ceased to generate new insights or concepts (Charmaz, 2014). Interviews were professionally transcribed verbatim and imported into ATLAS.ti (6.0) software to facilitate data management and analysis.

2.3. Dependent variables

We examined two dependent variables: AHS program reports of high coordination with mental health providers and high coordination with public health providers, which were defined and measured as the frequency of interorganizational coordination between AHS programs and public health and mental health providers. The first measure asked clinical staff members (supervisors and counselors) how frequently their AHS program collaborated with mental health service providers to coordinate care for clients with dual disorders. The second measure asked clinical supervisors a similar question about their work with public health service providers in

community-based settings. The five possible responses ranged from *never* to *always*. These two

measures had bimodal distributions, thus we transformed them to dichotomous high–low scales.

This transformation allowed us to examine coordination based on high or low frequency of

interorganizational contact.

2.4. Independent variables

Independent variables in the study included percentage of public funding, state licensure,

accreditation, acceptance of Medi-Cal payment, four measures of organizational readiness for

change, organizational cultural competence, a measure of directorial leadership, and data

collection period (T1 and T2). The public funding variable measured the percentage of total

revenue that came from public sources during the previous fiscal year, and regulation variables

were dichotomous measures of state licensing and accreditation by the Joint Commission. Time

periods were also dichotomous measures. We controlled for whether the program operated

within a larger parent organization.

Organizational readiness for change was measured using the ORC-D4 short form version

of the Texas Christian University (TCU) Organizational Readiness for Change instrument. This

measure has 67 items divided into four domains with 18 subscales: motivation for change (three

subscales: program needs, training needs, and pressure for change); resources (five subscales:

offices, staffing, training, equipment, and Internet access); staff attributes (five subscales:

growth, efficacy, influence, orientation, and adaptability); and organizational climate (six

subscales; mission, cohesion, autonomy, communication, stress, and change; Lehman et al.,

2002; Simpson & Flynn, 2007). All items were rated by supervisors on a 5-point Likert scale (1

= *strongly disagree* to 5 = *strongly agree*). Items from subscales were added and averaged to

create scores for each of the four domains. Prior studies used this approach to validate scales for

these four domains (Greener, Joe, Simpson, Rowan-Szal, & Lehman, 2007; Saldana, Chapman, Henggeler, & Rowland, 2007). Cronbach's alphas of readiness for change ranged from .74 to .86 (for the full scale, see TCU Institute of Behavioral Research, 2002). Higher scores indicated staff perceptions of increased program readiness for change.

The organizational cultural competence measure relied on the Cultural Competence Self-Assessment Questionnaire (Mason, 1995). This 57-item measure is composed of six subscales assessing culturally competent practices: (a) knowledge of, (b) outreach to, and (c) personal involvement in racial and ethnic minority communities; (d) development of resources and linkages to serve racial and ethnic minorities; (e) development of policies and procedures to effectively respond to the service needs of racial and ethnic minority patients; and (f) hiring and retention of employees with racial and ethnic minority backgrounds. Sample items for each scale are presented in Table 1 (for a full description of items, see Mason, 1995). Reliabilities of the six subscales ranged from .69 to .85. Responses were rated on a 4-point Likert scale (1 = *not at all* to 4 = *often*) and averaged to create total scores for each subscale. Higher scores indicated higher levels of cultural competence in each subdomain, as perceived by supervisors and counselors. See Table 1 for the response format of all variables.

The leadership scale consisted of nine items assessing agency or program director leadership. This measure included two subscales associated with implementation of evidence-based practices: transformational leadership characterized by intellectual stimulation, support for innovation, and integrity (seven items), and transactional leadership related to delegation and job expectations (two items; α = .96; Edwards et al., 2010). Supervisors and staff rated their director's leadership on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*) and scores

were totaled as suggested by the measure's authors (Edwards et al., 2010). Higher scores represented higher levels of leadership among directors as reported by clinical staff members.

[Insert Table 1 about here]

2.5. Quantitative data analysis

We used analysis of variance and chi-square global tests to compare changes in ratings of high coordination with mental health and public health services between 2011 and 2013. Multilevel logistic regressions were used to assess Hypotheses 1 and 2. This procedure was conducted in Stata/SE Version 12, using the XTLOGIT procedure to run two random effects multilevel logistic regression analyses, one per outcome. This model accounted for nesting of program measures in two time periods (T1 and T2). Hausman tests were used to determine the appropriateness of random effects (Davidson & MacKinnon, 1993). Finally, we calculated the predicted probabilities of high coordination with public health and mental health services at T1 and T2 (Wooldridge, 2010). A predicted probability represents the probability of high coordination after all other variables in the regression model are set to their mean value.

Multiple imputation was used to fill in missing values, because data were assumed to be missing at random (Rubin, 1987). Each missing value was replaced with 20 plausible values using the Markov chain Monte Carlo method (Schaefer, 1997). The highest rate of missing data for any variable in the sample was approximately 18% (public funding). Two other variables, readiness for change and cultural competence, had 12% missing data, whereas the rate of missing data for other variables was less than 6%. Twenty imputed data sets were developed, merged, and analyzed using Stata's MI IMPUTE and MI ESTIMATE commands.

2.6. Qualitative data analysis

Supervisors who participated in semistructured interviews were asked about recent changes in their programs' delivery of coordinated mental health and public health services and internal and external factors that affect the delivery of coordinated care. Transcripts from interviews were coded by two PhD-level researchers trained in qualitative data analysis using constructivist grounded theory techniques (Charmaz, 2014). This approach facilitated the identification of significant patterns and constructs that offered a rich understanding of supervisors' perceptions of issues related to the provision of coordinated care. Description and interpretation followed, including development of themes related to recent changes in the delivery of coordinated care and internal and external factors that promote or inhibit the delivery of coordinated care. To ensure the rigor of the analytic process, the qualitative analysts met with other members of the research team frequently to discuss coding and analysis and maintained memos related to all analytic decisions (Corbin & Strauss, 2015; Miles & Huberman, 1994).

Our framework for mixed-method integration relied on a mixed-method approach to implementation (Palinkas et al., 2011). We used a sequential mixed-method design with qualitative data preceding quantitative data collection and an equal emphasis on qualitative and quantitative data and analyses. To triangulate the data, we integrated qualitative and quantitative data by placing research questions on a grid format that highlighted how findings from the different data sources converged, diverged, or prompted new hypotheses regarding integration of care. Discrepancies were resolved using a consensus approach.

3. Results

3.1. Quantitative findings

As displayed in Table 1, AHS programs reported a higher rating of high coordination with mental health and public health services at T2, as compared to T1. In other words, programs reported a higher frequency of contact for the purposes of service collaboration with mental health service providers at T2 (66%) compared to the T1 data collection period (43%; $p < .001$). Programs also reported a higher frequency of contact with public health service providers at T2 (54%) than at T1 (31%; $p < .001$). Results of logistic regression, displayed in Table 2, showed that the odds of high coordination with public health providers ($OR = 7.429$, $p < .001$) and mental health providers ($OR = 2.626$, $p < .05$) increased substantially and significantly at T2 compared to T1 ($OR = 17.717$, $p < .001$). The predicted probability of high coordination with public health services increased from 36.1% to 67.5% from T1 to T2. The predicted probability of high coordination with mental health services increased from 45.8% to 66.7% during the same period.

Findings did not support Hypothesis 1, which posited that outer context factors such as public funding and receipt of licensure and professional accreditation would be associated with higher odds of high coordination with mental health and public health services. The relationships between outer context factors, including public funding, and outcomes were not statistically significant in the logistic regressions ($p > .05$).

Findings partially supported Hypothesis 2, which posited that inner context factors would be associated with increased odds of high coordination with mental health and public health services. Logistic regression models showed that resources and linkages to serve racial and ethnic minority communities were associated with increased odds of high coordination of public

health services ($OR = 1.605$, $p < .001$). With regard to coordination of mental health services, knowledge about minority communities ($OR = 1.173$, $p < .05$) and resources and linkages to serve minority communities ($OR = 1.521$, $p < .001$) were associated with increased odds of high coordination. In contrast, personal involvement in minority communities was associated with lower odds of high coordination with mental health services ($OR = 0.924$, $p < .05$). See Table 2.

We found significant differences between T1 and T2 data in other variables of interest, including program staff characteristics, services, and funding. In particular, staff attributes supportive of change ($p < .05$) and staff personal involvement in racial and ethnic minority communities ($p < .01$) decreased. Programs reported an increase in the percentage of total revenue received from public sources (including Medicaid, Medicare, and other federal, state, and county sources) from 2011 to 2013. However, during the same period, the percentage of programs accepting Medicaid payments declined by 30 percentage points ($p < .001$). Findings from our qualitative analysis suggest that a significant increase in state and county funds during this period may explain why total revenue from public sources increased even as Medicaid acceptance decreased.

3.2. Qualitative findings

Qualitative data gleaned from semistructured interviews provided detail regarding how high coordination with mental and public health services changed between 2011 and 2013. They also provided insight into the role that inner and outer context factors played in either facilitating or inhibiting the delivery of coordinated care. Figure 1 shows the conceptual dynamic among inner and outer context factors and coordination of mental health and public health services.

[Insert Figure 1 about here]

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3.2.1. Changes in care coordination and integration

Clinical supervisors reported that mental health services were increasingly integrated with AHS programs on-site or highly coordinated with specialty mental health treatment, whereas public health services were generally provided separately but still coordinated with AHS programs. Interviewees described how their programs began providing mental health screenings and assessments on-site, providing individual mental health counseling, offering groups for co-occurring mental health and substance use disorders, and making psychiatric prescription and medication management services available on-site. For programs that had not begun offering integrated mental health treatment on-site, clinical supervisors reported providing referrals to nearby mental health treatment providers when unmet psychiatric service needs were identified and establishing protocols to ensure that clients followed up with referrals to specialty care. Thus, effective coordination of services relied on establishing relationships with nearby organizations to ease the process of making referrals and case conferencing and to respond to transportation issues, which constituted a major barrier to accessing mental health services for low-income clients.

Compared to coordinating with mental health service providers, supervisors reported that their organizations had not progressed as far in integrating or coordinating with public health services. A majority of interviewees reported that because they did not receive funding to provide services related to the management and treatment of infectious diseases, their program's efforts to address public health concerns were limited to asking clients if they had hepatitis or HIV and referring them to outside agencies for counseling and treatment if they disclosed positive status. The most common integrated service was HIV risk education, and some programs occasionally provided on-site HIV and hepatitis testing. However, supervisors from

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larger treatment organizations (30% of the qualitative sample, *n* = 9) reported that their agencies

had hired their own medical staff to provide on-site integrated public health services, whereas

half of the interviewees (*n* = 15) indicated that their programs were in the process of

implementing protocols to identify medical conditions and collaborate with local medical centers

or clinics to coordinate medical care.

3.2.2. Outer context

Discussions with clinical supervisors highlighted funding and regulatory issues that

promoted or inhibited service coordination and integration. Interviewees from organizations with

large and diverse sources of funding reported that they were able to provide more coordinated or

integrated care by hiring new staff members or absorbing operational losses associated with care

integration into their overall budgets. Yet interviewees from most sites reported that limited

funding for coordination or integration hindered their efforts. In particular, they said Medicaid

benefits for substance use treatment in California were exceedingly restrictive and precluded the

delivery of services to Medicaid clients that did not directly address substance use behaviors.

Similarly, programs required contracts with or funding from county mental health or public

health departments to deliver services to clients with identified mental health conditions.

Diverse funding and flexible client eligibility criteria helped facilitate the delivery of

more coordinated or integrated care. Programs that had on-site mental health care accessed

flexible funding from federal and state grants that supported prevention and early intervention

services for individuals at risk of mental health disorders. But other programs had to secure

contracts with local mental health and public health departments to provide highly coordinated

off-site psychiatric and medical care.

Interviewees also highlighted the importance of strong working relationships with outside agencies in facilitating and maintaining service integration. Partnerships with outside agencies that delivered mental health and physical health services to their clients were essential to high coordination efforts. However, building strong partnerships required a conscious effort by agency leaders to establish working relationships with social service agencies and primary care clinics by developing collaborative protocols that were mutually beneficial. For example, participants from several clinics reported that they stationed staff members at local mental health or primary care clinics one or two days a week to provide substance use disorder assessment and consultation, and that in exchange, partner agencies sent staff members to AHS treatment centers to provide similar health-related services. For many, such partnerships emerged organically over time because the providers happened to share a building or as a result of collaborating on the care of shared clients.

3.2.3. Inner context

Discussions with clinical supervisors elucidated leadership and staff readiness as the main internal factors that either promoted or hindered service coordination and integration. Leaders' attitudes and actions, generally referring to a program director's views and behaviors, played a key role in determining the scope and scale of efforts to provide more coordinated care. Directors explicitly decided to expand their target populations to individuals with substance use disorders and co-occurring mental health or physical conditions. At these organizations, the move toward coordinated care became part of a broader, conscious shift in organizational treatment focus and set the tone for staff members to begin providing more holistic and integrated care. Conversely, at some organizations, the reluctance of leaders to support integrated care hindered change.

Similarly, supervisors reported that staff readiness and attitudes toward coordination and integration were critical in determining the extent of service integration. When staff members believed that their job was only to address substance use disorders, harbored stigma against individuals with mental health disorders, or lacked training in areas outside of AHS, clinical interviewees reported that staff attitudes hindered service integration. Conversely, when staff members were trained in the mental health and medical needs of substance-abusing clients or observed that clients could benefit from increased coordination with mental health or public health services, supervisors reported that staff members were more likely to make the changes necessary to facilitate care coordination and integration.

4. Discussion

We examined rates of reported program coordination with mental health and public health service providers at two time points (2011 and 2013) in a sample of AHS programs serving minority communities in one of the largest treatment systems in the country. Forty-three percent of AHS programs reported high frequency of coordination with mental health providers at T1 compared to 66% at T2. Thirty-one percent of programs reported high frequency of coordination with public health services at T1 compared to 54% at T2. Although there were differences in the sample from T1 to T2, we believe that the findings are valid based on the following three factors: (a) both samples were drawn from the same sampling frame of programs located in ethnic minority communities; (b) we relied on a systematic triangulation process of data drawn from surveys, administrative data, interviews, and document reviews; and (c) the qualitative data confirmed that the reported change in coordination between 2011 and 2013 was attributed to greater access to flexible sources of funding, such as special county-level grants to

support integrated care. In particular, this funding allowed AHS programs to offer mental health screenings, on-site assessments, psychiatric consultations, and other related services.

Data also highlighted the potential role of organizational leaders in facilitating the delivery of coordinated care. Qualitative data showed that for some programs, reluctance among leaders to support integrated care hindered change. In contrast, leaders in other programs promoted a conscious shift in treatment focus, creating a culture and developing procedures that supported holistic and integrated care. Although the relationship between transformational leadership and care coordination was not statistically significant, qualitative data showed that enabling actions taken by organizational leaders could nonetheless play a key role in facilitating care coordination in AHS programs. For instance, leaders who reported positive attitudes toward care coordination during interviews also reported leveraging funding to support coordinated care. Leaders who reported responding to accreditation bodies were able to facilitate increased coordination of AHS treatment with mental health and public health services.

Organizational cultural competence, an inner context factor, was highly related to coordination with both mental and public health services, particularly in terms of knowledge of, investment in, and resources and linkages with minority communities. AHS programs that developed strong community ties and had experience building and maintaining community-based relationships were more likely to coordinate with mental and public health services. Additionally, providers with greater knowledge of and personal involvement in the racial and ethnic minority communities they serve were also more likely to coordinate with these services. These results suggest that early efforts to increase access to health and mental health services among racial and ethnic minority-serving programs should focus on fostering and building on these strengths, particularly because many such organizations have constrained financial

resources (Guerrero, 2013). However, it is also possible that AHS programs that pursue high-quality care by offering culturally competent care may also be more likely to respond to the mental and public health service needs of minority clients.

Although not an original aim of the study, an important finding emerged regarding the impact of changes in Medicaid provider requirements on the addiction treatment system in Los Angeles County. About 30% of programs that accepted Medicaid payments in 2011 were not authorized to accept such payments in 2013. County changes to licensing criteria due to reported fraudulent activities by some providers led to a drastic reduction in the number of providers being relicensed in 2013, right on the brink of Medicaid expansion. An ad hoc comparative analysis showed an increase in the number of clients in relicensed programs. However, there was no difference in the likelihood of high coordination with mental or public health services between licensed and nonlicensed programs in 2013. Nonetheless, policy makers need to be keenly aware of the potential implications of changes in licensing among programs serving low-income minority communities in light of the expansion of Medicaid.

Overall, findings suggest that funding, leadership, and cultural competence (community knowledge, involvement, and linkages) are major factors related to health service coordination among community-based AHS programs located in racial and ethnic minority communities. However, results suggest that programs still face several challenges. AHS programs lacked targeted funding and guidance to provide on-site public health services and were only in the early stages of establishing working relationships with off-site medical clinics.

4.1. Limitations

Some limitations of the present study should be noted. The first limitation relates to the definition and measurement of our primary outcome variables, measures of service coordination

among AHS programs and mental health and public health services providers. These two measures focused on ratings of the frequency of contact between AHS programs and public health and mental health providers to coordinate client services. Although our measures reflected a central component of care coordination, they were not comprehensive of all possible components of care coordination, nor did they assess whether coordination was conducted on-site or off-site. Future research could build on this effort by developing a more complex conceptualization of coordination that includes communication patterns, information technology, financing structures, and staffing models that can be tested over time. Our definition of public health services was broad, encompassing primary care and specialized services for prevention and treatment of infectious diseases with high prevalence among individuals in addiction treatment, including HIV and hepatitis. Future research in this area would benefit from more specific delineation of the types of health services AHS programs are coordinating.

Second, our study was limited to coordination with mental health and public health providers, rather than exploring the full continuum of integration of behavioral and primary care in AHS programs. Given the resource limitations of AHS programs, understanding interorganizational contact with behavioral and primary care providers is an important step toward achieving comprehensive integrated care. Third, although we analyzed ratings of high coordination at two time periods, we were not able to establish causality and our outcome measure was not developed for a longitudinal design. Also, differences in T1 and T2 samples described in the methods section may challenge the accuracy of the change reported at T2. However, the sampling frame did not change, there were no statistically significant differences between and within programs in reports of high coordination, and the qualitative data validated the higher rating of coordination at T2.

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Another limitation is the potential for social desirability bias associated with supervisors reporting on program characteristics at T1, which was a lesser concern in the T2 survey due to additional collection of data from counselors. To address this concern, we corroborated supervisor responses at T1 using program materials (e.g., marketing of integrated care) and verified the reliability and consistency of data with other informants (i.e., counselors) during site visits as suggested in other studies (Adams, Soumerai, Lomas, & Ross-Degnan, 1999; Lee & Cameron, 2009). Fourteen programs were not included due to significant inconsistencies among responses by supervisors and counselors.

We also acknowledge that the confidence interval of change from T1 to T2 data collection periods and coordination with public health (see Table 2) was wide, raising concerns about the stability of this estimate. However, post hoc analyses showed that when using five fewer variables in the model, the estimate was the same but the confidence interval narrowed significantly.

Finally, our analyses only allowed us to generalize findings about service delivery to our sampling frame and not to the wider AHS systems. Nonetheless, this issue was somewhat mitigated by our large sample with two data collection time points of publicly funded AHS programs serving communities with a population of 40% or more Latino or African American residents or both, representing approximately 7.7 million residents in Los Angeles County.

4.2. Conclusion

Community-based AHS programs reported a higher rating of contact with mental health and public health providers to coordinate services in 2013 compared to 2011. Public funding continues to drive the expansion of service delivery through contracts and regulation. Leaders who anticipated that service coordination activities would grow in importance worked to increase

the scope and degree of contact with mental health and public health providers to coordinate services. Although public funding generally did not directly pay for coordinated care, programs with committed leaders seemed to develop innovative arrangements to respond to their clients' service needs. Findings have implications for payment interventions and leadership models to enhance integrated care models in an era of health care reform. As funding shapes service priorities in AHS (D'Aunno, 2006) and Medicaid becomes a major source of funding in this field, it is critical to increase Medicaid payment acceptance rates among AHS programs and develop explicit criteria for delivering different levels and degrees of integrated care (Guerrero, Aarons, & Palinkas, 2014; McLellan & Woodworth, 2014). Training leaders how to initiate and generate staff buy-in and supervise the implementation of integrated care can be a cost-effective approach to improving quality of care. Leaders also need to seek and leverage available public and private funding and other resources (technical assistance) to deliver much-needed culturally responsive integrated care services in low-income and racial and ethnic minority communities.

Acknowledgements

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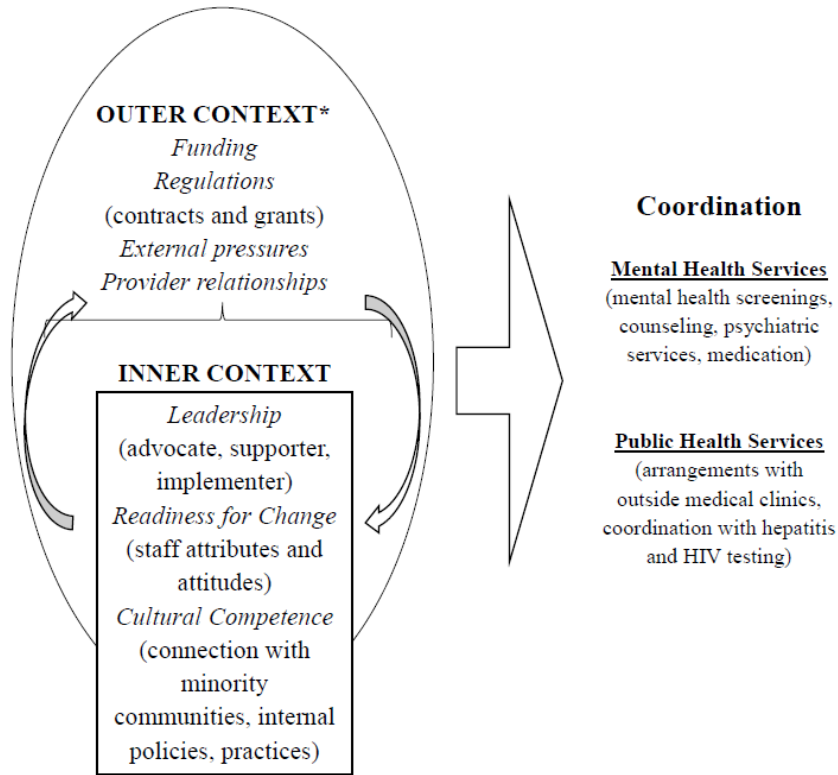
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Figure 1
Factors promoting high coordination of mental health and public health services in addiction treatment programs

OUTER CONTEXT*
Funding
Regulations
(contracts and grants)
External pressures
Provider relationships

INNER CONTEXT
Leadership
(advocate, supporter, implementer)
Readiness for Change
(staff attributes and attitudes)
Cultural Competence
(connection with minority communities, internal policies, practices)

Coordination

Mental Health Services
(mental health screenings, counseling, psychiatric services, medication)

Public Health Services
(arrangements with outside medical clinics, coordination with hepatitis and HIV testing)

* Drawing from both quantitative and qualitative analysis, this figure highlights factors associated with high coordination. Quantitative analysis highlighted a positive association between cultural competence and high coordination with both services. Qualitative analysis offered a comprehensive description of the range of coordination services that programs deliver and highlighted the role of outer and inner context factors in developing high coordination with these services.

Figure 2

Predicted probabilities of high coordination of mental health and public health services, 2011 (Time 1) and 2013 (Time 2)
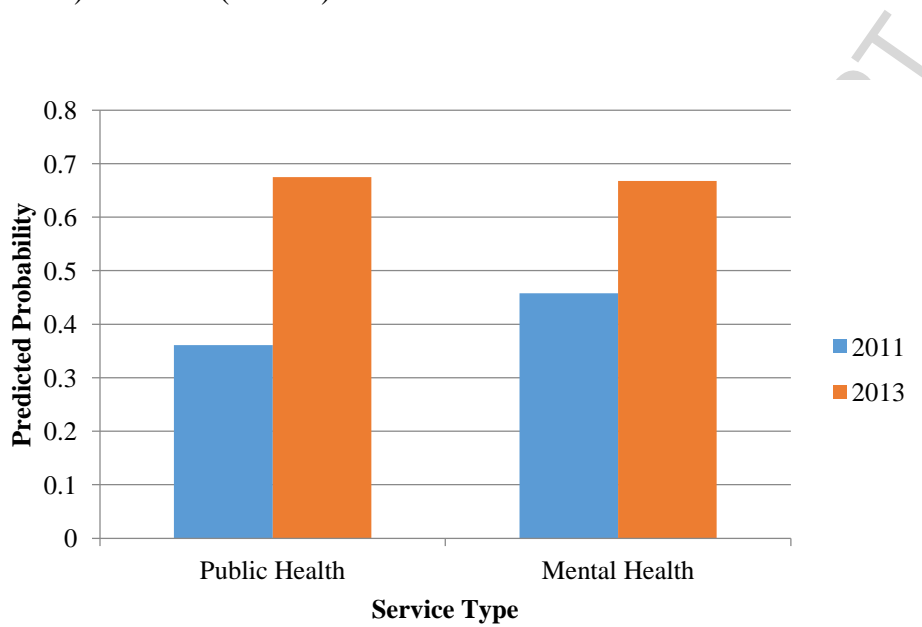
Table 1

Differences between 2011 (Time 1) and 2013 (Time 2) variables.

	Time 1	Time 2	
	$n = 122$	$n = 112$	
	% or M (SD)	% or M (SD)	p
Dependent Variables			
Mental health services	0.43	0.66	< .001
Public health services	0.31	0.54	< .001
Outer Context			
% public funding	0.56 (0.41)	0.68 (0.37)	< .001
Licensed	0.95	0.95	.971
Accredited	0.17	0.25	.156
Inner Context			
Readiness for change			
Motivational readiness	30.99 (6.04)	30.48 (4.87)	.502
Resources	38.14 (4.66)	37.39 (4.86)	.247
Staff attributes	40.18 (4.03)	39.00 (3.00)	.014
Organizational climate	34.76 (4.40)	34.50 (3.59)	.639
Cultural competence			
Knowledge	29.12 (4.84)	29.80 (3.88)	.249
Personal involvement	26.41 (7.69)	23.88 (5.27)	.005
Resources and linkages	27.43 (5.72)	27.62 (6.02)	.820
Staffing	26.35 (5.65)	27.04 (4.90)	.349

Efforts to diversify	28.34 (5.31)	29.03 (4.22)	.298
Policies and procedures	23.84 (6.62)	24.21 (5.82)	.673
Overall	26.75 (4.16)	27.11 (4.60)	.599
Directorial leadership	39.01 (6.72)	39.50 (5.04)	.536
Medicaid acceptance	0.71	0.41	$< .001$
Parent organization	0.34	0.46	.086

Table 2

Logistic regression on high coordination of mental health and public health services.

	Mental Health Services			Public Health Services		
	OR	95% CI	*SE*	*OR*	95% CI	*SE*
Time 2[a]	2.626*	1.066, 6.467	1.202	7.429**	2.534, 21.776	4.075
Outer Context						
% public funding	2.850	0.653, 12.441	1.752	1.053	0.212, 5.236	0.711
Licensed	0.271	0.022, 3.284	0.345	1.754	0.149, 20.632	2.206
Accredited (TJC)	2.113	0.244, 18.318	1.486	1.062	0.292, 3.860	0.649
Inner Context						
Readiness for change						
Motivational readiness	1.025	0.879, 1.195	0.057	0.986	0.877, 1.110	0.051
Resources	0.952	0.840, 1.079	0.061	0.980	0.792, 1.213	0.087
Staff attributes	1.083	0.927, 1.264	0.076	1.054	0.923, 1.203	0.071
Organizational climate	0.941	0.561, 1.579	0.135	0.948	0.782, 1.150	0.093
Culture competence						
Knowledge	1.173*	1.018, 1.350	0.078	1.055	0.927, 1.201	0.068
Personal involvement	0.924*	0.855, 0.998	0.037	1.059	0.889, 1.262	0.067
Resources and linkages	1.521**	1.302, 1.776	0.113	1.605**	1.349, 1.909	0.133
Staffing	0.986	0.861, 1.129	0.061	0.901	0.800, 1.015	0.054
Efforts to diversify	0.928	0.816, 1.056	0.061	0.925	0.807, 1.060	0.064
Policies and procedures	0.978	0.905, 1.057	0.039	1.034	0.897, 1.191	0.059
Directorial leadership	1.077	0.869, 1.335	0.076	1.023	0.914, 1.145	0.057
Medicaid acceptance	0.478	0.213, 1.069	0.196	0.901	0.180, 4.521	0.559
Parent organization	1.587	0.631, 3.994	0.721	1.466	0.563, 3.816	0.714
Programs	234			234		

Note. CI = confidence interval; OR = odds ratio; TJC = the Joint Commission. Final sample included

programs from both Time 1 (*n* = 122) and Time 2 (*n* = 112) except missing or excluded programs; 61

programs had Time 1 and Time 2 data.

[a] Reference category was Time 1.

p < .05. **p* < .001.

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Highlights

- Found higher rating of high coordination at Time 2 as compared to Time 1.
- Culturally responsive practices were associated with high coordination.
- Leadership determined the scope and scale of efforts to provide coordinated care.
- Interventions for funding and leadership under health care reform are discussed.