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Program capacity to deliver prevention services to children of adult clients receiving substance use disorder treatment

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Abstract

Children whose parents have a history of substance use are at elevated risk of developing substance use disorders (SUDs) and related debilitating behaviors. Although specialty treatment programs are uniquely positioned to deliver prevention care to children of adult clients, these programs may have limited capacity to implement prevention and early intervention care services, particularly in racial and ethnic minority communities. We merged data from program surveys and client records collected in 2015 to examine the extent to which program capacity factors are

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Authors' contributions

EG reviewed the research literature, framed the scope of the paper, contributed to the statistical analysis, and was the primary text author. HP, VS and MR provided additional literature review, critical review of statistical analysis, and support in writing the manuscript, including revisions. SH and LG provided critical review and support for all revisions. All authors reviewed and approved the final draft.

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Ethics approval and consent to participate

This study was reviewed and approved by the Institutional Review Board of the University of Southern California (USC; UP-13-00030). The principal investigator, also the corresponding author, has obtained consent to publish from the participants in this study (treatment clients and program staff members). We received and analyzed only de-identified client data from Los Angeles County Department of Public Health, who obtained written consent to share such data from client participants. The principal investigator obtained consent to participate in the study by acknowledging reading the information sheet prior to completing the online survey. The ethics committee at USC approved the recruitment, consent, data collection and analysis procedures.

Consent for publication

Not applicable

Availability of data and materials

The datasets for this study are available from the corresponding author and with permission of the Los Angeles County Department of Public Health on reasonable request.

Conflict of Interest

The authors have no conflicts of interest to declare.

associated with the odds of delivering prevention and early intervention services for children of adult clients attending outpatient SUD treatment in low-income minority communities in Los Angeles County, California. Our analytic sample consisted of 16,712 clients embedded in 82 programs. Our results show that 85 percent of these programs reported delivering prevention care services, while 71 percent of programs delivered early intervention services. Programs with organizational climates supporting change and those that served a high number of clients annually were more likely to implement both prevention and early intervention practices. Programs accepting Medicaid payments and serving clients whose primary drug was marijuana were more than three times as likely to implement prevention services. Overall, our findings suggest both program- and client-level characteristics are associated with delivering preventive care offered to children of adult clients receiving SUD treatment in communities of color. As Medicaid has become a major payor of SUD treatment services and marijuana use has been legalized in California, findings identify capacity factors to deliver public health prevention interventions in one of the nation's largest public SUD treatment systems.

Keywords

Program capacity; Leadership; Implementation; Prevention services; Substance use disorder treatment

Background

Children of adults with a history of substance use are at increased risk for developing substance use disorders (SUDs), and substance-related problems including anxiety, depression, overdose, suicide, school disruption, HIV risk behavior (Clark, Cornelius, Kirisci, & Tarter, 2005; Fergusson, Boden, & Horwood, 2008; Velleman & Templeton, 2007), and criminal behavior (Goodwin, 1985; Johnson, Schontz, & Locke, 1984; McDermott, 1984). Consequently, substance use prevention can play a critical role in promoting the health and well-being of these children. Prevention services reduce early onset and progression of substance use among children and adolescents (National Institute on Drug Abuse, 2009), whereas early intervention services focus on early detection and management of risky (moderate, nondependent) substance use to limit its consequences toward substance dependence (Madras et al., 2009). Both prevention and early intervention services generally focus on improving children's social competence, leveraging social influences, and utilizing psychosocial approaches to increase children's likelihood of abstaining from or decreasing substance use (Faggiano et al., 2005; Foxcroft & Tsertsvadze, 2011; Thomas, McLellan, & Perera, 2013). Selective prevention and early intervention services—those that tailor these interventions for the children of adults who misuse substances—can be effective in reducing their substance-related risks (Broning et al., 2012; National Research Council and Institute of Medicine, 2009).

Most publicly funded SUD treatment systems in the United States do not directly finance prevention or early intervention services (Jarvis, 2010; Rawson & McLellan, 2010). SUD programs often lack capacity to expand the range of services they provide without significant monetary support (D'Aunno, 2006; Gotham, Claus, Selig, & Homer, 2010;

Guerrero 2010; McLellan et al., 2003; Simpson, Joe, & Rowan-Szal, 2007). Consequently, it remains difficult for SUD programs to deliver prevention and early intervention services that focus on the children of their adult clients. This is particularly the case in low-income and racial and ethnic minority communities where rates of substance use are high and SUD treatment programs are under-resourced (Guerrero, Marsh, Khachikian, Amaro & Vega, 2013). Given the potential public health impact of selective prevention and early intervention services for children of adults in SUD treatment, further information is needed to understand what may enable these programs to develop such services, particularly in racial and ethnic minority communities.

This paper addresses the organizational capacity issue by examining factors associated with the delivery of prevention and early intervention services or children of adult clients in publicly funded SUD programs that serve racial and ethnic minority communities in Los Angeles County, California. Prior research has identified various aspects of program capacity—defined as organizational readiness for change, directorial leadership, and ability to accept Medicaid payment—as potential drivers of service expansion among publicly funded SUD treatment programs (Guerrero, Aarons, Grella, Garner, Cook, & Vega, 2016; Guerrero, Andrews, Harris, Padwa, Kong, & Fenwick, 2016). Greater program capacity is associated with increased staff readiness for change (Guerrero, Padwa, Fenwick, Harris, & Aarons, 2016), greater implementation of new technologies and knowledge (Simpson, 2004; Simpson & Flynn, 2007), and increased capacity to deliver new services (Aarons et al., 2006). Leadership is associated with delivering newer behavioral health services (Aarons et al., 2006). Building from previous studies (Guerrero, Andrews, Harris et al., 2016; Guerrero et al., 2016; Guerrero, Fenwick, Kong, Grella & D'Aunno, 2015), we hypothesize that greater program capacity among publicly funded SUD programs will be associated with greater delivery of prevention and early intervention services for children of adult clients. In this paper, we test two hypotheses:

1. Program capacity (directorial leadership, readiness for change, Medicaid payment acceptance) will be associated with increased delivery of SUD prevention services for children of adult clients receiving treatment in racial and ethnic minority communities.
2. Program capacity (directorial leadership, readiness for change, Medicaid payment acceptance) will be associated with increased odds of implementing SUD early intervention services for children of adult clients receiving treatment in racial and ethnic minority communities.

Methods

Sampling and Recruitment

To test our hypotheses, we collected survey data in 2015 from outpatient SUD-treatment programs funded by the Los Angeles County Department of Public Health that serve racial and ethnic minority communities. We focused on outpatient programs since more than three-fourth of adults who receive SUD treatment do so in outpatient settings (D'Aunno, 2006). Programs were considered outpatient if they provided at least 75 percent of its treatment

services in an outpatient setting, and communities were considered racial and ethnic minority if at least 40% of their population was Latino or African American. A total of 350 programs met these criteria. Out of these programs, 112 were randomly selected to participate in the survey.

The study team contacted directors for each selected program to request participation in the study. At each program, the study team randomly selected three staff members (one manager, two counselors) from a staff list provided by the agency director to complete the survey. In the event programs had fewer than three staff, either one or two staff members completed the survey. In addition, half of participating sites were randomly selected for site visits, for research staff to verify the implementation of prevention services for children of adult clients.

Of the 112 programs selected, 30 programs had closed, stopped providing service to adults, or changed names by the time the survey was distributed, so they did not provide data for the study. The final sample included 82 programs, and our survey was completed by 218 treatment staff. Overall, these programs served 16,712 clients in 2015.

Dependent Variables

We collected data concerning the delivery of SUD prevention services through a survey question that asked respondents “Does your agency provide any services designed to prevent substance use disorders for children of your adult clients?” and measured their responses as a binary (yes/no) response. Data concerning the implementation of SUD early intervention services were collected through a survey question asking providers how frequently their program implemented early interventions to reduce the risk of SUD among the children of their adult clients. On this item, respondents replied on a scale from zero (never) to five (always). Since the distribution of responses on this question were skewed, responses between zero and three were recorded as “no” while responses of four and five (i.e., often and always) were coded as “yes.”

Independent Variables

Program capacity was measured using three variables-- directorial leadership, readiness for change, and Medicaid payment acceptance (Guerrero et al., 2016). Directorial leadership was measured using items from the Survey of Transformational Leadership for substance use treatment programs (Edwards, Knight, Broome, & Flynn, 2010). Seven items were selected from this tool to measure the degree to which organizational leaders raise followers’ consciousness beyond personal interests to be more in line with organizational goals and vision, and use participatory encounters to increase buy-in, promote accountability, facilitate intellectual stimulation, and inspire motivation for employees (Edwards et al., 2010). Leadership was measured using a 5 point scale (1= strongly disagree to 5= strongly agree). Responses were then organized into binary measures of high leadership (4 or above) or lower leadership (scores under 4).

Readiness for change was measured using the Texas Christian University Organizational Readiness for Change ORC-D4 short form (Lehman, Greener, & Simpson, 2002; Simpson & Flynn, 2007). The measure has four domains (motivation for change, resources, staff

attributes, organizational climate) that are measured using eighteen subscales. Survey responses use a 5-point Likert scale (1= strongly disagree to 5= strongly agree). Scores for each domain were multiplied by ten to produce scales in the range of 10–50, as has been done in other studies that have used these domains (Greener, Joe, Simposn, Rowan-Szal, & Lehman, 2007; Saldana, Chapman, Henggeler, & Rowland, 2007). Higher scores indicate higher staff perceptions of program readiness for change.

Medicaid payment acceptance was measured with a binary (yes/no) scale. This question applied only to program supervisors. Program size was measured using the number of treatment episodes provided by each of the programs.

Control Variables

Control variables at the program and client levels were also included in the analyses. At the program level, funding and regulation significantly impact the implementation of new practices in SUD treatment programs (D'Aunno, 2006). For program variables, managers responded to a survey item concerning the percentage of public funding received in the prior fiscal year prior. Regulation was determined using dichotomous scales that measured state licensing, Joint Commission on accreditation, and whether or not the program operated within a larger parent organization. Since many client level variables can affect the delivery of new services (Guerrero, Aarons, & Palinkas, 2014), we also included binary variables from the administrative client data on gender, Medicaid eligibility, mental health history, primary substance used, and receipt of methadone treatment, as suggested in other studies (Guerrero et al., 2016).

Data analysis

We used multilevel logistic regressions in Stata/SE Version 12, using the XTLOGIT procedure to account nesting of clients in programs. We ran a random-effects multilevel logistic regression analysis for each of the two dependent variables. Analysis of variation within program staff responses justified averaging staff scores to represent programs. We relied on Hausman tests, which helped us determine the appropriateness of random effects by comparing its parameter estimates with a fixed effects specification (Davidson & MacKinnon, 1993). Low within-program variation justified aggregating program staff responses for each of the 82 programs to represent an average program score for each measure. To respond to missing data assumed to be missing at random (Rubin, 1987), we relied on the Markov-chain Monte Carlo method (Schaefer, 1997) to replace each missing value with 20 plausible values. Different rates of missing were present among our variables. Eighteen percent of the data concerning public funding variable were missing, while 12% our readiness for change variable were missing; all other variables had a missing rate of less than 6%.

Results

As Table 1 shows, the average age of staff participants in our sample was 46 years; 34 percent of staff were men. Most managers were African American (45%) or Latino (32%),

as were counselors (43% African American and 47% Latino). The client data included all 16,712 persons served by the 82 programs in 2015.

Overall, 85 percent of programs reported delivering prevention-care services for children of adult clients in SUD treatment. Seventy one percent reported implementing early-intervention services for these children. Sixty eight percent of programs reported delivering both prevention and early intervention services.

As Table 2 shows, our data partially support Hypothesis 1, which stated that program capacity (directorial leadership, readiness for change, and Medicaid payment acceptance) would be associated with increased odds of implementing SUD-prevention services for children of adult clients. Only organizational climate (subscale of readiness for change) and Medicaid payment acceptance were associated with higher odds of delivering prevention-care services. Other readiness for change factors, e.g., readiness for change and resources were associated with lower odds of prevention service delivery.

Our findings did not support Hypothesis 2, which specified that program capacity would be associated with increased odds of implementing SUD early-intervention services for the children of adult clients attending SUD treatment. None of the program capacity factors were associated with higher odds of implementing early intervention services. On the contrary, staff motivational readiness, program resources and methadone treatment were all associated factors with lower odds of implementing such services.

We found significant differences in other variables of interest. Compared with smaller programs, we found increased odds of implementing prevention and early intervention services in larger programs. We also found higher odds of delivery prevention services among programs whose primary drug of choice was methamphetamines or marijuana.

In addition, we found lower odds of delivering prevention services associated with client Medicaid eligibility and methadone treatment. Methadone treatment was also associated with lower odds of implementing early-intervention services.

Discussion

We examined rates of reported implementation of prevention and early-intervention care services for children of adult clients among SUD-treatment programs serving minority communities in one of the largest treatment systems in the United States. Eighty-five percent of these programs reported implementing prevention care, while seventy-one percent reported implementing early intervention care services. Sixty-eight programs provided both prevention and early intervention services.

Findings show that program size, measured as programs serving more clients, are more likely to deliver both prevention and early intervention services. Similarly, programs accepting Medicaid payments are also associated with delivering both prevention and intervention services. Serving more clients and receiving Medicaid payments may pressure programs to respond to the increasing need of client's family risk of substance use.

Except for Medicaid payment acceptance, the other capacity factors we examined—i.e., directorial leadership and readiness for change—were not associated with greater likelihood of delivering early-intervention services. This could be the case because Medicaid promotes the delivery of early intervention, while programs struggle to access funding and training resources to expand service delivery (Jarvis, 2010).

Overall, our findings suggest that Medicaid funding, serving more clients, and organizational climate for change help to increase the implementation of prevention care. Our results also suggest, however, that programs face several challenges in motivating staff and in having specific internal program resources to increase capacity for delivering prevention care to children of adult clients.

Null findings show that directorial leadership was not associated with delivery of prevention services. Other studies suggest that it is through organizational climate that directorial leadership plays a role in the implementation of new services such as, contingency management and medication-assisted treatment in SUD programs (Guerrero, Fenwick & Kong, 2017). Our findings indicate that organizational climate (but not directorial leadership) is directly related to the delivery of prevention services. Contrary to our expectations, motivational readiness and resources (e.g., access to internet and training) were negatively related to implementation of both prevention and intervention services. The measures of motivational readiness (e.g., open for change) and resources (e.g., access to the internet) in our study were general and may not have captured factors that would be needed to deliver prevention and early intervention services. Further research that examines relevant program resources that are needed to deliver prevention care is needed to further elucidate how staff motivation and program resources may affect the implementation of prevention care for children of adults served in SUD treatment programs.

Client characteristics were also associated with the odds of implementing prevention and early-intervention services. Programs treating clients whose primary drug was methamphetamines or marijuana were more likely than other programs to implement prevention services. Methadone patients attended programs with a much lower likelihood of implementing prevention or early intervention services. We suggest this is because methadone programs focus on clients' maintenance issues and are less likely to engage their family or community in prevention services.

Limitations

Two general limitations of the present study should be noted. First, we randomly selected only half of the sample to verify through site visits the level of implementation of prevention care. Future research should develop and use a comprehensive measure of prevention care, including frequency of use. Future research could also develop a more comprehensive conceptualization of prevention interventions for SUD and improve the measurement of prevention service needs and types of early interventions.

Second, our definition of prevention care was broad, encompassing all services regarding the risk of using substances for children of adult clients. Future research should consider specific types of prevention-care services for children of adults with SUD histories, such as

those that build competencies to cope with stress and trauma and to respond to peer pressure and negative influence (Haggerty, Skinner, Fleming, Gainey, & Catalano, 2008; Broning et al., 2012). Future studies might also interview program staff concerning why directorial leadership or program resources were not important in delivering prevention services, and to inquire about other factors that may support preventive efforts. These data may reveal information on the acceptability and readiness of the implementation of new intervention and service practices developed to reduce the risk of SUD.

Despite these limitations and considering that programs not selected did not differ from those included in this study, our analysis may be generalizable to publicly funded programs located in Latino or African American communities, which have more than 7.7 million residents in Los Angeles County. Findings from this preliminary study provide unique insights on relevant program factors to deliver prevention services in low-income and racial and ethnic minority communities.

Conclusions

The majority of publicly-funded SUD-treatment programs in this study reported delivering prevention and early-intervention services for children of their adult clients. Programs serving more clients were associated with a higher likelihood to deliver unspecified prevention and early-intervention care. Medicaid payment acceptance was also strongly associated with greater odds of offering prevention care. This public insurance program may offer the type of resources and regulatory expectations that enhance program capacity to deliver primary prevention care for children of adult clients. Such services, designed to decrease the intrafamilial risk of transmission of SUD-related behaviors (Arthur et al., 2002; Fergus & Zimmerman, 2005), will be critical to addressing the negative impact that substance use among high-risk use has on public health.

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List of abbreviations

SUD	Substance abuse disorder
TJC	The Joint Commission

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Table 1.

Mean and standard deviation (in parenthesis) or percentage for each program- or client-level characteristics

<i>Program level characteristics</i>	
Prevention care services	85.0
Early intervention services	71.1
Readiness for change	
Motivational readiness	30.9 (3.8)
Staff attributes	39.4 (2.6)
Organizational climate	32.9 (2.6)
Resources	35.1 (3.8)
High leadership	49.0
TJC accredited	48.8
Medicaid payment acceptance	74.5
Program size (annual client #)	1106.8 (1470.7)
<i>Client level characteristics</i>	
Female	36.6
Medicaid eligibility	43.6
Mental health issues	27.4
Primary drug used	
Heroin	33.3
Alcohol	18.0
Methamphetamine	23.5
Marijuana / Hashish	14.5
Others	10.6
Methadone treatment	24.7

Note. TJC- The Joint Commission. Sample included 16,712 clients in 82 programs.

Table 2.

Multi-level logistic regression on the implementation of prevention and early-intervention services

	<u>Prevention services</u>			<u>Early-intervention services</u>		
	<i>OR</i>	<i>SE</i>	<i>95% CI</i>	<i>OR</i>	<i>SE</i>	<i>95% CI</i>
<i>Program-level characteristics</i>						
Readiness for change						
Motivational readiness	0.757*	0.105	0.578, 0.993	0.814*	0.078	0.674, 0.983
Staff attributes	1.031	0.151	0.774, 1.374	1.209	0.135	0.972, 1.505
Organizational climate	2.240*	0.736	1.176, 4.264	1.448	0.319	0.940, 2.229
Resources	0.517**	0.129	0.317, 0.845	0.668*	0.132	0.454, 0.984
High leadership	1.425	1.156	0.291, 6.984	1.754	1.365	0.382, 8.057
TJC-accredited	0.695	0.543	0.150, 3.212	2.381	1.498	0.694, 8.168
Medicaid	6.985*	5.725	1.401, 34.821	3.078	2.285	0.717, 13.191
Program size ^a	2.687**	0.929	1.364, 5.292	2.862***	0.853	1.596, 5.131
<i>Client-level characteristics</i>						
Gender	1.064	0.141	0.820, 1.380	0.982	0.155	0.722, 1.337
Medicaid eligibility	0.592*	0.158	0.351, 0.999	1.379	0.441	0.737, 2.580
Mental health issues	1.280	0.364	0.733, 2.234	1.265	0.248	0.861, 1.858
Primary drug used ^b Alcohol	1.508	0.341	0.968, 2.348	1.631	0.470	0.927, 2.868
Methamphetamine	1.720*	0.458	1.020, 2.899	0.670	0.190	0.384, 1.167
Marijuana/Hashish	3.340**	1.424	1.448, 7.703	2.131	0.919	0.915, 4.960
Other	1.333	0.242	0.934, 1.901	1.274	0.282	0.825, 1.966
Methadone treatment	0.138	0.126	0.023, 0.823	0.196*	0.156	0.041, 0.931
Number of programs		82			82	
Number of clients		16,712			16,712	

OR: odds ratio; *SE*: standard error; *CI*: confidence interval^aProgram size categorized at first, second, and third quartile;^bHeroin as reference.* $p < 0.05$;** $p < 0.01$;*** $p < 0.001$