Disparities in Use of Mental Health and Substance Abuse Services by Persons with Co-occurring Disorders

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Abstract

Objectives—Individuals with co-occurring mental and substance use disorders require psychiatric and substance abuse treatments. A critical question is whether these individuals are treated for both disorders.

Methods—This study prospectively examined 24-month service utilization patterns of 224 persons with co-occurring disorders who were recruited from crisis residential programs in the mental health treatment system (N=106) and from crisis residential detoxification programs in the substance abuse treatment system (N=118) in San Francisco. Utilization data were collected from the billing-information systems of both treatment systems. Demographic and clinical data were obtained in interviews with participants. Data were analyzed for group differences with chi square tests and logistic, linear, and zero-truncated negative binomial regression.

Results—After the analyses controlled for demographic and clinical factors, participants recruited from the substance abuse treatment system were less likely than those from the mental health treatment system to obtain any mental health services, mental health day treatment, transitional residential care, case management, and other outpatient services (p<.001 for all comparisons). They were more likely to obtain crisis residential detoxification (p=.003), had more days of drug residential treatment (p=.028), but received fewer hours of outpatient services (p=.012).

Conclusions—There were disparities in patterns of service utilization, although there were no significant diagnostic differences between the two groups. These findings should be valuable in considering systems development and modification. Furthermore, they can contribute to research about factors that underlie results. Study replications should be conducted to assess the robustness of these findings in other locales. (Psychiatric Services 60:217–223, 2009)

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A pervasive concern about treating persons with co-occurring mental and substance use disorders is whether they receive treatment for both disorders. This is a significant problem in that persons with co-occurring disorders represent from 49% to over 60% of persons in treatment settings. (1,2,3). Several important population-based surveys (2,3,4,5,6,7) have found that most persons in need of mental health care or substance abuse treatment services or both do not get specialty treatment for these disorders. Lack of treatment seems to be worse for persons with co-occurring mental and substance use disorders. The 2005 National Survey on Drug Abuse and Health (8) found that more than half of the adults with co-occurring disorders did not receive specialty mental health care or substance abuse treatment during the prior 12 months.

In many locales, one problem in obtaining services is that the mental health and substance abuse treatment systems are segregated and have separate funding streams (9,10,11). Persons with co-occurring disorders frequently need to navigate two systems of care to obtain treatment, and those who receive treatment in one sector may not receive adequate treatment in the other sector (9,12).

Despite population-based and organizational studies concerning use of mental health and substance abuse treatment systems, there is a dearth of empirical information about whether persons with co-occurring disorders navigate between the two systems to obtain care (9). Also, it is not known whether one system of care is more advantageous than the other in terms of facilitating treatment for both disorders. Typically, clinical studies of persons with co-occurring disorders focus on one system of care only, which may provide an incomplete perspective on treatment utilization (13).

The primary study objective was to address these gaps in knowledge by examining differences in the likelihood and amount of services received in the mental health care and substance abuse treatment systems by persons with co-occurring disorders during the 24-month period after entering treatment. Participants were recruited concomitantly from either mental health crisis residential programs or substance abuse crisis residential detoxification programs in San Francisco. We found no other investigations in the literature that used this methodology.

In our earlier descriptive work (14), we found that participants with co-occurring disorders recruited from the two systems had many similarities, including *DSM-IV* diagnoses. On the basis of these similarities, we anticipated that there would be minimal differences in service use patterns between groups after controlling for demographic and clinical factors found to be predictors of service use.

METHODS

Recruitment procedures

Recruitment sites were three mental health crisis residential programs in the public-sector mental health system and four substance abuse residential detoxification programs. These programs represented all of the programs of these types in San Francisco during the recruitment period (1999–2001). The programs were primary points of entry into treatment

and were expected to provide short-term care to stabilize clients and then to refer them to longer-term treatments.

Participants

Clinic staff at the recruitment locations informed the research assistants about new entrants. Recruitment at each of the programs was conducted on one randomly selected day per week to avoid potential bias from weekly variation in program entry. On each recruitment day, research assistants approached entrants admitted in the previous 24 hours and attempted to recruit those clients. The study was explained to interested clients. Clients who could not be approached and recruited within 72 hours of treatment entry were no longer considered for study participation. Research assistants read and reviewed the consent form with interested potential participants. Those who agreed to participate provided written informed consent. All procedures were approved by the University of California, San Francisco, Institutional Review Board.

Inclusion criteria

Clients who were 18 to 50 years of age, who spoke English or Spanish, who had public insurance (Medi-Cal, Medicare, or both) (15) or no health insurance, who were not HIV positive, who had verifiable contact information to assist with follow-up, and who were able to provide informed consent were eligible to participate. Clients with private insurance were excluded because of their greater access to care than those without. Documented HIV-positive clients were not enrolled in the study because they had access to specialized services. Clients who could not provide at least one verifiable contact for follow-up and those planning to leave San Francisco within the year were also excluded because of the anticipated loss of follow-up information. Intake interviews, including a comprehensive diagnostic assessment, were conducted within 72 hours of admission.

A total of 1,484 clients were identified as new entrants and potentially eligible for the study. Of this group, 537 (36%) were found to be ineligible, 377 (25%) refused participation, and 570 (38%) provided informed consent. Of those providing informed consent, 476 participants (84% of 570) completed the intake assessment battery and 420 (74%) provided useable diagnostic data. Of these 420, a total of 226 participants had co-occurring diagnoses, and of them, 224 had utilization data from the billing-information systems. The 224 composed the study sample: 118 participants from substance abuse and 106 from mental health settings. A total of 54 clients who did not provide usable data consisted of 21 persons who had no diagnoses assigned because of incomplete diagnostic data and 33 persons whose diagnoses were deemed unreliable because they did not endorse symptoms consistent with their treatment setting (for example, clients from the detoxification programs who did not endorse substance use). The excluded group of 54 persons did not differ from the included group in terms of age, gender, ethnicity, or education.

Measures and data collection

Demographic data—Demographic data were collected directly from participants during the study intake interview and consisted of age, gender, race and ethnicity, and homelessness in the 30 days before treatment entry.

Clinical data—Diagnostic data were obtained during the study intake interview by research assistants who were trained to administer the Diagnostic Interview Schedule for DSM-IV (DIS-IV) (16) by a senior clinician who was trained on the instrument. With this measure, current 12-month psychiatric and substance use diagnoses were identified. For all disorders assessed, the DIS-IV includes questions about whether symptoms occurred only when the individual was under the influence of alcohol, illicit drugs, or prescription medications or were the result of a medical condition. For schizophrenia spectrum disorders, individuals were asked whether each endorsed type of delusion or hallucination was experienced only while under the influence of substances.

Current psychiatric diagnoses were grouped into four binary (yes-no) variables: schizophrenia spectrum disorders (schizophrenia, schizoaffective, and schizophreniform disorders), bipolar disorders (bipolar I and II), depressive disorders (major depression and dysthymia), and anxiety disorders (specific phobia and social phobia and panic, generalized anxiety, obsessive-compulsive, and posttraumatic stress disorders). These categories were not mutually exclusive; participants with more than one diagnosis were counted in each diagnostic category. Current substance use disorders comprised five binary variables and included use of alcohol, cocaine, amphetamines, opiates, and marijuana. Abuse and dependence diagnoses were collapsed into a single category because of paucity of participants meeting only abuse diagnoses. Co-occurring disorders were defined as having both a current mental disorder and a current substance use disorder.

Indicators of problem severity were collected during the intake interview. For analytic purposes, we operationalized psychiatric problem severity as "ever" being hospitalized for psychiatric problems, and we operationalized drug use severity as the number of current substance use diagnoses.

Utilization data—Electronic utilization data were obtained from the billing-information systems of the county mental health and substance abuse treatment systems. All county-run or county-contracted services report into these billing-information systems. Utilization data for the 24-month periods before and after study entry were downloaded, verified, and coded in consultation with county data system managers.

Two aggregate binary utilization variables were constructed: use of any mental health services and use of any substance abuse treatment services in the 24 months after treatment entry. Frequently used treatment services (subscribed to by 10% or more of the participants) were examined individually and transformed into binary variables as well. These included acute psychiatric hospitalization, mental health crisis residential treatment, mental health day treatment, psychiatric emergency services, mental health transitional residential services, mental health case management and (other) mental health outpatient services, crisis residential detoxification, residential drug-free treatment, and non-methadone-related outpatient services.

Continuous and count variables were created to reflect amount of services received over the 24 months. Amount of services was recorded as days or hours, depending on the units reported to the billing-information system.

Data analyses

Covariates—Variables included as covariates for the logistic and linear regressions were ones that either had significantly differentiated between the two treatment groups or that were supported in the literature. Covariates included gender (17,18), age (3,17), race-ethnicity (19), homelessness (20,21), a diagnosis of schizophrenia spectrum disorders versus all other disorders (22), severity of disorders, and prior service use (mental health treatment, substance abuse treatment, or both) (12). In analyses predicting mental health service use, any use of mental health services in the 24 months before study entry was included in the model; in analyses predicting substance abuse treatment use, any substance abuse treatment in the 24 months before study entry was included in the model.

Analyses—We implemented a two-part model (23,24,25), first using simultaneous logistic regressions to determine whether treatment system (mental health or substance abuse treatment) was a significant predictor of utilization. We then conducted zero-truncated negative binomial regressions (26) to determine whether treatment system was a significant predictor of amounts of services received that were measured in number of days (counts). For amounts of services measured in hours, we used ordinary least-squares regression, but because the distribution of these variables was highly skewed, we transformed the variables into their natural log. All tests of statistical significance were two-tailed. When appropriate, we applied Rom (27) corrections (a modified Bonferroni adjustment found in the literature) to all tests of significance to preserve the alpha level in multiple tests. The Rom adjustment controls the familywise error rate at the alpha designated as the significance level.

RESULTS

Demographic and clinical characteristics

Demographic and clinical characteristics are listed in Tables 1 and 2. The mean±SD ages for participants from substance abuse treatment (37.1±7.3) and those from mental health treatment (35.7±7.0) were not significantly different. Years of education were the same for both groups (substance abuse treatment participants, 12.4±2.3 years; mental health participants, 12.4±2.5 years). There were no differences between groups on frequency and type of mental disorders and substance use diagnoses.

Utilization of services

Results of logistic regressions examining the effect of treatment system on service use variables are shown in Table 3. After applying the Rom adjustment, we found that participants from substance abuse treatment were significantly less likely to use any mental health services, day treatment, transitional residential services, case management services, and non-case management mental health outpatient services. Substance abuse treatment participants were significantly more likely than mental health care participants to receive crisis residential detoxification.

Amounts of services

Only participants who had some utilization of the given service were included in the analyses. The "amount" variables were difficult to analyze because of their non-normal

distributions. We first examined the raw distributions and found some median differences between groups. Substance abuse treatment participants received a median of 8.6 hours of mental health case management, compared with a median of 21.1 hours received by mental health treatment participants. Substance abuse treatment participants received a median of 34.2 hours of other services (non-case management), compared with a median of 60.1 hours by mental health treatment participants. Participants from substance abuse treatment received more days of crisis residential detoxification (median of 10.0 days, versus a median of 7.5 days for mental health treatment participants).

Second, the distributions of services utilized were examined with zero-truncated negative binomial regression and linear regression with log transformations (26). Results of these analyses are shown in Table 4. After Rom adjustments were made, the significant differences between groups that remained were in mental health outpatient hours and substance abuse residential treatment days.

DISCUSSION

Our objective was to investigate prospectively whether there were disparities in mental health and substance abuse treatment services obtained between two groups of individuals with co-occurring disorders. In comparison with participants recruited from mental health care, those in substance abuse treatment were significantly less likely to obtain community-based mental health services, specifically day treatment, transitional residential, case management, and outpatient services. Mental health treatment participants were significantly less likely than substance abuse treatment participants to obtain crisis residential detoxification services. There were few distinctions between the two treatment groups in amounts of services received. Mental health care participants received more hours of mental health outpatient services, and substance abuse treatment participants received more hours of drug residential treatment.

These differences are notable because on the basis of diagnostic similarities between groups, we had expected a level of parity between groups in obtaining mental health care and substance abuse treatment.

In part, differences between the groups may be attributable to linkage or referral arrangements between service units (such as between residential services and case management). The two treatment systems may have had different linkage arrangements, with some more effective than others. The literature indicates that linkage arrangements can affect utilization of medical and psychosocial services. One study found an increase in use of mental health services over a six-month period when services were available on site at drug treatment programs compared with off-site community programs that necessitated travel (28). Another study corroborated these results (29). Of the linkage mechanisms examined, on-site delivery and transportation assistance were associated with higher levels of utilization of medical and psychosocial services. On-site case management was associated with greater use of routine medical care and housing assistance. Referral agreements and off-site case management were not correlated with most services.

Participants' preferences and perceptions of treatment services also may have contributed to the utilization patterns (30,31,32). A qualitative study we conducted (30,31) included open-ended interviews of 24 adults with serious mental illness and co-occurring substance use problems. Perceived client-level barriers to receiving services were explored. Most of the respondents (71%) identified drug use as a serious problem in their lives. They believed that drug treatment was helpful for those committed to abstinence, but many did not think that abstinence was possible or desirable. Perceived barriers to care included discomfort with participating in 12-step groups, overemphasis on abstinence, insufficient attention to mental health issues, and drug treatment services' not being tailored to meet needs of persons with co-occurring disorders.

The patterns of disparities we obtained led us to reflect on the role that crisis residential detoxification treatment may play in facilitating entry into longer-term mental health and substance abuse treatment services. In the 24-month period subsequent to study entry, participants with co-occurring disorders who were using mental health care were significantly less likely to find their way into detoxification programs. We expected that these participants would need crisis detoxification services because their current substance use disorders were not significantly different from those of participants using substance abuse treatment. Furthermore, the participants recruited from substance abuse treatment were less likely to obtain subsequent supportive mental health outpatient community services, although their mental disorders did not significantly differ from the participants using mental health care. We suggest that crisis residential detoxification should be modified to better meet needs of both substance abuse and mental health clients. Crisis residential detoxification programs should include improved access to detoxification services for mental health clients and to provide improved linkages from detoxification into mental health treatment for substance abuse clients. In this manner, crisis residential detoxification services could be an ideal gateway into longer-term mental health and substance abuse treatments for clients with co-occurring disorders.

Study strengths

Different from most utilization studies, this research examined service use of persons with co-occurring mental and substance use disorders who were recruited concomitantly from the mental health and substance abuse treatment systems. We obtained utilization data directly from the billing-information systems of the mental health and substance abuse treatment systems. Because the treatment systems rely on these billing-information systems for reimbursement, the utilization data in our analyses reflect the most accurate and objective utilization data available. The study also had the advantage of including all of the programs in San Francisco that were either crisis residential mental health programs or residential detoxification programs.

Study limitations

An important consideration is the degree to which the results may be generalized. For this study, one issue of concern is the loss of potential participants. The recruiting procedures were based on the operations of the treatment settings. Research staff were informed by treatment staff of new treatment entrants and attempted to recruit them. Aside from persons

who did not want to be in the study, there were losses of potential participants because some were not stable enough to sign an informed consent form, did not ultimately enter treatment after participating in the intake process, or would not be available for follow-up. These circumstances were not unique to this study but bear mentioning.

Another concern about generalizability is the extent to which our sample and findings are similar to those of other studies. Although we found no studies sufficiently similar to ours to make meaningful comparisons, the clinical and demographic characteristics of our sample fall within the range of values from related studies (33). Furthermore, we found studies documenting the undertreatment of mental disorders among clients with co-occurring disorders who were using substance abuse treatment (1,10,26,27). On the basis of this information, we suggest that our findings have applicability beyond San Francisco. We anticipate that these findings are relevant to urban areas similar to San Francisco, in particular those with extensive public-sector treatment systems that are not integrated in terms of funding, staffing, or patient flow.

Last, the utilization data, although certainly reflecting most of the service use, did not include all services that participants may have received, such as substance abuse treatment provided in mental health programs and mental health services provided in substance abuse treatment programs and services provided by programs that do not report into the billing-information systems. The use and amount of these services may have differentially affected the two groups. However, we believe that significant receipt of such services is unlikely, because there are generally few alternative service options for the low-income clients served in the public sector.

Although there were no diagnostic differences between participants recruited from the two treatment systems, significantly fewer participants from substance abuse treatment obtained services from the mental health treatment system and significantly fewer mental health participants obtained crisis residential detoxification services from the substance abuse treatment system. Study results should be considered in efforts of system modification and development and, furthermore, in research about mechanisms underlying results. Replications of this study must be conducted to assess the robustness of our findings in other locales and to address gaps in the study.

Acknowledgments

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Table 1

Demographic characteristics of participants with co-occurring disorders who were receiving mental health or substance abuse treatment

Characteristic	Substance abuse abuse treatment (N = 118)		Mental health treatment (N = 106)		χ^2	df	p
	N	%	N	%			
Female	45	38	47	44	.04	1	ns
Ethnicity or race					10.10	3	<.020
White	45	38	59	56			
Black	49	42	24	23			
Hispanic	10	9	8	8			
Other	14	12	15	14			
Homeless	65	55	34	32	12.00	1	.001

Table 2

Clinical characteristics of participants with co-occurring disorders who were receiving mental health or substance abuse treatment

Characteristic	Substance abuse treatment (N = 118)		Mental health treatment (N = 106)		OR[a]	95% CI	p
	N	%	N	%			
DSM-IV disorder[b]							
Schizophrenia spectrum	37	31	46	43	.58	.33–1.01	ns
Bipolar	24	20	33	31	.58	.31–1.09	ns
Depressive	43	36	38	36	.97	.55–1.70	ns
Anxiety	73	62	60	57	1.25	.55–1.70	ns
Substance use							
Alcohol	76	62	66	62	1.06	.60–1.85	ns
Amphetamine	18	15	28	26	.61	.31–1.21	ns
Cocaine	83	70	59	56	1.56	.88–2.79	ns
Marijuana	22	19	28	26	.67	.35–1.27	ns
Opiates	28	24	27	26	1.14	.61–2.16	ns
Ever had a psychiatric hospitalization	68	57	95	90	.10	.04–.24	<.001
Number of substance use diagnoses (M±SD)[c]	2.1±1.4		2.2±1.4				

[a] Odds ratios were adjusted for ethnicity. Odds ratios for non substance use disorders that are greater than 0 represent an increase in the likelihood that mental health participants will have that diagnosis compared with participants in substance abuse treatment. Odds ratios for substance use disorders that are greater than 0 represent an increase in the likelihood that participants in substance abuse treatment will have that diagnosis compared with mental health participants: odds ratios less than 0 represent a decrease in the likelihood that substance abuse treatment participants will have that diagnosis compared with mental health participants.

[b] Diagnostic categories are not mutually exclusive.

[c] Comparison not statistically significant between groups. F = .70. df = 1 and 223

Table 3

Disparities in the use of mental health and substance abuse services during a 24-month follow-up

Treatment use	Substance abuse treatment (N = 118)		Mental health treatment (N = 106)		OR[a]	95% CI	p
	N	%	N	%			
Mental health care							
Any mental health services	62	53	105	99	.02	.00–.20	.001[b]
Psychiatric hospitalization	24	20	62	58	.39	.19–.81	.012
Crisis residential treatment	17	14	53	50	.44	.21–.93	.033
Day treatment	7	6	55	52	.09	.03–.26	<.001[b]
Psychiatric emergency services	39	33	72	68	.54	.26–1.11	ns
Transsitional residential services	6	5	62	58	.04	.01–.14	<.001[b]
Case management services	42	36	102	96	.05	.01–.16	<.001[b]
Outpatient services	54	46	103	97	.05	.01–.18	<.001[b]
Substance abuse treatment							
Any Substance abuse treatment	93	79	69	65	2.18	1.02–4.65	ns
Crisis residential detoxification	70	59	33	31	2.75	1.40–5.39	.003[b]
Residential treatment	24	20	20	19	1.19	.54–2.63	ns
Outpatient and case management services	53	45	51	48	1.02	.50–2.06	ns

[a] Odds ratios reflect the likelihood of receiving a particular service if the participant was originally sampled from substance abuse treatment (rather than mental health treatment) after analyses controlled for gender, race and ethnicity (African American and other versus non-Hispanic white), age, homelessness, type of disorder (schizophrenia spectrum versus bipolar, depressive, and anxiety), severity of disorder (ever had a psychiatric hospitalization and number of drug diagnoses), and prior service use (mental health care, substance abuse treatment, or both, depending on which type of treatment was being analyzed). Odds ratios greater than 0 represent an increase in the likelihood of receiving a particular service; odds ratios less than 0 represent a decrease in the likelihood of receiving a particular service.

[b] Significant after Rom adjustment

Table 4

Use of subsequent mental health and substance abuse treatment services by participants with co-occurring disorders who had received mental health or substance abuse treatment[a]

Treatment amount	N[b]	β[c]	SE	p
Mental health services				
Psychiatric hospitalization (days)	86	−.250	.130	ns
Crisis residential treatment (days)	70	−.324	.237	ns
Day treatment(days)	62	−.245	.432	ns
Psychiatric emergency services (hours)	111	−.074	.219	ns
Transitional residential services (days)	68	.289	.368	ns
Case management services (hours)	143	−.597	.267	.027
Outpatient services (hours)	156	−.667	.264	.012[d]
Substance abuse services				
Crisis residential detoxification (days)	103	−.185	.252	ns
Residential treatment (days)	44	.784	.356	.028[d]
Outpatient and case management services (hours)	104	−.098	.393	ns

[a]Amounts of services were analyzed only for respondents who received a particular service. Models with dependent variables measured in days were analyzed with truncated negative binomial regression. Models with dependent variable measured in hours were transformed by taking their natural log and analyzing with ordinary least-squres regression.

[b]Number of participants who received the service

[c]Betas represent coefficients that reflect the change in the natural log counts or log units amount of a particular service received if the participant was originally sampled from substance abuse treatment (rather than mental health treatment) after analyses controlled for gender, race and ethnicity (African American and other versus non-Hispanic white), age, type of disorder (bipolar, depressive, and anxiety versus psychotic), severity of disorder (ever had a psychiartic hospitalization and number of drug diagnoses), and prior service use (mental health care, substance abuse treatment, or both, depending on which type of treatment was being analyzed). Coefficients greater than 0 represent an increase in the amount of particular service; coefficients less than 0 represent a decrease in the amount of a particular service.

[d]Significant after Rom corrections for alpha level