

Work Therapy: Welfare Reform and Mental Health in California

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Los Angeles County has the largest county welfare population in the United States. The county spends \$23 million annually on mental health services for welfare participants. This study examines employment and treatment outcomes for welfare participants whose mental health services ended during a 1 year period. Factors associated with success are explored using detailed survey data from a subsample of 433 of these participants. Staff report that 70 percent of sample members have positive change in mental health status; however, only 17 percent of the clients complete treatment successfully, and only 26 percent report employment at discharge or in the 6 months after discharge. Analyses suggest that predictors of completing services successfully differ from predictors of employment. Further, successful completion of treatment does not predict employment. Some of these results are disappointing and have motivated county staff to restructure the mental health service offerings.

In the years after the 1996 welfare reform legislation passed (110 Stat. 2105), a number of states developed programs to provide treatment to welfare participants for whom mental health problems constitute an obstacle to economic independence (Derr, Douglas, and Pavetti 2001). In California, counties have the administrative responsibility for welfare administration. The California enabling legislation (Statutes of 1997, chap. 270) created an allocation of funds for counties to use in identifying and treating participants experiencing mental health problems that impede employment. Los Angeles County received \$23 million in 2004–5 for mental health treatment of Temporary Assistance for Needy Families (TANF) participants (California Department of Social Services 2005). The allocation must serve a county welfare population that is the largest in the country and larger than those of 48 of the 50 states (Polit et al. 2005).

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Background

The California set-aside of TANF funds for county-administered mental health services is based on three assumptions: (1) the prevalence of mental health problems in the TANF population is at least as high as in the general population, (2) these problems constitute a special barrier to employment, and (3) mental health treatment will produce both positive clinical outcomes and increases in rates of participant employment.

The assumption concerning the prevalence of welfare participant mental health problems is supported by studies of specific disorders among TANF participants. That research documents rates of disorder that are considerably higher than those found in the general population. For example, analysis of data from the National Comorbidity Survey Replication finds that 8.6 percent of U.S. women have a major depressive disorder within a 12-month period (Kessler 2007). By contrast, studies that use similar methods applied to welfare participants find that 25–28 percent of participants have such a disorder (Danziger et al. 2002; Chandler et al. 2005).

Support for the second assumption, that mental health problems constitute a barrier to employment among welfare participants, is less clear-cut. Cross-sectional studies of individuals receiving welfare after the 1996 reforms find that mental health status is weakly or inconsistently associated with poor welfare outcomes (Boothroyd and Olufokunbi 2001; Moffitt 2002), but longitudinal studies of welfare reform find clearer evidence that elements of employment success are undermined by mental health disorders (Corcoran, Danziger, and Tolman 2004; Chandler et al. 2005; Zabkiewicz and Schmidt 2007).

The third assumption, that treatment in the welfare reform context would produce positive clinical and employment outcomes, is tested in the current study. No known study examines the outcomes of TANF participants receiving mental health treatment, but reference points can be found in the clinical literature on psychiatric treatment outcomes in other settings. Previous research (Chandler et al. 2005) suggests that the major diagnostic classes relevant for the TANF population are depressive disorders, anxiety disorders, and adjustment disorders. The literature review in this study focuses on major depressive disorder, because it is by far the most common problem among welfare participants, including those in this study's sample (see table 1). This focus is also grounded in an extensive literature on the effectiveness of treating depressive disorders and on how treatment affects employment.

Clinical treatment outcomes in depression studies are usually measured in three categories: remission, partial remission, and nonresponse. An important recent study is the 41-site Star*D (Sequenced Treatment Alternatives to Relieve Depression) trial. Sponsored by the National Institute of Mental Health, the study attempts to measure the effective-

Table 1

CHARACTERISTICS OF WELFARE-TO-WORK PARTICIPANTS RECEIVING MENTAL HEALTH SERVICES

CLIENT CHARACTERISTIC	1-YEAR POPULATION OF CLIENTS DISCHARGED (<i>N</i> = 1,938)		STRATIFIED RANDOM SAMPLE OF SAME CLIENTS (<i>N</i> = 433) ^a	
	<i>N</i>	%	<i>N</i>	%
Age:				
18–25	205	13.4	65	16.2
26–40	1,039	53.6	230	52.7
41–65	640	33.0	138	31.0
Female	1,768	91.2	394	92.0
Race or ethnicity:				
Latino	830	42.8	183	40.8
African American	509	26.3	92	28.0
Caucasian	216	11.2	39	9.6
Asian American or Asian Pacific				
Islander	94	4.8	39	5.4
Other or missing	289	14.9	80	16.3
Primary language other than English	500	25.8	130	22.4
Diagnosis:				
Adjustment disorder	174	8.9	40	8.2
Major depressive disorder	993	51.2	210	49.5
Dysthymic disorder	149	7.7	33	8.1
Post-traumatic stress disorder	152	7.8	40	6.9
Other anxiety disorder	164	8.5	39	9.1
Bipolar disorder	92	4.8	17	4.1
Schizophrenia or other psychotic disorder	55	2.8	10	2.5
Other disorder	104	5.4	25	7.9
Missing	55	2.8	19	3.7
Last school year completed:				
< 11th grade	594	30.6	171	33.9
11th grade	263	13.6	64	15.9
12th grade	520	26.8	133	33.5
> 12th grade	251	13.0	65	16.7
Missing	310	16.0	0	0
Years receiving welfare: ^b				
≤ 1 year	653	34.8	149	35.0
2–3 years	561	29.9	141	32.0
4–10 years	420	22.4	95	20.8
11–32 years	241	12.8	48	12.2
Four or more dependent children	424	21.9	91	19.2
Duration (months) of mental health treatment:				
< 3	479	24.7	85	19.9
3–5	505	26.1	118	29.0
6–11	486	25.1	122	28.5
12–56	468	24.2	108	22.7
Total hours of treatment services received:				
0–5 hours	474	24.5	102	26.5
6–10 hours	428	22.1	90	22.7
11–20 hours	494	25.5	103	21.7
> 20 hours	542	28.0	138	29.0
Classification at termination:				
Component completed successfully	321	16.6	85	17.1
Dropout	1,388	71.6	316	75.3
Stopped attending, with good cause	89	4.6	14	3.4

Table 1 (Continued)

CLIENT CHARACTERISTICS	1-YEAR POPULATION OF CLIENTS DISCHARGED (<i>N</i> = 1,938)		STRATIFIED RANDOM SAMPLE OF SAME CLIENTS (<i>N</i> = 433) ^a	
	<i>N</i>	%	<i>N</i>	%
Financial sanction	84	4.3	10	2.7
No show	24	1.2	4	.7
Provider canceled treatment	27	1.4	4	.8
Other	5	0.3	0	.0
Provider volume:				
Provider had < 21 discharges in year	587	30.3	148	29.4
Provider had 21–40 discharges in year	627	32.4	105	32.3
Provider had 41–132 discharges in year	724	37.4	180	38.3
Mental health services completed successfully	321	16.6	85	17.3
Employed at all during 6 months after month of termination	440	22.7	109	21.7

^a Percentages are point estimates calculated using sampling weights.

^b Years of prior welfare receipt measured at time of admission to TANF spell current during the study period.

ness of antidepressants in real-world settings. The goal was to assess effectiveness of different antidepressants if the first antidepressant trial was not successful and, thus, to attain optimum effect. The Star*D results are relevant to this study because 60 percent of the participants in the present study received diagnoses of depressive disorders, and 40 percent were prescribed antidepressants. In Star*D, 67 percent of those who completed all relevant treatment stages reached remission, but only 43 percent reached remission and had no relapses in the study period. Only 24 percent of the entire sample reached remission and had no relapses (Rush et al. 2006).

A recent meta-analysis of depression-treatment effectiveness research covers both medications and psychotherapy. It examines studies with 8 or more years of follow-up. The study concludes that 15–30 percent of patients will achieve lasting remission; another 10–30 percent will have continuous symptoms and impairment; the remaining patients are predicted to have intermittent relapses (Keitner, Ryan, and Solomon 2006).

Studies on treatment of depression document that approximately 25 percent of clients drop out of treatment (Edlund et al. 2002), but drop-out rates are estimated to be higher if the client does not achieve symptom remission (Cuffel et al. 2003). Rates also vary by type of treatment. For example, estimates from a randomized controlled trial with low-income minority working women indicate that 75 percent complete at least 9 weeks of antidepressant medication care, but the rate of completion is lower in the psychotherapy treatment group; only 36 percent

of those clients are estimated to complete at least six of eight sessions (Miranda et al. 2003).

Clinical treatment outcomes are worse for persons with characteristics similar to those of welfare participants than are outcomes for the general population. In the Star*D trial, attrition is higher and remission lower than in the overall Star*D population among African Americans, among younger patients, among the less educated, among those with concurrent medical problems, and among those with multiple psychiatric disorders. For example, only 16 percent of mothers in two-parent households are estimated to drop out of treatment, but the rate is 31 percent among single mothers. And while 43 percent of mothers in two-parent households are found to achieve full remission, only 20 percent of single mothers are found to do so (Yates et al. 2007).

There is only limited evidence to support the position that clients' employment outcomes improve after treatment of their depression, and psychosocial and job impairments may remain even when symptoms are in remission (Adler et al. 2006). The multisite Partners in Care study of evidence-based depression treatment (involving medications and psychotherapy) finds that employment increases from 65 percent at baseline to 72 percent at the 6-month follow-up if care is evidence-based, but employment is estimated to decrease from 68 to 52 percent if the treatment is not evidence based (Schoenbaum et al. 2002). Results from a six-nation study find that days missed from work by depressed patients who remit differ to a statistically significant degree from days missed by depressed patients who do not remit (Simon et al. 2002).

A 2008 study uses data from a sample of clients with depressive or anxiety disorders (approximately 80 percent of whom were employed at baseline) to compare work-focused outcomes of clients in short-term therapy with those of clients in long-term therapy; the study finds that long-term therapy is associated with improvements in work ability, but actual employment rates are found to decrease slightly over 3 years (Knekt et al. 2008). Another randomized study of evidence-based treatment for depression in primary care finds that treatment has positive effects on employment measures for continuously employed persons but not for episodically employed persons (Rost, Smith, and Dickinson 2004).

Other barriers to employment found in the TANF population are likely to reduce further the positive association between treatment and employment. In the Partners in Care study, the difference in employment outcomes between the treatment and control groups is not as great among minority patients in the evidence-based treatment group as among the treatment group overall (Miranda et al. 2004). No known study examines a cohort of unemployed participants who are treated for depression and whose treatment includes an effort to increase their

employment. Thus, there is no strong evidence that psychiatric treatment improves employment outcomes for depressed persons, and the evidence is even weaker for populations similar to those receiving welfare.

In order to measure the success of the mental health intervention on employment rates, this study compares study data with national, state, and county rates. Data from the U.S. Department of Health and Human Services indicate monthly averages for TANF population employment over the period from October 2004 through September 2005. These data suggest that, on average, 23 percent of TANF participants were employed, 50 percent were unemployed, and 26 percent were not in the labor force (U.S. Department of Health and Human Services 2009a). The same data provide average monthly figures for California in this period; they suggest that 28 percent of California TANF participants were employed, 40 percent were unemployed, and 32 percent were not in the labor force. A report by the state of California estimates that 25.4 percent of Los Angeles County TANF participants were engaged in unsubsidized employment in August 2005 (California Department of Social Services 2007). All these rates are considerably lower than the 2006 national employment rate among low-income single mothers (58 percent; U.S. Department of Health and Human Services 2009a).

The present research addresses two policy questions. Is treatment as effective in a welfare-reform context as in clinical trials? And, do welfare participants who are treated find employment at a rate similar to participants not identified as needing treatment? To offer context for the policy issues, this study also describes participant and service characteristics that are found to be associated with success in treatment and employment outcomes.

Method

Mental Health Services as Part of Welfare Reform

In California, TANF benefits are distributed through the state's CalWORKs (California Work Opportunities and Responsibility for Kids) program, which is administered in Los Angeles by the Department of Public Social Services (DPSS). The DPSS established a system to identify Los Angeles TANF participants who have mental health obstacles to employment. If the screening process indicates that a participant has such obstacles, he or she is further assessed by DMH (Department of Mental Health) professionals. To be eligible for mental health services, participants must be diagnosed with a psychiatric disorder at the time of assessment. Diagnoses are made with the text revision to the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association 2000). The assessment is required, but treat-

ment is voluntary. Upon admission to treatment, the participant receives services from both DPSS and DMH.

The Los Angeles County mental health service system for TANF participants was established in 1998. Legislation requires county departments of mental health to organize mental health services for TANF participants. The Los Angeles County DMH uses approximately 80 existing providers at 114 sites to serve TANF clients. More than 85 percent of those judged to need treatment actually enter it. Individual therapy, group therapy, medications, and case management are the treatment modalities used; however, treatment is based on individual plans rather than on any sort of template.

The DPSS is responsible for employment services, and TANF participants are required to participate in those services while undergoing treatment. However, imposition of this requirement depends on the individual participant's mental health status. Individualized DPSS welfare-to-work plans require participants to engage in up to 32 hours of work activities per week. That number includes hours devoted to mental health services. Thus, participants might attend mental health services only, attend mental health services and employment services, or attend mental health services and work. After the mental health services end, participants continue to attend DPSS employment services or to work. A very few clients also receive vocational rehabilitation services from their mental health provider.

Sampling and Participants

The DPSS identified the entire population of 2,404 TANF participants whose mental health services terminated between March 1, 2004, and February 28, 2005. Of these, 1,938 received treatment services in programs operated or contracted by the DMH. (Most of the remaining participants received treatment from college programs.) From this population of 1,938 TANF participants who participated in DMH treatment, the study draws a stratified random sample of 433 individuals. This sample reflects the proportion of the population contributed by each provider of service. Data on the resulting 433 clients include detailed DMH staff reports on clients' status and treatment. Management information system data from DMH are matched by DPSS staff to both the sample and population data. Variables that pertain to either the population or the sample are described in tables 1 and 2. All personal identifiers were removed by DPSS and DMH agency staff before the data were sent to the author for analysis.

Table 1 shows client characteristics for the population of 1,938 and the sample of 433 clients whose DMH treatment services ended between March 1, 2004, and February 28, 2005. Among the population of 1,938 clients, Latino respondents are estimated to comprise 43 percent, Af-

Table 2

POTENTIAL BARRIERS AND FACILITATORS OF WELFARE-TO-WORK AND
TREATMENT SUCCESS IN SAMPLE OF 433

Client Characteristics	N	% ^a
Employment history:		
Primarily stable full-time	21	4.5
Primarily stable part-time	57	13.4
Sporadic or occasional	134	30.2
Little or no employment	221	51.9
Motivation for change:		
Highly motivated	92	21.8
Moderately motivated	119	26.2
Slightly or inconsistently motivated	157	36.2
Not motivated	65	15.8
Attendance at group and individual treatment:		
Very good; attended virtually all sessions	72	15.7
Good; attended most sessions	127	29.0
Poor; attended sporadically	144	34.3
Minimal; attended rarely	90	21.0
Staff reported strong or some positive change: ^b		
Mental health symptoms (<i>N</i> = 371)	263	70.1
Daily living problems (<i>N</i> = 357)	246	69.1
Parenting problems (<i>N</i> = 297)	173	51.9
Capacity to work (<i>N</i> = 350)	185	52.3
Domestic violence victim (<i>N</i> = 99)	49	46.9
Substance abuse problems (<i>N</i> = 72)	27	35.2
Overall attitude toward life (<i>N</i> = 347)	255	72.7
Strong or some positive change for one of above (<i>N</i> = 433)	310	72.3
Strong positive change for one of the above (<i>N</i> = 433)	123	27.8

^a Percentages are point estimates using sampling weights.

^b *N* varies with each item, as responses that are not applicable are omitted.

rican Americans comprise 26 percent, Asian Americans comprise 5 percent, and Caucasians comprise 11 percent. The table also suggests that some 13 percent of the population was age 25 or younger when treatment ended; 54 percent was between ages 26 and 40, and 33 percent was between ages 41 and 65. The data indicate that only 8 percent of the population is male. Fifty-nine percent of the population is reported to have a diagnosis of some type of depressive disorder, and 51 percent are reported to be diagnosed with major depressive disorder. The data also suggest that psychotropic medications were prescribed for 212 (49 percent) of the 433 persons in the sample and that antidepressant medications were prescribed for 175 of the 433 members (results not shown in table 1).

Measures

The two primary outcomes are examined using DPSS welfare-to-work data. The first outcome is successful completion of mental health treatment services. It is measured by the mental health services component

end code, which the client's DPSS employment specialist assigns when treatment services terminate. The client's mental health clinician submits a form to the employment specialist, who assigns the end code to indicate in the case file whether the client successfully completed the mental health treatment services. There is a subjective component to the phrase "successful completion of treatment," as it refers to achieving the goals of treatment agreed to by client and therapist. Successful completion does not entail a standardized degree of symptom remission or readiness for work. The DPSS does not make an independent judgment of successful treatment; it simply accepts the clinician's judgment and records it as completion of treatment. The measure also indicates agreement between DMH and DPSS (and the participant) on a change of status within the CalWORKs system. As table 1 shows, DPSS reports that 16.6 percent of the 1,938 terminations complete treatment; 1.2 percent do not attend at all, 4.3 percent are sanctioned (and thereby lose access to treatment), 4.6 percent are granted an administrative good-cause waiver that exempts them from attendance requirements, and 1.4 percent are dropped by the provider for noncompliance; and 72 percent drop out. Of those who do not finish their mental health services and are coded as dropouts by DPSS, 36 percent are also recorded as being ineligible for CalWORKs in the month of treatment termination. The codes for termination of mental health services and the code for eligibility status are not coordinated. Those recorded as ineligible might be transitioning to supplemental security income benefits, or the participant's oldest child may have turned 18, or child protective services officials may have removed a child from the participant's custody. This uncertainty prevents estimation of the percentage of participants who might have successfully completed treatment if they had not lost eligibility. However, the mean duration of treatment for population members who lose eligibility is 310 days. Only 20 percent are estimated to have less than a 90-day period of treatment. This suggests that the vast majority of participants have a substantial trial in treatment prior to losing eligibility, and the finding supports the decision to classify them as participants who do not complete treatment successfully.

The second outcome is the presence and amount of monthly earned income from full- or part-time employment. Monthly DPSS data are used to measure changes in employment status and amount of earnings. The data cover a period extending from the sixth month before the month in which treatment is terminated through the sixth month after the month of termination. For each month, participants are required to report earned income as a condition of receiving benefits from TANF, Medicaid, or food stamps. Persons receiving TANF often receive benefits from the other two programs. The second outcome therefore considers monthly earned income for all population members who receive ben-

efits from any of the three programs. A comparison of Los Angeles County welfare income data with employer data maintained by the California Department of Labor finds that under 2 percent report unreliably, and the percentage overreporting income is equal to that underreporting it (Burns et al. 2003). Whether a participant was employed in a given month is inferred from the presence or lack of earned income in that month.

The data suggest that 8.6 percent of this population was not eligible for any of the three programs in the month when the client terminated treatment, and 15.6 percent was not eligible by the sixth month after treatment termination. Lack of eligibility usually indicates that the participant left the program, but there are a variety of other reasons, including (for TANF) sanctions. Since only one-tenth of 1 percent of the population was deregistered from CalWORKs in the month of treatment termination because reported earned income exceeded eligibility limits, it is unlikely that the incomes of the sample members are substantially higher than the incomes of those excluded because of program ineligibility. Persons not eligible for all of the three programs in any given month are excluded from the analysis of monthly earned income, as their income is not known.

Measures applying to both the population and the sample drawn from the DMH administrative data include diagnosis, type and hours of mental health service provided, service duration (time from admission to discharge), and demographic variables. Data from DMH are also used to categorize provider volume based on the number of participants terminating services in the study period. Each measure is described in table 1. For the 1,938 participants, DMH data cover the entire period between 2003 and 2006. As discussed below, these data reveal that some participants received treatment before or after the treatment period (from admission to discharge) used to define the population.

For sample members, survey measures were coded in March 2005 by the lead clinician. Clinicians were asked to register judgments on global ordinal rating scales. These judgments assess clients' change during treatment using the ratings of "strong positive change," "some positive change," "no change," and "negative change." Ratings cover change with regard to being a domestic violence victim, coping with substance abuse problems, capacity to work, having parenting problems, managing daily living problems (such as child care), extent of mental health symptoms, and client's overall attitude toward her life; motivation for change was also rated. Studies confirm the reliability and validity of global scales (Chochinov et al. 1997; Hilsenroth et al. 2000). Staff also use four-point scales to rate employment history as well as attendance at group and individual treatment. Frequency distributions for all of these measures are shown in table 2.

To examine clients' success in completion of treatment and finding

employment, this study employs multiple regression with the sample of 433 discharged clients on whom staff provide detailed information. Because these cases represent a random sample of the 1,938 discharged cases and the sample is stratified by provider, the suite of Stata survey commands is utilized with a finite population correction. Values are missing (at random) for a small number of variables. These values are imputed using the *imputation by chained equations* multiple imputation routine in Stata (Royston 2009); five imputed data sets are combined to produce the final estimates. Missing data account for more than 1 percent of the information on only two variables; clinical staff report that they are uncertain about the prior work history of 9.9 percent of the sample of 433 participants, and a rating for participation in treatment is missing for 1.8 percent. The analyses estimate logistic regression models to examine factors that predict successful completion of treatment and report of earned income in any of the 6 months after the month in which treatment termination is recorded. Note that regression analysis used in this way is still descriptive; one can predict that two variables occur together without assuming causality, which is not plausible without a control group.

The analysis proceeds by exploring the two outcomes' bivariate relations with participant and provider characteristics. This is followed by analysis of the trajectory of employment over 13 months. The analysis uses a longitudinal regression model. The final analysis employs the predictors described in tables 1 and 2 to run a multiple logistic regression focused on whether participants complete treatment successfully and on whether they were employed in any of the 6 months following termination of treatment.

Although many of the contextual clinical findings cited above refer to major depressive disorder, the current analysis is not limited to the 51 percent of the population diagnosed with this disorder. The analysis is broader for two reasons. First, this is not a clinical trial; the overall population of 1,938 discharged clients is of interest in the context of research on welfare reform. Second, the study's findings suggest that the major outcomes for the group of population members diagnosed with major depressive disorder do not differ to a statistically significant degree from those for the group of population members diagnosed with other disorders.

Results

Success in Treatment

Table 1 reports that 16.6 percent of participants in the population completed treatment successfully (17.3 percent in the sample). Data available only for the sample provide context for this figure. As table 2 shows,

only 48 percent of participants were judged by clinicians to be moderately or highly motivated to change, and only 45 percent had good or very good attendance at treatment sessions. Clinicians reported their perceptions concerning participant change (positive or negative) during the course of treatment in each of seven domains. No more than 20 percent of the 433 sampled clients were judged to have "strong positive" change on any of the domains (data not shown), but as the table shows, "strong positive" or "some positive" change is reported for between 35 percent (substance abuse domain) and 73 percent (overall life situation domain). Table 2 also indicates that clinicians report "strong positive" or "some positive" change in mental health problems for 70 percent of participants (associated in bivariate analysis positively with successful completion: $t = 3.07$, $df = 1$, $p < .01$; associated marginally with earnings: $t = 1.87$, $df = 1$, $p < .09$, not shown in tables). "Strong positive" change in one or more of the seven domains is reported for 28 percent. Such change is associated in bivariate analysis (not shown in tables) with successful completion of treatment ($t = 5.82$, $df = 1$, $p < .001$) and with reporting earned income in the 6 months after completing treatment ($t = 2.75$, $df = 1$, $p < .001$).

Another perspective on completion of treatment comes from the DMH records that reveal participant use of public mental health services before, during, and after the treatment period that is used to define the population. These records suggest that, for 35 percent of participants in the population, the treatment period defining this population is a segment in a broader pattern of public mental health utilization. Of the 1,938 in the population, 342 (18 percent) begin another CalWORKs mental health service component in the 2 years after the CalWORKs discharge reported on here. During the 3.5 year period from January 2003 through June 2006, 65 percent of the population had only one mental health treatment period (from admission to discharge), but 25 percent had two periods, and 10 percent had between three and 10 periods.

Success in Employment

The percentage of participants in the population (1,938) who report any monthly earned income is estimated to increase from 13 percent in the sixth month prior to the month of treatment termination to 20 percent in the sixth month after the month of termination. (In the longitudinal regression, not shown, the difference is estimated to be statistically significant: $z = 13.01$, $df = 1$, $p < .001$.) During the 13 months, 27 percent of sample members report earnings in at least 1 month, and 23 percent report earnings in at least 1 of the 6 months following the termination month. Over 13 months, clients' average earned income is estimated to increase from \$700 to \$861. The differ-

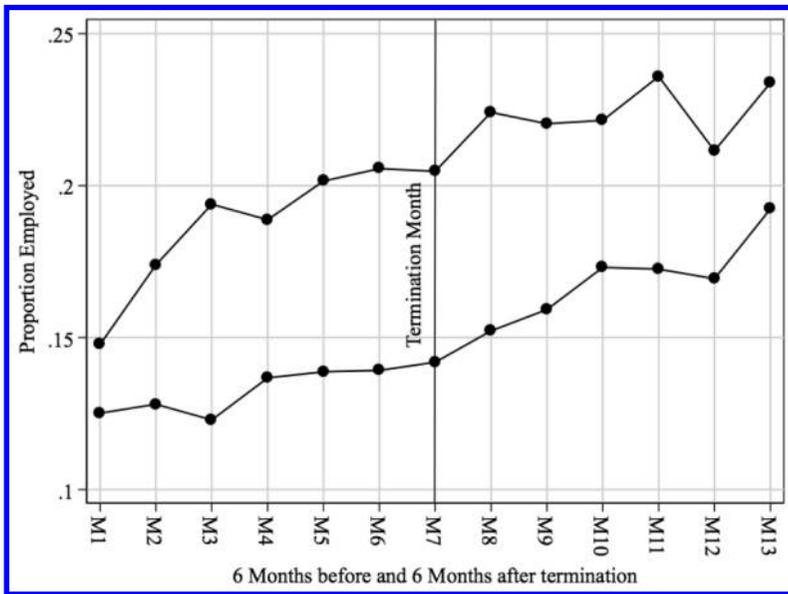


FIG. 1.—Proportion employed in the 6 months prior to and after the month in which clients terminated services ($N = 1,938$). The top trend line represents population members who completed treatment successfully. The bottom trend line represents members who did not complete treatment.

ence is estimated to be statistically significant ($z = 4.46$, $df = 1$, $p < .001$, not shown).

As results in figure 1 suggest, the percentage of the population that reports earned income in any month of the study period is higher among those who complete treatment than among those who do not complete it. On average across the 13 months, 20.8 percent of those who complete treatment also report monthly earned income in some month, but the average is smaller (15.1 percent) among those who do not complete treatment, and the difference between the two groups, estimated with a longitudinal regression model (not shown) that has time and the interaction of time with successful completion of treatment as predictors, is statistically significant ($z = 4.22$, $df = 3$, $p < .001$). The results in figure 1 suggest that the rate of increase in employment in the 6 months after treatment termination is greater for those who do not complete treatment successfully. This is confirmed by the longitudinal regression model ($z = -2.20$, $df = 3$, $p < .03$). However, the estimates in a second model (not shown) find no statistically significant difference between the two groups in the average amount earned monthly if any earnings are reported in the 6 months after termination.

Although 23 percent of those receiving TANF, Medicaid, or food

stamps report earned income in at least 1 of the 6 months after the month of treatment termination, only 7 percent report earned income in each of the 6 months after termination. The percentage of the population that has a diagnosis of major depressive disorder and reports earned income during at least 1 of the 6 months does not differ to a statistically significant degree from the percentage reporting earnings among those with other diagnoses ($z = 0.54$, $df = 1$, $p < .59$, not shown in tables). During the 6-month period following the month of treatment termination, the average total earned income reported (not shown in tables) for population members who report earnings in at least 1 month is \$3,439 (SD = 2,812); for those working in all 6 months, the average total reported earnings are \$4,902 (SD = 2,847).

Multivariate Prediction of Success in Treatment and Employment

Table 3 displays results from two multivariate logistic regression models estimated using the sample of 433 cases. Successful completion of treatment serves as the dependent variable in the first model. In the second model (results in the third and fourth columns), the dependent variable captures whether a client reports earned income in any of the 6 months following the month in which treatment terminated. Predictors include those described in tables 1 and 2.

As results in table 3 suggest, sample members with three or more dependents are more likely to complete treatment successfully than are their counterparts with one dependent (test of three dependents combined with test of four or more: $F = 9.10$, $df = 2$, $p < .001$).

Sample members in both the 30–39 and 40–49 age categories are more likely to complete treatment successfully than are members in the 20–29 age group (see table 3), and this is also true for all participants 30 and over as well (test for categories 30–39 and 40–49 and 50 and over combined: $F = 2.61$, $df = 3$, $p < .05$). Speaking English as the primary language is not predictive (results not shown).

The estimates in table 3 suggest that service characteristics are important predictors for successful completion of treatment services. The duration of treatment is estimated to predict successful completion of treatment; sample members with treatment duration of 6–11 months or 12–56 months are more likely to complete treatment successfully than are those in treatment for fewer than 6 months (test for all categories over 5 months combined: $F = 4.82$, $df = 3$, $p < .01$). Report of strong positive change on any of the seven life domains also is estimated to predict successful completion of treatment ($F = 8.92$, $df = 1$, $p < .01$). On average, sample members reported to have very good attendance at treatment are estimated to be more likely to complete treatment successfully than are members whose attendance is reported to be good, poor, or minimal (test of good, poor, and minimal combined:

Table 3

PREDICTIVE LOGISTIC REGRESSION MODELS FOR SUCCESSFUL COMPLETION OF TREATMENT AND EMPLOYMENT

	TREATMENT SUCCESS		EMPLOYMENT ^a	
	OR	95% CI	OR	95% CI
Number of dependents:				
One ^b				
Two	2.12	.83–5.40	.67	.32–1.41
Three	4.39***	1.83–10.90	.44 ⁺	.19–1.05
Four or more	5.31***	2.09–11.70	1.20	.60–2.38
Attendance at treatment:				
Very good ^b				
Good	.64	.29–1.40	1.90	.85–4.25
Poor	.13***	.04–.37	.61	.28–1.33
Minimal	.14**	.04–.48	1.86	.71–4.88
Age group:			Dropped	Dropped
20–29 ^b				
30–39	.41*	.19–.88		
40–49	.35**	.16–.79		
50 and over	.69	.17–2.90		
Months duration of treatment:			Dropped	Dropped
<3 months ^b				
3–5 months	1.52	.51–4.50		
6–11 months	3.07 ⁺	1.14–8.23		
12–56 months	6.25***	2.14–18.26		
Strong positive change reported on any domain	2.84**	1.43–5.66	Dropped	Dropped
Employment history:				
Primarily stable jobs ^b				
Sporadic or occasional	1.04	.44–2.45	.26***	.12–.54
Little or no employment	.41 ⁺	.16–1.03	.10***	.04–.22
Primary language is English	Dropped	Dropped	.36***	.20–.66
Provider service volume:	Dropped	Dropped		
<21 discharges per year ^b				
21–40 dischargers per year			.51 ⁺	.25–1.05
41–132 discharges per year			.56 ⁺	.29–1.06
Completed treatment successfully	NA	NA	Dropped	Dropped

NOTE.—OR = odds ratio; CI = confidence interval; NA = not applicable. Dropped indicates that the results were dropped from the model because they were not statistically significant at $p < .10$; the variable was omitted, and the model was rerun. The table presents results of logistic regression models predicting successful completion of mental health services (treatment success) and employment within 6 months of discharge (employment). $N = 433$. Wald test for completion: $F = 4.53$, $df = 15$, $\text{Prob} > F = .001$; Wald test for income: $F = 5.56$, $df = 11$, $\text{Prob} > F = .001$.

^a In this study, report of monthly earned income serves as a proxy for employment status.

^b Omitted category.

⁺ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

$F = 6.72$, $df = 3$, $p < .001$). Having a primarily stable employment history also is estimated to predict successful completion of treatment services ($F = 3.21$, $df = 2$, $p < .05$). Results (not shown) suggest that the total number of hours of service received is, paradoxically, not predictive of completion of treatment.

Results in the second model suggest that members with three dependents or more are less likely than the reference group to report being employed in any of the 6 months after the month in which treatment is terminated (test of three dependents combined with test of four or more: $F = 2.41$, $df = 2$, $p < .09$). Estimates from the second model also suggest that age is not a statistically significant predictor of reporting employment in any of the 6 months after the month in which treatment is terminated. Results from the second model indicate that sample members whose primary language is English are, counterintuitively, less likely to report employment than are members whose primary language is something other than English ($F = -10.97$, $df = 1$, $p < .001$).

Results in table 3 also suggest that a sample member's employment history predicts his or her chances of reporting employment in at least 1 of the 6 months following the month in which treatment is terminated. A history of sporadic or occasional employment is estimated to be negatively and statistically significantly associated with a report of employment in any of those 6 months, as is a history of little or no employment (test for sporadic or occasional and little or no employment combined: $F = 15.26$, $df = 2$, $p < .001$). Estimates in table 3 further suggest that report of employment is associated with the volume of services offered by a mental health provider. The odds of reporting employment in any of the 6 months after the treatment termination month are higher for sample members served by providers that report fewer than 21 discharges per year than they are for members served by providers that discharge larger numbers of clients (21–40, 41–132) per year (test for providers with 21–40 and 41–132 discharges combined: $F = 2.24$, $df = 2$, $p < .11$). Very good attendance at treatment sessions also is estimated to predict report of employment in at least 1 of the 6 months following the month in which treatment is terminated ($F = 4.41$, $df = 3$, $p < .05$). Results (not shown) suggest that the total number of hours of treatment received is not predictive of employment. In addition, successful completion of treatment does not predict employment in at least 1 of the following 6 months.

It is noteworthy that clinical predictors (completing treatment successfully, duration of treatment, attendance at treatment, and strong positive change as rated by staff) are associated with successful completion of treatment but not with report of employment in any of the 6 months after the treatment termination month.

One way of judging how well these models describe factors associated with the two outcomes is to ask how the models perform in classifying

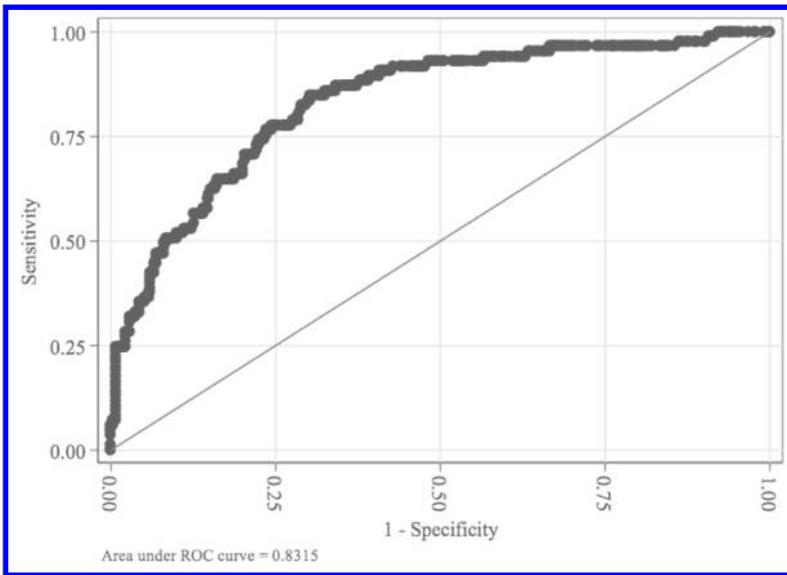


FIG. 2.—Receiver Operating Characteristic curve for completing treatment successfully ($N = 433$). The logistic regression model is being used as a classifier. An area under the curve of 0.5, which corresponds to the straight line in the graph, would indicate that the model is no better than chance at classifying participants as completing treatment. An area under the curve of 1.0 indicates maximum classification accuracy. The 0.83 here shows reasonably good classification accuracy.

participants' successful completion of treatment and their report of monthly earned income. Classification accuracy can be summarized by the area under the curve of a Receiver Operating Characteristics (ROC) graph. A classifier that does no better than random would have an area under the curve of 0.5 (the straight diagonal line in fig. 2 and fig. 3); an optimal classifier would have an area under the curve of 1.00. The model predicting successful completion of treatment is estimated to perform much better than random; it is estimated to have an area under the curve of 0.83. The model predicting report of earned income (employment) is estimated to perform almost as well. It has an area under the curve of 0.77.

Discussion

Success in Completion of Treatment

Staff report that attendance at treatment is good or very good for only 45 percent of the sample. However, this does not seem to be due to disaffection with treatment services. A survey of 317 randomly selected Los Angeles clients receiving mental health treatment through Cal-

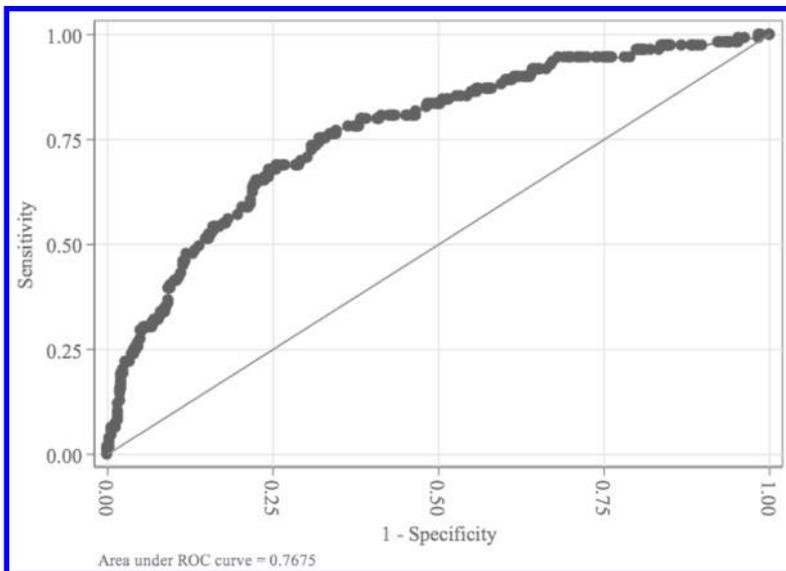


FIG. 3.—Receiver Operating Characteristic curve for any employment in the 6 months after treatment termination ($N = 433$). Estimated using the logistic regression model as a classifier. The 0.77 here shows reasonably good classification accuracy.

WORKs in 2005 finds that 79 percent of respondents report being very satisfied with the treatment, and 97 percent say they would recommend the services to a friend (Chandler, Meisel, and Jordan 2006).

In the current study, the duration of the median mental health treatment period (from admission to discharge) is estimated to be 5.9 months. Findings from a study of 13 state Medicaid programs suggest that 70 percent of Medicaid clients in those states receive mental health treatment services for 3 or fewer months (Pavetti et al. 2009), but the estimates for the current population of 1,938 participants indicate that only 25 percent receive treatment for fewer than 3 months. However, the number of hours of active treatment received may be insufficient to catalyze change for many; 47 percent of population members are estimated to receive 10 or fewer hours of treatment services, and results (not shown) indicate that 54 percent received 5 or fewer hours of individual therapy.

Treatment Success in Context

The Star*D trial tests two additional stages of treatment for those who did not respond to the initial stage, and the trial measures outcomes in all three stages. It is possible, as in Star*D, that the final treatment success rate for the 35 percent of the study's participants who receive

mental health services before or after the study treatment period is greater than it is in the period studied. Alternatively, the high rate of multiple times entering treatment may suggest the presence of unremitting problems.

The current study's literature review discusses findings on remission in treatment of major depressive disorder. The findings suggest that, on the two measured outcomes, the 51 percent of population members with this diagnosis do not differ to a statistically significant degree from participants with other diagnoses. Because of this, the findings can reasonably be compared with those in clinical studies of depression. Such studies suggest that lasting remission occurs for only 15–30 percent of persons treated for major depressive disorder and that 10–30 percent have ongoing symptoms for years. Single mothers, in particular, are estimated to have only a 20 percent remission rate in the Star*D first stage (Yates et al. 2007). The current study lacks a directly comparable measure of remission rates, but it does measure successful completion of treatment and clinician judgment of change in mental health status for the sample of 433. Staff report that 26 percent of the study sample either completes treatment successfully or experiences strong positive change in mental health symptoms before terminating treatment. This result appears to be in the same range as findings from clinical studies.

Employment Success

In general, the results suggest that, for the population as a whole, monthly earned income and the percentage working in each month increase over the 13-month study period (from the sixth month before the month of mental health service termination to the sixth month after). The percentage of the population that reports employment in a given month is estimated to increase from 13 percent in the first month of the study period to 20 percent in the last month. On average, 23 percent reports earned income in at least 1 month during the 6 months following termination. In the month with the highest percentage of clients reporting employment, 20 percent of the population reports being employed. Thus, the rate of employment found in this study is in the same range as figures cited above; the 2005 monthly average employment rate for welfare participants in the United States is 23 percent (U.S. Department of Health and Human Services 2009a); the highest monthly rate is 28 percent in California; and it is 25 percent in Los Angeles County (California Department of Social Services 2005). Average monthly earnings for members of the study population working in this 13-month period are estimated to increase from \$657 in the sixth month prior to the treatment termination month to \$858 in the sixth month after termination (results not shown in tables); the latter figure exceeds the 2005 monthly averages of \$682 in the United States and

\$805 in California (California Department of Social Services 2005; U.S. Department of Health and Human Services 2009b). The proportion of participants who report earned income is estimated to be higher among those who successfully complete treatment than among those who do not complete it successfully; however, among those who report earned income in any month of the study period, the average reported earnings of those who successfully complete treatment do not differ to a statistically significant degree from the earnings reported by those who do not complete it successfully.

During the 6 months after the month of discharge, the average total earned income for those who report earned income in all 6 months is estimated to be \$4,902 (SD = 2,847), or \$9,800 annually (not shown in tables). The annual federal poverty level for 2005 is \$16,090 for a family of three (Los Angeles County study participants had an average of 2.2 dependents); even participants who reported having earned income in each of the 6 months after treatment could not earn enough to leave poverty in that period. At the time of the study (2004–5), the unemployment rate in Los Angeles County was under 5 percent, and the county was in the midst of a 4-year job expansion that started in 2003 (California Budget Project 2009). However, 15 percent of jobs in the county were low-wage positions in which income is not reported to state agencies (Haydamack and Flaming 2005).

Predictors of Success in Completion of Treatment and Employment

As figures 2 and 3 suggest, the multivariate models predicting success in completion of treatment and employment are estimated to have good classifying ability (areas under the ROC curve of 0.83 for treatment and 0.77 for employment). In general, the factors predicting successful completion of treatment (table 3) are not the same as those predicting employment after treatment termination. Of equal note are the factors that one might expect to be important but that are not (at least in multivariate analysis): diagnosis, education, time receiving welfare, the actual number of treatment hours, and (for the employment outcome) successful completion of treatment.

Limitations of the Study

This is a descriptive study rather than a randomized controlled experiment. The study is therefore unable to say how much change would have occurred if participants had not received mental health treatment, so this study cannot attribute the change (or lack of change) described here to the treatment. Comparisons with county, state, and national employment rates for TANF participants may be inappropriate if persons selected because they have mental health problems differ in other ways from the overall TANF population.

The measures of monthly earned income (and employment) are limited in that they capture results only for persons eligible for and receiving CalWORKs, Medicaid, and food stamps. By 6 months after termination, 15 percent of the study's 1,938 participants are not in any of these programs and may or may not have earned income.

Follow-up in this study is limited to a period of 6 months. Many mental disorders, including depressive disorders, may have a long-term course. Even in this sample, 35 percent of the 433 participants are reported to have other periods of mental health treatment. Further, 6 months is a relatively short time for welfare employment services to help participants find work. To obtain a better understanding of the effects of mental health treatment on employment of welfare participants, research will require a multiyear longitudinal framework.

California's welfare system differs from those in other states. For example, the state does not impose full family sanctions, and the set of mental health services provided for welfare participants is unique because county mental health programs in the state have a great amount of autonomy, particularly in how they serve CalWORKs clients. The results from Los Angeles County may not generalize to other states or even to other California counties.

Conclusions

As of this writing, DMH and DPSS administrators are restructuring services among all CalWORKs mental health providers in order to improve the outcomes reported here. There are several key changes.

First, the administrators will mandate that treatment teams include an employment counselor and use a supported employment model. The change is motivated by low employment rates among CalWORKs participants. Approximately 80 percent of clients do not work in any given month, yet supported employment programs for persons with serious mental illness average employment rates of over 60 percent (Bond, Drake, and Becker 2008). Research suggests that a mental-health-supported employment program in Portland, Oregon, helped 70 percent of TANF referrals with psychiatric disabilities to obtain employment (Marrone, Foley, and Selleck 2005).

Second, administrators will attempt to do something about the substantial proportion of participants who have co-occurring substance abuse or domestic violence issues. Staff indicate that many participants with these issues do not improve during treatment. Administrators propose adding substance abuse and domestic violence specialists to the treatment team. This approach is used fruitfully in at least two other California counties (Meisel, Chandler, and Jordan 2001).

Like traditional outpatient services, TANF mental health programs primarily provide office-based services. A third step is therefore to add

outreach case management in order to reduce dropouts (Miranda et al. 2003). Some participants will also receive home visits from therapists.

Fourth, administrators will require that programs be able to assess the behavioral health problems of participants' children. Although some Los Angeles County programs provide family therapy or on-site mental health treatment for children in the family, most programs do not. Research shows, however, that rates of behavioral and emotional problems are high among the children of parents who receive TANF and have mental health problems (Pilowsky et al. 2008). Staff in this study report that participants' concern about the problems of their children is the most common stressor for parents in treatment. Finally, administrative changes will draw upon research showing the success of contingency reinforcement in substance abuse and dual disorders programs (Sigmon and Higgins 2006). Mental health programs are being required to consider providing incentives to clients for attending and completing mental health services.

In summary, this study tests mental health treatment in Los Angeles County as a means for improving the employment outcomes of TANF participants with psychiatric disabilities. The findings suggest that the observed treatment gains are largely consonant with those documented in the clinical effectiveness literature, and the observed employment outcomes are very similar to those reported for all welfare-to-work participants in California. However, less than a third of participants are found to achieve strong positive life changes or to approach the goal of leaving poverty. Improving those outcomes may require a greater integration of treatment with enhanced measures to help participants overcome multiple barriers.

Note

This study was conducted by the California Institute of Mental Health under a contract with the Los Angeles Department of Mental Health.

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