Journal of
Alcoholism & Drug Dependence

Jaffe et al., J Alcohol Drug Depend 2014, 2:3
DOI: 10.4172/2329-6488.1000157

Research Article Open Access

Cost Variation among Subpopulations of Diverted Drug Offenders under California's Proposition 36

Adi Jaffe, Douglas M Anglin*, Darren Urada and Elizabeth Evans

UCLA Integrated Substance Use Programs, Semel Institute for Neuroscience and Human Behavior, USA

Abstract

Objectives: To explore differences in government costs among several subpopulations of offenders who were eligible to participate in California's Proposition 36, enacted as the Substance Abuse and Crime Prevention Act of 2000 (SACPA).

Methods: The study compared a time-lagged cohort of offenders meeting SACPA eligibility criteria before SACPA was enacted (N=42,706) to the first-year SACPA cohort (N=37,991). Difference-in-differences (DID), multi-level, multivariate, random-effects regression models that included membership in the subpopulation categories (criminal, mental health, employment) and interaction terms were estimated separately for men and women to determine the effect of SACPA on total costs and across eight cost domains (prison, jail, probation, parole, health, arrests, convictions, and treatment).

Results: A substantial proportion of SACPA participants had significant chronic problems. SACPA-eligible male offenders with extensive criminal histories yielded greater DID savings than low-history offenders, an effect augmented by SACPA participation. Among female offenders with extensive criminal histories, overall savings were negated by increased arrest/conviction costs. A documented history of mental illness resulted in increased costs for men and women.

Conclusions and implications for practice: SACPA participation was cost-effective among more severe cases, especially for male offenders with extensive criminal histories; however, the program did not attenuate increased costs for offenders with severe mental illness. Services for the special needs of such offender populations need further development and implementation.

Keywords: Drug diversion; Special populations; Costs; Proposition 36; Substance Abuse and Crime Prevention Act (SACPA)

Abbreviations: SUDs: Substance Use Disorders; CJS: Criminal Justice System; CODs: Co-Occurring Disorders; SACPA: California's Substance Abuse and Crime Prevention Act of 2000; USD: U.S. Dollars; DID: Difference-In-Differences

Introduction

The provision of effective interventions for offenders with Substance Abuse Disorders (SUDs) has long been an issue throughout the Criminal Justice System (CJS). Due to such factors as mandatory minimum sentences, three-strike laws, and other "tough on crime" policies and practices, the rate of incarceration for nonviolent drug offenders has produced unprecedented incarceration rates over the last few decades [1]. As a result, prisons and jails are overcrowded and community supervision resources overtaxed, creating large social costs. Many diversion and treatment efforts have been designed, implemented, and evaluated [2-4]. At the same time, the number of offenders with substance use problems who receive treatment is low; according to the Bureau of Justice Statistics [5], in 2004 only about 15% of state prisoners who met criteria for drug dependence or abuse had participated in a drug treatment program with a trained professional since admission. Although drug courts have been popular as a way to divert drug-involved offenders from jail or prison to community treatment, there is doubt that they can serve a sufficiently large enough population to substantially reduce the jail and prison populations [6].

Gradually, the problems and costs associated with more traditional CJS approaches to dealing with the drug-using offender have been replaced by a philosophy of diversion into community treatment, both to save on costs and to implement a more rehabilitative approach to the long-standing problems of overcrowding and judicial decisions thereto related. Many factors interact to affect health conditions [7], and the success of social interventions can substantially vary among certain populations [8]. Yet most evaluation efforts to date typically focus on determining overall program effects and costs, with less attention to inherent variability within them due to sample characteristics and/or contextual ecologies. This tendency is well illustrated by the evaluation of programs that apply a public health approach to the treatment of SUDs, particularly among offenders. Designed to divert drug-using individuals from incarceration to community-based health and social services care, court diversion programs have been found to be generally effective [9-12], but less is known about the relative impact of various program elements among particular subpopulations [13,14]. Determining what treatment works best for which individuals and under what circumstances has been recognized as a key health-services research priority [15], as such information can be used to tailor public health programs to better meet the needs of diverse populations and

***Corresponding author:** Douglas M Anglin, UCLA Integrated Substance Use Programs, Semel Institute for Neuroscience and Human Behavior, David Geffen School of Medicine at UCLA, 11075 Santa Monica Blvd., Suite 100, Los Angeles, CA 90025-7535, USA, Tel: 310-445-0874; E-mail: doug_anglin@hotmail.com

Received February 11, 2014; **Accepted** April 16, 2014; **Published** April 22, 2014

Citation: Jaffe A, Anglin DM, Urada D, Evans E (2014) Cost Variation among Subpopulations of Diverted Drug Offenders under California's Proposition 36. J Alcohol Drug Depend 2: 157. doi:10.4172/2329-6488.1000157

to reduce disparities in health outcomes. The literature on treatment of offenders with SUDs has identified several such population groups.

Extensive criminal histories

Offenders with extensive criminal histories present a heightened threat to public safety and public health, generate disproportionate costs to the criminal justice system and to society generally, and pose significant challenges to both correctional agencies and treatment providers. Such offenders typically have long criminal and drug-use histories, often extending from adolescence; have weak ties to formal and informal pro-social influences; have attitudes and associates conducive to ongoing criminal behavior; and may exhibit extensive rates of personality disorders, including psychopathy [16-18]. Although the relationship between drug use and crime is complex [19-23], for many offenders these are mutually reinforcing behaviors that perpetuate, and are perpetuated by, antisocial lifestyles.

Co-occurring Disorders (CODs)

Mental health disorders affect the severity and course of co-occurring substance dependence in that both disorders interact and typically require simultaneous and coordinated treatment [24-27]. Individuals with CODs have higher levels of psychological distress and poorer psychosocial functioning compared to those with substance dependence only and thus may need more intensive treatment and comprehensive services in order to optimally benefit from treatment [28-30]. Although mentally ill offenders are increasingly being linked to health and social services by criminal justice diversion programs, a lack of empirical evidence supporting such diversion efforts and their cost-benefits has been identified as a primary barrier to program acceptance and implementation [31].

Chronic unemployment

Research has documented strong and beneficial associations between employment and substance abuse treatment outcomes [32,33]. Employment can be a turning point for making significant changes in criminal and substance abuse trajectories [34-36]. Vocational services provided within addiction treatment are associated with an increased probability of drug abstinence [37], and substance users who are employed while in treatment appear to make further employment gains after discharge [38]. As such, post-conviction employment among drug offenders can be conceived as one proxy for successful outcomes.

In addition to the already mentioned subpopulations, it is important to note the specific effect of gender on the presentation of SUDs and on SUD treatment in particular, due to its substantial effect on SUD histories, treatment processes, and treatment outcomes [39-49].

Moderating effects of gender

Women with SUDs often enter drug treatment with more severe problems than men related to criminality, SUD histories, mental health disorders, employment, drug use among partners or family members, and childcare responsibilities [39-47].

Criminal history has previously been shown to have a stronger effect on treatment participation and outcomes for men [43,46], whereas psychiatric disorders and victimization histories appear to have a particularly negative impact on treatment outcomes for women [46,48,49]. In addition, on treatment entry, women exhibit different attitudes than do men, such as greater problem recognition, less self-efficacy to remain abstinent in high-risk situations, and greater reliance on coping strategies [47], all of which are factors that may differentially influence outcomes. Treatment programs designed specifically to address women's needs and attitudes tend to be optimally beneficial [50], especially if they include employment counseling, child care, transportation and housing assistance, and domestic violence counseling [51].

The 3 subpopulation categories described and the effects of gender create particular subgroups of interest when assessing the effectiveness and cost-benefits of SUD intervention programs. This is especially true when the program being assessed has a broad reach that is expected to capture individuals across many such subgroups, as does California's Proposition 36 diversion law as well as similar programs under consideration in other states.

Evaluation of a public health approach to drug offenders in california

In November 2000, California voters passed Proposition 36, which was enacted into law as the Substance Abuse and Crime Prevention Act of 2000 (SACPA). SACPA represented a major shift in the state's criminal justice policy. Adults convicted of nonviolent drug offenses that meet eligibility criteria and agree to participate are offered probation with substance abuse treatment instead of either probation without treatment or incarceration. Offenders on probation or parole who commit nonviolent drug offenses or who violate drug-related conditions of their release are also eligible to participate. Offenders who subsequently commit non-drug violations of probation/parole may face termination from SACPA, with the consequences of such drug violations depending on the severity and number of such violations. Typically, the offender may be assigned to more intensive treatment, or probation/parole may be revoked.

Previous work has revealed SACPA to be a cost-effective diversion program that produced an average savings to government of more than $2,000 per eligible offender in its first-year cohort compared to a similar cohort that did not have SACPA participation available to them [52]. Although robust, the magnitude of the cost savings was later shown to be dependent on offender demographics (i.e., gender, race, and age) as well as on contextual factors related to the county-specific implementation of SACPA [53,54]. To date, however, the cost-effectiveness of SACPA among specific special subpopulations is as yet unknown.

The current article seeks to extend previous findings by assessing the cost variability among offender subgroups characterized by criminality, mental health conditions, and chronic unemployment. Because gender differences are substantial, especially in offender populations, we assess these effects separately for men and women. Specifically we ask how these groups responded to SACPA and what their SACPA-associated cost impact on governmental spending was overall, as well as within specific cost domains. The overarching question is to what extent were costs for members of these groups, many of whom were not originally expected to be recipients of SACPA treatment [55,56] affected by the passage of SACPA.

Methods

Full details on the sample and the econometric analytical methods applied are reported in Anglin et al. (2013) [52]. Methods are congruent with standards set in the public health arena to integrate indicators drawn from health and non-health domains and apply cutting-edge statistical techniques to advance understanding of the determinants of health [7]. Briefly, we used a time-lagged cohort of individual offenders meeting SACPA eligibility criteria in the proximate years before the

program was enacted (July 1, 1997, to June 30, 1998, N=42,706) to compare to the intervention cohort, which was composed of SACPA-eligible nonviolent drug offenders convicted within the first 12 months of SACPA implementation (July 1, 2001, to June 30, 2002, N=37,991). Outcomes pertaining to health, criminal justice involvement, mental health, employment, and SUD treatment participation were captured for 30 months before and after the identifying conviction, for a total of 60 months of offender observation (control cohort: January 1, 1995, to December 31, 2000; SACPA cohort: January 1, 1999, to December 31, 2004).

Both cohorts were followed using an intent-to-treat model, in that the SACPA cohort members were followed whether or not they accepted the SACPA option to enter treatment or subsequently did so. A regression-adjusted Difference-In-Differences (DID) approach was used to estimate the cost-effects of SACPA implementation on study outcomes. The study was approved and monitored by the UCLA Institutional Review Board and the California State Human Subjects Protection Committee.

Data Sources

Five primary data sources were used in the present analysis as outlined in Anglin et al. [52]. Criminal records were retrieved from the California Department of Justice (DOJ) Automated Criminal History System, which includes personal background data, arrests, citations, charges, court actions (e.g., convictions, sentences), and supervision information. Substance abuse treatment admissions and discharges were captured in the California Department of Alcohol and Drug Programs (ADP) California Alcohol and Drug Data System (CADDS). CADDS data included intake characteristics of clients, including drugs used, duration of use, treatment type and duration, and discharge status for clients enrolled in publicly supported programs throughout California. Prison and Parole movement records were captured in the Offender Based Information System (OBIS), maintained by the California Department of Corrections and Rehabilitation. Health resource utilization was captured in the Medi-Cal (California Medicaid) claims data, received from the California Department of Health Services. Records included payment histories, diagnoses, surgery codes, types of service providers, physician specialties, days of stay in any hospital, treatment unit, amounts paid, and types of health plans for all Medi-Cal eligible individuals in the study cohorts. Finally, county-level predictors of outcomes, including indicators of policing intensity and socioeconomic status were collected by calendar year for each of the 58 counties of California from publicly available data from the Federal Bureau of Investigation (www.fbi.gov/ucr/ucr.htm), the office of the California Attorney General (www.ag.ca.gov), the California Department of Finance (www.dof.ca.gov), and the U.S. Census (http://www.census.gov).

Measures

Definition and classification of our special population designations are presented first; methods for the determination of total and specific domain costs (in 2009 U.S. dollars [USD]) are then described.

Offender subpopulations

Given the available data, we classified members of the full sample into different levels within each of the following categories.

Criminal offending

Participants were categorized as being low, moderate, or severe offenders if they had 0-2, 3-4, or 5 or more lifetime convictions, respectively. These specific conviction levels were selected based on previous work with this population that showed a difference between offenders with five convictions or more versus less than five convictions [57]. The moderate group was added to allow for more variability in the data, based on the distribution of lifetime convictions in our sample.

Mental health

Participants were categorized into two mental health diagnosis groups based on whether they had no self-reported mental health diagnosis (i.e., not COD) or at least one such diagnosis (COD).

Employment earnings

Participants were categorized as non-earners, moderate-earners, or high-earners if they had a total income of $0, $1–$59,999, or more than $59,999 in the 30 months post-index conviction, respectively. These levels were selected based on the distribution of post treatment earnings in the sample. Prevalences for each of the above groups and relevant subgroups are given in Table 1.

Study Outcome Measures

Our primary outcome was total DID costs per offender to state and county governments. Costs were calculated for the 30 months before and after a SACPA-eligible conviction in 8 cost domains: prison, jail, probation, parole, arrests (police processing), convictions (court costs), publicly funded health and mental health care utilization, and SUD treatment within publicly funded programs. Total costs in the 30-month period before conviction was then subtracted from total costs post-conviction to provide each offender's overall cost-difference measure. The comparison of the SACPA and pre-SACPA cohorts on pre- to post-conviction cost-differences created the DID comparison on total costs, our primary outcome measure. Costs are presented in 2009 USD.

Statistical analyses

Multi-level, multivariate, random-effects (i.e., at the county level) linear regression models were estimated separately for each gender to determine the effect of SACPA on the pre- to post-conviction differences in total costs. We included significant individual- and county-level covariates to optimally control for potential differences in study cohorts and, critically, changes in county-level factors associated with both the intervention and the outcomes over time, as these factors were identified as important in our prior work [52]. All analyses were performed using SAS version 9.2.

Sample

Data from 80,697 offenders were utilized, of which 42,706 constituted the pre-SACPA cohort and 37,991 the SACPA cohort (Table 1). The majority was male (75.6%) and White (46.9%), with a mean age of 43.2 years (SD=9.2). Most participants (59.3%) exhibited a low level of criminal offending (i.e., between zero and two lifetime convictions, exclusive of the (27%) than did the pre-SACPA cohort (20%)). No clear differences in criminal-history patterns were evident between men and women. No previous mental health diagnoses were reported for the majority of participants (92%), although prevalence varied substantially between the pre-SACPA (98%) and SACPA (85%) cohorts. A significant difference was found for history of COD between male (7%) and female (12%) offenders.

MEN			
Variable	**Level**	**Estimate (SE)**	**Prevalence (%) N=60,975**
Average cost (intercept)		13,275*** (1383)	
SACPA		-1,704** (609)	47
Criminal history	low	0	59
	moderate	146 (378)	18
	high	-2,939*** (361)	24
Mental Health	None	0	77
	COD	-803 (1138)	7
Earnings (30 months post)	None	0	63
	Moderate ($1 – $59,999)	-2,314*** (215)	35
	High (Greater than $59,999)	-8,447*** (679)	2
SACPA (yes)	low	0	25
by Criminal history	moderate	-3,836*** (566)	9
	high	-4,193*** (517)	13
	SACPA + No-COD	0	41
SACPA (yes) by MH (yes)	SACPA + COD	3,606** (1333)	6
	SACPA + COD + Low	0	3
SACPA (yes) by MH (yes) by CH	SACPA + COD + Moderate	-2,705* (1193)	1
	SACPA + COD + Extensive	-3,255*** (979)	2
WOMEN	**Level**	**Estimate (SE)**	**N=19,722**
Variable		10,062*** (1570)	
Average cost (intercept)		-2,348** (743)	48
SACPA	low	0	61
Criminal History (CH)	moderate	-1,299º (692)	15
	high	-9,358*** (606)	24
	None	0	64
Mental Health (MH)	COD	610 (1535)	12
	None	0	69
Earnings (30 months post)	Moderate ($1 – $59,999)	-641º (384)	30
	High (Greater than $59,999)	-4,974* (2240)	1
	Low	0	28
SACPA (yes)	Moderate	-851 (1052)	8
by Criminal history	High	1,147 (918)	12
	SACPA + No-COD	0	37
	SACPA + COD	1,963 (1740)	11
SACPA (yes) by MH (yes)	SACPA + COD + Low	0	5
	SACPA + COD + Moderate	-3,034º (1658)	2
SACPA (yes) by MH (yes) by CH	SACPA + COD + Extensive	810 (1386)	3

Note: All analysis controlled for race, age, and county-variables, including inter-agency collaboration, county-level crime rates, and county population severity.
º$0.05<p<0.10$, *$p<0.05$, **$p<0.01$, ***$p<0.001$

Table 1: Regression results for adjustments to total costs

Results

Overall costs

Figure 1 illustrates the overall pre-to-post difference costs (in 2009 USD) for men and women based on membership in the offending and mental-health special populations examined. An overall pattern was observed that demonstrated consistent SACPA-associated savings for both men and women, but less so for women, especially among participants in the more severe special-population categories of criminal and COD history. Employment had distinct effects, but did not significantly interact with SACPA status.

Criminal history

Table 1 displays the results of the multilevel, multivariate, regression predicting DID post- to pre-conviction total costs for men and women. Results indicated that SACPA participation provided significant savings for both men (μ=-$1,704, SD=609) and women (μ=-$2,349, SD=743) compared to the reference group (i.e., White, low-offending, non-COD offenders with no post-conviction earnings), but that membership in each of the special population groups altered these costs substantially. Specifically, for both men and women, a more severe criminal history was associated with significantly increased savings post-conviction, but this effect was augmented through SACPA participation only for men with moderate or extensive criminal histories, resulting in additional savings of approximately $4,000 (i.e., the "SACPA by Criminal History" interaction term).

Co-occurring disorders

COD status alone did not increase costs for either gender compared to the reference group (i.e., pre-SACPA White offenders with low criminal history and no post-conviction earnings) as indicated by a non-significant main effect of mental health diagnosis, though its interaction with SACPA participation significantly affected costs for men. Specifically, for male offenders with low-level criminal histories

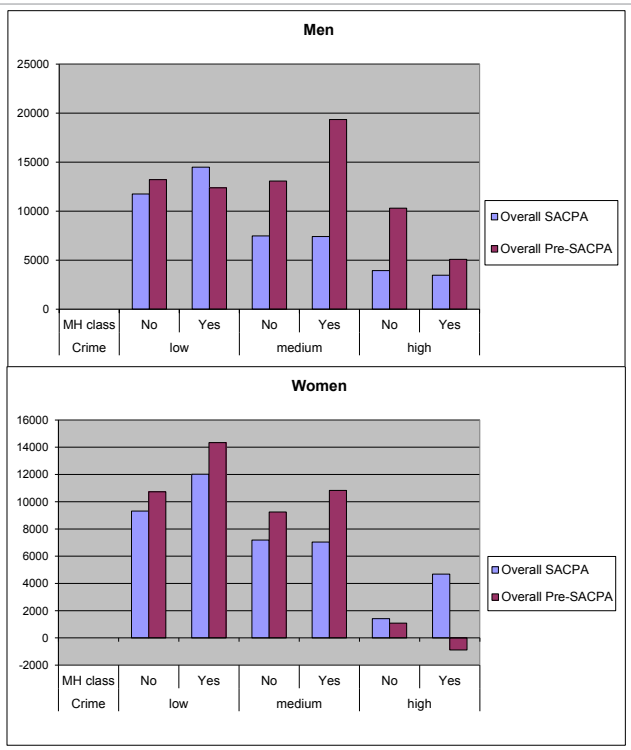

Figure 1: Overall-cost Pre-to-Post Differences for Non-SACPA and SACPA Offenders across the Six Crime/COD Categories. (Costs standardized to 2009 USD)

who participated in SACPA, CODs increased costs by an average of $1,099 (i.e., the sum of the -$1,704 overall SACPA effect, the -$803 main-effect of a mental health diagnosis, and the $3,606 interaction term); for male offenders with a moderate criminal history, COD status effected a savings of $5,294 (i.e., the above effects in addition to the moderate criminal history effect, the "SACPA by moderate criminal history" effect, and the "moderate criminal history by COD by SACPA" interaction term); and for male offenders with extensive criminal histories, the overall effect totaled $9,287 in savings.

Post-conviction employment

Post-conviction earnings at both the high (μ=-$8,447, SD=679) and moderate (μ=-$2,314, SD=215) levels were associated with significant savings regardless of SACPA participation for men, whereas for women, only high-earning status (μ=-$4,974, SD=2240) was associated with significant savings. Again, no SACPA interaction effect was obtained.

Domain-specific costs associated with SACPA eligibility

Next, we examined the effect of each of the subgroup categories on cost variability for specific domains (Table 2). The general patterns of results were similar to those found in the overall cost analyses.

Criminal history

As expected, substantial and significant savings in incarceration costs were produced by SACPA participation; savings were augmented for both genders but more so for men having moderate or severe criminal histories. SACPA participation reversed the otherwise increased costs of prison incarceration for individuals with moderate (increased cost=$4,812; SACPA-participation savings=$4,127) and severe (increased cost=$4,834; SACPA-participation savings=$6,486) criminal histories. These savings were offset by moderate increases in SUD treatment costs for both men (μ=$1,317) and women (μ=$1,484).

However, SACPA participation by those with extensive criminal histories was associated with increases in arrest and conviction costs that eliminated the usual savings otherwise noted in these domains. For women with severe criminal histories, the SACPA-associated increase in the arrest and conviction cost domains of $6,561 significantly reduced the $9,900 savings in these domains otherwise associated with the index (SACPA-eligible) conviction.

Co-occurring disorders

Prior mental health diagnoses were found to produce significant increases in health costs post-conviction (μ=$1,413) only among women, an effect that was augmented for those with a moderate criminal history (i.e., the "SACPA by Criminal History" interaction term=$1,048). Interestingly, COD diagnoses were much more prevalent among the female SACPA group (22.2%) than among the pre-SACPA female group (2.5%).

Post-conviction employment

Finally, individuals who earned wages during the 30-month period post-conviction produced significant savings, especially within criminal-justice involvement domains including incarceration, arrest, and conviction, and these effects were more pronounced among men. It is important to note that the post-conviction earners also experienced increased treatment costs, suggesting that retention in treatment was longer and that treatment was more intensive for men ($887 and $315 for moderate- and high-earning men, respectively) and moderately earning women ($1,377), but not for high-earning women (-$979).

Overall, these results highlight the complex nature of determining those factors contributing to variability in the cost-savings of a statewide program that affected such a diverse offender population. Taken together, the indication is that SACPA produced reliable savings that were moderate for low-level offenders and larger for moderate-severity offenders. The most severe offenders, those presenting both extensive criminal histories and co-occurring mental health disorders, did not produce substantial SACPA-associated savings, with female offenders in this group actually producing increased costs.

Discussion

Our results show that low-level offenders with no mental health issues produced SACPA-associated savings that were moderate at approximately $1,700 for men and $2,300 for women. Given the relatively lower cost of conviction among low-level offenders due to fewer and shorter incarceration sentences and associated somewhat higher community supervision costs, it is likely that moderate SACPA-associated cost-savings for this group represent a floor effect. Among more serious offenders, SACPA participation offered greatly increased savings of over $4,100 for male offenders with five or more previous convictions. For this group, SACPA participation resulted in net savings to the government relative to non-participation. A similar effect was not observed for women, primarily due to large increases in post SACPA-conviction arrest and incarceration costs. The SACPA-associated savings were found to reverse increased incarceration costs for both genders, an effect that was strengthened for offenders with more serious conviction histories.

Additionally, mental health diagnoses were found to play a substantial role in costs for men and women, although their impact manifested within different domains. Given the results indicating that

MEN		Prison	Jail	Parole	Probation	Health	Arrests	Convictions	Tx
Variable	**Level**								
SACPA†		-1,407**	-2,290***	-147***	136*	103	757*	-343*	1,317***
Criminal History									
	Medium	4,812***	-1,343***	140***	-1,153***	313**	-1,185***	-1,265***	-151º
	Severe	4,834***	-2,748***	-52º	-1,505***	-18	-1,592***	-1,784***	-45
Mental Health Diagnosis									
	MH Diagnosis	-2,871**	1,042*	-238**	71	278*	736º	228	110
Post-conviction earnings									
	Moderate	-2,379***	-283***	136***	78***	-282***	-174*	-307***	887***
	High	-4,871***	-1,699***	-11	189***	-547*	-1,145**	-678***	315*
SACPA * Criminal History									
	Medium	-4,127***	-242	-223***	351***	-324º	348º	181	184
	Severe	-6,486***	263	-147***	499***	-149	1,009***	608***	184º
SACPA * MH									
	MH Diagnosis	3461**	-378	242*	50	589	-309	-248	162
SACPA*Criminal*MH									
	Medium + MH	-415	-413	-67	38	738*	-520	173	-757**
	Severe + MH	-1,716*	-901**	-49	120º	-437	-181	224	-316

WOMEN		Prison	Jail	Parole	Probation	Health	Arrests	Convictions	Tx
Variable	**Level**								
SACPA†		-895*	-2,840***	-141***	109*	229	623*	-728**	1,484***
Criminal History									
	Medium	4,085***	-881***	234***	-1,195***	-226	-1,273***	-1,617***	-445*
	Severe	5,594***	-3,377***	263***	-1,711***	132	-3,935***	-5,968***	-366*
Mental Health Severity									
	MH Diagnosis	-816	94	-59	59	1,413*	515	-640	40
Post-conviction earnings									
	Moderate	-1,084***	-462***	79**	81*	-378*	-133	-139	1,377***
	High	-2,339º	-857	-127	297*	-1,289	471	-168	-979º
SACPA * Criminal History									
	Medium	-2,452***	-802*	-109*	152*	1048*	751º	526	-68
	Severe	-5,688***	209	-286***	483***	399	2932***	3,629***	-440º
SACPA * MH									
	MH Diagnosis	855	446	73	19	247	-705	492	560
SACPA*Criminal*MH									
	Medium + MH	669	-1,010º	-112	-30	-1741*	539	-519	-792º
	Severe + MH	797	-289	18	-20	166	89	768º	-717*

† - Overall SACPA effect for White Male/female with low criminal history, no mental health disorders and with no post-conviction earnings
Note: All models controlled for age, race, county crime rate, county population severity, and county-specific inter-agency collaboration
º0.0<p<0.10, * p<0.05, ** p<0.01, *** p<0.001

Table 2: Adjusted Effects of Variables of Interest from Multi-level DID Regression. All Estimates in 2009 USD

re-arrest and re-conviction among female offenders with extensive criminal histories produced substantial increases in costs within this domain, these findings suggest that SACPA participation may not have been cost-effective for the most severely challenged of the special populations assessed: female offenders with co-occurring disorders and an extensive conviction history. Notably, this group made up only 3% of the total sample, suggesting that the total absolute cost associated with these increases was relatively minor.

Post-conviction employment was found to mark robust and substantial savings for both genders independent of SACPA participation, and savings were generally enhanced as the level of earnings increased. These results are in line with previous research showing that employment is an important predictor of success in court-mandated treatment and in SUD treatment generally [52,58].

Our present analysis reveals that SACPA was effective in producing substantially improved effects (as a function of cost) for male, but not female, offenders with serious conviction histories. Unfortunately, it seems that offenders with serious mental health needs did not produce substantial cost benefits from the SACPA program. This finding may not be surprising given the lack of any specific implementation language in SACPA in regard to the possible mental health needs of participants, though it is still troubling and needs to be addressed with, as one option, the provision of appropriate integrated services. Moreover, these results are congruent with the prior finding [52] that the SACPA program is much less effective for women than for men and other research indicating that mental illness is much more common among women than among men [43].

Overall, our results underscore the importance of assessing intervention effects for subpopulations with special needs. While SACPA was intended to divert low-level offenders from incarceration into treatment, once implemented, the program was also utilized by offenders with serious criminal or other histories who required special attention such as mental health services.

Study Limitations

The present findings extend our previous examinations of a statewide substance abuse diversion program by making use of established DID econometrics methods [59] to assess the contribution of individual variability on overall program costs. Still, the study is not without limitations. Linkage between administrative datasets resulted in some degree (i.e., approximately 5%) of misclassification regarding SUD treatment costs, which was corrected where possible using multiple imputation methods [52]. Second, costs of health-resource utilization were only available for individuals eligible for Medi-Cal coverage, an issue that especially affects the interpretation of the increased health care costs among female offenders with mental health diagnoses.

This issue is especially salient given the large discrepancy between the two cohorts in mental health diagnosis, and likely treatment utilization. As COD status was determined based on mental health diagnoses in the 30 months before SACPA participation, it is possible that this discrepancy was due to pre-conviction mental health assessments that may, or may not, be related to SACPA participation. In either case, the difference should be taken into account when interpreting the influence of COD status on SACPA-associated cost savings, and the possibility that serious underreporting of COD status might have occurred in this sample should be noted.

Finally, the fact that SUD treatment data was limited to publicly supported programs limits generalizability, although most treatment occurs within settings that receive some public support, especially for the populations of interest in this paper [60]. This limitation is made more salient by our findings regarding the low prevalence (approximately 2%) of high-earning individuals across both cohorts.

Acknowledgments

Thanks are due to Nicole Jamison-Dinowitz for her assistance in data preparation and to Bohdan Nosyk for editorial review, both of whom are part of UCLA Integrated Substance Abuse Programs. Funding was provided, in part, by the UCLA Center for Advancing Longitudinal Drug Abuse Research (CALDAR) under NIDA grant P30 DA016383. The authors thank the staff of CALDAR for statistical consultation. Adi Jaffe was supported under a postdoctoral fellowship funded through the Anglin Research Fund. This article is dedicated to Douglas Longshore, (deceased December 2005), who guided the SACPA evaluation during its first 6 years; Darren Urada carried the project forward.

References

1. Caulkins JP, Chandler S (2006) Long-run trends in incarceration of drug offenders in the United States. Crime & Delinquency 52: 619-641.
2. Bahr SJ, Masters AL, Taylor BM (2012) What works in substance abuse treatment programs for offenders? The Prison Journal 92: 155-174.
3. Mitchell O, MacKenzie DL, Wilson DB (2012) The effectiveness of incarceration-based drug treatment on criminal behavior: A systematic review. Campbell Systematic Reviews 8: 58.
4. Perry A, Darwin Z, Godfrey C, McDougall C, Lunn J, et al. (2009) The effectiveness of interventions for drug-using offenders in the courts, secure establishments and the community: a systematic review. Subst Use Misuse 44: 374-400.
5. Mumola CJ, Karberg JC (2006) Drug Use and Dependence, State and Federal Prisoners, 2004. Bureau of Justice Statistics, U.S. Department of Justice, USA.
6. Sevigny EL, Pollack HA, Reuter P (2013) Can drug courts help to reduce prison and jail populations? The ANNALS of the American Academy of Political and Social Science 647: 190-212.
7. Etches V, Frank J, Di Ruggiero E, Manuel D (2006) Measuring population health: a review of indicators. Annu Rev Public Health 27: 29-55.
8. Sondik EJ, Huang DT, Klein RJ, Satcher D (2010) Progress toward the healthy people 2010 goals and objectives. Annu Rev Public Health 31: 271-281.
9. Rossman SB, Roman J, Zweig JM, Rempel M, Lindquist C (2011) The multi-site adult drug court evaluation: Executive summary. Urban Institute Justice Policy Center, USA.
10. Turner S, Longshore D, Wenzel S, Deschenes E, Greenwood P, et al. (2002) A decade of drug treatment court research. Subst Use Misuse 37: 1489-1521.
11. Wilson DB, Mitchell O, Mackenzie DL (2005) A systematic review of drug court effects on recidivism. Journal of Experimental Criminology 2: 459-487.
12. Wiseman CM (2005) Drug courts: Framing policy to ensure success. Int J Offender Ther Comp Criminol 49: 235-238.
13. Rysavy P, Cunningham T, O'Reilly-Martinez R (2011) Preliminary analysis of the Northern Territory's illicit drug court diversion program highlights the need to examine lower program completion rates for indigenous clients. Drug Alcohol Rev 30: 671-676.
14. Fielding JE, Tye G, Ogawa PL, Imam IJ, Long AM (2002) Los Angeles County drug court programs: initial results. J Subst Abuse Treat 23: 217-224.
15. Institute of Medicine (2009) Initial national priorities for comparative effectiveness research. Washington, DC, USA.
16. Blackburn R (2007) Personality disorder and psychopathy: Conceptual and empirical integration. Psychology, Crime & Law 13: 7-18.
17. Chaiken JM, Chaiken MR (1990) Drugs and predatory crime. Drugs and Crime (Crime and Justice: A Review of Research. Vol. 13), Tonroy M, Wilson JQ, editors. University of Chicago Press, Chicago, USA, 203-240.
18. Piquero AR, Brame R, Lynam D (2004) Studying criminal career length through early adulthood among serious offenders. Crime Delinquency 50: 412-435.
19. Anglin MD, Perrochet B (1998) Drug use and crime: a historical review of research conducted by the UCLA Drug Abuse Research Center. Subst Use Misuse 33: 1871-1914.
20. Bean P (2008) Drugs and crime. 3rd edition. Willan Publishing, Cullompton, UK.
21. Bennett T, Holloway K, Farrington D (2008) The statistical association between drug misuse and crime: A meta-analysis. Aggression and Violent Behavior 13: 107-118.
22. Jaffe A, Pedersen WC, Fisher DG, Reynolds GL, Hershberger SL, et al. (2009) Drug use, personality and partner violence: A model of separate, additive, contributions in an active drug user sample. Open Addict J 2: 39-47.
23. White HR, Gorman DM (2000) Dynamics of the drug-crime relationship. The nature of crime: continuity and change 1: 151-218.
24. Bartels SJ, Drake RE, Wallach MA (1995) Long-term course of substance use disorders among patients with severe mental illness. Psychiatr Serv 46: 248-251.
25. Drake RE, Mueser KT, Clark RE, Wallach MA (1996) The course, treatment, and outcome of substance disorder in persons with severe mental illness. Am J Orthopsychiatry 66: 42-51.
26. Hasin D, Liu X, Nunes E, McCloud S, Samet S, et al. (2002) Effects of major depression on remission and relapse of substance dependence. Arch Gen Psychiatry 59: 375-380.
27. Minkoff K (2001) Best practices: Developing standards of care for individuals with co- occurring psychiatric and substance use disorders. Psychiatric Services 52: 597-599.
28. McLellan AT, Luborsky L, Woody GE, O'Brien CP, Druley KA (1983) Predicting response to alcohol and drug abuse treatments. Role of psychiatric severity. Arch Gen Psychiatry 40: 620-625.
29. McLellan AT, Alterman AI, Metzger DS, Grissom GR, Woody GE, et al. (1994) Similarity of outcome predictors across opiate, cocaine, and alcohol treatments: role of treatment services. J Consult Clin Psychol 62: 1141-1158.
30. Schmitz JM, Stotts AL, Averill PM, Rothfleisch JM, Bailley SE, et al. (2000) Cocaine dependence with and without comorbid depression: a comparison of patient characteristics. Drug Alcohol Depend 60: 189-198.
31. Mitton C, Simpson L, Gardner L, Barnes F, McDougall G (2007) Calgary Diversion Program: A community-based alternative to incarceration for mentally ill offenders. J Ment Health Policy Econ 10: 145-151.
32. Buck ML (2000) Getting back to work: Employment programs for ex-offenders. Field Report Series. New York, USA.

33. Young NK (2000) TIP 38: Integrating Substance Abuse Treatment and Vocational Services: Treatment Improvement Protocol (TIP) Series 38. U.S. Department of Health and Human Services.

34. Apel R, Bushway S, Brame R, Haviland AM, Nagin DS, et al. (2007) Unpacking the relationship between adolescent employment and antisocial behavior: A matched samples comparison. Criminology 45: 67-97.

35. Sampson RJ, Laub JH (2005) A life-course view of the development of crime. The ANNALS of the American Academy of Political and Social Science 602: 12-45.

36. Uggen C (2000) Work as a turning point in the life course of criminals: A duration model of age, employment, and recidivism. American Sociological Review 67: 529-546.

37. Shepard DS, Reif S (2004) The value of vocational rehabilitation in substance user treatment: a cost-effectiveness framework. Subst Use Misuse 39: 2581-2609.

38. Slaymaker VJ, Owen PL (2006) Employed men and women substance abusers: Job troubles and treatment outcomes. J Subst Abuse Treat 31: 347-354.

39. Arfken CL, Klein C, di Menza S, Schuster CR (2001) Gender differences in problem severity at assessment and treatment retention. J Subst Abuse Treat 20: 53-57.

40. Becker DF, Grilo CM (2006) Prediction of drug and alcohol abuse in hospitalized adolescents: Comparisons by gender and substance type. Behav Res Ther 44: 1431-1440.

41. Brecht ML, O'Brien A, von Mayrhauser C, Anglin MD (2004) Methamphetamine use behaviors and gender differences. Addict Behav 29: 89-106.

42. Hser YI, Evans E, Huang YC (2005) Treatment outcomes among women and men methamphetamine abusers in California. J Subst Abuse Treat 28: 77-85.

43. Grella CE, Scott CK, Foss MA, Dennis ML (2008) Gender similarities and differences in the treatment, relapse, and recovery cycle. Eval Rev 32: 113-137.

44. Grella CE, Joshi V (1999) Gender differences in drug treatment careers among clients in the national Drug Abuse Treatment Outcome Study. Am J Drug Alcohol Abuse 25: 385-406.

45. Marsh JC, Cao D, D'Aunno T (2004) Gender differences in the impact of comprehensive services in substance abuse treatment. J Subst Abuse Treat 27: 289-300.

46. Messina N, Burdon W, Hagopian G, Prendergast ML (2006) Predictors of prison-based treatment outcomes: A comparison of men and women participants. Am J Drug Alcohol Abuse 32: 7-28.

47. Pelissier B, Jones N (2005) A review of gender differences among substance abusers. Crime & Delinquency 51: 343-372.

48. Green CA, Polen MR, Lynch FL, Dickinson DM, Bennett MD (2004) Gender differences in outcomes in an HMO-based substance abuse treatment program. J Addict Dis 23: 47-70.

49. Greenfield SF, Potter JS, Lincoln MF, Popuch RE, Kuper L, et al. (2008) High psychiatric symptom severity is a moderator of substance abuse treatment outcomes among women in single vs. mixed gender group treatment. Am J Drug Alcohol Abuse 34: 594-602.

50. Ashley OS, Marsden ME, Brady TM (2003) Effectiveness of substance abuse treatment programming for women: A review. Am J Drug Alcohol Abuse 29: 19-53.

51. Olmstead T, Sindelar JL (2004) To what extent are key services offered in treatment programs for special populations? J Subst Abuse Treat 27: 9-15.

52. Anglin MD, Nosyk B, Jaffe A, Urada D, Evans E (2013) Offender diversion into substance use disorder treatment: The economic impact of California's Proposition 36. Am J Public Health 103: 1096-1102.

53. Jaffe A, Anglin MD, Nosyk B, Evans E, Urada D (2013) Offender diversion into substance use disorder treatment: Demographic variation in the economic impact of California's Proposition 36. J Alcoholism Drug Depend 1: 140.

54. Jaffe A, Anglin MD, Urada D, Evans (2013) Jurisdictional variation in the economic impact of California's Proposition 36 drug offender diversion program. J Alcoholism Drug Depend.

55. Gardiner C, Urada D, Anglin MD (2011) Band-aids and bullhorns: Why California's drug policy is failing and what we can do to fix it. Criminal Justice Policy Review 23: 108-135.

56. Gardiner C (2011) From inception to implementation: How SACPA has affected the case processing and sentencing of drug offenders in one California county. University of California, Irvine.

57. Evans E, Huang D, Hser YI (2011) High-risk offenders participating in court-supervised substance abuse treatment: Characteristics, treatment received, and factors associated with recidivism. J Behav Health Serv Res 38: 510-525.

58. Grella CE, Stein JA, Weisner C, Chi F, Moos R (2010) Predictors of longitudinal substance use and mental health outcomes for patients in two integrated service delivery systems. Drug Alcohol Depend 110: 92-100.

59. Meyer B (1995) Natural and quasi-experiments in economics. Journal of Business & Economic Statistics 13: 151-161.

60. (2013) New SAMHSA report shows when times are tough, public funding for behavioral health treatment is even more critical. SAMHSA Bulletin.