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Consumer-Operated Service Programs: Monetary and Donated Costs and Cost-Effectiveness

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Objective: Examine cost differences between Consumer Operated Service Programs (COSPs) as possibly determined by a) size of program, b) use of volunteers and other donated resources, c) cost-of-living differences between program locales, d) COSP model applied, and e) delivery system used to implement the COSP model. *Methods*: As part of a larger evaluation of COSP, data on operating costs, enrollments, and mobilization of donated resources were collected for eight programs representing three COSP models (drop-in centers, mutual support, and education/advocacy training). Because the 8 programs were operated in geographically diverse areas of the US, costs were examined with and without adjustment for differences in local cost of living. Because some COSPs use volunteers and other donated resources, costs were measured with and without these resources being monetized. Scale of operation also was considered as a mediating variable for differences in program costs. *Results*: Cost per visit, cost per consumer per quarter, and total program cost were calculated separately for funds spent and for resources donated for each COSP. Differences between COSPs in cost per consumer and cost per visit seem better explained by economies of scale and delivery system used than by cost-of-living differences between program locations or COSP model. *Conclusions and Implications for Practice:* Given others' findings that different COSP models produce little variation in service effectiveness, minimize service costs by maximizing scale of operation while using a delivery system that allows staff and facilities resources to be increased or decreased quickly to match number of consumers seeking services.

Keywords: cost, cost-effectiveness, consumer-operated, volunteer

Introduction

Although Consumer-Operated Service Programs (COSPs)[1] have a relatively long history in delivering health, mental health, and substance abuse services (Campbell, 1998; Chamberlin, E. S. Rogers, & Ellison, 1996; Chamberlin, J. A. Rogers, & Sneed, 1989; Hodges, Markward, Keele, & Evans, 2003), most traditional providers have conceptualized COSPs as simple "self-help groups," auxiliary at best to what are perceived as "real services" (Barlow, Burlingame, Nebeker, & Anderson, 1999). As early as 1975, however, Rappaport argued that the "...highest quality *cost-effec-*

tive mental health care" (p. 811, italics added) could result from pursuing alternatives to a traditional psychiatric model that separated health and mental health. Nevertheless, only in the past decade have outcomes of COSPs begun to be examined and contrasted to the costs of COSPs themselves (Chamberlin et al., 1996; cf. Dumont & Jones, 2001).

Research suggests that COSPs can be as effective as Traditional Mental Health Services (TMHS; e.g., Chamberlin et al., 1996). For example, Marmar, Horowitz, Weiss, Wilner, and Kaltreider (1988) found that women seeking treatment for unresolved grief reactions following death of their husbands benefited as much from a mutual-help group led by non-clinicians as from brief dynamic therapy provided by a clinician. Costs of offering COSPs have been identified as an area needing controlled research (cf. Brems, Johnson, Corey, Podunovich, & Burns, 2004; Solomon & Draine, 2001). Solomon and Draine suggested that costs of COSPs were lower than costs of outpatient TMHS because COSP staff were paid less: equalize staff pay rates and COSP costs would closely approximate TMHS costs, they deduced. Indeed, COSPs seem to make even more extensive use of volunteers and other donated resources than do TMHS. For example, Kaufmann, Ward-Colasante, and Farmer (1993) found that most COSPs had only one paid position; the remainder were volunteers who donated their time to COSPs.

Clearly, empirical investigation of actual costs of COSPs seems called for. Furthermore, it seems critical to distinguish between paid-for and donated time and other resources in this research, and to measure these separately. Several additional factors that might influence costs were considered in the present study, including pro-

gram locale and the approach or conceptual model used.

In the present study, *program cost* is the monetary value of resources, including staff time, facilities, utilities and supplies consumed by a specific COSP. Program *locale* was examined as a possible moderator of costs because higher wages may be paid to persons working in more expensive locations and office space also may cost more. The particular *model* on which a COSP is based could affect costs as well, possibly by limiting the range of staff who could be hired or recruited, and by dictating the physical space needed, e.g., a classroom, a storefront. Program costs for three models of COSP are examined in this paper: i) *drop-in centers*, ii) *mutual support*, and iii) *education/advocacy training*. Other factors investigated included economies of scale and costs of how each COSP model was implemented at each site.

Methods

Overview

The Consumer-Operated Services Program (COSP) Multisite Research Initiative, a multi-year, multisite study funded by the federal Substance Abuse and Mental Health Services Administration, was designed to collect data on costs of offering COSPs in addition to TMHS (Campbell et al., 2006; Guidance for Applicants No. SM 98-004). Each of the eight sites chosen by competitive peer review was located in a different state. Each COSP had been in operation for at least two years, ruling out "set-up" costs as an explanation for cost differences. A steering committee comprised of a) the PI at each site, b) a consumer from each site, c) a representative of the federal funding agency, and d) the PI of the co-ordinating center was responsible for making critical decisions regarding

governance, design, and implementation of the research.

Consumer Participants

Consumers who were currently engaged in TMHS but who had not engaged in COSP recently at one of the study sites were potential participants. More specifically, consumers 18 years of age or older who had a) visited the outpatient TMHS at least 4 times in the prior 12 months and b) at least once in the prior 4 months, but who had c) visited a COSP no more than 3 times in the previous 6 months, were assigned randomly to one of two conditions in the study. At each site, a randomly selected half of eligible consumers were invited to participate in the COSP in addition to an affiliated TMHS, and half were asked to *not* participate in the COSP during the following 12 months. All 1,827 participants (1,096 females, 731 males) provided informed consent. Research procedures had been approved by Institutional Review Boards of all COSPs and all researchers' institutions. The average participant age was 43 years. Slightly less than half (43%) identified themselves as being racial or ethnic minorities in the United States or as belonging to two or more races or ethnicities. Half (51%) had been homeless at least once during their lives. Most participants (82%) had been hospitalized for mental health problems at some point in their lives, with first hospitalization at an average 25.8 years of age. Almost all (96%) had taken prescribed psychiatric medications in the four months preceding the study, and 89% had seen a psychiatrist at least once during the same four months. Almost half (47%) had received primary *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV; American Psychiatric Association, 1994) diagnoses by TMHS of Schizophrenia and Schizoaffective Disorder. Another quarter (25%) were diagnosed with Major

Depressive Disorder, and 18% were diagnosed with Bipolar Disorder I or II. The remainder had Anxiety Disorder, Dysthymic Disorder, and other psychotic diagnoses.

Types and Costs of Consumer-Operated Services Programs

Consensus in the steering committee supported categorization of COSPs into three models: 1) *drop-in centers* (Sites A, B, C, and D), 2) *mutual support* (Sites E and F), and 3) *education/advocacy training* (Sites G and H). *Drop-in centers* provided open venues for consumers to receive a variety of services in a drop-in, voluntary, and noncoercive manner, including a) support and activity groups, b) access to telephones, laundry facilities, and computers, c) assistance with entitlements, d) medication education, e) clothing, and f) transportation passes. *Mutual sup-*

port programs offered individual or group-based support for people with problems associated with substance abuse and mental illness, following principles of empowerment and recovery. Like drop-in centers, mutual support programs helped consumers manage concerns such as those associated with work, recreation, housing, health, and personal relationships. *Education / advocacy training* followed the belief that consumers are best able to manage their own disabilities and to address what is wrong with the mental health system when they have accurate and comprehensive knowledge about mental illness and psychiatric services. These education and advocacy programs used well-defined curricula to impart this kind of information, often in short-term classroom settings.

The number of consumers participating in the different COSPs varied among programs (Table 1). Within-program variations from quarter to quarter were taken into account in the calculation of cost per visit and cost per consumer, as described later.

Data Collection

Each site was asked to provide data on the visits of each consumer to their COSP for each quarter from 2000 through 2002 of the study period. Separate measures of the a) monetary expenditures and b) monetary value of donated resources (including volunteers' time) were reported by each COSP.

Program costs. To avoid unnecessary burden on COSPs, and at the recommendation of the steering committee, COSPs that could report expenditures were not asked to also provide budget

TABLE 1–PROGRAM COST AND COST PER CONSUMER FOR COSPS

Site	Total cost over study period	Number of quarters	Cost per quarter (total cost/ quarters)	Number of consumers visiting program once or more	Average of quarterly cost per consumer	Average of quarterly cost per consumer, adjusted for local cost of living
Drop-In Centers						
A	$463,760	10	$46,376	2,875	$165	$104
B *	$1,432,482	8	$179,060	Not available	Not available	Not available
C *	$235,125	9	$26,125	Not available	Not available	Not available
D	$934,886	10	$93,488	Not available	Not available	Not available
Mutual Support						
E	$294,446	9	$32,716	1,435	$152	$164
F	$1,081,538	10	$108,154	1,491	$1,355	$1,350
Education / Advocacy Training						
G	$291,776	9	$32,419	108	$2,602	$2,286
H	$1,126,415	10	$112,641	3,650	$342	$363
Mean	$732,554	9.4	$78,872	1,912	$923	$853
Median	$699,323	10	$69,932	1,491	$342	$363

*Program provided budget rather than expenditures data.

figures for comparison. If a program could only provide budget or expenditures for an entire year, that figure was divided by 4 to estimate the budget or expenditures per quarter in that year.

Donated resources. Donated materials were added to volunteered time to provide a more complete accounting of the potential "free" resources that COSPs used. Cost estimation guidelines developed by the coordinating center recommended finding the *replacement cost* of a donated resource, explaining that this was the money that would be paid to obtain the services, space, or other resources that had been donated. Guidelines also described donated resources that are common in COSPs. Each site listed each volunteered and donated resource in one column of a spreadsheet, the estimated unit value (e.g., dollars per hour) of the resource in a second column, and the total estimated value of that resource in a third column. Examples were provided of how local rates of pay and cost per square foot could be used to estimate donated resource value, such as multiplying average hourly wages by hours of volunteered service, and rental rates per square foot by the number of square feet of donated space. Donated resource costs were collected quarterly.

Consumers. Each quarter, programs reported the total number of consumers who visited the program one or more times during that quarter. Each program also reported, for each consumer who had consented to be in the study, the number of times they visited that quarter.

Visits. Sites defined a *visit* as was appropriate for their program. For most sites, a visit involved the physical appearance of a consumer in a room or building associated with the COSP. At one site (G), visits included appearances at program facilities, participation in community events sponsored by

the program, and phone contacts with consumers if initiated by COSP staff.

Data reporting and verification. To facilitate timely reporting, a *cost study contact* was designated at each site. This person used spreadsheets developed by the coordinating center, and tailored to each program, to enter program costs and COSP visits by individual consumers in the study. Sites were given detailed instructions, forms, and examples for collection and reporting of cost data. Technical assistance was provided via telephone. Each site emailed the spreadsheets to the coordinating center within the month following each quarter. Sites were given prompt feedback about timeliness of data submission and possible problems with the data provided. After the study period, cost spreadsheets, descriptive statistics, and graphs of cost per visit and cost per consumer for the COSP were emailed to each COSP for possible correction.

Results

COSP costs were calculated as: a) *cost per program per quarter*, b) *average cost per consumer*, and c) *average cost per visit*. Because some programs required more time than others to recruit the number of consumers required by the research design, COSPs operated and provided cost data for 8, 9, or 10 quarters (mean = 9.4 quarters). For each program, average cost per quarter was estimated by summing costs over all quarters for which the program reported costs and visits, then dividing by the number of quarters.

Cost per Program

Program costs per quarter ranged from $26,125 (Site C) to $179,060 (Site B) (Table 1). Notably, both of these sites followed the same, drop-in center model.

Cost per Consumer

Average cost per consumer for a given quarter for a given COSP was calculated by dividing total funds spent that quarter by that COSP by the total number of consumers reported by the COSP to have visited one or more times during that quarter. Average cost per consumer per quarter was calculated by averaging costs per consumer for the quarters in which the program participated in the study. If a program saw no consumers during a quarter at the request of the study Coordinating Center to avoid excessive recruitment during that period, those data were excluded from the study. Only one of the drop-in centers (Site A) could provide data on the number of individual consumers visiting their site. At the other drop-in centers, signing in with one's name conflicted with site philosophy.

For the five programs providing data on the number of consumers visiting per quarter, cost per consumer per quarter is shown in Table 1. Average cost per consumer per quarter was $165 for the drop-in program. Cost per consumer per quarter was highly variable for sites within the remaining two models: cost per consumer per quarter was almost 9 times higher for Site F than for Site E in the mutual support model ($1,355 versus $152), and more than seven times higher for Site G than for Site H in the education/advocacy training model ($2,602 versus $342).

Cost-of-Living Adjustment (COLA)

Inter-program variability in cost per consumer per quarter may be explained, in part, by differences in the cost of living between COSP sites. Cost of living indices for each site's zip code was obtained from CompareCities (2003). COLA was performed by dividing cost per visit by the index, and then multiplying by 100, i.e., COLA'd cost per visit = [(unadjusted cost per visit) / (index)] x 100. COLA indices for Sites A

TABLE 2—COST PER VISIT, WITH AND WITHOUT DONATED RESOURCES

Site	Excluding donated resources	Including donated resources	Savings using donated resources	Percentage of donated resources	Savings as a percentage of cost per visit without donated resources
Drop-In					
A	$10.87	$12.61	$1.74	14%	16%
B	$28.32	$32.96	$4.64	14%	16%
C	$6.65	$8.11	$1.46	18%	22%
D	$19.89	$25.00	$5.11	20%	26%
Mutual Support					
E	$59.97	$164.59	$104.62	64%	174%
F	$156.79	$168.20	$11.41	7%	7%
Education / Advocacy Training					
G	$344.59	$524.37	$179.78	34%	52%
H	$63.30	$64.03	$0.73	1%	1%
Mean	$86.30	$124.98	$38.69	22%	39%
Median	$44.15	$48.50	$4.88	16%	19%

through H were 159.5, 113.4, 120.4, 94.4, 92.5, 100.4, 113.8, and 94.3, respectively. COLA'd cost per consumer is shown in the last column of Table 1.

Cost per Visit

Average cost per visit could be calculated by dividing total cost by total visits, or by averaging cost per visit per quarter over all quarters for which the program provided data. These methods would result in the same figure if visits were the same across quarters; however, when visits vary across quarters, the two approaches can yield different figures because dividing total cost across quarters by total visits across quarters discards information on possible relations between the number of visits made by consumers and the expenditures made by the program. We used the more precise method of averaging the cost per visit per quarter. Total COSP visits to programs ranged from 660 (Site G) to 52,208 (Site D).

Average cost per visit was $92.62 per site, ranging from $8.01 (Site C) to $392.14 (Site G). COLA mitigated variability only modestly. Site G (education/advocacy training model) showed the largest adjustment in terms of absolute value, from $392.14 to $344.59 per visit.

Donated Resources

Table 2 reports average COLA'd cost per visit per quarter at COS sites, excluding and including the monetary values of donated time, space, equipment, and materials. The fourth column shows the savings achieved in these COSPs by mobilizing volunteered time and other donated resources.

Visit costs became more similar for some models by adding the value of donated resources to total program costs for a quarter, and then dividing by the number of visits for that quarter. For example, before adding the value of do-

nated resources, visit costs for mutual support programs ranged from $59.97 (Site E) to $156.79 (Site F). After adding donated resources, visit costs for mutual support programs were quite similar: $164.59 (Site E) and $168.20 (Site F). Adding the value of donated resources to other program costs, however, did not always reconcile disparities. Differences in visit costs for education/advocacy training programs moved even further apart (from $344.59 versus $63.30 to $524.37 versus $64.03 for Sites G and H).

The value of donated resources, relative to purchased resources, also varied between sites. For one (E), donated resources ($104.62 per visit) actually exceeded purchased resources ($59.97 per visit). The percentage of total costs donated is shown in the next to last column of Table 2. For programs following the drop-in center model, donated resources seemed to be an important

portion of total visit costs—between 14% and 20% of total costs. The rightmost column shows a cost-benefit indicator developed by the third author: savings generated by the COSP by using donated resources rather than resources obtained by payment.

Similar patterns were found for effects of adding donated resources to the cost per *consumer* per quarter (Table 3), although without achieving the previously noted similarity of costs for the mutual support programs after adding donated resources. Including donated resources, COLA'd cost per consumer per quarter ranged from $120.31 for the drop-in center to $3,466.13 for an education/advocacy training program.

Correlations Between Consumers Participating in a COSP and Cost per Visit and Cost per Consumer

Some variability between sites in cost per visit and cost per consumer could be explained by negative Pearson product-moment correlations found between these costs and number of consumers participating at least once in the COSP: -.70 for mean cost per visit, and -.70 for mean cost per consumer, including donated resources and following COLA, two-tailed ps = .054, Kendall's tau b = -.79 and Spearman's rho = -.90 for both cost per visit and cost per consumer, two-tailed ps < .01. A succinct explanation of these findings is that *economies of scale* allowed more consumers to participate at less expense per consumer. For example, it is likely that once sufficient funds were obtained to rent space and fund management for a drop-in program, large numbers of consumers could join and visit the program with little additional expense. News of the program's availability would have spread among consumers, further increasing the number of consumers visiting — and thus further reducing the average cost per consumer. Smaller programs with less of a presence in the community may not have been able to raise sufficient funds to rent enough space to encourage visits by more than a handful of consumers. Alternatively, perhaps some programs that generally serve more consumers also require fewer rather than more resources. We explore these possibilities further below.

Discussion

COSPs can cost a little or a lot: variability of COSP costs seems similar to the variability of COSP outcomes (cf. Rogers, Teague, Lichenstein, Campbell, Lyass, Chen, & Banks, 2007). COSP costs found in the present study also are similar to those found for other consumer-oriented and -operated services. Our low pre-COLA figures of $8.01 to $32.11 per visit for drop-in centers are similar to the $8 per visit reported by Holter and Mowbray (2005). When

TABLE 3–COST PER CONSUMER PER QUARTER, WITH AND WITHOUT DONATED RESOURCES, ADJUSTED FOR LOCAL COST OF LIVING

Site	*Excluding* donated resources	*Including* donated resources	Savings using donated resources
Drop-In Centers			
A	$103.57	$120.31	$16.74
B *	Not available	Not available	Not available
C *	Not available	Not available	Not available
D *	Not available	Not available	Not available
Mutual Support			
E	$164.35	$441.21	$276.86
F	$1,349.82	$1,447.47	$97.65
Education / Advocacy Training			
G	$2,286.36	$3,466.13	$1,179.77
H	$362.62	$366.74	$4.12
Mean	$853.34	$1,168.37	$315.03
Median	$362.62	$441.21	$97.65

* Denotes programs that could not identify individual consumers not in the COSP study, and that thus could not calculate cost per consumer per quarter.

the mean pre-COLA'd cost per consumer per quarter was multiplied by four to estimate annual cost, our $3,693 is notably similar to both the $3,684 reported by McKay, Yates, and Johnsen (2007) for the Clubhouse model in 2000 $US, and to the $3,757 reported by Clark, Xie, Becker, and Drake (1998).

As suggested by Dickey, Beecham, Latimer, and Leff (1999), we endeavored to isolate the primary sources of variability in COSP costs per visit and per consumer but neither total expenditures nor model used provided a satisfying explanation of cost variation. Adjusting costs for local differences in cost of living provided only a moderate reduction in cost variability. Adding the monetary value of donated resources reduced cost variability further, but notable disparities remain.

Another explanation offered for differences in monetary cost indices is that differences between sites in the availability of funding for consumer-operated services create different budgets and expenditures — and that volunteered time and other donated resources "take up the slack" left by more severe funding deficiencies at certain sites. Unless the monetary value of these donated resources is included in measures of cost per consumer and per visit, funding differences between sites would be expected to cause cost differences between sites that were more apparent than real. If funding differences between programs were a primary cause of differences in cost figures based on budgets or monetary expenditures, it would be hoped that monetizing donated resources and adding those costs to the value of paid-for resources would provide a more consistent picture of the amount of resources needed to implement different COSP models. That should, in turn, result in more similar total costs per consumer and costs per visit. This was not found consistently for the various implementations of different COSP models. This "donated resources make up the difference" reasoning assumes, however, that a given model would be implemented in the same way at different sites.

The remaining variability in cost seems due at least in part to economies of scale in COSP implementation. Although it can be seen as mundane relative to COSP models used, the manner in which resources were assembled for program activities also could be a determinant of cost per visit and cost per consumer. Sometimes this is referred to as the *delivery system* for services (Kapter & Manderscheid, 1984; Yates, 1996), i.e., the specific methods by which consumer-operated services were provided to consumers. If the COSP model used to guide service delivery is a road map, the delivery system would be the means of transportation used when following the road map, e.g., a speedy but expensive Porsche, a difficult if inexpensive unicycle, or a bus that gets everyone to the destination on time at relatively low expense.

In retrospect, it does not seem especially surprising that the "business end" of the program could affect costs more than the philosophy behind the program. While the model being followed by the program may dictate greater or lesser use of particular resources, such as peer advisors instead of traditionally trained counselors, having a more flexible and adaptable means of providing consumers with services specified by a particular model should allow program managers to adapt to changes in local demand for those services as well as in funding for services. Thus, program *delivery system* and program model can be seen as jointly setting lower bounds on costs— which we conceptualize as the monetary value of resources needed to realize the model in the community in which the COSP operates (see Yates, 1996). How did the COSP programs differ in their operations? Site visits and interviews suggest that the drop-in COSPs generally had low fixed overhead expenses. Inexpensive space was rented or leased, and staff were not paid high salaries.

The two inexpensive programs following the mutual support and education/advocacy training models (Programs E and H in Tables 1, 2, and 3) operated using different, but similarly low-cost and adaptive, delivery systems, at $59.97 and $63.30 per visit for the mutual support and education/advocacy programs respectively (Table 2, second column from left). Both kept meeting costs low, relative to the other mutual support or education/advocacy program in the present study, by renting space for meetings and classes on an hourly or daily basis as needed, using volunteers, and paying staff only for time devoted to meetings and meeting preparation. More expensive COSPs typically had high, fixed costs due to long-term leasing of space for offices, meeting rooms, and classrooms. Staff of some more expensive COSPs also had higher, fixed salaries.

Finally, we note that the present study reports costs, but not the effectiveness, of COSPs. Other research has done so, however, for this same sample and same programs. Briefly, outcomes such as empowerment and well-being were not found to be significantly associated with a specific model of COSP (see Rogers et al., 2007). The site associated with negative effect sizes also proved to be the *most* costly in our study. The present study's findings that service costs vary substantially over sites but not systematically between models suggests strongly that

consumer-operated services can be offered cost-effectively by using delivery systems that maximize responsiveness to consumer demands for services by minimizing fixed costs in the delivery system used. Variability in costs seems to be primarily caused by the way in which the services are delivered, rather than by the particular nature of those services. More efficient program management may well provide services that are less costly and at least as effective.

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1 Consumer-operated service program (COSP) is an umbrella term used to describe programs that are administratively controlled and operated by persons with mental illness and emphasize self-help as their operational approach in delivering peer support services.

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