

Costs and Benefits of Community-Based Drug Rehabilitation in the Philippines

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ABSTRACT

In 2016, the Philippine government's war on drugs led to over one million persons who use drugs (PWUDs) surrendering for treatment. The government declared that 90% of PWUDs, who were low and moderate risk, could be treated through Community-Based Drug Rehabilitation (CBDR). Although there have been evaluations of the impact of CBDR programs, no cost-benefit analysis has been conducted in the Philippines. This study addresses the scarcity of research on CBDR's costs and benefits in developing economies. It focused on 12 local government units (LGUs) from six regions in the Philippines. Interviews with program managers, service providers, and clients were conducted to elicit costs and benefits. The budgets of LGUs for CBDR for fiscal years 2020-2022 were examined. Secondary reports and literature were reviewed to determine valuation assumptions. Results show that CBDR's costs were 12-16% of the cost of inpatient treatment. The cost-benefit ratio indicated that for every peso spent by the LGU, the benefits due to savings amount to P4.40. Clients and service providers also reported intangible benefits such as decreased drug use, increased confidence, and a more positive outlook. Other benefits reported were improvements in family relations, decreased stigma, access to services and employment, and non-interference with education or employment. For LGUs, the investment in CBDR makes economic sense, showing that CBDR is a viable alternative to inpatient treatment, at least for low and moderate risk users. However, challenges to sustainability include resource constraints and the need for integration with health services. Future research expanding sample sizes and exploring other costs is recommended.

Introduction

Universal access to health is an inherent human entitlement, yet its realization faces substantial challenges in developing nations (WHO, 2017). Stigma, discrimination, and the lack of affordable and accessible drug treatment pose formidable hurdles for persons who use drugs (PWUDs) seeking recovery. As such, the World Health Organization (WHO) and United Nations Office on Drugs and Crime (UNODC) International Standards for Treatment of Drug Use Disorders advocate for treatment to be appropriate, available, and accessible (UNODC, 2022).

Community-based drug rehabilitation (CBDR) provides PWUDs holistic care in the form of treatment and wrap-around support services without taking them away from their sources of support and livelihood.

CBDR also involves community members, enabling them to better understand the complexities of drug use, thus reducing stigma and discrimination (UNODC, 2022; DILG, 2018).

The use of CBDR is on the rise globally. Malaysia transformed one-third of its compulsory facilities into Cure and Care facilities that provide outpatient programs and services. Indonesia, Cambodia, Myanmar, and Lao People's Democratic Republic provide CBDR through district hospitals or health facilities. Thailand utilizes a mix of inpatient and outpatient services making use of civil society organizations, temples, and mosques as venues for CBDR. Vietnam provides voluntary treatment through community- or home-based outpatient programs and methadone clinics (UNODC, 2022).

However, there is a dearth of literature on the costs and benefits of CBDR in the Philippines. This study seeks to address this gap in literature by examining the costs and benefits of CBDR.

Cost Benefit Analysis of Drug Treatment

Cost-benefit analysis (CBA) is a method of economic valuation that compares two or more different options in terms of their costs and consequences. In conducting CBA, the cost of an intervention is matched with its benefits, measured in monetary terms. An intervention is desirable if the value of the outcomes is greater than the resources used by the intervention (Guinness and Wiseman, 2011).

CBA has been applied in numerous health programs globally. For example, a recent CBA on social health insurance in the Philippines reports that for every peso spent on health insurance, there is a 3.40 return for those with no education. However, the cost-benefit ratio differs for those with a college education, suggesting that PhilHealth benefits the poor the most (Abrigo, 2023).

CBA has also been applied in drug prevention and treatment programs. Direct costs include the cost of treatment including hospital stays, medical care, and mental health services; costs from criminal activities, lost earnings, and transfer program payments; cost of training; and victimization costs (French, et al., 2000; Storer, 2003; Ettner, et al., 2006; Downey, et al., 2012). Benefits included cost avoidance, reduced costs of crime and increased employment earnings, reduced injury rates, reduced health care costs, and a decline in the onset of substance abuse (Storer, 2003; Downey, et al., 2012; Schwartz, et al., 2014).

A literature review of 19 CBAs between 1970 and 1999 concluded that drug treatment services contributed to the good of society, based on the positive benefit-cost ratios (BCRs). Across these studies, BCRs were positive and ranged from 3:1 to 26:1, indicating the benefit of investing in prevention or treatment programs for substance abuse (Cartwright, 1988). However, the aforementioned studies were conducted in developed countries in the West, and there is a lack of cost-benefit studies on drug rehabilitation in low-resource countries such as the Philippines.

Drug Use and Treatment in the Philippines

In the Philippines, about 2% of the population uses drugs, with methamphetamine and marijuana as the drugs of choice (Dangerous Drugs Board, 2019). The Philippine Drug Law (Republic Act 9165) indicates that, upon voluntary submission, a drug dependent shall be assigned by a court to a drug rehabilitation center for a period of six months to one year. Given this, drug treatment in the Philippines was historically in the form of mandatory and inpatient treatment.

In 2016, former President Rodrigo Duterte launched an anti-drug campaign that involved police knocking on the doors of suspected drug-involved individuals to force them to “surrender” for treatment (Eusebio, 2018; DDB, 2020). The Human Rights Watch reports that Duterte's drug war resulted in almost 5,000 suspected drug users and dealers dying in police operations, with an additional 22,983 homicides under investigation (Human Rights Watch, 2019). Moreover, about 1.2 million people were put on drug watch lists and coerced into treatment (Caliwan, 2021).

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At the start of the Duterte presidency, the country had 31 drug abuse treatment and rehabilitation centers, and by the end of Duterte's term, there were a total of 55 treatment centers. However, as of 2018, admission in these centers constituted only about 5,447 (Lasco & Yarcia, 2022). In 2016, the government inaugurated a 10-hectare mega-center designed to house as many as 10,000 clients. Sadly, a year later, only 400 clients had been treated in the facility because of its inaccessible location and frequent escapes by residents (Lasco & Yarcia, 2022). Then Dangerous Drugs Board (DDB) Chairman Dionisio Santiago admitted that the mega-center was "impractical" and a "mistake." Then Department of Health Secretary Ubial also confirmed that only one percent of patients need inpatient rehabilitation, with the rest only needing outpatient or community-based rehabilitation (Billones, 2017).

The Dangerous Drugs Board (DDB) declared that a great majority of PWUDs are low- and moderate-risk and can be treated through Community-based Drug Rehabilitation (CBDR) programs. It issued guidelines on drug treatment and rehabilitation that begin with screening. Low-risk PWUDs are to be provided with general interventions, prevention, or self-help interventions, whereas moderate-risk clients are to be provided community-based drug treatment. The DDB guidelines also suggested a continuum of services that includes prevention and health promotion, screening and assessment, drug treatment, wrap-around family and community services (i.e., education, livelihood, health, spiritual, recreation, etc.), and relapse prevention and aftercare in various community settings (DDB, 2019).

The responsibility of local government units in drug rehabilitation is enshrined in the Philippine Drug Law (RA 9165, 2002), which stipulates that "Local government units shall appropriate a substantial portion of their respective annual budgets to assist in or enhance the enforcement of this Act, giving priority to preventive or educational programs and the rehabilitation or treatment of drug dependents." In addition, the Local Government Code of the Philippines (Republic Act 7160, 1991) provides autonomy to local governments to deliver local and basic government services, including healthcare. As per the Local Government Code, provincial governments are mandated to provide secondary hospital care, whereas city and municipality governments are responsible for primary care, including maternal and child health, nutrition services, and related direct services, such as the maintenance of city and municipal health units and barangay health centers (Abrigo, et al., 2017).

Given this autonomy, LGUs implement CBDR in different ways. Programs range from faith-based activities, educational seminars, physical exercise, and community service. Rather than being managed within the healthcare system, the responsibility for managing CBDR falls under each LGU's Anti-Drug Abuse Councils (ADACs). Although health professionals are involved in screening and assessment of drug dependence, treatment programs are mostly facilitated by faith-based volunteers, social workers, allied health professionals, law enforcers, or community workers. A study on CBDR implementation in the Philippines reported barriers to service delivery of CBDR, including stigma and discrimination towards drug users, inadequate resources, poor information systems, and a lack of trained personnel to deliver CBDR (Hechanova, et al., 2022).

Despite the multitude of challenges faced by the LGUs in delivering CBDR, some successes have been reported. For example, a popular program utilized is the Katatagan, Kalusugan at Damayan ng Komunidad (KKDK) or Resilience, Health, and Care in Communities. This program is a culturally nuanced program that utilizes Motivational Interviewing, Cognitive Behavioral Therapy, and Mindfulness that focuses on both drug use and mental health by teaching recovery and life skills and fostering family communication (Hechanova, et al., 2018). Evaluation studies on this program have reported evidence of improving the psychological well-being, recovery skills, life skills, and quality of family relationships of participants (Hechanova 2019; Calleja, et al., 2020). However, there has been no study specifically on the costs and benefits of CBDR. As such, this study seeks to fill this gap by examining the costs, benefits, challenges, and enablers of CBDR in the Philippines. Specifically, we asked:

- What are the costs and benefits of CBDR?
- What is the cost-benefit ratio and value of implementing CBDR?
- What are the challenges and enablers to implementing CBDR?

Methods

The study utilized a descriptive, multiple-case study of 12 LGUs in the Philippines implementing CBDR. The LGUs came from six regions: National Capital Region, Regions 4B, 7, 8, 10, and 12. The LGUs were partner sites of USAID RenewHealth, a five-year project (2019-2024) that aimed to expand access to compassionate and evidence-based community-based drug rehabilitation in the Philippines. In coordination with the Department of Health, LGU partners were selected based on prevalence of drug use, island groups (Luzon, Visayas, Mindanao, NCR), size, and income. An important requirement in partner selection was the local chief executive's commitment to adhere to international principles of drug treatment and rehabilitation. For this study, letters were sent to the local chief executives of the project's 19 LGU partners to invite them to participate in the study. Of these, 12 agreed to take part in the study.

Table 1 presents the profiles of LGUs in terms of income class and the number of clients enrolled per year from 2020 to 2022. The majority of LGUs reported an increasing number of clients enrolled per year. The number of clients ranged from 4,013 (highly urbanized city) to 104 clients (5th class municipality).

Table 1 Profile of LGUs

Location	Income class	Clients en-rolled in CBDR (2020)	Clients en-rolled in CBDR (2021)	Clients en-rolled in CBDR (2022)	Total
LGU 1	1st class city	544	646	730	1920
LGU 2	1st class city	990	1318	1404	3712
LGU 3	1st class city	305	305	426	1036
LGU 4	1st class city	0	32	135	167
LGU 5	1st class mun	188	196	202	586
LGU 6	1st class city	399	775	1102	2276
LGU 7	1st class city	39	59	59	157
LGU 8	1st class prov	764	764	764	2292
LGU 9	1st class city	1033	1277	1703	4013
LGU 10	5th class mun	0	54	50	104
LGU 11	1st class city	480	1038	1050	2568
LGU 12	1st class city	857	944	1090	2891
		5599	7408	8715	21722

Data Sources

Data was collected from the 12 LGUs through interviews and the examination of budgets, policies, and reports from 2020 to 2022. The interviews were conducted with CBDR program managers and service providers to elicit the costs and benefits of their programs. Interviewers obtained information on their CBDR programs, clients, human resources, CBDR activities, structure and costs of operations and programs, and sources of funding. Researchers also examined the CBDR budget that was submitted to the

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LGU's Annual Investment Plan. Interviews with clients of CBDR in each of the LGUs elicited costs and perceived benefits of attending the CBDR program. Data on the cost of inpatient treatment were obtained from memorandums and issuances and from interviews with program managers and clients. Other costs such as minimum wage and employment rates were obtained from the Philippine Statistics Authority (PSA).

Data Analysis Procedures

The cost and benefit data were encoded in Microsoft Excel software and checked for accuracy.

CBDR Costs

Costs associated with CBDR were estimated based on data provided by program managers and clients. Similar to the approach of previous CBAs on drug treatment (Miller & Hendrie, 2008; Fujii, 1974), this study estimates the cost of treatment in terms of: 1) program costs, 2) opportunity costs, 3) costs of accessing services, and 4) cost of relapse. The formulas for these are shown in Table 2.

Program costs refer to expenditures related to implementing and maintaining CBDR, such as salaries and allowances for human resources, training and seminars, promotional materials, drug test kits, non-medical consumables, utilities, supplies, transportation, building space, the provision of wrap-around services and aftercare, and other expenses for clients. Opportunity cost is defined as potential lost earnings for clients while attending the CBDR program and was factored into the estimation. To determine the average unemployment rate applicable in this context, the unemployment rate from the Philippine Statistics Authority (PSA) was used. The opportunity cost was then estimated as the number of clients who did not relapse multiplied by the unemployment rate from PSA, multiplied by the minimum wage per region, multiplied by the number of working days missed due to treatment.

Table 2. Computation of Costs and Benefits

Cost Formulas
PROGRAM COSTS = expenses, including the salaries and allowances of CBDR staff, procurement of drug testing kits, acquisition of equipment and office supplies, funding for capacity building initiatives, provision of social services for clients.
OPPORTUNITY COSTS = number of clients who did not relapse X % employment rate X minimum wage per region x number of working days X 12 months
COST OF ACCESSING CBDR = number of enrolled clients per LGU X the average cost of clients.
COST OF CLIENTS WHO EXPERIENCE RELAPSE = number of relapsed clients per LGU per year X the average cost.
COMPUTATION OF BENEFITS
PRODUCTIVITY GAIN = number of clients who completed the program x employment rate x minimum wage x working days per month x months per year.
EARNINGS DURING TREATMENT = number of clients enrolled x employment rate x minimum wage x working days per month x months per year
AVERTED HEALTHCARE COSTS = % of clients who are expected to visit a health facility x average cost of health visit
AVERTED INPATIENT REHABILITATION COSTS = cost of inpatient treatment x number of clients enrolled in LGUs.

Costs of accessing treatment include out-of-pocket costs of clients such as transportation, communication, meals, urine drug tests, and notebooks. On average, the total out-of-pocket cost of accessing program services was PHP 3,822 for a four-month program. The cost of access per LGU was calculated by multiplying the number of enrolled clients per LGU by the average cost incurred by the clients.

As relapse is a normal part of recovery and has been taken into account in previous CBAs on drug treatment, the cost of re-entry to the program in case relapse occurs was also included (American Addiction Centers, 2022; National Institute on Drug Abuse, 2020; Fujii, 1974). A survey of relapse rates revealed a range (40-60% from DDB 2019, 40-60% from National Institute on Drug Abuse, 67.9% from Chiang, et al., 2006, 60.5% from Wang, et al., 2018). For this study, we obtained the average relapse rate and used 59% as the relapse rate, and 41% was the value used for the non-relapse rate. Cost of relapse was calculated by multiplying the average number of relapsed clients per LGU per year by the average cost of access.

CBDR Benefits

In this study, CBDR benefits were positive outcomes or impacts generated by CBDR and expressed in monetary value. Similar to previous CBA studies conducted, this study included four types: 1) productivity gains, 2) earnings during treatment, 3) averted healthcare costs, and 4) averted cost of inpatient treatment (Gerstein, 1994; Hannan, 1976; Fujii, 1974) (see computation in Table 2).

Productivity gains were computed using the 67% employment rate from the PSA, multiplied by minimum wage set by the government per region, and assumed 20 working days per month for six months (DOLE, n.d.; PSA, 2019; InfoPH, 2020). The earnings of working clients while undergoing CBDR were multiplied by the minimum wage in the region and the number of days worked. In this study, we used the following values: NCR: PhP537, Region VII Central Visayas: PhP404, Region IV-B MIMAROPA: PhP320, and Region VIII Eastern Visayas: PhP325.

Prior to the implementation of CBDR, LGUs sent PWUDs to government inpatient treatment rehabilitation centers regardless of the PWUDs' risk level. The averted cost of inpatient treatment was estimated by multiplying the cost of standard inpatient treatment by the number of clients enrolled in LGUs (DOH, 2020). In addition, as pointed out in the literature, substance use could contribute to an increase in healthcare utilization. Therefore, this factor was considered in this study. A study of healthcare utilization by clients showed that 29% of clients visited a health facility over a period of 12 months (Lewer, et al., 2020). Another study also pointed out that substance use could contribute to an increase in healthcare utilization and that CBDR programs avert healthcare costs (Ryan, et al., 2020). As such, averted healthcare costs were considered as savings in this study. This was estimated by multiplying 29% of clients in a particular LGU by \$28.70, which is the average cost of a health facility visit (transport + consultation), regardless of whether the facility is publicly or privately owned (PSA, 2017).

Benefit Cost Ratio and Net Present Value

This study focused on examining CBDR's BCR, which is the benefits divided by the cost of the intervention. From a societal standpoint, any intervention that yields a result greater than one should be implemented. The BCR was calculated based on the estimated cost and benefits of CBDR programs. A BCR that yields a value of more than one means the intervention is worth pursuing (Drummond, 1989; Guinness and Wiseman, 2011). The equation to obtain the BCR was:

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BCR = Present value of benefits/Present value of costs

In addition, the NPV, which is defined as the present value equivalent of all cash inflows less all cash outlays associated with a project, was calculated in this study. If the NPV is greater than zero, the project is worthwhile from an economic standpoint (Andersson, 2007). The equation to obtain NPV was:

$$NPV = \sum_{t=0}^n \frac{Benefits - Costs}{(1 + r)^t}$$

where r is the discount rate; and t is the year.

Results

Cost Estimates

This study examined the costs associated with the implementation of CBDR across three years from 2020 to 2022 (see Table 3). The overall cost increased in 2022 due to the higher number of PWUDs enrolled compared to the previous year, resulting in additional expenses. The average cost per client was computed by dividing the total cost by the number of clients. Average cost per client ranged from P33,426 to P938 with an average of P8,655.

The costs were categorized into program costs, opportunity costs, the expense of accessing CBDR, and the additional cost incurred for clients who experienced relapse. Program costs emerged as the most substantial expense, comprising 49% of total costs. This is followed by clients' costs in accessing CBDR.

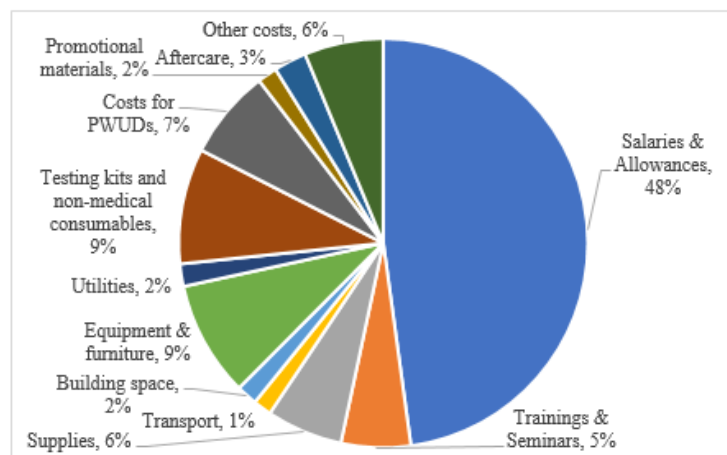


Figure 1 Program Cost (in percentages)

Salaries and allowances constitute a significant portion, nearly half (48%), of the total program costs across all LGUs. Following closely behind are expenses related to testing kits, equipment, and furniture, which collectively account for 9% of the overall expenditure (see Figure 1).

Table 3 CBRDR Costs (in PHP) (2020–2022)

LGU	Program Cost	Opportunity Cost	Cost of Accessing CBRDR	Cost of Accessing CBRDR for PWUDs who Relapsed	Total Costs	Ave cost/client
LGU 1	11,783,948.00	1,748,318.42	2,992,626.00	1,496,313.00	18,021,205.42	9,386.04
LGU 2	9,766,733.00	5,358,830.40	9,172,800.00	4,586,400.00	28,884,763.40	7,781.46
LGU 3	4,447,170.00	401,479.85	913,458.00	456,729.00	6,218,836.85	6,002.74
LGU 4	5,048,500.00	149,600.68	256,074.00	128,037.00	5,582,211.68	33,426.42
LGU 5	1,887,700.00	576,074.27	986,076.00	493,038.00	3,942,888.27	6,728.48
LGU 6	1,832,933.00	437,637.82	749,112.00	374,556.00	3,394,238.82	1,491.32
LGU 7	1,149,000.00	66,985.38	114,660.00	57,330.00	1,387,975.38	8,840.61
LGU 8	4,386,400.00	714,510.72	2,052,414.00	1,026,207.00	8,179,531.72	3,568.73
LGU 9	4,385,012.00	923,475.17	2,526,342.00	1,263,171.00	9,098,000.17	2,267.13
LGU 10	875,736.00	187,837.65	531,258.00	265,629.00	1,860,460.65	17,889.04
LGU 11	1,734,000.00	189,791.91	324,870.00	162,435.00	2,411,096.91	938.90
LGU 12	5,017,420.00	2,305,340.73	5,805,618.00	2,902,809.00	16,031,187.73	5,545.21
TOTAL	52,314,552.00	13,059,882.99	26,425,308.00	13,212,654.00	105,012,396.99	8,655.51

Benefit Estimates

Valuations were computed for four types of benefits: 1) productivity gain, 2) earnings during treatment, 3) averted healthcare costs, and 4) averted inpatient rehabilitation costs. Table 4 summarizes these costs for a three-year period. The largest monetized benefit was in the form of productivity gains (earnings of clients who completed treatment) followed by earnings of clients while going through treatment.

Productivity gain was expressed in this study as earnings of people who had completed the program from full-time work at minimum wage rates. Using the 2019 employment rate from the Philippine Statistics Authority (PSA), it was assumed that 67% of people who have gone through the program are employed at minimum wage set by the government per region and working 20 days per month. This was calculated as the number of clients who completed the program x 67% employment rate x minimum wage x 20 working days per month x 12 months per year.

Since CBDR does not require residential or inpatient treatment, clients can still work and earn while undergoing treatment. Earnings of clients enrolled in CBDR were considered as a benefit. This was calculated by the number of clients enrolled x 67% employment rate x minimum wage x 20 working days per month x 12 months.

Savings in program costs were assumed to accrue from clients who complete CBDR programs without relapsing in a year. This was obtained by calculating the number of clients who do not relapse x the program unit cost. Given the lack of local literature on recidivism, the results of a study in Taiwan on average relapse rate of 59% (Chiang, et al., 2006) was used to estimate the number of clients who relapsed.

Thus, averted healthcare costs were considered as a benefit in this study. It was assumed that a proportion of PWUDs would visit a health facility at least once in the past 30 days, based on a study of healthcare utilization which reported that 29% of clients visited a health facility over a period of 12 months (Lewer, et al., 2020). Another study also noted that substance use could contribute to an increase in healthcare utilization and that CBDR programs help to avert healthcare costs (Ryan and Rosa, 2020). Averted healthcare costs were estimated by multiplying 29% of clients in a particular LGU by PHP 1,469, the average cost of a health facility visit, including transportation, regardless of whether the facility is publicly or privately owned (PSA, 2018).

The averted cost of inpatient treatment rehabilitation was also considered as savings. Prior to the implementation of the program, LGUs sent clients to state-funded inpatient treatment rehabilitation centers regardless of the clients' risk level. The averted cost was estimated by multiplying the cost of inpatient treatment by the number of clients enrolled in LGUs. The analysis assumed that clients go to a counseling session once a week, so a cost comparison was conducted in three scenarios: 1) CBDR Low risk (three sessions) vs. cost of inpatient (one month), 2) CBDR Moderate risk (16 sessions) vs. cost of inpatient (four months), and 3) CBDR Persons deprived of liberty (PDL) who attended CBDR as part of plea bargaining (24 sessions) vs. cost of inpatient (six months).

Table 4 CDDR Benefits (in PHP) 2020-2022

LGU	Total Earnings of 67%Em- ployed PWUDs while in treatment	Savings from Health Facility Visits	Savings from In- patient Treatment Rehabilitation	Productivity Gains	Total Benefits	Ave Benefit/ Client
LGU 1	17,748,080.91	333,543.12	11,745,000.00	33,805,868.40	63,632,492.43	33,141.92
LGU 2	50,715,676.80	1,022,354.40	36,000,000.00	103,619,520.00	191,357,551.20	51,551.06
LGU 3	4,075,628.76	101,809.46	1,912,000.00	7,763,102.40	13,852,540.62	13,371.18
LGU 4	1,518,673.59	28,540.73	1,005,000.00	2,892,711.60	5,444,925.92	32,604.35
LGU 5	5,848,026.66	109,903.10	3,870,000.00	11,139,098.40	20,967,028.16	35,779.91
LGU 6	4,442,686.92	83,492.28	2,940,000.00	8,462,260.80	15,928,440.00	6,998.44
LGU 7	680,003.10	12,779.43	450,000.00	1,295,244.00	2,438,026.53	15,528.83
LGU 8	7,253,366.40	228,751.80	8,055,000.00	13,815,936.00	29,353,054.20	12,806.74
LGU 9	9,374,672.16	281,573.44	3,966,000.00	17,856,518.40	31,478,764.00	7,844.20
LGU 10	1,901,528.34	59,211.36	834,000.00	3,632,070.00	6,426,809.70	61,796.25
LGU 11	1,926,675.45	36,208.39	1,275,000.00	3,669,858.00	6,907,741.84	2,689.93
LGU 12	23,402,701.35	647,065.14	9,114,000.00	44,576,574.00	77,740,340.49	26,890.47
TOTAL	128,887,720.44	2,945,232.63	81,166,000.00	252,528,762.00	465,527,715.07	25,083.61

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CBDR vs. Inpatient Treatment

A cost comparison was conducted between CBDR and inpatient treatment, assuming PWUDs attend a counseling session once a week. Three scenarios were considered: CBDR Low-risk (three sessions) vs. the cost of inpatient treatment (one month), CBDR Moderate-risk (16 sessions) vs. the cost of inpatient treatment (four months), and CBDR for Persons Deprived of Liberty (PDL), who attended CBDR as part of plea bargaining (24 sessions), vs. the cost of inpatient treatment (six months). The cost of CBDR for low-risk clients was PHP 1,533 for three sessions, which is 12% of the cost of one month of inpatient treatment (PHP 13,012). For moderate-risk clients, the cost was PHP 8,176 for 16 sessions, which is 16% of the cost of four months of inpatient treatment (PHP 52,408). For PDLs, the cost of CBDR was PHP 12,264 for 24 sessions, which is 16% of the cost of six months of inpatient treatment (PHP 78,072) (see Figure 2). Conversely, dividing the cost of inpatient by the cost of CBDR, the results show that for low-risk clients, the cost of inpatient is 8.5 times the cost of CBDR. For both moderate-risk voluntary clients and court-mandated clients, the cost of inpatient treatment is 6.4 times the cost of CBDR treatment.

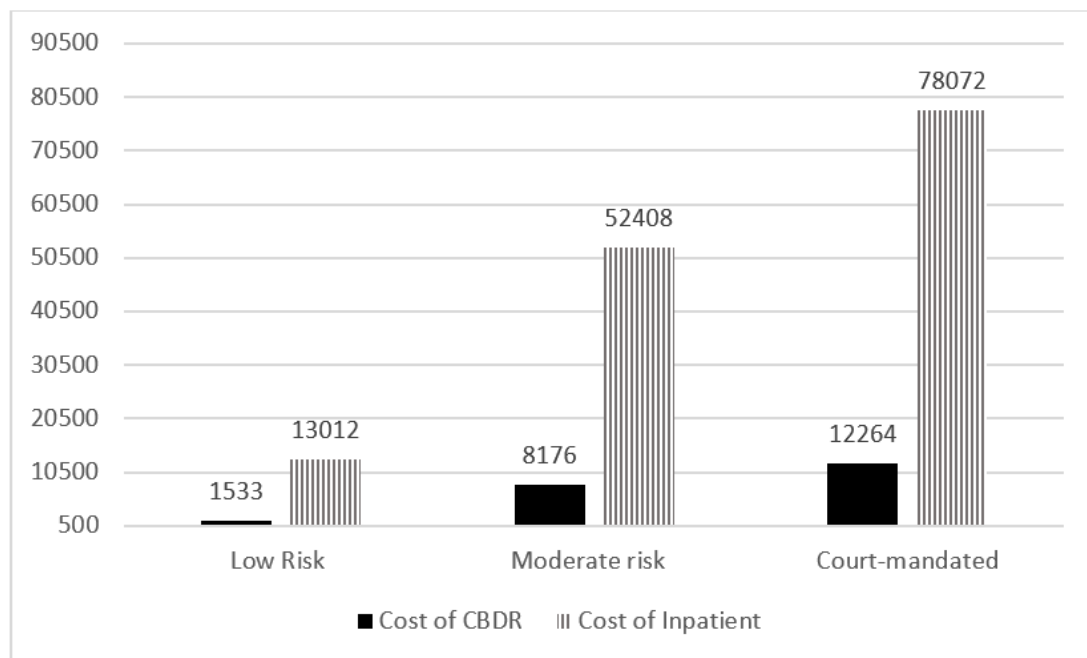


Figure 2 Cost Comparison of CBDR vs. Inpatient Treatment (in PHP)

BCR and NPV

Using the estimated cost and benefit analysis of CBDR, this study computed the benefit-cost ratio (BCR), a vital metric for assessing the viability of program implementation (Table 4). BCR is defined as the ratio of present value of benefits to present value of costs. In this study, the benefit accrued from CBDR amounted to ₱ 465,527,715.07, whereas the costs totaled ₱ 105,012,396.99, resulting in a BCR of 4.4. This means that for every Philippine peso the LGU invests in CBDR, the average return was PhP 4.40, assuming 67% of program clients are employed. A higher positive NPV signifies greater benefits (Gallo 2014). The Net Present Value stood at ₱ 550,952,911.22 for all the 12 LGUs, affirming the program's value as an investment for LGUs.

Table 4 Total Costs and Benefits (in PHP)

LGU	New Total Benefits	New Total Costs	BCR	NPV
LGU 1	63,632,492.43	18,021,205.42	3.5	₱78,765,833.37
LGU 2	191,357,551.20	28,884,763.40	6.6	₱213,010,690.11
LGU 3	13,852,540.62	6,218,836.85	2.2	₱19,310,918.73
LGU 4	5,444,925.92	5,582,211.68	1.0	₱10,548,105.74
LGU 5	20,967,028.16	3,942,888.27	5.3	₱24,072,888.37
LGU 6	15,928,440.00	3,394,238.82	4.7	₱18,663,900.47
LGU 7	2,438,026.53	1,387,975.38	1.8	₱3,675,315.96
LGU 8	29,353,054.20	8,179,531.72	3.6	₱36,208,104.01
LGU 9	31,478,764.00	9,098,000.17	3.5	₱39,137,644.54
LGU 10	6426809.699	1,860,460.65	3.5	₱7,993,283.66
LGU 11	6,907,741.84	2,411,096.91	2.9	₱8,979,235.55
LGU 12	77,740,340.49	16,031,187.73	4.8	₱90,586,990.70
TOTAL	465,527,715.07	105,012,396.99	4.4	₱550,952,911.22

Note: assumes 67% of clients are employed at minimum wage

Intangible Benefits

Even as the cost-benefit analysis provides a quantitative sense of the value of the CBDR programs, there were also several non-quantifiable benefits reported by both clients, service providers and program managers. These included the positive impact on clients, improvement in family relations, non-interference with education or employment, access to services and employment and decrease in stigma.

Service providers and program managers shared the benefits of the program on clients. One LGU representative said “Some PWUDs want to stop but do not know how and where to start – the program opens an opportunity for them to act on their drug dependence.” A service provider reported the positive changes she saw among her clients, “They were able to regain their confidence because they are no longer drug dependent. They also discovered that they can do tasks they thought they could not do like speaking in public. After graduating from the program, some recovering users became facilitators of the program. They learned to take care of themselves and how to behave and interact with people. One graduate shared he continues to use what he has learned from the program to convince others to change.” Another service provider recounted “They now have a better outlook in life, are less irritable, and are less hot-headed. Before, [they] had frequent fights with their wife. But now, [this] has been reduced.”

There is also feedback that the CBDR program facilitated the engagement of families, rebuilt trust, strengthened relationships, and helped reunite PWUDs with their families and communities. One LGU representative said “Before attending the CBDR program, family members usually treat the PWUD as culprits if something is missing even if they are innocent. The program helped the family member realize that it is not only the PWUDs who have issues and there are other causes or reasons for using drugs in the family.”

An LGU representative shared that the program provided ‘one-stop shop’ support to address clients’ needs. Beyond drug treatment, the health needs of PWUDs were addressed through referral to health

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services and facilities. Through the wrap-around services, the program also assisted PWUDs in finding employment. As one LGU representative said “PWUDs are recruited as a recovery coach, co-facilitators or hired by the LGU as messengers in some barangays or *barangay tanod*.”¹ Another LGU representative also said

PWUDs who were not able to finish their studies were provided livelihood training. There was this one PWUD who happily reported to us when he received his first salary after graduating from his welding training.” Some have also opened a small business with the help of the program’s support services.

A program manager shared that, for him, the value of CBDR is that PWUDs are not imprisoned and they can continue to go to school or work and go home to their families while receiving treatment. He added, “The general perception [of a PWUD] is that they are mentally challenged and need to [undergo rehabilitation] in a facility. But not all of them need to be ‘checked-in’ to inpatient facilities. Depending on the severity of drug use, [some PWUDs] can go home to their families and earn a living while eliminating drug use. CBDR gives a chance to live.” However, he also suggested that close monitoring of program clients is important to reduce the likelihood of relapse.

One LGU representative also perceived that stigma and discrimination in the community have been reduced because of CBDR. One LGU representative said, “If there is no [CBDR] program, PWUDs will still feel ashamed of themselves [because the community thinks that they] will never change.”

Enablers and Challenges in CBDR Service Delivery

Despite perceived benefits, service providers and program managers cited a number of challenges in the delivery of the program. The most often cited challenge was the lack of trained personnel: “We don’t have enough trained personnel.” Both program managers and service providers cited the lack of personnel to perform screening, facilitate the counseling program, perform case management, and link clients to partners who can provide wraparound services. The majority of LGUs did not have permanent staff and relied on volunteers to implement the program: “Our personnel are mostly volunteers.”

Other barriers cited were the lack of resources, limited facilities, and outdated or limited equipment: “We don’t have enough budget or facilities.” Currently, financial resources come from LGU budgets. Others suggested a lack of cooperation from community officials: “Some barangay captains are not supportive.”

Still another difficulty reported was obtaining the participation and cooperation of clients’ families. Respondents attributed this to stigma or shame on the part of both clients and their family members. One service provider shared that some clients do not want their families to know they were undergoing treatment. This is a critical barrier because family participation is key to sustained recovery for PWUDs (UNODC, 2022).

Attrition was also cited as a challenge. Clients explained that the program sessions were during weekdays, which conflicted with work schedules. Some LGUs have worked around this by implementing programs on weekends rather than weekdays. However, they also cite that a barrier is the availability of personnel willing to work outside regular hours or on weekends, especially if their facilitators are all volunteers.

Another key difficulty reported is that CBDR is not managed within the health system. Unlike in other countries where CBDR is delivered by health providers or facilities, in many LGUs, CBDR was not implemented through the health system. As such, the CBDR programs could not leverage health workers and budgets.

In terms of enablers, respondents stressed the importance of having committed program managers and facilitators. Capacity-building opportunities for service providers, especially in screening, treatment, and case management, were also cited as critical enablers.

Another key enabler reported in implementing CBDR was having a strong service delivery network and having strong collaboration between the anti-drug abuse personnel, law enforcers, health workers, social workers, and the Bureau of Jail Management and Penology. Key informants also cited the support from civil society organizations and international partners as enablers for CBDR.

Discussion

A review conducted in the US on cost-benefit studies reports benefit-cost ratios ranging from 3.64 for community-based heroin treatment to 23 for outpatient cocaine treatment and 24.7 for outpatient heroin treatment (Cartwright, 1998). However, there has been little research on the cost and benefits of community-based treatment for methamphetamine and marijuana users, and as such, this study fills this gap. The BCR for CBDR was calculated by combining programmatic costs plus the cost of lost earnings with societal benefits in the form of savings to the health system and improved productivity. The BCR values for CBDR indicated that the return is 4.40 times the cost of implementation, assuming 67% of clients are employed, which is similar to that found by Cartwright (1998). The cost of inpatient treatment is six to eight times the cost of CBDR. This is somewhat lower than that reported in a US study reflecting that the cost of adolescent residential treatment is 13 times the cost of an outpatient program (Roebuck, et al., 2003). However, it is higher than what was reported in a study in Vietnam that inpatient treatment is 2.5 times the cost of outpatient methadone treatment (UNODC, 2022). All these suggest that for LGUs, the investment in CBDR makes economic sense and CBDR is a viable alternative to inpatient treatment, at least for low and moderate risk users.

The findings highlight the need for adequate resources in order to ensure the sustainability of CBDR. Currently, CBDR budgets come from the income of the LGU in the form of taxes, revenues, or fees. The amount set aside for CBDR is not legislated and is quite variable. One way to ease the burden of costs for LGUs is to utilize health funds and facilities. This is consistent with a UNODC (2022) report that the majority of countries in Asia deliver CBDR in health facilities and using health budgets. However, this does not appear to be the case for many LGUs whose budgets for CBDR come from peace and order budgets.

A silver lining is that in 2023, PhilHealth launched a mental health package for general services and specialized outpatient services. Unfortunately, the package only covers mental health conditions and does not include substance use. Expansion of this package is necessary to ensure the sustainability of CBDR.

The Universal Health Care law also provides an opportunity to fund CBDR using health funds. For example, CBDR services such as screening, brief intervention, and referral to treatment (SBIRT) can be embedded in primary care as part of PhilHealth's *Konsulta* package. However, this also requires that health workers are capacitated to provide screening. Recognizing this need, the Department of Health has begun to roll out training for Screening, Brief Intervention and Referral to Treatment (SBIRT).

The results show that almost half of the investment in CBDR goes to human resources. This is within the range reported by Roebuck et al. that human resources account for 48% to 88% of the total cost of drug treatment (UNODC, 2022). The rest of the CBDR program costs go to materials, food, and supplies. Some LGUs indicated difficulties in terms of the cost and accessibility of urine drug-testing kits because these are regulated. Having access to drug-testing kits can also help communities, families, workplaces, and schools monitor drug use.

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In other countries, drug test kits are available commercially, similar to COVID-19 kits. There is a need to review the policies and protocols around drug-testing to ensure that these are more accessible.

Stakeholders also suggested the lack of human resources is a major barrier to the sustainability of CBDR. This is not a unique challenge, as other countries such as Indonesia have likewise reported challenges due to uneven distribution of civil servants and inadequate competencies (Lindawati, 2020). From a policy perspective, a barrier cited was the inability to hire regular community-based drug rehabilitation workers because they are not in the plantilla items approved by the Civil Service Commission. One implication is to expand the list of health and allied health workers to include CBDR workers.

The study also highlighted key factors that influence CBDR costs and benefits. These variables are the schedule, frequency, duration of the interventions, and number of PWUDs. Results suggest that the schedule of treatment intervention can potentially affect the ability of clients to work and earn. Some CBDR programs are being run on a weekday, making it difficult for clients who are employed to participate. In addition, lengthy programs can affect the cost of transportation, meals, communication, and earnings of employed clients, which, in turn, affect retention. A randomized control trial of the delivery of virtual CBDR reported that recovery skills decreased in the treatment group compared to a control group with no treatment. The study also reported good participant retention because the sessions were conducted after work hours (Labastilla, et al., 2024). Virtual CBDR may potentially reduce the costs of delivering CBDR and address issues of conflict in schedules.

The results also suggest the need to revise policy and governance structures for CBDR. The DILG and the DDB issued a joint memorandum circular 2018-01, making anti-drug abuse councils (ADACs) responsible for monitoring implementation of CBDR. As per guidelines, the chair of the ADAC is the Mayor of the city or municipality, with the Philippine National Police as Vice-Chair. Although the City or Municipal Health Officer is a member of the ADAC, it is the Police Chief who is the Vice-Chair of ADACs, suggesting a law enforcement orientation. If drug use is to be treated as a mental health problem, having health co-chair the Anti-Drug Abuse Council will balance drug demand reduction and strengthen the role of health. A key reason for this is the Philippine Drug Law (RA 9165) that treats drug use as a crime. If the country is to shift mindsets and resources for drug treatment as a health issue, there is a need to revise RA 9165 that frames drug use as a crime rather than a health issue.

In 2018, the Philippine Mental Health Law (RA 11036) was enacted that recognized drug dependence as a mental health issue. It also mandates LGUs to provide community-based mental health programs (CBMH). However, the development of CBMH appears to be slow given a lack of resources. CBMH programs also appear to exist independently from CBDR programs. If drug use is to be viewed as a health and social issue, there is a need to enhance the integration of CBDR and CBMH. Fortunately, there have been major shifts towards this. In 2023, the Department of Health launched the Philippine Council of Mental Health Strategic Framework that identified the integration of mental, neurologic and substance use care as a priority area. Subsequently, the DOH also dissolved its Dangerous Drug Abuse Prevention and Treatment program and integrated its function under the Mental Health Division. However, much still needs to be done to enable integration of CBDR and CBMH services within primary care and health facilities.

Other opportunities to strengthen synergy and save costs include integrating mental health and substance use in regular health outreach. For example, medical missions can include not only physical checkups but also screening for mental health and substance use. Conducting outreach for substance use within a health setting will not only send the message that drug use is a health issue, but it will also protect the privacy of clients.

Implications for Further Research

One limitation of this study is that the study focused on only 12 LGUs in the Philippines. As such, future studies with larger samples are needed to ensure that the results can be generalizable. Another limitation is that the estimations made were based on certain assumptions, some of which came from international studies (i.e., relapse rates) rather than local studies. In addition, estimation of benefits also used national data (i.e., employment rates) because there was a lack of data on employment of CBDR clients. Future studies are needed to ensure the validity of assumptions made.

The costs of drug use on property damages and the cost to the criminal justice system were not considered in this study. Although there is preliminary evidence of virtual CBDR (Labastilla, et al., 2024), studies on the cost and benefit of virtual modes of delivery are needed.

Conclusion

Limitations notwithstanding, this study adds to the knowledge on the benefits and costs of CBDR. The estimated NPV reveals that the benefits of CBDR far outweigh its costs, and the BCR suggests that for every Philippine peso invested, the return was PHP 4.4. CBDR costs are 12 to 16% of the cost of inpatient treatment and, as such, it is a viable alternative for low and moderate risk drug users. These results bode well in a country like the Philippines with limited resources for health. However, there is a need for greater advocacy to view drug use as a mental health issue rather than a crime. In addition, there is an urgent need to revise policies, structures, and resources to enable the integration of CBDR within the country's health system. Providing both human and financial resources to sustain CBDR ensures that low and moderate-risk users have accessible and affordable drug treatment, fulfilling their fundamental right to health.

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