PACIFIC INSTITUTE FOR RESEARCH AND EVALUATION

An Outcome Evaluation of Drug Treatment in Afghanistan

Executive Summary

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BACKGROUND

A 2018 report found that "Afghanistan remains the world's largest opium producer and exporter" (UNODC/MCN Afghanistan Opium Survey – 2017, Challenges to Sustainable Development, Peace and Security). In US dollars, 2017 "farm gate" revenue from opium production amounted to approximately $1.2 to $1.5 billion dollars or the equivalent to approximately 7% of Afghanistan's estimated Gross Domestic Product (GDP). When including illegal trafficking, the "gross" value of Afghanistan opiate economy is between $4.1 and $6.6 billion dollars or equivalent to between 20% and 32% of the total GDP (UNODC/MCN, 2017). The same survey reported that the total Afghan area under opium poppy cultivation had increased in 2017 by 63% from 2016 and exceeded the formerly highest year of production (2014) by 46%.

While Afghans have used opium for medicinal purposes and to calm children for years, the increase in availability and supply of illicit drugs over the last fifteen years has been associated with an alarming increase in substance use and addiction in Afghanistan. This increase is often attributed to the ravages of living for decades in a war-torn country. War and insecurity compound the issues of severe poverty and dramatic economic and social changes contributing to dire conditions often correlated with drug use (U.S. Department of State, 2011; Maguet & Majeed 2010; Riphenburg, 2004).

In order to address a growing need for drug treatment for Afghans, in 2007 the U.S. Department of State's Bureau of International Narcotics and Law Enforcement Affairs (INL) began funding the operation of a number of Afghan drug treatment centers in partnership with the Colombo Plan Drug Advisory Programme (CPDAP). Currently, there is a network of 103 Drug Treatment Centers (DTCs) across Afghanistan that are funded by different parties and treatment services are provided through residential, outpatient, and home-based treatment modalities. To help ensure that centers utilize evidence-based treatment procedures, the CPDAP has trained center staff on the Universal Treatment Curriculum (UTC). At the time that this evaluation began training had focused primarily on UTC courses 1 and 2 (though additional courses have been trained on since the evaluation began). In addition, CPDAP and UNODC have worked to provide quality monitoring and operational training and technical assistance.

In 2012, the Pacific Institute for Research and Evaluation (PIRE) completed an evaluation of seven residential drug treatment centers for men and women in Afghanistan. This evaluation found significant reductions in illicit drug use, drug use consequences, and criminal behavior for patients who completed primary and secondary treatment in the sampled centers. Due to contextual changes in Afghanistan and the rapid growth of Afghanistan's treatment system, in 2015 PIRE began a second evaluation of the Afghan treatment system. Primary aims of the evaluation are to assess patients' pre-post change in illegal drug use, alcohol use, and criminal behavior after completing outpatient treatment, to assess treatment implementation of the modality-specific treatment maps, and to assess whether treatment outcomes varied by gender, treatment modality, and center sponsor (NGOs or MoPH) in a probability sample of 32 Afghan DTCs that serve adults. The 32 sampled centers participating in the evaluation are located in 18 of the 34 Afghan provinces. Six of the sampled DTCs served adult females exclusively, and 26 served adult males exclusively. Eighteen DTCs utilized a residential treatment modality, 11 utilized a home-based treatment modality, and three utilized an outpatient treatment modality.

SIGNIFICANT STUDY RESULTS: PATIENTS

Illegal Drug Use by Patients

For our assessment of illegal drug use, the sample consisted of 1,022 patients who were interviewed at baseline (within one to five days after completing detoxification) and then again 12 months later after completing primary treatment and nearly all of the planned course of secondary treatment. Patients normally complete primary treatment in 45-90 days (depending on gender and treatment modality) and secondary/follow-up treatment in 12 months. Eight hundred sixty-five (865) patients from the 32 sampled DTCs participated in the post-test interview yielding an 85% study retention rate. We completed urine tests with 100% of the patients immediately after their baseline and post-test interviews. A comparison of our drug testing results to our self-reported interview data showed that our self-reported patient pre-test and post-test interview data were affected by social desirability biases. Although urine testing results may be susceptible to false-positive drug tests, we utilized our drug testing data to correct for social desirability biases in our patient data. To help address social desirability biases, we created adjusted baseline and post-intervention substance use measures by coding a patient positive for use if s/he indicated on the interview that a substance was used or if the drug test indicated that a substance was used. This approach provides a more accurate way of estimating change from pre-test to post-test.

Because false positive bias cannot be corrected at the analysis stage, it should be noted that although urine testing was selected as the primary method for the verification of self-reported drug use, a number of substances can cause the urine test to show a false positive. As a result, in the absence of confirmatory lab testing, urine test results should be interpreted with caution. Note 1 at the end of this document provides details on several substances that can cause false positives with urine tests.

It is also important to note the patient-level study is a pre-post study without a control group. The change in outcomes therefore cannot be attributed entirely to the DTC treatment or to the CPDAP training with the absence of a control group. Ideally, we would have included a control group; however, the research context meant that there was not a feasible way to establish a valid control sample. Establishing a control sample would have required that patients in need of treatment be randomly assigned to receive treatment or to not receive it (until after the study). In addition, establishing a comparison group would require that general population surveys be conducted and that Afghans not entering treatment be tracked over time—something that was not feasible with the financial resources available. In this study, however, since the change in patient behavior was large, statistically speaking, this increases the evaluators' confidence that the treatment is responsible for some of the positive change. A number of other large-scale NIDA studies have also used a similar design without control groups.

This study found evidence suggesting that patients participating in treatment during the time period examined were positively impacted, as there were statistically significant decreases in past 30 days use of any illegal drug, opioids, and alcohol. Bullets below summarize results for 30-day drug use at baseline in comparison to post-test. We report rounded percentages for our dichotomous outcomes, though percentage changes over time are calculated using non-rounded percentages, which are more accurate. Figure 1 presents results for 30-day drug use prior to treatment in comparison to post-test results after completing secondary treatment.

- There were significant reductions in patients use of any illegal drugs. In the 30 days prior to treatment, 100% of patients reported or tested positive for using at least one illegal drug (benzodiazepines, hashish, opioids, sedatives, stimulants, or methamphetamines). **At post-test,**

70% of patients reported or tested positive for using at least one illegal drug. Relative to the baseline prevalence of use, this represents 30% fewer patients using any substance [or an Odds Ratio (OR) of .002]. The 30% decrease in use reported in the current evaluation is larger than the 12% decrease in use reported in the 2012 evaluation.

- There were significant reductions in patients' use of opioids. In the 30 days prior to treatment, 96% of patients reported or tested positive for opioid use. **At post-test, 59% of patients reported or tested positive for opioid use. Relative to the baseline prevalence of use, we report a decrease of 39% in opioid use (or OR=.02).** Five types of opioids were measured: Opium (Apein, Tariak, Tariak, Talkhak, Apiem, Mash), Heroin (Spen Poder, dawa, Shaitan-e-Safid, Malmi, Nesha-e-Sultanathi, Rumia); Crystal (Cristal); Sosigan (Sosigan); Mandrex + Heroin (Ganga wa jamna); and other Opioids/Morphine/Demerol/Darvon. The 39% decrease in reported use is larger than the 31% decrease in use reported in the 2012 evaluation.
- There were significant reductions in methamphetamine use by Afghan treatment patients. In the 30 days prior to treatment, 59% of patients reported or tested positive for using methamphetamines. **At post-test, 32% of patients reported using or tested positive for methamphetamine use (or OR=.21). Relative to the baseline prevalence of use, this represents a 46% decrease in use.** Whereas the current evaluation reports a substantial decrease in use of methamphetamines, in contrast, the 2012 evaluation reported a significant increase in use of methamphetamines from pre-test to post-test.
- There was a significant reduction in alcohol use by Afghan treatment patients. In the 30 days prior to treatment, 6% of patients reported using alcohol. **At post-test, 2% of patients reported using alcohol, which represents a decrease of 67% relative to the baseline prevalence (or OR=.27).** The 67% decrease in alcohol use reported in the current evaluation is slightly smaller than the 76% decrease in use reported in the 2012 evaluation.

Figure 1 (below) graphically presents the results for pre-test to post-test changes in any illegal drug use, opioid use, and methamphetamine use.

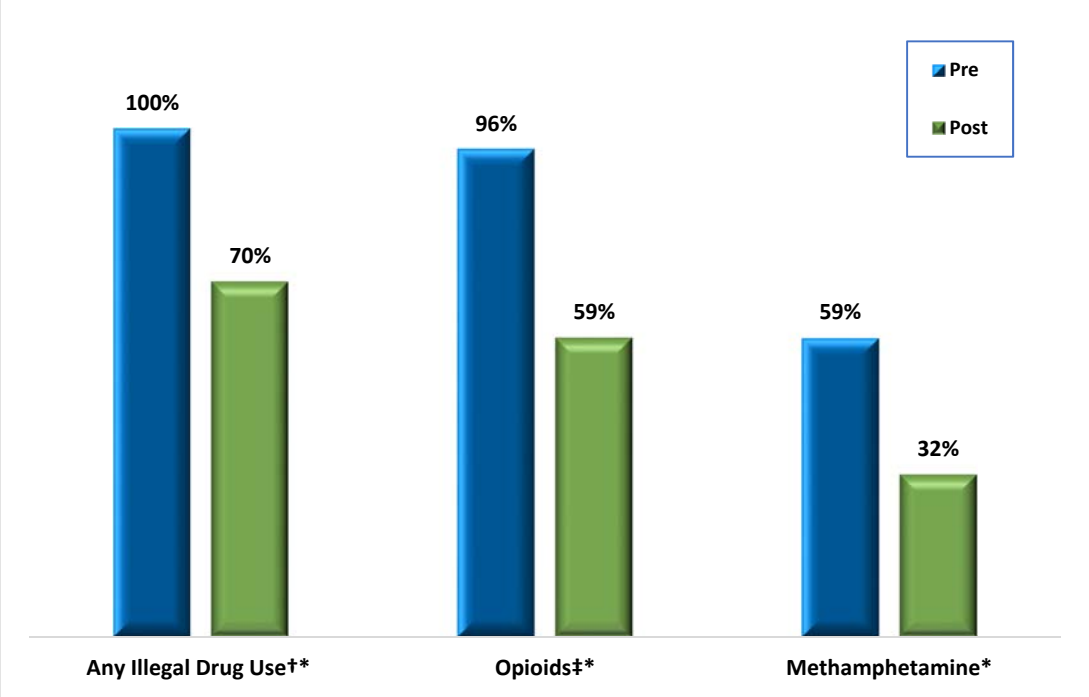

Figure 1. Significant changes in pre-post illegal drug use at baseline and post-test.

Notes: † includes the use of opioids, stimulants, cocaine, methamphetamines, ecstasy, other amphetamines, sedatives, benzodiazepines, barbiturates, other sedatives, hallucinogens, hashish, other hallucinogens, and inhalants

‡ includes opium, heroin, crystal, sosigan, mandrex + heroin, and other opioids such as morphine and Demerol

* Change over time statistically significant, p<.001, two-tailed

Source: Pacific Institute for Research and Evaluation. (2018). *Research Monograph: An Outcome Evaluation of Drug Treatment in Afghanistan.*

Gender Differences in Illegal Drug Use

For our assessment of gender differences in illegal drug use, the full sample was used; 220 of the 1,022 patients (22%) interviewed at baseline were female and 802 (78%) were male. For the post-test interview, 186 of 865 patients (22%) were female and 679 (78%) were male. On average, both genders showed decreases in all substance use, opioids, and methamphetamines.

- Relative to the baseline prevalence, there was a **decrease of 48% in past 30-day use of any illegal drug for female patients (OR could not be computed) and a decrease of 27% for male patients (or OR=.35)**. Though the percent decrease relative to baseline was larger for women, due to differences in sample size, the change was only statistically significant for men (p<.01).
- Relative to the baseline prevalence, there was a **decrease of 50% in past 30 day use of opioids for female patients (or OR=.01) and a decrease of 36% for male patients (or OR=.02).** Both men and women showed statistically significant decreases in past 30-day opioid use (p<.01), but although the decrease was larger for women, there was no evidence to suggest that this difference was statistically significant.

- Relative to the baseline prevalence there was a **decrease of 41% in past 30-day methamphetamine use for female patients (or OR=.35) and a decrease of 47% for male patients (or OR=.20).** This reduction in methamphetamine use was only statistically significant for male patients (p<.01).

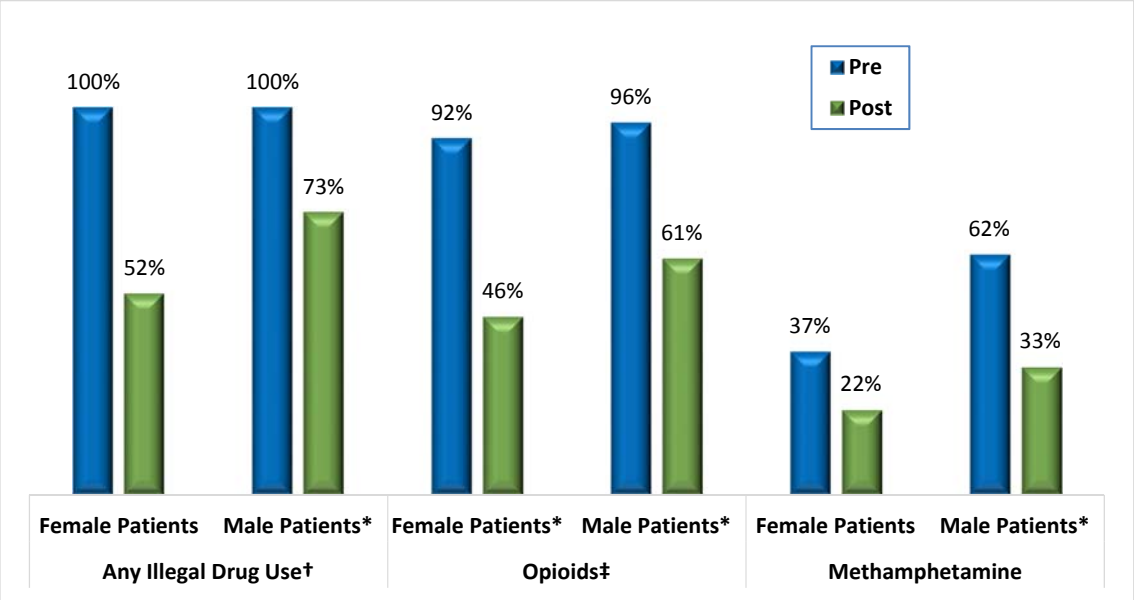

Figure 2. Significant changes in pre-post illegal drug use at baseline and post-test by gender.

Notes: † includes the use of opioids, stimulants, cocaine, methamphetamines, ecstasy, other amphetamines, sedatives, benzodiazepines, barbiturates, other sedatives, hallucinogens, hashish, other hallucinogens, and inhalants
‡ includes opium, heroin, crystal, sosigan, mandrex + heroin, and other opioids such as morphine and Demerol
* Change over time statistically significant, p<.01, two-tailed, for this subgroup

Source: Pacific Institute for Research and Evaluation. (2018). *Research Monograph: An Outcome Evaluation of Drug Treatment in Afghanistan.*

Differences in Illegal Drug Use by Treatment Modality

For our assessment of modality differences in illegal drug use, the full sample was used. On average, patients in all types of treatment centers showed decreases in use of any illegal drugs, opioids, and methamphetamines and there were few differences in treatment outcomes as a result of modality. The differences that were found suggested that inpatient treatment was the most effective treatment modality for reducing illegal substance use by Afghan patients.

- In the 30 days prior to treatment, 100% of patients in residential, outpatient, and home-based treatment modalities reported or tested positive for using at least one illegal drug (benzodiazepines, drugs containing THC, opioids, sedatives, stimulants, or methamphetamines). **At post-test, the percentage of patients who reported or tested positive for use of any illegal drugs decreased to 66% for residential treatment (or OR=.003), 70% for outpatient treatment (OR could not be computed), and 79% for home-based treatment (OR could not be computed).** This decrease was only statistically significant for inpatient treatment (p < .01).

- In the 30 days prior to treatment, 98% of patients in residential treatment reported or tested positive for opioid use, compared to 90% of patients in outpatient treatment and 93% of patients in home-based treatment. **At post-test, the percentage of patients who reported or tested positive for opioid use decreased to 57% for inpatient treatment (or OR=.01), 50% for outpatient treatment (or OR=.05), and 68% for home-based treatment (or OR=.03).** Each of these differences was statistically significant, but inpatient treatment showed the largest decrease in opioid use ($p < .01$).
- 66% of patients in residential treatment reported or tested positive for methamphetamine use, compared to 42% of patients in outpatient treatment and 51% of patients in home-based treatment. **At post-test, the percentage of patients reporting or testing positive for methamphetamine use decreased to 34% for residential treatment (or OR=.16), 15% for outpatient treatment (or OR=.23), and 33% for home-based treatment (or OR=.34).** These decreases were statistically significant for inpatient and home-based modalities, but not outpatient ($p<.01$).

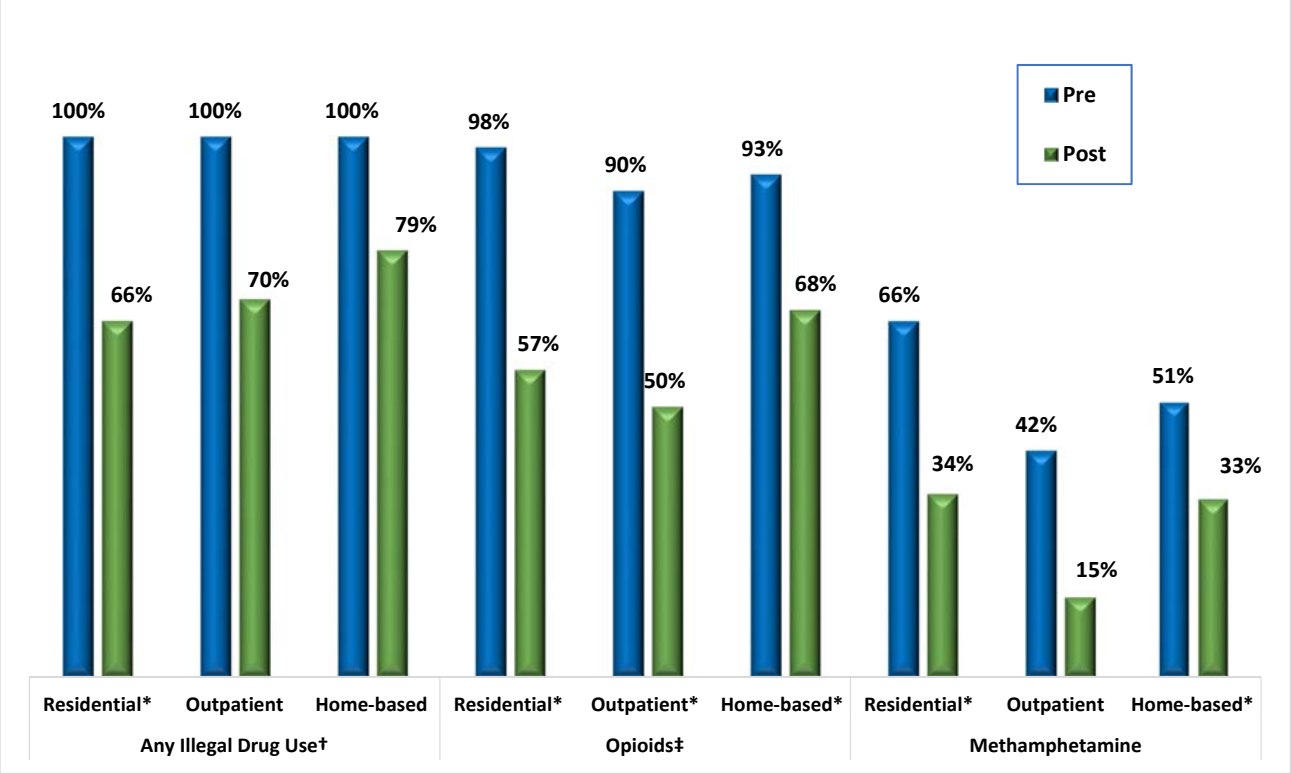

Figure 3. Significant changes in pre-post illegal drug use at baseline and post-test by modality.

Notes: † includes the use of opioids, stimulants, cocaine, methamphetamines, ecstasy, other amphetamines, sedatives, benzodiazepines, barbiturates, other sedatives, hallucinogens, hashish, other hallucinogens, and inhalants

‡ includes opium, heroin, crystal, sosigan, mandrex + heroin, and other opioids such as morphine and Demerol

* Change over time statistically significant, $p<.01$, two-tailed, for this subgroup

Source: Pacific Institute for Research and Evaluation. (2018). *Research Monograph: An Outcome Evaluation of Drug Treatment in Afghanistan.*

Criminal Behavior of Patients

Relative to the baseline percentage, there were statistically significant reductions [generally corresponding to small to medium size effects] in the frequency of self-reported crime-related behaviors among patients from baseline to post-test including:

- The **prevalence of self-reported serious crimes** (such as robbery, arson, and violence against others) in the past month decreased from 5% at pretest to 1% at post-test, **an 80% reduction relative to the baseline percentage (or OR=.36)**. This reduction was statistically significant (p<.05). This compares to a 40% reduction relative to the baseline percentage found in 2012 evaluation
- **The prevalence of self-reported non-serious crimes** (such as forgery, buying and selling stolen property, and theft) in the past month decreased from 20% at pretest to 11% at post-test, a **45% reduction relative to the baseline percentage (or OR=.48)**. This reduction was statistically significant (p<.05). This is very similar to the 48% reduction in non-serious crimes found in the 2012 evaluation.
- **Self-reported arrests in the past six months decreased from 6% at baseline to 1% at post-test, an 86% reduction relative to the baseline percentage (or OR=.21)**. This reduction was statistically significant (p<.05). This is a larger decrease that the 46% reduction relative to baseline observed in 2012.
- **Self-reported arrests in the past month decreased from 4% at baseline to 0% at post-test, a 100% reduction relative to the baseline percentage**. Statistical significance could not be tested due to there being no reported past month arrests at post-test. This is a larger decrease than the 73% reduction relative to baseline observed in 2012.

Figure 4 (below) presents the results for crime-related behaviors graphically.

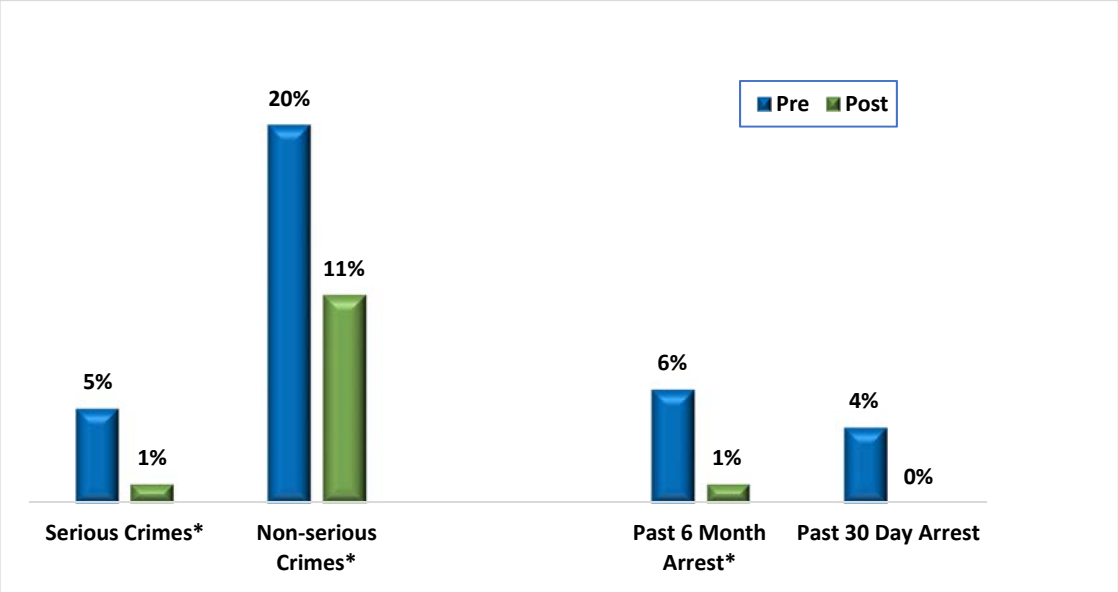

Figure 4. Significant decreases in past month criminal behavior and arrests.

Notes: * Change over time statistically significant, p<.001, two-tailed
Statistical comparisons could be made for 30-day arrests, due to no crime occurring at post

Source: Pacific Institute for Research and Evaluation. (2018). *Research Monograph: An Outcome Evaluation of Drug Treatment in Afghanistan.*

Other Statistically Significant Outcomes

- Patients who had crisis intervention prior to entering treatment were more likely to have a lower level of illegal drug use at post-test.
- Patients who completed primary and secondary treatment were more likely to have a lower level of illegal drug use at post-test.
- Patients who were served by DTCs with adequate staffing levels and by treatment staff with higher levels of treatment experience were more likely to have a lower level of illegal drug at post-test.

STUDY RESULTS: TREATMENT IMPLEMENTATION

A descriptive analysis of the implementation of the planned treatment maps for each treatment modality focused on treatment participation, length of stay, and patient satisfaction. Data for this assessment came from treatment rosters completed by the field team for each patient, (n=1,022 or 99.8% with valid data), treatment logs completed for the project by DTC staff (n=1,022, or 96% with valid data), and from the Program Coordinator's Interview that was conducted with the 32 Center Directors or Program Coordinators (who served as key informants about center-level characteristics).

Treatment Participation and Completion (Treatment Log n=1,022)

- 92% of patients completed primary treatment. Comparing modalities: 92% completed home-based treatment, 92% completed residential treatment, and 100% completed outpatient treatment.
- 62% of patients completed the secondary/post-treatment phase. Comparing modalities: 56% completed home-based treatment, 61% completed residential treatment, and 100% completed outpatient treatment.

Treatment Satisfaction (Post-treatment Interview n=865)

On a scale that ranged from "1=Very Dissatisfied" to "4=Very Satisfied.

- On average, patients reported that they were satisfied with the primary treatment services they received (average rating=3.46). Patients in outpatient treatment had the highest satisfaction ratings (average rating=3.50), while satisfaction ratings for home-based treatment (average rating=3.36) and residential treatment (average rating=3.47) were slightly lower, but still indicated satisfaction with primary treatment.
- On average, patients reported that they were also satisfied with the secondary/post-treatment services they received (average rating=3.46). Patients in outpatient treatment had the highest satisfaction ratings (average rating=3.52), while satisfaction ratings for home-based treatment (average rating=3.45) and residential treatment (average rating=3.25) were slightly lower, but still indicated satisfaction with secondary treatment.

Implementation Fidelity and UTC Knowledge (Program Coordinator's Interview n=32)

- To better understand the extent to which UTC Courses 1 and 2 were implemented as designed (i.e., implementation fidelity) in each center, Directors/Program Coordinators were asked to report on implementation of the basic elements of treatment activities for each treatment

modality. This fidelity instrument for UTC courses 1 and 2 was developed in close consultation with the Colombo Plan and included items relating to each element that may be true or false.

- Generally, implementation fidelity levels were very high, with pre-treatment screening being implemented with 68% fidelity, assessment being implemented with 99% fidelity, and treatment plans with 94% fidelity.
- Of note, 46% of Program Coordinators/Center Directors reported making at least one modification to the eleven core components of UTC Courses 1 and 2.
- Modifications to UTC Courses 1 and 2 varied slightly by treatment mode; there were no outpatient DTCs reporting modifications, but 47% of residential DTCs and 57% of home-based DTCs reported at least one significant modification.
- UTC modifications also varied by DTC operator. Only 20% of NGO-sponsored centers reported making at least one significant modification to the UTC, compared to 44% of MoPH-operated centers. Of note, 60% of centers that transitioned from NGO sponsorship to MoPH operation reported making at least one significant modification to the UTC.
- Because knowledge of the UTC curricula can be considered a precondition to implementing the UTC concepts and processes with fidelity, DTC Program Coordinators were asked a series of knowledge questions about UTC Basic Courses 1 and 2. These questions were drawn directly from practice exams within the UTC manuals. Knowledge levels during the baseline interview were low, with program coordinators scoring 52% for UTC Course #1 and 53% for UTC Course #2. By the post-test interview, observed levels of knowledge had increased slightly to 61% for UTC Course #1 and 60% for UTC Course #2 (this result was not tested for statistical significance).

SUMMARY AND RECOMMENDATIONS

Summary

The results of the Afghanistan drug treatment evaluation show positive change (i.e. statistically significant reductions) in illegal drug use and criminal behavior. Our results suggest that although the reductions in illegal drug tended to be larger for women than men, both genders showed decreases in drug use. Meaningful reductions in substance use occurred in all three treatment modalities (residential, outpatient, and home-based). The differences in treatment modality tended to favor inpatient treatment but were similar overall.

Treatment process results show that 92% of patients completed primary treatment and 62% of patients completed secondary treatment. Through our interviews with Center Directors and Center Program Coordinators, we also found that key elements included on the treatment maps for each residential, outpatient, and home-based treatment modalities generally were implemented with fidelity. However, levels of knowledge UTC concepts and processes were low, averaging just above 50% at pre-test and just above 60% at post-test.

We used our data to understand what treatment factors predicted positive changes in past 30-day drug use. We found that completing primary and secondary treatment predicted reductions in past 30-day substance use. In addition, we found that patients who were served by DTCs with adequate staffing levels and by treatment staff who had higher levels of treatment experience were more likely to have a reduction in illegal drug use from pre-test to post-test. These findings highlight the importance of maintaining DTC staffing levels and further investing in training for Afghan treatment professionals.

As we discuss below in our recommendations, these results have important policy implications and support the use of a "continuum of care" model with patients who relapse.

Recommendations

While results must be interpreted cautiously without a control group comparison, outcomes of the Afghanistan drug treatment study show that, the residential, outpatient, and home-based DTC that participated in the evaluation appear to be making a positive difference in the lives of patients. This success is commendable and critical, given the importance of reducing illegal drug use and opioid use among Afghans. Our experience and results also suggest improvements that can be made. Our recommendations follow below.

1. **Drug treatment centers should provide continued treatment and outreach services to former patients who relapse**. This evaluation found that Afghanistan's drug treatment system was effective in significantly reducing illegal substance use and related consequences for patients who completed primary and secondary treatment. Residential, outpatient, or home-based DTCs were nearly equally effective at providing this treatment. However, a significant proportion of patients reported or tested positive for illegal drug use after 12 months of primary and secondary treatment. This finding suggests that substance use remains a chronic medical condition with high relapse rates and requires repeated treatment aimed at reducing "symptoms" over time rather than setting a goal of complete abstinence. Our results also lend support to the concept of recovery as a process within a "continuum of care" model that incorporates repeated assessments, treatment approaches (e.g., inpatient, monitoring, aftercare) and follow-up aimed at reinforcing goals that eventually lead the drug addicted patient back toward a productive and more healthy life. Afghan DTCs can support this approach to addiction by continuing to try to engage non-abstinent patients in additional courses of treatment services.

2. **Treatment emphasis should continue to be placed on ensuring that patients complete primary and secondary treatment**. Our results showed that completing primary and secondary treatment was a significant predictor of reductions in past 30-day use of illegal drugs. This focus and work should be maintained to help ensure that patients complete both primary and secondary treatment. Despite these efforts, we found that only 62% of patients in our sample reported completing secondary treatment. This is an area in which centers will need one-on-one technical assistance and coaching from Colombo Plan staff to help understand and remove barriers to patients completing secondary treatment.

3. **Ensure Drug Treatment Center staff have ongoing access to training on UTC basic and advanced courses.** Although this evaluation focused just on assessing knowledge about and implementation of UTC Basic Courses 1 and 2 (which in 2015 were the two UTC courses that had been widely trained on in Afghanistan), we found very low levels of knowledge of key concepts and processes from the courses (average knowledge scores fell between 50% and 60%). Because knowledge of UTC concepts, principles, and activities can be considered a necessary precondition for utilizing UTC content in patient treatment plans, efforts should be made to provide booster trainings and refresher trainings on UTC content. Careful attention should be paid to the quality of training delivery as well to ensure that training attendees leave UTC trainings with the knowledge and skills necessary to utilize UTC concepts and processes with fidelity in their Centers.

ENDNOTES

As described above, urine testing was selected as the primary methodology for the verification of self-reported drug use, several substances can cause the urine test to show a false positive. For opioids, false positives can result if the subject is taking cold medications containing Dextromethorphan, pain relievers and other medications containing Codeine, or if the patient has ingested food containing poppy seeds. For THC, false positives can result if the subject is taking pain relievers such as ibuprofen and diclofenac, or if the patient has ingested products containing hemp oil or hemp seed. For methamphetamine, false positives can result if the subject is taking appetite suppressants containing Phenylpropanolamine, medications containing Epinephrine, cold and allergy medications containing Desoxyephedrine, Prescription appetite suppressants containing Benzphetamine, or any prescription medications containing Amineptine (Survector), Chloroquine (Aralen, Roquine), Dopamine (Dopastat), Famprofazone (Geodowin), Fencamfamine (Altimine, Envitrol, Phencamine), Isoproterenol (Isuprel), Mephentermine (Mephine, Wyamine), Mesocarb (Fensidnimine, Sydnocarb), Methoxyphenamine (Orthoxine), Nylidrin (Arlidin), Phenylethylamine, Prenylamine (Segontin), Propranolol (Detensol, Inderal, Novopranol), Ranitidine (Tritec), Selegiline (Carbex, Eldepryl), Thorazine (Chlorpromazine), or Tyramine (Mydrial).

As noted above, we reported rounded percentages for our dichotomous outcomes, percentage changes reported in outcomes across time are calculated using non-rounded percentages, which are more accurate.