

Final Evaluation Report for “Band of Brothers and Sisters”

A Collaborative Project through
the Center for Veterans Issues and Dryhooch

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Executive Summary

This report describes program evaluation results for the *Band of Brothers and Sisters* (BoBS) program. BoBS was a joint project of the Center for Veterans Issues (CVI) and Dryhootch, Inc. It was funded from October, 2010 through September, 2014 by the Center for Substance Abuse Treatment (CSAT; grant #TI023019). The funding was administered through a Recovery Community Services Program (RCSP) grant and was intended to support people with lived experience in providing peer-to-peer recovery support services to people with substance use disorders. CVI served as the primary grantee, and Dryhootch was a subrecipient of the funding.

BoBS was designed to provide peer-to-peer recovery support services to assist veterans with their substance use, mental health, and social and economic well-being. The evaluation of BoBS utilized quantitative data collected through structured interviews with participants using questions required by the Government Performance and Results Act (GPRA). In addition, the evaluation included extensive qualitative data collection to provide a richer description of the BoBS program model and its perceived value.^{1,2}

This evaluation report was prepared by IMPACT Planning Council, the external evaluators for BoBS. IMPACT Planning Council is part of IMPACT Inc., a private, non-profit organization with a mission to change lives, for good. The implementation of the BoBS program and evaluation was the joint responsibility of IMPACT Planning Council and external evaluation team and BoBS program staff. The report presents findings from GPRA interviews conducted with veterans who participated in BoBS at the time of their enrollment in the program and again six months later. It provides a description of all participants who were enrolled (N=658) and also describes the extent to which the participants who completed a six month follow-up interview (N=470) were demographically similar to the full population served. The report then summarizes findings related to the outcomes experienced by participants, including their alcohol/drug use, mental health symptoms, and social and economic well-being. A summary of the key findings presented in this report follows.

BoBS Participant Characteristics

In general, the data suggests that the BoBS project was successful in reaching its intended primary population of focus. It served a larger than targeted number of veterans with substance use issues, many of whom also experienced significant socioeconomic challenges.

Characteristics of all participants served

- *Demographic characteristics:* The 658 veterans who were enrolled in BoBS during the life of the project were generally male (92%), over the age of 45 (71%), and reported their race as either white (46%) or black/African American (41%).
- *Socioeconomic characteristics:* Participants had generally completed high school (38%) or a higher level of education (57%). However, nearly half (45%) reported that they were unemployed at enrollment (not retired or disabled), and nearly two-thirds (65%) were homeless or in unstable housing situations. Although 80% reported having received some income in the month prior to their enrollment, just 14% had received income from wages.
- *Criminal justice involvement:* In addition to the socioeconomic challenges faced by participants, nearly one-third (31%) reported some involvement in the criminal justice system and/or criminal activity (including illegal drug use).

¹ Larson, L., Malcolm, E., & Corbett, M. (2013). *Band of Brothers and Sisters: Perspectives from Peer Coordinators and Peer Leaders*. A publication of the Planning Council for Health and Human Services, Inc.

² Larson, L., Malcolm, E., & Murph, B. (2014). *Band of Brothers and Sisters: Findings from Participant Focus Groups*. A publication of IMPACT Planning Council.

- *Military service history:* All of the participants served reported being veterans. More detailed questions about military service that were added to the GPRA tool in 2012 indicate that BoBS participants had primarily served in the Armed Forces (98%) and were now either retired or separated from service. The information also suggests that over two-thirds of participants (68%) had not been deployed to a combat zone during their service.

Characteristics of participants interviewed at six months

- *Demographic characteristics:* The participants who completed a six month interview were reasonably similar to all of the participants served through BoBS. Specifically, among the 470 participants who completed a six month follow-up interview, 94% were male, nearly three-quarters (74%) were ages 45 or older at the time of their enrollment, and most reported their race/ethnicity as either white (46%) or black/African American (42%).

Outcome Findings

The findings suggest that veterans who participated in BoBS generally experienced positive outcomes from the time of their enrollment to the six month follow-up. Specifically, the findings suggest improvements in participants' substance use, mental health functioning, and social and economic well-being.

Alcohol/Drug Use and Abstinence

- *Alcohol/drug use at enrollment:* Over two-thirds (69%) of participants were not using alcohol or drugs in the 30 days prior to the enrollment interview. For those who reported use at that time (31%), the substances most commonly reported were alcohol, cocaine/crack, and marijuana.
- *Pre-post changes:* There were statistically significant increases in the number of participants who reported abstinence from alcohol/drugs and decreases in days of use for those who used alcohol or drugs in the month prior to enrollment. Overall, 66% of participants were free from alcohol/drugs in the months prior to both the enrollment and follow-up interviews, and 21% had used alcohol/drugs prior to enrollment but were abstinent at follow-up.

Mental Health Functioning

- *Mental health symptoms at enrollment:* Nearly three-quarters (72%) of participants reported experiencing at least one day of mental health symptoms in the month prior to enrollment. The most common symptoms reported by BoBS participants at enrollment were serious anxiety/tension (60%), serious depression (53%), and cognitive difficulties (40%).
- *Pre-post changes:* There were statistically significant (though in some cases, modest) decreases in the number of participants who reported experiencing mental health symptoms. In addition, those who reported symptoms in the month prior to enrollment saw a significant pre-post decrease in the number of days of mental health symptoms. Nevertheless, 63% of participants reported experiencing mental health symptoms in the month prior to the follow-up interview. Among those who did report symptoms at follow-up, many were taking psychiatric medication and/or had recently received mental health treatment to manage their symptoms.

Social and Economic Well-Being

- *Social connectedness:* There were slight increases in the number of participants who reported having someone in their life who they could turn to (87% at enrollment; 95% at follow-up) and who had recent interaction with natural supports (83% at enrollment; 88% at follow-up). However, there was no increase in the number who reported attendance at a self-help group such as AA or NA (55% at enrollment; 53% at follow-up).

- *Employment:* There was a statistically significant decrease in the number of participants who were unemployed (44% at enrollment; 24% at follow-up) and an increase in the number who were employed or enrolled in school/job training (25% at enrollment; 46% at follow-up).
- *Income:* There were statistically significant (though in some cases, modest) increases in the number of participants who reported any income (82% at enrollment; 89% at follow-up) and who reported employment income (13% at enrollment; 24% at follow-up). There was also a statistically significant increase in participants' total monthly income; however, participants' total monthly income remained very limited at follow-up ($M=\$1,044$).
- *Housing:* While there was a statistically significant increase in the number of participants who were in stable housing (36% at enrollment; 53% at follow-up), nearly half of participants (48%) continued to report housing situations that could be considered unstable at follow-up.
- *Criminal justice involvement:* There was a statistically significant decrease in the number of participants who reported any criminal activity or criminal justice involvement (32% at enrollment; 17% at follow-up).

Conclusions and Recommendations

The findings indicate that the BoBS program was largely successful in supporting veterans in their recovery by offering a broad array of peer-to-peer services. The program served a larger-than-targeted number of veterans, and the veterans who were served entered the program with very diverse characteristics and challenges. Nevertheless the results from the six month follow-up interviews suggest that overall, BoBS participants experienced significant positive outcomes in areas of their lives including their substance use and abstinence, mental health functioning, and social and economic well-being.

However, the findings also suggest that many participants continued to experience considerable challenges at follow-up. As CVI and Dryhooch continue to provide and develop their peer-to-peer services, they may benefit from exploring additional strategies to meet the needs of the veterans they serve. Specifically:

- *Co-occurring mental health needs:* The findings suggest that a substantial proportion of BoBS participants continued to report mental health symptoms at follow-up. While the data suggests that many of these participants were also receiving some mental health treatment, it is possible that veterans may benefit from additional support to address their mental health needs, such as assistance in identifying and accessing community services.
- *Income and housing needs:* The findings indicate improvements in participants' income and housing stability overall; however, at follow-up participants' incomes remained limited and many were not yet stably housed. It is possible that the six month follow-up period was not long enough for participants to attain stability in those areas. Additional resources and/or partnerships could be explored to support veterans in achieving economic self-sufficiency and securing permanent housing in the context of the challenges the Milwaukee community experiences in these areas.
- *Veteran subpopulations:* BoBS experienced limited success in enrolling younger veterans and female veterans, two groups specifically targeted by the program. Purposeful outreach and services may help address unmet needs experienced locally by these veterans.

Overall, the findings suggest that BoBS participants made considerable progress in their substance use, mental health, and social and economic well-being. Taken together with the qualitative data on the perceived value of the program, it appears that the BoBS peer-to-peer model is a valuable approach for addressing many of the needs experienced by veterans in Milwaukee.

Introduction

This evaluation report was prepared by IMPACT Planning Council, the external evaluators for the *Band of Brothers and Sisters* (BoBS) program. IMPACT Planning Council is part of IMPACT Inc., a private, non-profit organization with a mission to change lives, for good. IMPACT Planning Council works to advance community health and human services through objective planning, evaluation, and research. The implementation of the BoBS program's evaluation was the joint responsibility of IMPACT Planning Council's external evaluation team and BoBS program staff. The external evaluation team from IMPACT Planning Council was responsible for providing ongoing training and monitoring of GPRA data collection, collecting qualitative data from program staff and participants, conducting the data analysis, providing ongoing feedback to the program, and writing the final evaluation report. BoBS Peer Mentors were responsible for collecting GPRA and process data to document the project's progress towards its goals and objectives.

The BoBS program was funded by the Center for Substance Abuse Treatment (CSAT, grant #TI-023019) and was designed to provide peer-to-peer recovery support services to veterans. The goals of the program included: reducing participants' substance use and increasing their ability to maintain abstinence, improving participants' mental health functioning, and improving participants' quality of life through their social and economic well-being. Services were tailored to each veteran's unique needs and included peer mentoring, peer-to-peer support groups, socialization activities, and linkages to community resources.

The present report summarizes four years of program evaluation results for the BoBS program. The report describes the veterans who participated in the program and pre-post changes that participants experienced six months after their enrollment in the program. It is intended to complement previous qualitative evaluation reports summarizing themes from interviews with BoBS peers and focus groups with BoBS participants.^{3,4} The qualitative reports provide an extensive description of the BoBS model of peer-to-peer services and its perceived value.

The Center for Veterans Issues, Dryhooch, and the BoBS Program

The Center for Veterans Issues (CVI), the primary grant recipient, is a community-based veterans' service organization founded in 1989 in Milwaukee, Wisconsin. Its mission is to serve men and women of our armed forces who find themselves in need after returning to civilian life. CVI programs and services include transitional housing; day services; education, training and employment services; drug and alcohol counseling; mental health services; food and nutritional programs; outreach to the community; motivational and self-esteem groups; money management and budgeting; and permanent housing placements and referrals.

Dryhooch, the subrecipient of the grant, is a peer-run organization formed in 2008 by veterans to assist other veterans in their return home. Its mission is to help veterans who survived the war, survive the peace.⁵ Dryhooch services include one-on-one peer mentoring; peer-led support groups; mobile outreach; a coffeehouse and a Forward Operating Base+ (or FOB) that provide gathering space and resources to veterans, their families, and the community; and training and events to support culturally-responsive services to veterans in the broader community.

³ Larson, L., Malcolm, E., & Corbett, M. (2013). *Band of Brothers and Sisters: Perspectives from Peer Coordinators and Peer Leaders*. A publication of the Planning Council for Health and Human Services, Inc.

⁴ Larson, L., Malcolm, E., & Murph, B. (2014). *Band of Brothers and Sisters: Findings from Participant Focus Groups*. A publication of IMPACT Planning Council.

⁵ Dry+connotes alcohol-free. Hooch+is a name given to a military Quonset hut in Vietnam, which has evolved in common veteran/military parlance to refer to any place of residence or gathering. Thus "Dryhooch" describes an alcohol-free gathering place and garners instant credibility among veterans.

The BoBS program was designed to provide peer-to-peer recovery support services to veterans and their families in the Milwaukee community. Peer-to-peer services are non-clinical services designed and provided by people who have life experiences similar to the population being served.⁶ Peer services are typically directed towards providing emotional support, information and training, concrete assistance, and/or socialization activities. The specific services offered by BoBS included one-on-one mentoring, support groups, socialization activities, and linkages to community services. These services were provided in multiple locations throughout Milwaukee, including at CVI's Veterans Resource Center, at CVI's transitional housing sites, at Dryhooch's coffee shop, and at Dryhooch's FOB. See Appendix A for a list of specific services provided through the program.

The program was designed to engage both male and female veterans in all stages of recovery from alcohol and/or substance use disorders. Services were tailored to the needs and interests of each veteran, with participants choosing the type and amount of services in which they participated. At the outset of their involvement with BoBS, veterans were connected to a Peer Mentor who generally became their primary liaison with the program. Following enrollment, participants had ongoing contact with their Peer Mentor and engaged with support groups, activities, and resources as needed. Given its veteran-directed program model, BoBS did not identify a specific time frame for participation but rather provided an open door to participants. As a result, participants were not discharged unless they specifically requested to be unenrolled from the program.

Data Collection

To comply with the Government Performance and Results Act (GPRA), SAMHSA-funded service programs are required to collect and report data about program participants. Grantees funded through CSAT are required to report data on program participants using the CSAT GPRA Client Outcome Measures for Discretionary Programs. CSAT requires that GPRA questions be asked of all program participants at program enrollment, six months post enrollment, and at discharge.⁷ The GPRA data served as the primary source of outcome information for the BoBS program and is the focus of the current report.

BoBS Peer Mentors administered the GPRA questions to participants in an interview format at the time of their enrollment in the program. Data from these enrollment interviews served as a baseline description of the participants with respect to their demographic and socioeconomic characteristics, substance use, mental health symptoms, and social and economic well-being. Participants were then interviewed six months after their enrollment date, again using the GPRA tool. Participants who completed the six month interview were provided an incentive worth \$20 for their time. The data from the six month interviews served as a follow-up measure of participants' substance use, mental health, and social and economic well-being.

It must be noted that the GPRA guidelines provide a three-month window of time during which follow-up interviews may be conducted (one month prior and two months after the participant's six month anniversary date). Therefore, the six month interviews were conducted anytime between five and eight months after the enrollment interviews. The average length of time between the enrollment interview and the six month follow-up interviews was 6.5 months (mean=197.9 days; median=198.0 days). Enrollment interview data was collected for all participants admitted to the program from April 21st, 2011 through the close of the grant period (i.e., September 29th, 2014).

⁶ Center for Substance Abuse Treatment. (2009). *What are Peer Recovery Support Services?* HHS Publication No. (SMA) 09-4454. Rockville, MD: Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services.

⁷ Because the BoBS program did not discharge participants unless specifically requested, with approval from SAMHSA discharge data was not collected for program participants.

Report Overview and Limitations

The present report first describes the full set of veterans who participated in the BoBS program. Data from the enrollment interviews are used to describe the enrolled participants with respect to demographic and socioeconomic characteristics. The report also provides a similar description for those participants who completed a six month follow-up interview (comparing them to all participants).

The remainder of the report focuses on the participants who completed a six month follow-up interview. It provides comparisons between enrollment and six month follow-up data related to the BoBS program's goals. Specifically, pre-post changes on indicators of participants's substance use, mental health symptoms, and social and economic well-being are explored. Chi-square and paired t-tests are used to describe the statistical significance of pre-post differences when appropriate.

The analysis of the results has several limitations. Specifically:

- The analysis includes only those participants who completed a six month follow-up interview. Although the follow-up rate was relatively high (81.7%), it is possible that participants who did not complete a follow-up interview entered the program with different challenges or had different outcomes than those participants who completed a follow-up interview.
- The analysis is based on self-report data and was collected by the Peer Mentors themselves. Although the approach to the program evaluation interviews was designed to support the integrity of the data, it is possible that some participants may not have been fully candid in their responses.
- The analysis is limited to the information gathered in the interviews. Although the questions included in the interview cover many aspects of participants' lives, inevitably they are not fully representative of participants' life experiences either prior to entering the program or at follow-up. For example, although the interviews included basic information about participants' mental health symptoms, a more thorough assessment of mental health (e.g., Posttraumatic Stress Disorder) was not available.

Despite these limitations, the data included in the report is the most comprehensive data available to evaluate the outcomes for veterans who participated in the BoBS program.

Description of BoBS Participants

Between April 21st, 2011 and September 29th, 2014 a total of 658 enrollment interviews were conducted with veterans participating in BoBS peer-to-peer recovery support services. These veterans were considered to be enrolled in the BoBS program and their data was entered into the CSAT GPRA data entry and reporting system. The total number of veterans served over the four-year grant period was considerably higher than originally anticipated, with the program enrolling 117.5% of the targeted 560 veterans.

Description of all Veterans Served by BoBS

Data from the GPRA interviews was used to describe the enrolled veterans with respect to their demographic, socioeconomic, and other descriptive characteristics. A description of the total number of veterans served through the BoBS program follows.

Demographic Characteristics

The 658 veterans who were enrolled in the BoBS program as of September 29th, 2014 were generally male, over the age of 45, and reported their race as either white or black/African American. Table 1 details the demographic characteristics of the 658 BoBS participants.

Table 1: Demographic characteristics of BoBS program participants (N=658)

Gender	N	%
Male	605	91.9%
Female	52	7.9%
Transgender	1	0.2%
Age at Enrollment^a	N	%
18 to 24 years	17	2.6%
25 to 34 years	91	13.9%
35 to 44 years	80	12.2%
45 to 54 years	226	34.5%
55 to 64 years	203	30.9%
65 years or older	39	5.9%
Age statistics (in years)	Mean=49.2 Median=52.0	Range=19-88 SD=11.9
Race/Ethnicity^b	N	%
White (Non-Hispanic)	273	46.3%
Black or African American	243	41.2%
Hispanic or Latino	30	5.1%
American Indian or Alaskan Native	15	2.5%
Asian or Pacific Islander	2	0.3%
Multi-racial	27	4.6%
Family Status at Enrollment^c	N	%
One or more children	405	61.6%
No children	252	38.4%
Statistics on Number of Children	Mean=2.6 Median=2.0	Range=1-11 SD=1.8

^a N=656, with two participants missing data on their age at enrollment.

^b N=590, with 68 participants missing data on their race/ethnicity.

^c N=657, with one participant missing data on their family status at enrollment.

As Table 1 shows, 92% of the participants were male, and 8% were female. Nearly three-quarters (71%) were ages 45 or older at the time of their enrollment, while only 17% were under the age of 35. In addition, BoBS participants primarily reported their race/ethnicity as white (46%) or black/African American (41%), with smaller numbers reporting their race/ethnicity as Hispanic/Latino (5%), multi-racial (5%), American Indian/Alaskan Native (3%), and Asian/Pacific Islander (<1%). Approximately 60% of the participants reported that they had one or more children; however it is not known whether these participants were actively parenting their children at the time of their enrollment in the program.

Socioeconomic Characteristics

BoBS participants had generally completed high school or a higher level of education, and most reported having received some income in the month prior to their enrollment. However, nearly half reported that they were unemployed (not retired or disabled), and nearly two-thirds were homeless or in unstable housing situations. Table 2 details the socioeconomic characteristics of the 658 BoBS participants.

Table 2: Socioeconomic characteristics of BoBS program participants (N=658)

Highest Level of Education Completed^a	N	%
8 th grade or below	3	0.5%
9 th to 11 th grade	33	5.0%
High school diploma / GED	249	37.9%
Some college or vocational / technical school	287	43.7%
Bachelor's / vocational degree or higher	85	12.9%
Employment Status at Enrollment	N	%
Employed full or part time	105	16.0%
Enrolled in school or job training program	68	10.3%
Retired	39	5.9%
Disabled	150	22.8%
Unemployed	296	45.0%
Housing Situation at Enrollment^b	N	%
Owned or rented a home, apartment, or room	232	35.3%
Someone else's home, apartment, or room	58	8.8%
Shelter, street, or halfway house	279	42.5%
Institution or residential treatment	88	13.4%
Income at Enrollment^c	N	%
Any income in previous 30 days	460	80.1%
Income from wages	78	13.6%
Public assistance income	226	39.4%
Disability income	205	35.7%
Retirement income	39	6.8%

^a N=657, with one participant missing data on their highest level of education completed at enrollment.

^b N=657, with one participant missing data on their housing situation at enrollment.

^c N=574, with 84 participants missing data on their sources of income at enrollment.

As seen in Table 2, 38% of the participants had completed high school or had obtained a GED, and 57% had completed some education beyond high school. At the time of their enrollment in BoBS, one-quarter were either employed (16%) or enrolled in school or job training (10%), approximately 30% were disabled (23%) or retired (6%), and the remaining 45% indicated they were unemployed. In general, participants reported living in unstable housing situations most of the 30 days prior to the enrollment interview, with 43% staying in a shelter, on the street, or in a halfway house; 13% staying in an institution (e.g., jail, hospital) or residential treatment; and 9% staying in someone else's home, apartment, or room.^{8,9} One-third of participants (35%) reported potentially-stable housing in their own house, apartment, or room. Although 80% of participants reported some income in the 30 days prior to the interview, just 14% received income from wages; the most common sources of income reported by participants were public assistance (39%) and disability income (36%).

In addition to the socioeconomic challenges faced by BoBS participants, approximately 30% of the participants served over the life of the grant (31.2%, n=203) reported some involvement in the criminal justice system and/or criminal activity in the 30 days prior to enrollment.¹⁰ Specifically:

- 10.7% (n=70 of 653) reported that they were currently on probation or parole;
- 12.5% (n=82 of 654) reported that they were currently awaiting charges, trial, or sentencing;
- 14.9% (n=98 of 658) reported having committed a crime in the previous 30 days (including the use of illegal drugs);
- 3.0% (n=20 of 657) reported being arrested in the previous 30 days; and
- 2.4% (n=16 of 656) reported being in jail or prison for some or all of the previous 30 days.

Information from the program also suggests that a fair number of participants were involved with Milwaukee County's Drug Treatment Court and/or its Veterans Treatment Initiative.¹¹ While the exact number of BoBS participants who were also participants in these programs was not available, their criminal justice involvement may or may not be reflected in the GPRA data depending on their situations and how their charges were being handled.

Military Service

The BoBS program was designed to provide peer-to-peer recovery support services to veterans. As a result all of the participants who were enrolled in the BoBS program as of the end of the grant reported that they were veterans.

⁸ Among the 279 participants who reported living in a homeless shelter, on the street/outdoors, or in a halfway house during most of the 30 days prior to enrollment, 94.6% (n=264) reported living in a homeless shelter. Only a small number of participants reported living on the street/outdoors (n=10) or in a halfway house (n=5).

⁹ Participants who reported staying in the house, apartment, or room of a friend or family member may or may not have been paying rent. As a result, the stability of their housing situations is not fully known.

¹⁰ N=651 participants with data on all criminal justice involvement items at enrollment. Total N's vary slightly for each item.

¹¹ Milwaukee County's Drug Treatment Court is a problem solving court that seeks to divert non-violent offenders with substance abuse problems from the prison system. The Veterans Treatment Initiative is a specialized track of the Drug Treatment Court which launched in 2012. It offers treatment and support services (including connection to a Peer Mentor) in addition to deferred prosecution, deferred sentencing, or enhanced probation agreements to veterans entering the criminal justice system.

More detailed questions regarding military service were added to the GPRA tool in February 2012. These questions provide more specific information about the military service histories of the 496 veterans who were interviewed after the new questions were added. Overall, the information about these veterans indicates that they were primarily retired or separated following service in the Armed Forces. In addition, the information suggests that over two-thirds of these veterans had not been deployed to a combat zone during their service. Specifically:

- 97.4% of the participants (n=483) reported that they were retired or separated from the military, while just 2.6% (n=13) reported that they were still on active duty at the time of the enrollment interview.¹²
- 97.8% of the participants (n=485) reported that they had served in the Armed Forces, while a small number had served in the Reserves (1.6%, n=8) or the National Guard (0.6%, n=3).¹³
- 68.1% of the participants (n=333) reported that they had never been deployed to a combat zone during their military service. For the remaining 31.9% (n=156) who reported that they had previously been deployed to one or more combat zones:¹⁴
 - 46.2% (n=72) reported previous deployment to Iraq or Afghanistan;
 - 19.2% (n=30) reported previous deployment to the Persian Gulf;
 - 22.4% (n=35) reported previous deployment to Vietnam or southeast Asia;
 - 2.6% (n=4) reported previous deployment to Korea; and
 - 12.8% (n=20) reported previous deployment to another combat zone (e.g., Bosnia, Somalia, etc.).

Taken together, the 658 veterans who were enrolled in the BoBS program over the life of the grant (i.e., April 21st, 2011 to September 29th, 2014) were generally male, over the age of 45, and reported their race as either white or black/African American. Most had completed high school or a higher level of education, and most reported some income in the month prior to their enrollment. At the time of their enrollment, nearly half reported that they were unemployed (not retired or disabled), nearly two-thirds were homeless or in unstable housing situations, and nearly one-third reported some involvement in the criminal justice system or criminal activity (including illegal drug use) in the previous 30 days. Finally, available data suggests that the veterans who were served were primarily retired or separated from the Armed Forces, with approximately one third reporting prior deployment to combat.

Description of Participants Interviewed at Six Months

Among the 658 veterans who were enrolled in the BoBS program, a total of 575 became due for a six month follow-up interview during the grant period (i.e., at least six months had elapsed since the date of their enrollment interview). BoBS Peer Coordinators reached out to these participants to complete the six month GPRA interview when they became eligible for follow-up.¹⁵ As of the end of

¹² N=496 participants who received the GPRA questions related to their military service history.

¹³ N=496 participants who received the GPRA questions related to their military service history.

¹⁴ N=489. Note that participants could indicate past deployment to one or more combat zones; however, nearly all of the participants who reported past deployment (96.8%, or 151 of 156) reported having previously been deployed to just one combat zone at the time of the enrollment interview.

¹⁵ GPRA guidelines provide a three-month window during which a participant's follow-up interview may be conducted. Specifically, the participant's follow-up window opens one month before their six month anniversary date and closes two months after their six month anniversary date.

the grant, a total of 470 participants completed a six month interview, resulting in a cumulative follow-up rate of 81.7% for the BoBS project.¹⁶

The enrollment and follow-up interview data was reviewed to determine the extent to which the 470 participants who completed a six month interview were representative of the full set of 658 participants who were served by the BoBS program. The participants who completed the follow-up were compared to the full set of participants with respect to their basic demographic characteristics, including their gender, age and race/ethnicity. Detailed information regarding these comparisons can be found in Appendix B.

Among the 470 participants who completed a six month follow-up interview, 93.6% (n=440) were male, and 6.2% (n=29) were female. Nearly three-quarters (73.9%, n=346) were ages 45 or older at the time of their enrollment, while 15.6% (n=73) were under the age of 35.¹⁷ In addition, the participants who completed both the enrollment and follow-up interview primarily reported their race/ethnicity as white (45.6%, n=190) or black/African American (42.2%, n=176), with smaller numbers reporting their race/ethnicity as Hispanic/Latino (4.6%, n=19), multi-racial (5.0%, n=21), or American Indian/Alaskan Native (2.6%, n=11).¹⁸

With respect to their basic demographic characteristics, the participants who completed a six month interview were reasonably similar to all of the participants served through the BoBS program. Given the comparability in these characteristics and the relatively high follow-up rate (81.7%), it appears that the participants interviewed were demographically representative of all participants in the BoBS program.

¹⁶ The 81.7% follow-up rate achieved by the BoBS project exceeded the 80% benchmark set by SAMHSA.

¹⁷ N=468, with two participants missing data on their age at enrollment.

¹⁸ N=417, with 53 participants missing data on their race/ethnicity.

Outcome Findings

Alcohol / Drug Use and Abstinence

The BoBS program was designed to provide peer-to-peer recovery support to veterans in all stages of recovery from alcohol and/or drug abuse. As a result, some participants may have already experienced some period of sobriety at the time of enrollment, while others may have been actively using substances when they began participating in the program. BoBS services were geared towards assisting those who entered the program alcohol- and drug-free to maintain their abstinence. For those who enrolled while actively using alcohol and/or drugs, BoBS peer-to-peer services provided encouragement, assistance, and support in accessing appropriate treatment services to begin working towards long-term recovery.

The enrollment and follow-up GPRA interviews included specific questions regarding participants' use of alcohol and illegal drugs in the 30 days prior to the interview. GPRA data for the 470 participants who completed both the enrollment and six month follow-up interviews was analyzed to explore the extent to which BoBS participants maintained abstinence or decreased their substance use. Specifically, the analysis examined: 1) participants' alcohol/drug use at the time of their enrollment in BoBS, 2) pre-post changes in the number of participants who were abstinent from alcohol/drugs, 3) pre-post changes in the number of reported days of alcohol/drug use among those who reported use at enrollment, and 3) case-specific patterns of pre-post alcohol/drug use.

Alcohol and Drug Use at Enrollment

Information from the enrollment interviews indicates that many of the participants who completed both an enrollment and a follow-up interview had refrained from using alcohol or drugs in the month prior to entering the BoBS program.¹⁹ Specifically, 68.9% of the participants (n=324) reported being completely free of alcohol and illegal drugs during the 30 days prior to the enrollment interview. Approximately 30% of the participants (31.1%, n=146) did report using alcohol and/or drugs in the 30 days prior to enrollment. Among these 146 participants, the type of use varied. Specifically:

- Of the participants who reported any use in the 30 days prior to the enrollment interview, 82.9% (n=121 of 146) reported drinking alcohol on one or more days.
- Of the participants who reported any use in the 30 days prior to the enrollment interview, 44.5% (n=65 of 146) reported using illegal drugs one or more days. The illegal drugs most commonly used included cocaine/crack (n=34) and marijuana (n=24). A small number of participants reported using heroin (n=7) or other unprescribed opiates (n=6) (e.g., Percocet, OxyContin, morphine).

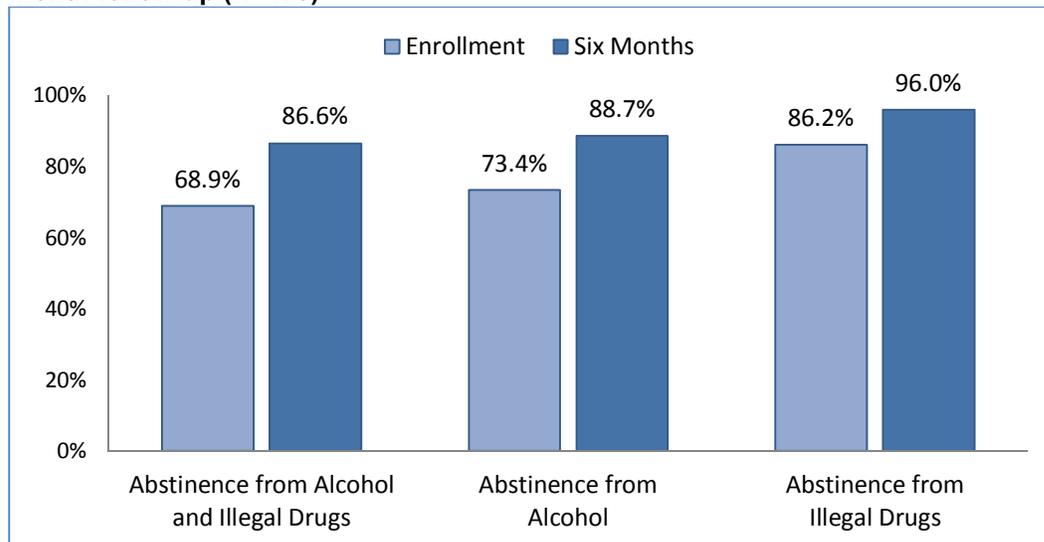
Overall, nearly 70% of BoBS participants were not using alcohol or drugs in the 30 days prior to the enrollment interview. For those who reported use at that time, the substances most commonly reported were alcohol, cocaine/crack, and marijuana.

Abstinence from Enrollment to Follow-Up

GPRA data for the 470 participants who completed both the enrollment and the follow-up interviews was analyzed for potential pre-post changes in the number of participants who reported being completely free of alcohol and drugs in the 30 days prior to each interview. Figure 1 illustrates pre-post changes in participants' abstinence from alcohol and illegal drugs.

¹⁹ N=470 for 30 day use data at enrollment unless otherwise noted.

Figure 1: Abstinence from illegal drugs and alcohol at enrollment and at six month follow-up (N=470)



As Figure 1 shows, the 470 participants generally either maintained or improved their abstinence from alcohol and illegal drugs from the 30 days prior to enrollment to the 30 days prior to follow-up. The analysis also included chi-square tests to examine whether any pre-post changes were statistically significant (i.e., not due to chance). The findings include:

Abstinence from illegal drugs and alcohol

- Approximately 70% (68.9%, n=324) of participants reported that they had not used *alcohol or illegal drugs* in the 30 days prior to their enrollment interview, while approximately 85% (86.6%, n=407) reported they had not used alcohol or illegal drugs in the 30 days prior to follow-up. This pattern of change was found to be statistically significant, $\chi^2 (1, N=470) = 64.40, p < .001$.²⁰

Abstinence from alcohol

- Approximately 75% of participants (74.3%, n=349) reported that they had not used *alcohol* in the 30 days prior to their enrollment interview, while approximately 90% (88.7%, 417) reported that they had not used alcohol in the 30 days prior to follow-up. This pattern of change was found to be statistically significant $\chi^2 (1, N=470) = 71.52, p < .001$.

Abstinence from illegal drugs

- Approximately 85% of participants (86.2%, n=405) reported that they had not used *illegal drugs* in the 30 days prior to their enrollment interview, while approximately 95% (96.0%, n=451) reported that they had not used any illegal drugs in the 30 days prior to follow-up. This pattern of change was found to be statistically significant $\chi^2 (1, N=470) = 40.43, p < .001$.

²⁰ The *p* value refers to the level of statistical significance of the chi-square test. *P*-values of less than 0.05 are considered statistically significant, while *p*-values greater than 0.05 are considered non-significant.

Pre-Post Changes in Alcohol and Drug Use

For participants who reported use at the time of their enrollment, the analysis examined GPRA data for potential pre-post changes in the number of days that they reported using alcohol or drugs. Specifically, participants' number of days of use in the 30 days prior to the enrollment interview was compared to their number of days of use in the 30 days prior to the six month interview. Paired t-tests were run to examine whether any pre-post changes were statistically significant (i.e., not due to chance). The findings include:

Pre-post changes in alcohol use

- For the 121 participants who reported *alcohol* use in the 30 days prior to the enrollment interview, there was a statistically significant decrease in the number of days they drank alcohol ($t(120)=5.27, p<.001$). Specifically, participants drank alcohol an average of six days in the 30 days prior to enrollment, as compared to an average of two and a half days in the 30 days before the six month follow-up interview (enrollment $M=5.91, SD=6.68$; follow-up $M=2.46, SD=5.81$).

Pre-post changes in illegal drug use

- For the 65 participants who reported *illegal drug* use in the 30 days prior to the enrollment interview, there was a statistically significant decrease in the number of days participants used illegal drugs ($t(64)=5.04, p<.001$). Specifically, participants used illegal drugs an average of seven days in the 30 days prior to enrollment, as compared to an average of one day in the 30 days before the six month follow-up interview (intake $M=6.80, SD=8.54$; follow-up $M=1.26, SD=4.26$).

Case-Specific Pre-Post Patterns

A case-specific exploration of pre-post patterns regarding substance use suggests several different patterns, the most common of which was maintenance of baseline abstinence at the follow-up interview. Specifically, the pre-post patterns for the use of any substances in the month prior to the enrollment and the follow-up interviews included:²¹

Maintenance of abstinence

- Approximately 65% (65.5%, $n=308$) of the participants were abstinent in the 30 days prior to the enrollment interview and were also abstinent in the 30 days prior to the follow-up interview.

Improvement in abstinence

- Approximately 20% (21.1%, $n=99$) of the participants had used substances in the 30 days prior to the enrollment interview, but were no longer using substances in the 30 days prior to the follow-up interview.

Continued use

- Just 10% (10.0%, $n=47$) of the participants had used substances in the 30 days prior to the enrollment interview and also used substances in the 30 days prior to the follow-up interview.

²¹ N=470.

Relapse

- A small proportion of the participants (3.4%, n=16) were abstinent in the 30 days prior to the enrollment interview, but reported using substances in the 30 days prior to the follow-up interview.

Overall, the analyses suggest that BoBS participants experienced positive outcomes related to their use of alcohol and illegal drugs as of the six month follow-up. These positive outcomes included an increase in abstinence from the time of enrollment to follow-up, as well as a decrease in the number of days of use for those who did report use at enrollment. These findings were shown to be statistically significant and were therefore not likely due simply to chance. Among all of the participants who completed both an enrollment and a follow-up interview, the most common pre-post pattern was the maintenance of abstinence, which was a primary goal of BoBS peer-to-peer services.

Mental Health Functioning

For many of the veterans served by BoBS, mental health issues were among the challenges they experienced at the time of their enrollment in the program. As a result, in addition to providing peer-to-peer services to support veterans in their recovery from alcohol and/or drug abuse, BoBS services were aimed at improving participants' mental health functioning. Services such as peer-to-peer emotional support (e.g., support groups, coaching, etc.), socialization activities, and linkages to other mental health services in the community were provided with the goal of improving participants' mental health symptoms and thereby supporting their recovery.

The enrollment and follow-up GPRA interviews included questions regarding participants' experiences of specific mental health symptoms in the 30 days prior to the interview.²² GPRA data for the 470 participants who completed both the enrollment and six month follow-up interviews was analyzed to explore the extent to which BoBS participants experienced an improvement in their mental health symptoms. Specifically, the analysis explored: 1) the number of participant who experienced mental health symptoms at the time of their enrollment, 2) pre-post changes in the number of participants who experienced mental health symptoms, 3) pre-post changes in participants' number of reported days of mental health symptoms, and 4) case-specific patterns of pre-post presence of mental health symptoms.²³

Mental Health Symptoms at Enrollment

Data from the enrollment interviews suggests that over two-thirds of BoBS participants had experienced mental health symptoms in the month prior to their enrollment. Specifically, among the 470 participants who completed both an enrollment and a follow-up interview 71.7% (n=337) reported at least one day of mental health symptoms.²⁴ Specifically, information from the enrollment interviews indicates that:

- Approximately 60% (59.8%, n=281) reported one or more days of serious anxiety or tension in the 30 days prior to the enrollment interview.

²² Specific mental health symptoms about which participants were asked during the GPRA interview include: serious depression, serious anxiety or tension, hallucinations, cognitive difficulties (i.e., trouble understanding, concentrating, or remembering), trouble controlling violent behavior, and attempted suicide in the 30 days prior to each interview.

²³ It must be noted that the analysis of participants' reported mental health symptoms should be considered in the context of possible symptoms associated with traumatic brain injury (TBI). Given the high estimation of TBI among veterans of all eras and the range of mental health symptoms associated with TBI, it is possible that TBI may be a confounding factor when examining reported mental health symptoms among BoBS participants. See Congressional Research Service. (2013, January). Traumatic brain injury among veterans (CRS Report No. R40941) for more information.

²⁴ N=470 for mental health symptom data at enrollment unless otherwise noted.

- Approximately 55% (53.1%, n=249) reported one or more days of serious depression.²⁵
- Approximately 40% (40.2%, n=189) reported one or more days of experiencing cognitive difficulties such as trouble understanding, concentrating, or remembering.

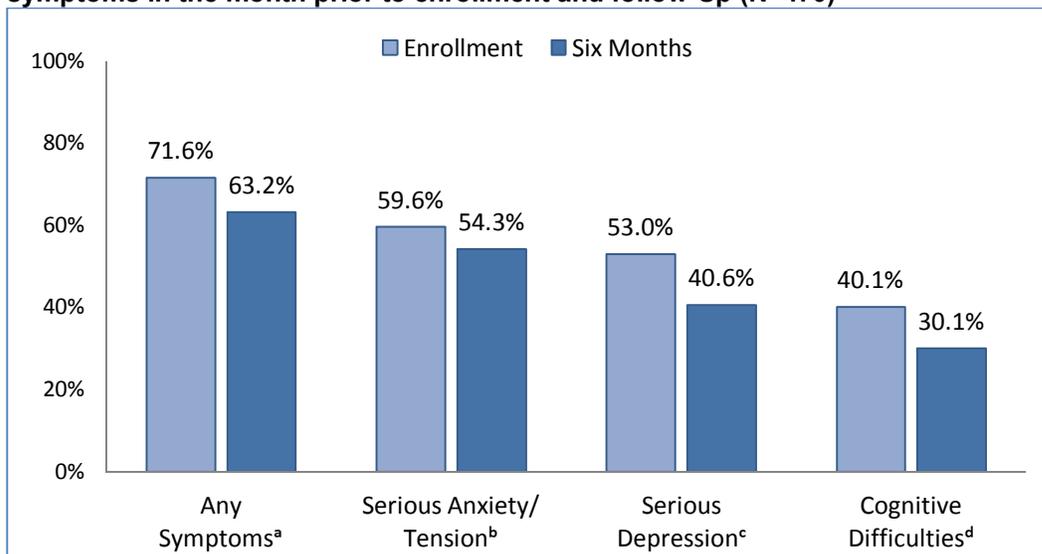
Smaller numbers of participants reported experiencing more severe mental health symptoms in the 30 days prior to enrollment, including trouble controlling violent behavior (7.0%, n=33) and hallucinations (6.0%, n=28). Just one participant reported a suicide attempt (0.2%, n=1) in the 30 days prior to the enrollment interview.

In addition, questions regarding participants' lifetime exposure to trauma and symptoms related to those experiences were added to the GPRA tool in February 2012. Given their focus on trauma and trauma symptoms during a participant's lifetime, the information from the questions is not appropriate for a pre-post analysis. However, it does provide an additional description of the mental health challenges faced by BoBS participants. See Appendix C for a summary of the results from these additional questions.

Presence of Mental Health Symptoms from Enrollment to Follow-Up

GPRA data for the 470 participants who completed both the enrollment and the follow-up interview was explored for pre-post changes in the number who reported experiencing mental health symptoms in the 30 days prior to the interviews. Figure 2 illustrates pre-post changes in the number of participants who reported experiencing mental health symptoms.

Figure 2: Participants who experienced one or more days of mental health symptoms in the month prior to enrollment and follow-Up (N=470)



^a N=468, with two participants missing data on any mental health symptoms at either enrollment or follow-up. Participants were considered to have experienced %any symptoms+if they reported one or more days of serious depression, serious anxiety/tension, hallucinations, cognitive difficulties, trouble controlling violent behavior, or attempted suicide.

^b N=468, with two participants missing data on serious anxiety/tension symptoms at either enrollment or follow-up.

^c N=466, with four participants missing data on depression symptoms at either enrollment or follow-up.

^d N=469, with one participant missing data on cognitive difficulties at follow-up. %Cognitive difficulties+ included trouble understanding, concentrating, or remembering.

²⁵ N=469, with one participant missing data on depression symptoms at enrollment.

As Figure 2 shows, among the 470 participants who completed both an enrollment and a follow-up interview, there was a pre-post decrease in the number who reported experiencing mental health symptoms. The analysis also included chi-square tests to examine whether these pre-post changes were statistically significant (i.e., not due to chance). The findings include:

Any mental health symptoms

- Approximately 70% (71.6%, n=335) of participants reported that they experienced one or more days of *any symptoms* in the 30 days prior to their enrollment interview, while approximately 65% (63.2%, n=296) reported they experienced one or more days of mental health symptoms prior to the six month follow-up. Although the pre-post improvement was modest (a decrease of less than ten percentage points), this pattern of change was found to be statistically significant, $\chi^2 (1, N=468) = 91.99, p < .001$.

Serious anxiety or tension

- Approximately 60% (59.6%, n=279) of participants reported that they experienced one or more days of *serious anxiety or tension* in the 30 days prior to their enrollment interview, while approximately 55% (54.3%, n=254) reported they experienced one or more days of serious anxiety/tension prior to the six month follow-up. Although the pre-post improvement was modest (a decrease of just five percentage points), this pattern of change was found to be statistically significant, $\chi^2 (1, N=468) = 98.86, p < .001$.

Serious depression

- Approximately 55% (53.0%, n=247) of participants reported that they experienced one or more days of *serious depression* in the 30 days prior to their enrollment interview, while approximately 40% (40.6%, n=189) reported they experienced one or more days of serious depression prior to the six month follow-up. This pre-post improvement was relatively substantial (a decrease of 12 percentage points), and was found to be statistically significant, $\chi^2 (1, N=466) = 127.88, p < .001$.

Cognitive difficulties

- Approximately 40% (40.1%, n=188) of participants reported that they experienced one or more days of *cognitive difficulties* in the 30 days prior to their enrollment interview, while approximately 30% (30.1%, n=141) reported they experienced one or more days of cognitive difficulties prior to the six month follow-up. This pre-post improvement was somewhat substantial (a decrease of ten percentage points), and was found to be statistically significant, $\chi^2 (1, N=469) = 120.77, p < .001$.

Further, there were slight improvements in the number of participants who reported that they experienced more severe mental health symptoms from the time of enrollment to the six month follow-up interview. Specifically, there were slight decreases in the numbers of participants who reported experiencing trouble controlling violent behavior (7.0%, n=33 at enrollment; 4.1%, n=19 at follow-up)²⁶ and hallucinations (5.8%, n=27 at enrollment; 3.8%, n=18 at follow-up).²⁷ However, the numbers of participants reporting these symptoms were too small to conduct valid tests for statistical significance.

²⁶ N=469, with one participant missing data on trouble controlling violent behavior at follow-up.

²⁷ N=468, with two participants missing data on hallucinations at follow-up.

Pre-Post Changes in Days of Mental Health Symptoms

For those who reported experiencing mental health symptoms at the time of their enrollment, the analysis examined GPRA data for potential pre-post changes in the number of days of specific symptoms. Specifically, participants' number of days of reported symptoms in the 30 days prior to the enrollment interview was compared to their number of days of reported symptoms in the 30 days prior to the six month follow-up interview. Paired t-tests were run to examine whether any pre-post changes were statistically significant (i.e., not due to chance). Table 3 lists the results of these statistical tests.

Table 3: Pre-post means and paired t-tests for days of reported mental health symptoms

Symptom	In the 30 Days Prior to Enrollment	In the 30 Days Prior to Follow-Up	<i>t</i> Value	<i>p</i> Value
Serious Anxiety/Tension ^a	13.08	7.95	7.87	<.001
Serious Depression ^b	12.34	7.23	7.26	<.001
Cognitive Difficulties ^c	13.93	7.55	7.43	<.001
Trouble Controlling Violent Behavior ^d	6.21	1.91	3.42	.002
Hallucinations ^e	11.44	4.59	3.73	.001

^a N=279 participants reporting serious anxiety/tension in the 30 days prior to the enrollment interview.

^b N=247 participants reporting serious depression in the 30 days prior to the enrollment interview.

^c N=188 participants reporting cognitive difficulties (i.e., trouble understanding, concentrating, or remembering) in the 30 days prior to the enrollment interview.

^d N=33 participants reporting trouble controlling violent behavior in the 30 days prior to the enrollment interview.

^e N=27 participants reporting hallucinations in the 30 days prior to the enrollment interview.

Note: The *p* value refers to the level of statistical significance of the *t* value from the paired samples t-test. *P*-values of less than 0.05 are considered statistically significant, while *p*-values greater than 0.05 are considered non-significant.

As Table 3 shows, there were statistically significant pre-post decreases in the number of days that participants reported experiencing serious anxiety/tension, serious depression, cognitive difficulties, trouble controlling violent behavior, and hallucinations from the 30 days prior to the enrollment interview to the 30 days prior to the six month follow-up interview. These findings are consistent with the above findings and indicate that significantly fewer BoBS participants reported *any* symptoms at the time of the six month follow-up interview when compared to the enrollment interview.

Case-Specific Pre-Post Patterns

A case-specific exploration of pre-post patterns regarding mental health symptoms suggests several different patterns, the most common of which was pre-post consistency in the presence or absence of any symptoms.²⁸ Specifically, the pre-post patterns for the presence of mental health symptoms in the month prior to the enrollment and the follow up interviews included:²⁹

²⁸ Participants were considered to have experienced one or more symptoms if they reported one or more days of serious depression, serious anxiety/tension, hallucinations, cognitive difficulties, trouble controlling violent behavior, and/or attempted suicide.

²⁹ N=468, with two participants missing data on any mental health symptoms at either enrollment or follow-up.

Consistent presence of symptoms

- Over half of the participants (54.9%, n=257) experienced one or more days of any mental health symptoms in the 30 days prior to the enrollment interview and also experienced one or more days symptoms in the 30 days prior to the follow-up interview.

Consistent absence of symptoms

- One-fifth of the participants (20.1%, n=94) experienced no days of mental health symptoms in the 30 days prior to the enrollment interview and also experienced no days of symptoms in the 30 days prior to the follow-up interview.

Remittance of symptoms

- Approximately 15% of the participants (16.7%, n=78) experienced one or more days of mental health symptoms in the 30 days prior to the enrollment interview, but experienced no days of symptoms in the 30 days prior to the follow-up interview.

Appearance of symptoms

- Approximately 10% of the participants (8.3%, n=39) experienced no days of symptoms in the 30 days prior to the enrollment interview, but experienced one or more days of mental health symptoms in the 30 days prior to the follow-up interview.

It is important to note that while, overall, the findings show statistically significant improvements in both the number of participants who reported any mental health symptoms as well as in participants' days of reported symptoms, a considerable proportion of BoBS participants (63%) were experiencing symptoms as of the six month follow-up. Additional information from the six month interviews indicates that many of these participants were connected to mental health treatment at follow-up. Specifically, 59.7% (n=176 of 295) of the participants who reported symptoms at follow-up were taking psychiatric medication, and 42.6% (n=126 of 296) had received either inpatient or outpatient mental health treatment in the 30 days prior to the follow-up interview.

Social and Economic Well-Being

Many of the veterans who were served faced complex challenges in addition to substance abuse and mental health problems (e.g., unemployment, homelessness). In an effort to address barriers to participants' social and economic well-being, BoBS incorporated support services such as peer mentoring, alcohol- and drug-free socialization activities, and linkages to community resources (e.g., AA/NA, housing support, VA services, etc.)

The analysis included data from GPRA questions about participants' social and economic well-being, including their social connections, employment, income, housing status, and crime/criminal justice involvement. Specifically, for the 470 participants who completed both the enrollment and six month follow-up interviews, the analysis explored: 1) pre-post changes in participants' social connectedness; 2) pre-post changes in participants' employment status, income, and housing situations; and 3) pre-post changes in participants' criminal justice involvement. The analyses included chi-square tests and paired t-tests when appropriate to examine whether any pre-post changes were statistically significant (i.e., not due to chance).³⁰

³⁰ When chi-square tests were not statistically appropriate, Fisher's exact test was used to explore the statistical significance of pre-post changes.

Pre-Post Changes in Participants' Social Connectedness

Among the goals of the BoBS program was to increase participants' social connectedness, through direct relationships with Peer Mentors and other veteran peers as well as by encouraging connections to natural supports (e.g., family, friends) and recovery-oriented groups/networks. As a result, the analysis examined GPRA data for potential changes in participants' social connectedness, including pre-post changes in the number of participants who reported having someone in their life who they could turn to and the number who reported recent interaction with recovery supports. Specific findings include:

Individual supports

- There was an increase from enrollment to follow-up in the number of BoBS participants who reported *having someone in their life* who they could turn to if they were having trouble. Specifically, 86.6% (n=402) of participants reported having someone in their life who they could turn to at enrollment, while 94.6% (n=439) reported having someone who they could turn to at the time of the six month follow-up. Although the pre-post improvement was modest (an increase of less than ten percentage points), this pattern of change was found to be statistically significant ($p=.001$, two-tailed Fisher's exact test).³¹
- Among the 439 participants who could name at least one person who they could turn to at follow-up, the most common sources of support were family members (43.7%, n=192) or friends (26.9%, n=118). Smaller numbers of participants reported that they could turn to clergy/God (11.8%, n=52), their sponsor (7.1%, n=31), veteran peers (5.2%, n=23), or professional service providers (e.g., therapist, counselor) (4.6%, n=20).

Connection to recovery supports

- There was a slight increase from enrollment to follow-up in the number of participants who reported recent *interaction with family or friends* who were supportive of their recovery. Specifically, 82.8% (n=385) of participants reported that they had interaction with family or friends who were supportive of their recovery in the 30 days prior to the enrollment interview, while 88.0% (n=409) reported interaction with recovery-supportive family/friends in the 30 days prior to the follow-up interview. Although the pre-post improvement was somewhat small (an increase of five percentage points), this pattern of change was found to be statistically significant, $\chi^2(1, N=465) = 48.07, p<.001$.
- There was no increase from enrollment to follow-up in the number of participants who reported recent *attendance at voluntary self-help groups* for recovery (e.g., AA, NA). Specifically, 55.4% (n=260) of participants reported attending a recovery self-help group in the 30 days prior to the enrollment interview, while 53.3% (n=250) reported attending a recovery self-help group in the 30 days prior to the follow-up interview.³² It should be noted that although BoBS services included linkages to these types of recovery support groups when appropriate, it appears that a substantial number of participants were already connected to this type of support at the time of their enrollment in BoBS.

³¹ N=464, with six participants missing data on who they could turn to at either enrollment or follow-up.

³² N=469, with one participant missing data on voluntary self-help group attendance at either enrollment or follow-up.

Overall, the GPRA data suggests that there were slight pre-post increases in the number of BoBS participants who felt they had someone in their lives who they could turn to as well as in the number who reported recent interaction with natural recovery supports such as family or friends. However, there was no increase from the time of enrollment to follow-up in the number who reported attendance at a self-help group such as AA or NA in the month prior to the interviews.

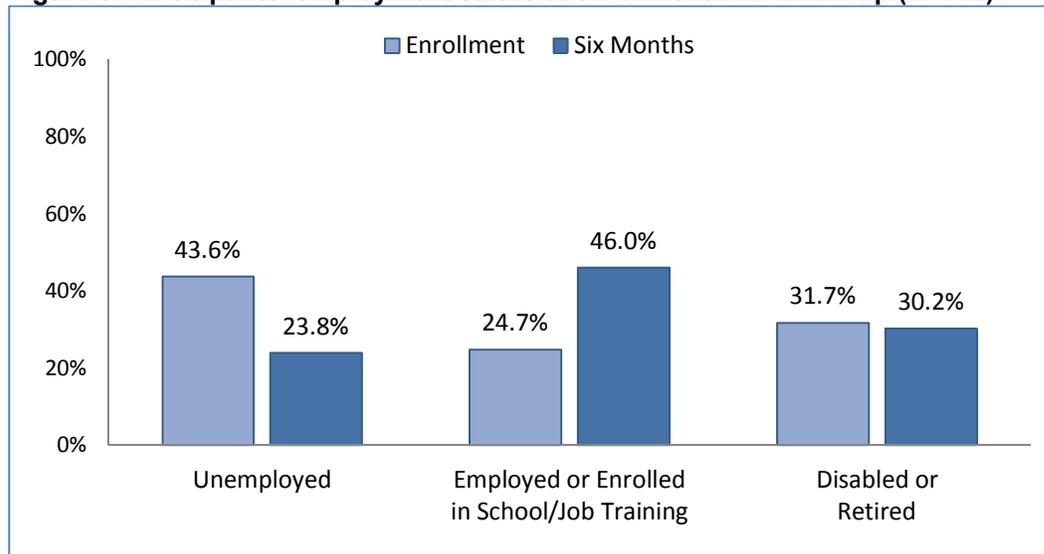
Pre-post Changes in Employment, Income, and Housing Status

Due to the significant challenges to economic self-sufficiency and housing stability faced by BoBS participants, the analysis included an exploration of pre-post changes in participants' employment status, sources of income, and housing situations. The findings in each of these areas follow.

Employment status

Overall, the GPRA data suggests that there was a decrease in the number of BoBS participants who were unemployed from enrollment to follow-up. Figure 3 illustrates pre-post changes in participants' employment status.

Figure 3: Participants' employment status at enrollment and follow-up (N=470)



As Figure 3 above illustrates, there was a substantial decrease in the number of BoBS participants who were unemployed. This was accompanied by increases in the number who were employed or enrolled in school/job training from the time of enrollment to follow-up. These pre-post changes were found to be statistically significant $X^2(4, N=470) = 209.96, p < .001$. Specifically, the findings indicate that:

- Approximately 45% (43.6%, n=205) of participants reported that they were unemployed at the time of the enrollment interview, while approximately 25% (23.8%, n=112) reported that they were unemployed at the time of the six month follow-up.
- Approximately 25% (24.7%, n=116) of participants reported that they were either employed (full or part time) or enrolled in school/job training at the time of the enrollment interview, while approximately 45% (46.0%, n=216) reported that they were employed or enrolled in school/job training at the time of the six month follow-up. Specifically, by the time of the follow-up interview almost 30% of participants (27.4%, n=129) indicated that

they were employed, and almost 20% (18.5%, n=87) indicated that they were enrolled in school or a job training program.

- There was virtually no pre-post change in the number of participants who reported being retired or disabled from enrollment to follow-up. While 31.7% (n=149) of participants reported being retired or disabled at the time of enrollment, 30.2% (n=142) of participants reported being retired or disabled at follow-up.³³ Specifically, at the time of the follow-up interview, one-quarter (23.6%, n=111) of participants indicated that they were disabled, and just 7% (6.6%, n=31) indicated that they were retired.

Sources and Amount of Income

In addition to pre-post improvements in participants' employment status, the data also suggests that there were increases in the numbers of participants who received any income, income from wages, and disability income from enrollment to follow-up. Specifically findings include:³⁴

- Approximately 80% (82.0%, n=305) of participants reported receiving *any income* in the 30 days prior to the enrollment interview, while approximately 90% (89.0%, n=331) reported any income in the 30 days prior to follow-up.³⁵ Although the pre-post increase was modest (an increase of less than ten percentage points), this pattern of change was found to be statistically significant $X^2(1, N=372) = 45.27, p < .001$.
- Approximately 15% (12.6%, n=48) of participants reported receiving *income from employment* in the 30 days prior to the enrollment interview, while one-quarter (23.7%, n=90) reported employment income in the 30 days prior to follow-up. This pattern of change was found to be statistically significant $X^2(1, N=380) = 86.67, p < .001$.
- One-third (34.1%, n=139) of participants reported receiving *income from disability* in the 30 days prior to the enrollment interview, while approximately 40% (41.2%, n=168) reported disability income in the 30 days prior to follow-up. Although the pre-post increase was modest (an increase of less than ten percentage points), this pattern of change was found to be statistically significant $X^2(1, N=408) = 188.96, p < .001$.

However, there were no notable increases in the numbers of participants who reported income from public assistance or retirement from the time of enrollment to follow-up. Specifically,

- While 39.4% (n=166) of participants reported *income from public assistance* in the 30 days prior to enrollment, 36.6% (n=154) reported public assistance income in the 30 days prior to follow-up.³⁶

³³ It should be noted that participants' status as disabled/retired was not entirely static from enrollment to six months. For example, participants may have reported being disabled/retired at enrollment, but reported being enrolled in school or job training at follow-up. Information from the program and a case-level review of participant records suggests that in several cases, participants who were retired/disabled at enrollment were subsequently connected to education, training, or employment opportunities as of the six month interview (e.g., Compensated Work Therapy through the VA; the Center for Veterans Issues' Education, Training, and Employment program, etc.).

³⁴ The GPRA interview included questions about the dollars received by participants in the 30 days prior to the interview from the following sources: wages, public assistance, retirement, disability, non-legal income, family/friends, or other sources. Because participants were able to refuse any or all questions on income or respond that they did not know the dollar amount received from any source, the number of participants with available data varies for each income source.

³⁵ Participants were considered to have any source of income if they reported some income from one or more of the sources included in the GPRA interview questions.

³⁶ N=421, with 49 participants missing data on public assistance income at either enrollment or follow-up.

- Just 5.7% (n=24) of participants reported *income from retirement* in the 30 days prior to enrollment, and 7.1% (n=30) reported retirement income in the 30 days prior to follow-up.³⁷

The analysis of participants' incomes also included paired t-tests to determine if pre-post changes in the dollar amounts of reported income were statistically significant. Table 4 lists the results of these statistical tests.

Table 4: Pre-post means and paired t-test for dollars received in the months prior to enrollment and follow-up

Income Source	In the 30 Days Prior to Enrollment	In the 30 Days Prior to Follow-Up	<i>t</i> Value	<i>p</i> Value
Total Income ^a	\$762.88	\$1,044.36	6.58	<.001
Employment ^b	\$119.75	\$326.92	6.53	<.001
Disability ^c	\$395.03	\$457.88	2.31	.021
Public Assistance ^d	\$82.63	\$66.70	2.04	.042
Retirement ^e	\$57.37	\$81.62	1.69	.091

^a N=352 for total income, with 118 participants missing data at either enrollment or follow-up.

^b N=380 for employment income, with 90 participants missing data at either enrollment or follow-up.

^c N=408 for disability income, with 62 participants missing data at either enrollment or follow-up.

^d N=421 for public assistance income, with 49 participants missing data at either enrollment or follow-up.

^e N=420 for retirement income, with 50 participants missing data at either enrollment or follow-up.

The *p* value refers to the level of statistical significance of the *t* value from the paired samples *t*-test. *P*-values of less than 0.05 are considered statistically significant.

As Table 4 indicates, there were statistically significant increases in the total income participants received, the amount earned from employment, and (although modest) the amount received from disability from the 30 days prior to enrollment to 30 days prior to follow-up. Along with these findings, there was a small though statistically significant *decrease* in the amount received from public assistance (e.g., food stamps) from enrollment to follow-up. However, there was no significant change in the amount received from retirement.

While the findings presented in Table 4 indicate that there were increases in participants' total income and in the amount they received from employment and disability, the total monthly income participants received remained very limited at follow-up. Specifically:

- In the 30 days prior to the follow-up interview, participants' average total monthly income was \$1,044.36 which could provide an annual income of only about \$12,500.
- Slightly more than half (54.0%, n=190) of the participants had a total income of less than \$1,000 in the 30 days prior to the follow-up interview.
- The participants who reported income in the 30 days prior to the follow-up interview generally received at least part of their income from disability (50.6%, n=167 of 330) and public assistance (46.7%, n=154 of 330).
- For those who reported employment income in the 30 days prior to follow-up, the amount earned was generally low, with approximately 60% of the participants with employment income (61.1%, n=55 of 90) earning less than \$1,000 in the month prior to the follow-up interview.

³⁷ N=420, with 50 participants missing data on retirement income at either enrollment or follow-up.

Housing status

As previously noted, housing instability was a challenge faced by many of the veterans served through BoBS. The GPR data suggest that while there was a pre-post increase in the number of participants who resided in potentially stable living situations, a substantial number continued to face housing instability at the time of the follow-up interview. Specifically:

- Approximately one-third of participants (36.0%, n=168) reported that they had lived *in their own house, apartment, or room* during most of the 30 days prior to their enrollment interview, while approximately half (52.5%, n=245) reported they had lived in their own house, apartment, or room during most of the 30 days prior to the follow-up interview. This pattern of change was found to be statistically significant $X^2(1, N=467) = 142.66, p < .001$.
- While the number of participants who were in stable housing increased from enrollment to six months, nearly half of participants (47.5%, n=222) continued to report housing situations that could be considered unstable at follow-up. Specifically, one-third (34.0%, n=159) of participants reported staying in a shelter, on the street, or in a halfway house; approximately 5% (6.9%, n=32) reported staying in an institution (e.g., jail, hospital) or residential treatment; and approximately 5% (6.6%, n=31) reported staying in someone else's home, apartment, or room.^{38,39}

Pre-Post Changes in Criminal Justice Involvement

The BoBS program was not specifically designed to serve a population of veterans with criminal justice involvement. However, GPR data indicates that a number of participants entered the program with significant legal problems (e.g., on probation or parole, recent arrests, etc.), and many were using illegal substances prior to enrollment (putting them at risk for criminal justice involvement). In addition, anecdotal information from the program suggests that a fair number of participants were involved in Milwaukee County's Drug Treatment Court and/or its Veterans Treatment Initiative.⁴⁰ As a result, in addition to peer-to-peer recovery support services, the BoBS Peers provided support to participants as they worked to resolve their legal issues.

The analysis included GPR data to describe pre-post changes in participants' criminal justice involvement, including whether they were on probation/parole, awaiting trial/charges/sentencing, were arrested, spent time in jail/prison, or engaged in illegal activity (including illegal drug use) in the 30 days prior to the interviews. The findings suggest that participants were less involved in criminal activities and the criminal justice system at the time of the follow-up interview than they were at enrollment. Specific findings include:

- Approximately one-third of participants (31.5%, n=145) reported any *criminal activity or criminal justice involvement* in the 30 days prior to their enrollment interview, while approximately 15% (16.9%, n=78) reported criminal activity or involvement in the

³⁸ Among the 159 participants who reported living in a homeless shelter, on the street/outdoors, or in a halfway house during most of the 30 days prior to follow-up, 95% (n=151) reported living in a homeless shelter. Only a small number of participants reported living in a halfway house (n=7) or on the street/outdoors (n=1).

³⁹ Participants who reported staying in the house, apartment, or room of a friend or family member may or may not have been paying rent. As a result, the stability of their housing situations is not fully known.

⁴⁰ Milwaukee County's Drug Treatment Court is a problem solving court that seeks to divert non-violent offenders with substance abuse problems from the prison system. The Veterans Treatment Initiative is a specialized track of the Drug Treatment Court which launched in 2012. It offers treatment and support services (including connection to a Peer Mentor) in addition to deferred prosecution, deferred sentencing, or enhanced probation agreements to veterans entering the criminal justice system. BoBS participants' criminal justice involvement may or may not be reflected in the GPR data depending on the agreement into which they entered; however the exact number of BoBS participants who were also participants in these programs is not available.

criminal justice system in the 30 days prior to the follow-up interview. This pattern of change was found to be statistically significant $X^2(1, N=461) = 90.03, p < .001$.

- Among the 78 participants who reported criminal activity or involvement in the criminal justice system in the 30 days prior to the follow-up interview, nearly half (48.7%, n=38) reported being on probation or parole, and approximately 35% (35.9%, n=28) reported that they were awaiting charges, trial, or sentencing. One-quarter (24.4%, n=19) of those with criminal justice involvement reported criminal activity, with nearly all of these participants (n=18) reporting illegal drug use. Only a small number of the participants who reported criminal justice involvement at follow-up had spent time in jail/prison (7.7%, n=6) or had been arrested (5.1%, n=4) in the 30 days prior to the interview.

Taken together, the findings suggest that BoBS participants experienced some improvements in their social and economic well-being, but that many continued to face challenges in these areas of their lives at the time of the follow-up interview. The GPRA data suggests that participants were slightly more socially connected to individual and natural supports; however, they did not generally increase their attendance at voluntary self-help groups such as AA and NA. There was also a substantial decrease in the number of BoBS participants who were unemployed and increases in the number who were employed or enrolled in school/job training. This was coupled by increases in participants' total income and the amounts received from employment and disability, although the total monthly income participants received remained very limited at follow-up. Further, there was an increase in the number of participants who resided in potentially stable living situations, but a substantial number continued to face housing instability at the time of the follow-up interview. Finally, the findings suggest that participants were less involved in criminal activities and the criminal justice system at the time of the follow-up interview than they were at enrollment.

Appendix A: BoBS Service Array

One-on-One Peer Mentoring

A diverse group of Peer Mentors provided informal mentoring services to veterans enrolled in BoBS. Mentoring content was guided by each veteran's specific needs, whether for moral support, a peer who has been through similar experiences, or assistance in accessing community services.

Recovery Support Groups

BoBS peers developed and implemented a variety of groups to support veterans in recovery, with the topics for specific groups generally identified by veteran participants themselves. Groups ranged from talk-based recovery support groups, to groups offering information on specific topics, to gatherings focused on fitness and health. Examples included:

- Vets Over 60
- Spiritual Living
- Relapse Prevention
- Men's Recovery Group
- Women's Recovery Group
- Life Striders (equestrian therapy)
- Military Stress
- Psychological Wound Information
- Meditation
- Yoga
- Acupuncture
- Fitness and Exercise Class
- Artful Warriors (art therapy)

Socialization Activities

BoBS peers organized and facilitated social outings and events to provide participants opportunities to relax and have fun with other veterans in recovery in a drug- and alcohol-free environment. Examples included:

- Milwaukee Brewers Outings
- Softball League
- Touch Football League
- Harley Davidson Museum Outings
- Football Sunday (game viewing)
- Women's Wednesdays (women-only social space)
- Paintball Outings
- Bowling Outings
- Canoe Trips

Linkages to Community Resources

BoBS served as a source of information about area resources, providing assistance in identifying needs and accessing services in the community. Examples of community resources included:

- Substance abuse treatment
- Mental health treatment
- Recovery support services (e.g., AA/NA)
- Medical care
- Housing services
- Meal sites and food banks
- Education, training, and employment services
- Veterans Administration services and benefits
- Transportation services

Appendix B: Representativeness of Participants Interviewed at Six Months

The participants who completed the follow-up were compared to the full set of participants with respect to their basic demographic characteristics, including their gender, age and race/ethnicity. Table B1 presents this information for the 658 participants who were served over the life of the BoBS project with those who completed a six month interview.

Table B1: Demographic characteristics of all enrolled participants and those who completed a six month interview

Demographic Characteristics	All BoBS Participants (N=658)		Participants who Completed a Six Month Interview (N=470)	
	N	%	N	%
Gender				
Male	605	91.9%	440	93.6%
Female	52	7.9%	29	6.2%
Transgender	1	0.2%	1	0.2%
Age at Enrollment^a	N	%	N	%
18 to 24 years	17	2.6%	13	2.8%
25 to 34 years	91	13.9%	60	12.8%
35 to 44 years	80	12.2%	49	10.5%
45 to 54 years	226	34.5%	176	37.6%
55 to 64 years	203	30.9%	142	30.3%
65 years or older	39	5.9%	28	6.0%
Age statistics (in years)	Mean=49.2 Median=52.0	Range=19-88 SD=11.9	Mean=49.6 Median=52.0	Range=19-88 SD=11.7
Race/Ethnicity^b	N	%	N	%
White (Non-Hispanic)	273	46.3%	190	45.6%
Black or African American	243	41.2%	176	42.2%
Hispanic or Latino	30	5.1%	19	4.6%
American Indian/Alaskan Native	15	2.5%	11	2.6%
Asian/Pacific Islander	2	0.3%	0	0.0%
Multi-racial	27	4.6%	21	5.0%

^a N=656 for age at enrollment; N=468 for age at follow-up.

^b N=590 for race/ethnicity at enrollment; N=417 for race/ethnicity at follow-up.

As Table B1 shows, 94% of the participants who completed a follow-up interview were male, and 6% were female. Nearly three-quarters (74%) were ages 45 or older at the time of their enrollment, while 16% were under the age of 35. In addition, BoBS participants who completed a follow-up interview primarily reported their race/ethnicity as white (46%) or black/African American (42%), with smaller numbers reporting their race/ethnicity as Hispanic/Latino (5%), multi-racial (5%), or American Indian/Alaskan Native (3%).

With respect to their demographic characteristics, the participants who completed a six month interview were reasonably similar to all of the participants served through the BoBS program. Given the comparability in these characteristics and the relatively high follow-up rate (81.7%), it appears that the participants interviewed were demographically representative of all participants served through the BoBS program.

Appendix C: Trauma and Trauma Symptoms

In February 2012, questions regarding participants' lifetime exposure to trauma and symptoms related to those experiences were added to the GPRA interview. Given their focus on trauma and trauma symptoms during a participant's lifetime, the information from these questions is not appropriate for a pre-post analysis. However, the information does provide an additional description of the mental health challenges faced by BoBS participants.

Among the 470 participants who were included in the six month interview sample, 340 were enrolled in BoBS after the new questions on trauma and trauma symptoms were added to the GPRA interview. Approximately 80% (78.8%, n=268) of these participants indicated that they had experienced violence or trauma in their lifetime.¹ These participants were then asked whether they had ever experienced symptoms related to the traumatic events in their lives. Table C1 summarizes the symptoms reported by these participants.

Table C1: Trauma-related symptoms reported by BoBS participants (N=268)

Symptom	N	%
Trying hard not to think of it or avoiding situations that reminded them of the event	207	77.5%
Having nightmares or unwanted thoughts about the event	200	74.6%
Being constantly on guard, watchful, or easily startled	182	68.4%
Feeling numb and detached from others, activities, or your surroundings	177	66.0%

As Table C1 above shows, considerable proportions of participants who reported experiencing some trauma in their lives also reported experiencing symptoms related to those traumatic experiences. Specifically, 78% indicated that they had tried hard not to think of or avoided situations that reminded them of the event; 75% indicated that they had nightmares or unwanted thoughts about the event; 68% indicated that they had been on guard, watchful, or easily started because of the event; and 66% indicated that they had felt numb or detached from others, activities, or their surroundings because of the event.

In addition to the information presented in Table C1, the data from the GPRA questions indicates that nearly 90% (88.8%, n=238) of those who reported some trauma in their lives also reported experiencing *at least one* trauma-related symptom, and almost half (48.1%, n=129) reported that they had experienced *all of the symptoms* in their lifetimes due to the traumatic event(s) they had encountered.

While the information from the GPRA interview does not fully illustrate the severity or recentness of participants' trauma-related symptoms, nor does it provide an opportunity to explore potential pre-post improvements in those symptoms, the information does provide additional information to describe the mental health challenges faced by participants served through the BoBS program.

¹ The GPRA interview asked participants whether they had experienced violence or trauma in any setting (including community or school violence; domestic violence; physical, psychological, or sexual maltreatment/assault within or outside of the family; natural disaster; neglect; or traumatic grief).

