SOLUTIONS HEALTHCARE

CLINICAL OUTCOMES REPORT

July 2025

2025

A NOTE FROM THE CO-FOUNDERS

"At Solutions Healthcare, we are committed to delivering evidence-based, individualized treatment grounded in proven methods like CBT, ACT, and trauma-informed care. We believe that tracking clinical outcomes is essential to ensuring accountability, guiding continuous improvement, and ultimately helping clients achieve lasting recovery. We are proud of our clinical outcomes which is a testament our clients' success, and the effort put forth by the entire Solutions Healthcare Team."

Dr. Zach Miller ABD & Justin McCue

T A B L E
O F   C O N T E N T S

EXECUTIVE SUMMARY

This study employed the Patient Health Questionnaire (PHQ-9), the Generalized Anxiety Disorder Scale (GAD-7), and the Brief Addiction Monitor – Revised (BAM-R) to measure the impact that Solutions Healthcare has on client mental health and recovery outcomes. A total of over 300 clients participated in the study, which tracked changes in depression, anxiety, substance use, risk factors, and protective factors over the course of one year. Data collection occurred at six time points: intake, discharge, one month, three months, six months, and one year post-discharge.

To account for variation in participant follow-up and missing data points across the year, a generalized linear mixed model (GLMM) was used to analyze changes in scores over time. This statistical method allows for reliable estimation of treatment effects even when some clients completed only a subset of the follow-up assessments. The analysis revealed that clients entered treatment with severe symptoms of depression, anxiety, and substance use, often presenting with co-occurring conditions. Following treatment, participants experienced statistically significant and sustained improvements across all domains.

By one year post-discharge, clients showed a 76.4 percent reduction in substance use, a 56.5 percent reduction in risk factors, and a 190 percent increase in protective factors. In terms of mental health, depression scores (PHQ-9) declined by 63 percent, and anxiety scores (GAD-7) decreased by 58 percent. All changes were statistically significant at the .05 level, indicating with 95 percent confidence that the improvements were not due to random chance. These findings demonstrate that Solutions Healthcare provides highly effective, evidence-based treatment that leads to meaningful, lasting change in clients' mental health and recovery trajectories.

The data were independently collected, analyzed, and reported by Pacific Analytics, a quantitative behavioral health research firm. For questions regarding this research, please contact Kyle Van Duser, Ph.D., at info@pacificanalytics.org.

INTRODUCTION

OBJECTIVE

The purpose of this study is to assess the effectiveness of Solutions HealthCare's ability to help clients suffering from depression, anxiety, and substance abuse. The sections below: Research Questions, Hypotheses, Methodology, Findings, and Discussion take an empirical approach for assessing Solutions Healthcare's longitudinal impact on client mental health.

OVERVIEW OF SOLUTIONS HEALTHCARE

Solutions Healthcare is a behavioral health provider offering evidence-based treatment for individuals struggling with mental health disorders and substance use. Based in Central Florida, with locations in Oviedo, Orlando, DeLand, and Palm Coast, Solutions Healthcare provides a continuum of care that includes residential treatment, intensive outpatient programs (IOP), and individual, group, and family therapy.

Their approach emphasizes clinical best practices such as Acceptance and Commitment Therapy (ACT), Cognitive Behavioral Therapy (CBT), and trauma-informed care. Treatment plans are highly individualized, focusing on long-term recovery and emotional well-being. Accredited by The Joint Commission and licensed by the Florida Department of Children and Families and the Agency for Health Care Administration (AHCA), Solutions Healthcare is committed to delivering ethical, compassionate, and comprehensive behavioral health services in a safe and supportive environment.

RESEARCH QUESTIONS

In order to empirically assess the effectiveness of Solutions Healthcare's ability to support its clients, the study seeks to answer the following research questions (RQ):

RQ1: Is treatment at a Solutions Healthcare program effective at improving clients' feelings of depression over time?

RQ2: Is treatment at a Solutions Healthcare program effective at improving clients' feelings of anxiety over time?

RQ3: Is treatment at a Solutions Healthcare program effective at improving clients' self reported struggles with substance abuse?

The study focused on client depression, anxiety, and substance abuse as key areas to monitor longitudinally beyond discharge.

HYPOTHESES

In alignment with the research questions, the study sought to test the following hypotheses to empirically assess the effectiveness of Solutions Healthcare:

1

Depression (RQ1)
Null Hypothesis:
$H0: M1 = M2 = M3 = M4 = M5 = M6$
There is no difference in clients' self-reported feelings of depression over time after completion of an Solutions Healthcare treatment program.

Alternative Hypothesis:
$H1: M1 \neq M2 \neq M3 \neq M4 \neq M5 \neq M6$
Clients who complete an Solutions Healthcare treatment program experience a decrease in self-reported feelings of depression over time.

2

Anxiety (RQ2)
Null Hypothesis:
$H0: M1 = M2 = M3 = M4 = M5$
There is no difference in clients' self-reported feelings of anxiety after completion of an Solutions Healthcare treatment program.

Alternative Hypothesis:
$H1: M1 \neq M2 \neq M3 \neq M4 \neq M5$
Clients who complete a Solutions Healthcare treatment program self-report a decrease in feelings of anxiety which are sustained over time.

3

Substance Abuse (RQ3)
Null Hypothesis:
$H0: M1 = M2 = M3 = M4 = M5 = M6$
There is no difference in clients' self-reported challenges with substance abuse over time after completion of an Solutions Healthcare treatment program.

Alternative Hypothesis:
$H1: M1 \neq M2 \neq M3 \neq M4 \neq M5 \neq M6$
Clients' self-reported improvements with substance abuse challenges over time after completion of a Solutions Healthcare treatment program.

METHODOLOGY

CRITERIA FOR INCLUSION

This study took a multipronged quantitative approach to best assess Solutions Healthcare programs' effectiveness at improving client wellbeing.

Research evaluators analyzed the admission, discharge, one month post discharge, three months post discharge, six months post discharge, and one year post discharge PHQ-9, GAD-7 and BAM-R for approximately three hundred participants (n=300) admitted between April 15, 2024 and June 27, 2025. Clients entered treatment with a range of mental health diagnoses, frequently with co-morbidity.

Administratively, all clients are requested to complete the PHQ-9, GAD-7, and BAM-R for consistent tracking purposes.

While all clients are requested to complete upon entry and discharge, not all clients meet the clinical diagnosis threshold for the corresponding assessment tool. Intake analysis only includes those clients who indicated acute symptomology, a score of 15 and above which are cut scores for both the PHQ-9 and GAD-7. This cut score was selected intentionally as it represents a Solutions Healthcare client meeting the clinical threshold for a DSM V depressive and/or anxiety disorder.

The criteria for inclusion were set based on the standardized assessment being a tool to help diagnosis of a mental health condition.

Notably, not all discharged clients had reached the six month and one year post treatment time thresholds to be included for analysis,

METHODOLOGY

STATISTICAL METHOD AND SAMPLE POPULATION

The study employed a General Linear Mixed Model (GLMM) to examine the relationship between intake, discharge, and post-treatment depression, and anxiety scores. As is common with applied research, participants often do not complete surveys during every single time interval. With classic analysis of variance repeated measures (ANOVA), a single missed survey time interval results in the participant being excluded from the study.

The GLMM technique permitted the researcher to utilize participant data despite the existence of missing data. Further, it allowed for greater latitude to work with the collected data without violating statistical assumptions. In turn, this provided a relatively robust sample within the population of Solutions Healthcare alumni. Below is a descriptive table which displays the breakdown of responses by time interval.

METHODOLOGY

Sample Population

Survey	BAMR	
Time	Intake	320
	Discharge	140
	One Month	12
	3 Months	15
	6 Months	20
	1 Year	37
Total		**544**
Survey	**PHQ9**	
Time	Intake	260
	Discharge	52
	One Month	5
	6 Months	9
	1 Year	6
Total		**332**
Survey	**GAD7**	
Time	Intake	316
	Discharge	333
	3 Months	31
	6 Months	31
	1 Year	14
Total		**725**

ASSESSMENT TOOLS

The study drew upon the following assessment tools for programmatic analysis.

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

The PHQ-9 is a multipurpose instrument for screening, diagnosing, monitoring, and measuring the severity of depression.[i] It consists of nine questions that align with the criteria for diagnosing major depressive disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).[ii] The table below shows the range of scores that represent cut points for mild, moderate, moderately severe, and severe depression.[iii]

[i] Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: Validity of a Two-Item Depression Screener. Medical Care. 2003;41:1284-92.
[ii] Kroenke K, Spitzer RL. The PHQ-9: a new depression diagnostic and severity measure. Psychiatry Ann. 2002;32:509-21.
[iii] Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001;16:606-13.

Clinical Depression Scales

Score	Depression Severity
0 – 4	None-minimal
5 – 9	Mild
10 – 14	Moderate
15 – 19	Moderately Severe
20 – 27	Severe

GENERALIZED ANXIETY DISORDER SCALE (GAD-7)

The Generalized Anxiety Disorder 7-item (GAD-7) is an easy to perform initial screening tool for generalized anxiety disorder[i]. GAD-7 is a self-report questionnaire designed to assess the severity of generalized anxiety symptoms. It consists of seven questions that individuals answer based on their experiences over the past two weeks.

[i] Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. 2006;166:1092-7.

Clinical Anxiety Scales

Score	Anxiety Severity
0 – 5	Minimal
5 – 10	Mild
10 – 15	Moderate
15 – 20	Severe

ASSESSMENT TOOLS CONTINUED

BREIF ADDICTION MONITOR - REVISED (BAM-R)

The BAM-R is a 17-item tool used to monitor substance use and recovery progress over time. Developed by the Department of Veterans Affairs, it measures client functioning across three domains:

- **Substance Use: frequency of alcohol or drug use**

- **Risk Factors: triggers and relapse vulnerability**

- **Protective Factors: strengths and recovery supports**

Each item is scored from 0 to 4, with higher scores indicating more of the measured behavior (e.g., more substance use, more risk, or more protection depending on the item).

DATA COLLECTION

ETHICAL CONSIDERATIONS OF HUMAN SUBJECTS RESEARCH

Clients were contacted post discharge electronically and offered a gift card for participation.

The lead researcher consulted with Advarra, a private human subjects Institutional Review Board (IRB) to determine if the study needed formal oversight. Using the Department of Health and Human Services (DHHS) regulations at 45 CFR 46, Advarra IRB determined that the research project did not meet the DHHS definition of human subjects research under 45 CFR 46 and, therefore did not require IRB oversight.

Specifically, data presented in the findings are for Solutions Healthcare programs institutional improvement, anonymized, and aggregated in a way that safeguards any personal identifiable information. While IRB oversight was not deemed a requirement, written consent was ascertained throughout the data collection process.

FINDINGS

RQ1-DEPRESSION

Based on the findings below, we can reject our null hypothesis. Clients who participate in Solutions Healthcare see a major reduction in their feelings of depression. This is statistically significant at alpha .05. These findings hold true for long after clients leave Solutions Healthcare. Clients enter with moderately severe to severe depression and they discharge below the clinical threshold. Clients do experience a slight increase in their symptoms post discharge.

However, their overall self-reported symptom level is mild or below threshold. This is statistically significant at alpha.05.
Below are the findings from the GLMM outputs examining time. As evident from the estimates of fixed effects Model One, we may reject our Null Hypothesis.

Clients who participate in a Solutions Healthcare program experience a decrease in their depression symptoms long after discharge. This is significant at alpha .05.

PHQ-9 FINDINGS

PHQ-9

ASSESSMENT OCCURRENCE
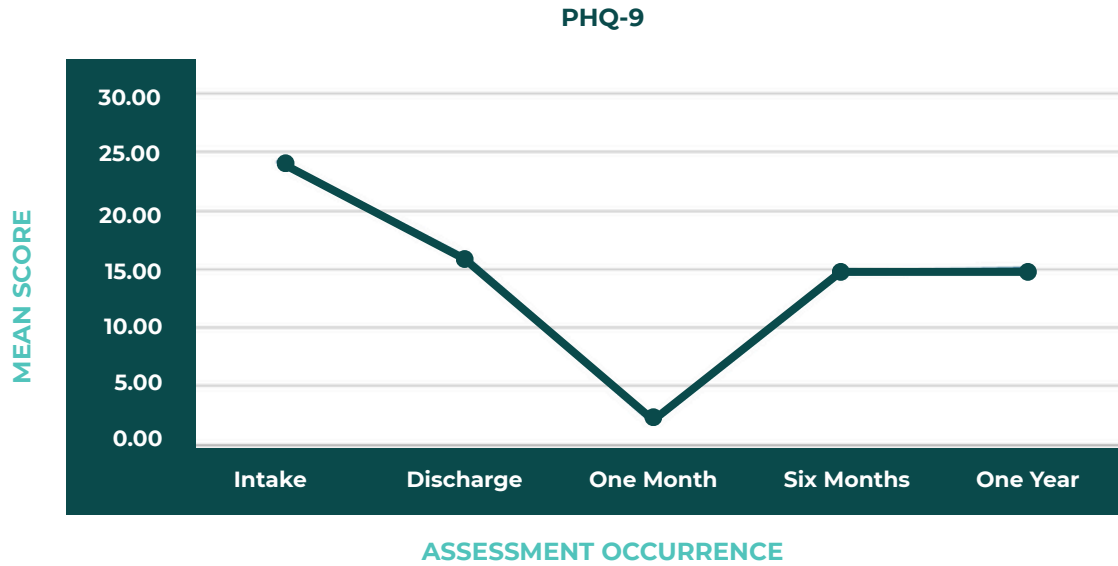
Descriptive Statistics
Score

Assessment Occurence	Count	Mean	Standard Deviation	Coefficient of Variation
Intake	260	24.2077	4.06073	16.8%
Discharge	52	15.9231	8.43858	53.0%
One Month	5	2.0000	0.00000	0.0%
Six Months	9	14.6667	10.22252	69.7%
One Year	6	15.0000	10.88118	72.5%
Total	332	22.1506	6.79623	30.7%

a. Dependent Variable: Issue Score.

PHQ-9 FINDINGS

Model Dimension[a]

		Number of Levels	Number of Parameters
Fixed Effects	Intercept	1	1
	Assessment Occurrence	5	4
Residual			1
Total		6	6

a. Dependent Variable: Issue Score.

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	327.000	360.703	0.000
Assessment Occurrence	4	327.000	52.202	0.000

a. Dependent Variable: Issue Score.

A General Linear Model (GLM) was conducted to assess changes in PHQ-9 depression scores across multiple assessment timepoints at Solutions Healthcare. The model included fixed effects for Assessment Occurrence, which consisted of five levels and were modeled using four parameters, with one timepoint serving as the reference group. The model also included an intercept and a residual term to account for overall variance and error, respectively.

Results from the Type III Tests of Fixed Effects indicated that both the intercept ($F(1, 327)$ = 360.703, $p < .001$) and the effect of Assessment Occurrence ($F(4, 327)$ = 52.202, $p < .001$) were statistically significant. These findings confirm that PHQ-9 scores varied meaningfully over time, providing strong evidence of depression symptom improvement across the course of treatment.

PHQ-9 FINDINGS

Estimates[a]

Assessment Occurence	Mean	Std. Error	df	95% Confidence Interval	
				Lower Bound	Upper Bound
Intake	24.208	0.331	327	23.556	24.859
Discharge	15.923	0.741	327	14.466	17.380
One Month	2.000	2.389	327	-2.699	6.699
Six Months	14.667	1.781	327	11.164	18.169
One Year	15.000	2.181	327	10.710	19.290

a. Dependent Variable: Issue Score.

The Estimates table shows how clients' depression levels changed across different points in their recovery journey using the PHQ-9, a widely used depression scale. The numbers represent the average (mean) score at each time point, with higher scores indicating more severe depression.

Clients started with very high PHQ-9 scores, averaging over 24. This places them in the "severe depression" range, showing that most entered treatment in significant distress.

By the time clients completed treatment, their scores dropped by almost 9 points. This is a clinically meaningful improvement, although some clients were still showing moderate symptoms.

There's a slight increase in symptoms again at the 6-month and 1-year marks, which is not uncommon. Life stressors can re-emerge, but importantly, these scores still remain much lower than at intake, suggesting lasting benefit from the program.

Clients show significant improvement in depression symptoms through treatment, with gains that mostly hold over time. Even one year later, average depression scores are still well below the levels reported when entering the program. This points to the long-term effectiveness of Solutions Healthcare's approach to mental health care.

PHQ-9 FINDINGS

Pairwise Comparisons[a]

(I) Assessment Occurence		Mean Difference (I-J)	Std. Error	df	Sig.c	95% Confidence Interval for Difference	
						Lower Bound	Upper Bound
Intake	Discharge	8.285*	0.811	327	0.000	5.991	10.578
	One Month	22.208*	2.412	327	0.000	15.392	29.024
	Six Months	9.541*	1.811	327	0.000	4.422	14.660
	One Year	9.208*	2.206	327	0.000	2.974	15.442
Discharge	Intake	-8.285*	0.811	327	0.000	-10.578	-5.991
	One Month	13.923*	2.501	327	0.000	6.854	20.992
	Six Months	1.256	1.929	327	1.000	-4.194	6.707
	One Year	0.923	2.303	327	1.000	-5.586	7.432
One Month	Intake	-22.208*	2.412	327	0.000	-29.024	-15.392
	Discharge	-13.923*	2.501	327	0.000	-20.992	-6.854
	Six Months	-12.667*	2.979	327	0.000	-21.087	-4.246
	One Year	-13.000*	3.235	327	0.001	-22.142	-3.858
Six Months	Intake	-9.541*	1.811	327	0.000	-14.660	-4.422
	Discharge	-1.256	1.929	327	1.000	-6.707	4.194
	One Month	12.667*	2.979	327	0.000	4.246	21.087
	One Year	-0.333	2.815	327	1.000	-8.290	7.623
One Year	Intake	-9.208*	2.206	327	0.000	-15.442	-2.974
	Discharge	-0.923	2.303	327	1.000	-7.432	5.586
	One Month	13.000*	3.235	327	0.001	3.858	22.142
	Six Months	0.333	2.815	327	1.000	-7.623	8.29

Based on estimated marginal mean *. The mean difference is significant at the .05 level.
a. Dependent Variable: Issue Score.
c. Adjustment for multiple comparisons: Bonferroni.

PHQ-9 FINDINGS

The pairwise comparisons table offers a detailed look at how clients' depression scores changed between key time points using the PHQ-9. The most notable finding is that clients experienced a statistically significant reduction in symptoms from intake through all post-treatment intervals, with the largest improvement occurring between intake and one month post-discharge. There is a mean difference of 22.21 points (p < .001).

 Comparisons between intake and all other time points (discharge, six months, and one year) were also highly significant, indicating strong gains made during treatment. These results affirm that the program leads to immediate and meaningful reductions in depressive symptoms. Interestingly, while scores slightly increased after discharge, pairwise comparisons between discharge, six months, and one year did not show statistically significant differences. This suggests that the improvements made during treatment largely held over time, with no significant rebound in symptoms.

The consistency of scores across these post-discharge intervals reinforces the idea that Solutions Healthcare's treatment has a lasting impact on clients' well-being. Overall, the data demonstrates that clients not only improve substantially during treatment but also maintain those improvements long after leaving care.
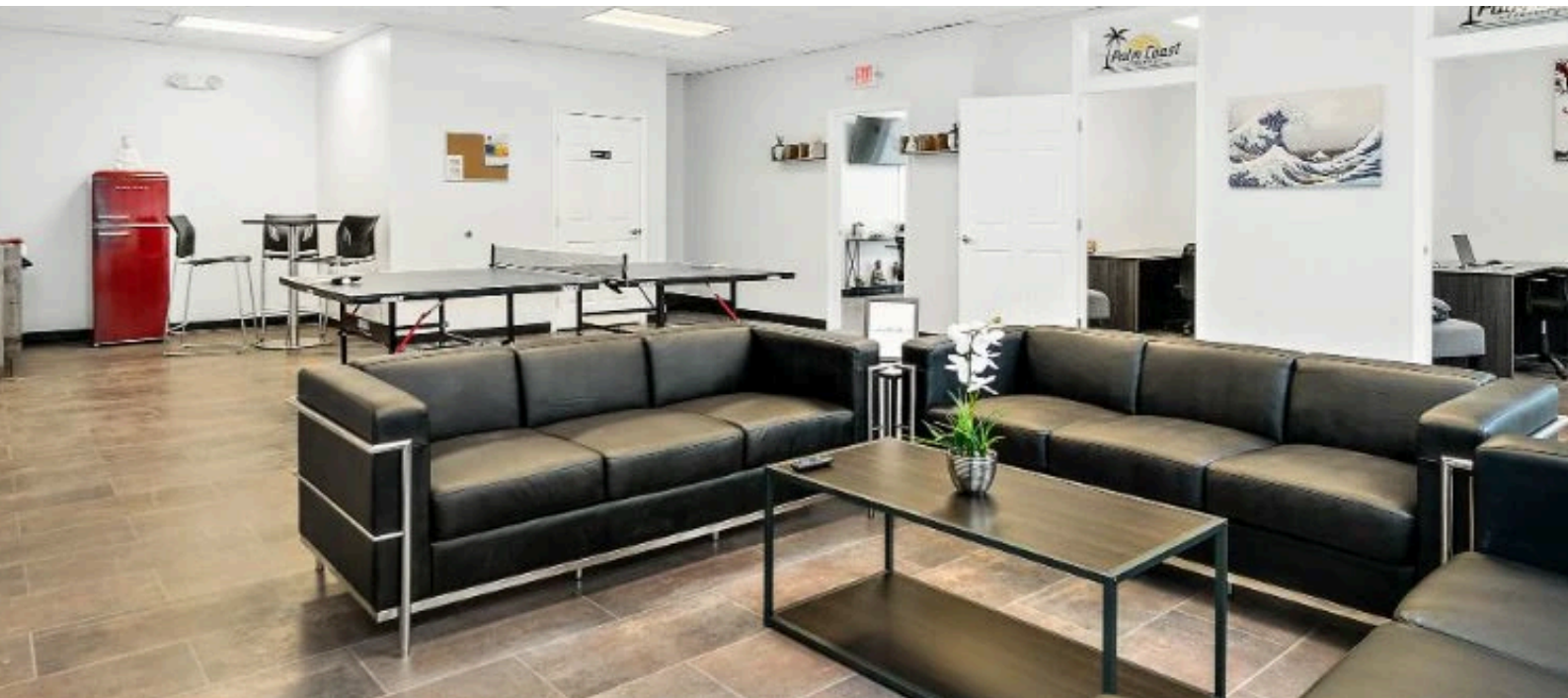
RQ2- ANXIETY

Based on the findings below, we can reject our null hypothesis. Clients who participate in Solutions Healthcare see a major reduction in their feelings of anxiety over time. This is statistically significant at alpha .05. These findings hold true for long after clients leave a Solutions Healthcare Program. Clients enter with severe anxiety and they discharge below the clinical threshold. Clients experience no increase in their symptoms post discharge. This is statistically significant at alpha.05.

RQ2- ANXIETY

MEAN SCORE

Intake	Discharge	Three Months	Six Months	One Year

ASSESSMENT OCCURRENCE
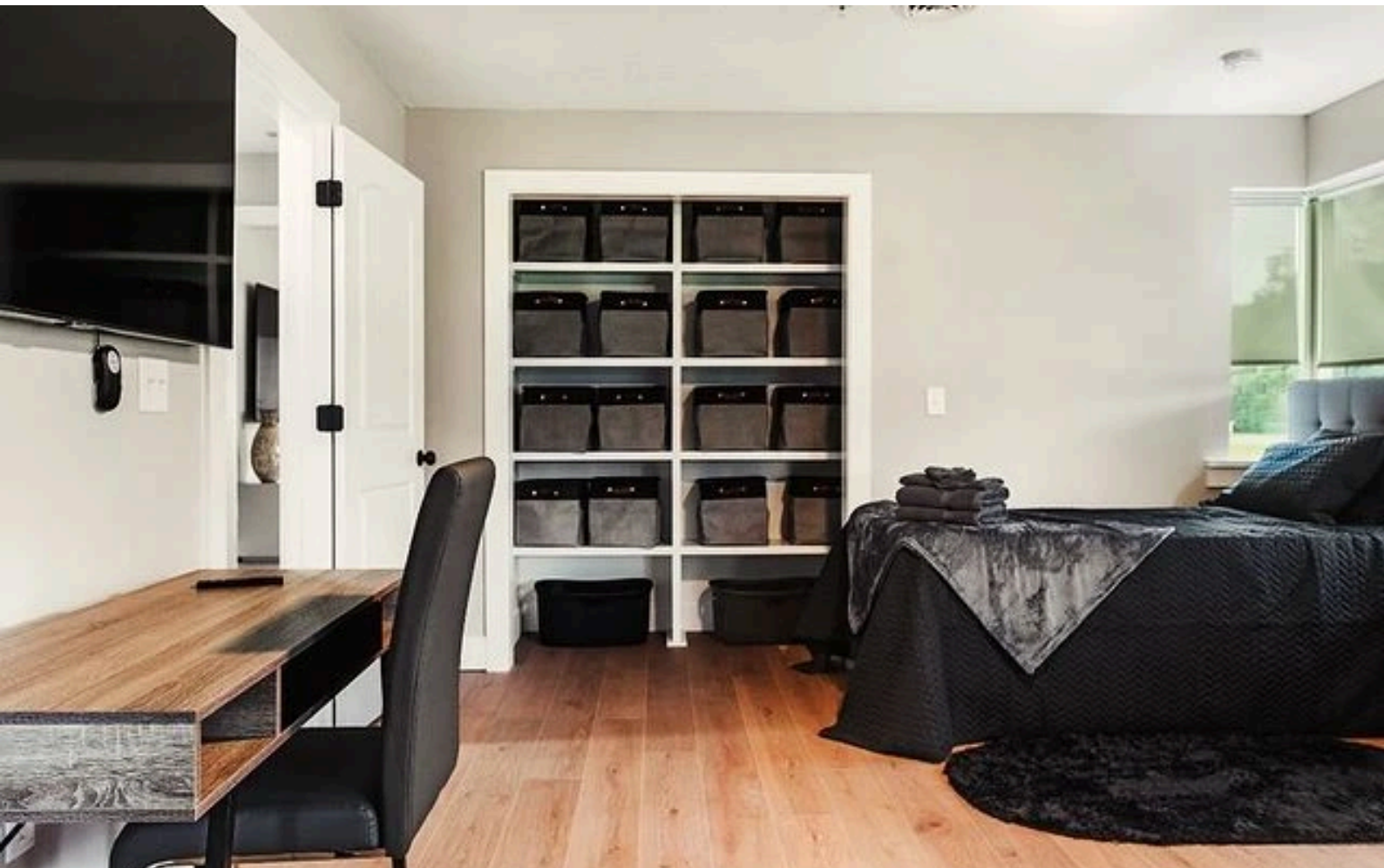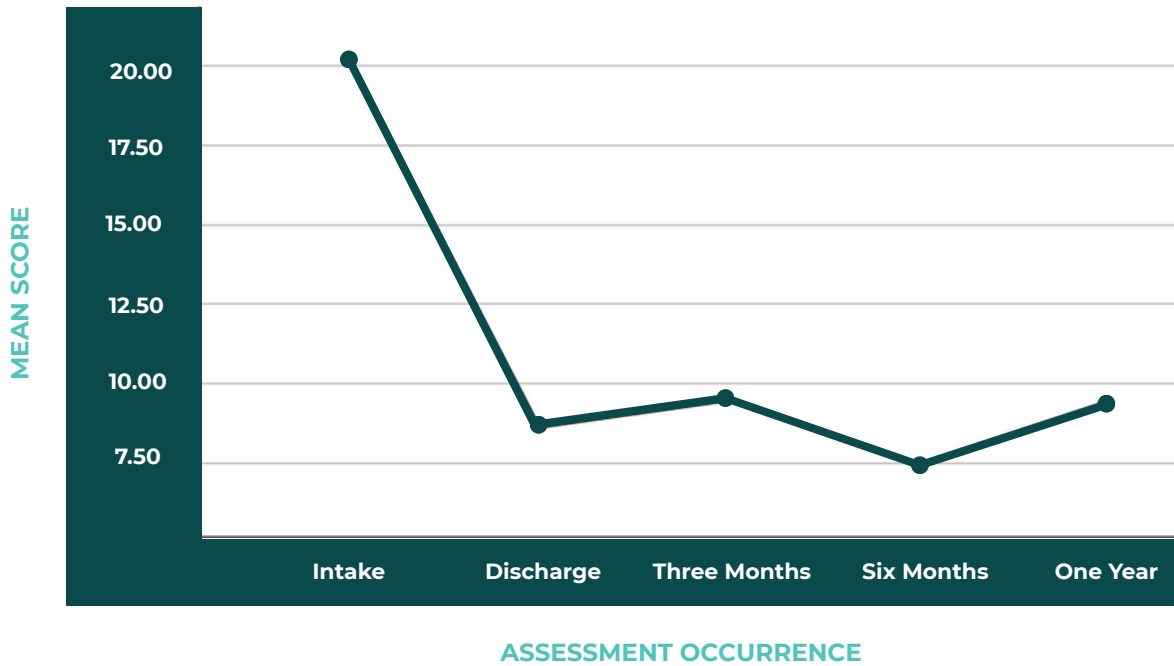
This graph displays the mean GAD-7 anxiety scores for clients at Solutions Healthcare across five assessment time points: intake, discharge, three months, six months, and one year post-discharge. At intake, clients reported an average anxiety score above 20, which falls in the severe range. By discharge, scores dropped sharply to around 8, indicating a significant reduction in anxiety symptoms into the mild range.

Over time, anxiety scores remained low, with a slight increase at three months, a further decrease at six months, and a mild rebound at the one-year mark, still well below intake levels. Despite minor fluctuations, the overall trend demonstrates a sustained and clinically meaningful reduction in anxiety over the course of the year following treatment. This suggests that Solutions Healthcare had a strong and lasting impact on helping clients manage symptoms of anxiety.

Descriptive Statistics

Assessment Occurrence	Count	Mean	Standard Deviation	Coefficient of Variation
Intake	316	20.2468	1.54586	7.6%
Discharge	333	8.6366	6.38830	74.0%
Three Months	31	9.4839	6.49036	68.4%
Six Months	31	7.4516	5.70286	76.5%
One Year	14	9.4286	5.95773	63.2%
Total	725	13.6979	7.53453	55.0%

The Descriptive Statistics table summarizes GAD-7 scores over time, highlighting changes in anxiety symptoms across key treatment milestones. At intake, clients reported high average anxiety levels (M = 20.24), consistent with severe clinical anxiety. By discharge, the mean score dropped sharply to 8.63, indicating a substantial reduction in anxiety symptoms. Although there was a slight increase in scores at later follow-up points, with averages of 9.48 at three months, 7.45 at six months, and 9.42 at one year, clients maintained meaningful improvements compared to intake. The increasing coefficient of variation over time suggests growing individual differences in outcomes, which is a common trend as clients transition from structured care to independent living.

RQ2 - ANXIETY

Model Dimension[a]

		Number of Levels	Number of Parameters
Fixed Effects	**Intercept**	1	1
	Assessment Occurrence	5	4
Residual			1
Total		6	6

The model dimensions table summarizes the structure of the statistical model used to analyze GAD-7 scores over time. The model includes a fixed intercept to represent the average baseline anxiety level across all participants, along with a fixed effect for time across five levels: intake, discharge, three months, six months, and one year. One-month follow-up data was not collected for the GAD-7, which is why only five time points are included in the analysis. Of the six parameters estimated in the model, one accounts for the intercept, four correspond to the time comparisons (with one time point serving as the reference), and one represents residual variance. This model structure allows for the evaluation of whether anxiety scores changed significantly over time while accounting for baseline differences.

RQ2 - ANXIETY

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	720	909.517	0.000
Assessment Occurrence	4	720	255.118	0.000

a. Dependent Variable: Score.

The Tests of Fixed Effects table presents the results of the Type III tests of fixed effects for the GAD-7 outcome model. The intercept is statistically significant (F = 909.52, p < .001) indicating that average baseline anxiety levels were meaningfully different from zero. More importantly, the fixed effect of time is also highly significant $F(4, 720) = 255.12$, p < .001, demonstrating that GAD-7 scores changed significantly across the different time points. These findings provide strong evidence that clients experienced measurable reductions in anxiety symptoms over the course of treatment and follow-up.

Estimates[a]

Assessment Occurrence	Mean	Std. Error	df	95% Confidence Interval	
				Lower Bound	Upper Bound
Intake	20.247	0.273	720	19.710	20.784
Discharge	8.637	0.266	720	8.114	9.159
Three Months	9.484	0.873	720	7.770	11.197
Six Months	7.452	0.873	720	5.738	9.165
One Year	9.429	1.299	720	6.879	11.978

a. Dependent Variable: Score.

Pairwise Comparisons[a]

| (I) Assessment Occurrence		Mean Difference (I-J)	Std. Error	df	Sig.c	95% Confidence Interval for Differencec	
						Lower Bound	Upper Bound
Intake	Discharge	11.610*	0.382	720	0.000	10.536	12.685
	Three Months	10.763*	0.915	720	0.000	8.188	13.338
	Six Months	12.795*	0.915	720	0.000	10.220	15.370
	One Year	10.818*	1.327	720	0.000	7.081	14.555
Discharge	Intake	-11.610*	0.382	720	0.000	-12.685	-10.536
	Three Months	-0.847	0.913	720	1.000	-3.417	1.722
	Six Months	1.185	0.913	720	1.000	-1.384	3.754
	One Year	-0.792	1.326	720	1.000	-4.525	2.941
Three Months	Intake	-10.763*	0.915	720	0.000	-13.338	-8.188
	Discharge	0.847	0.913	720	1.000	-1.722	3.417
	Six Months	2.032	1.234	720	1.000	-1.443	5.508
	One Year	0.055	1.565	720	1.000	-4.351	4.461
Six Months	Intake	-12.795*	0.915	720	0.000	-15.370	-10.220
	Discharge	-1.185	0.913	720	1.000	-3.754	1.384
	Three Months	-2.032	1.234	720	1.000	-5.508	1.443
	One Year	-1.977	1.565	720	1.000	-6.383	2.429
One Year	Intake	-10.818*	1.327	720	0.000	-14.555	-7.081
	Discharge	0.792	1.326	720	1.000	-2.941	4.525
	Three Months	-0.055	1.565	720	1.000	-4.461	4.351
	Six Months	1.977	1.565	720	1.000	-2.429	6.383

GAD-7 FINDINGS

The pairwise comparisons table offers a detailed look at how clients' anxiety scores changed between key time points using the GAD-7. The most notable finding is that clients experienced a statistically significant reduction in symptoms from intake through all post-treatment intervals, with the largest improvement occurring between intake and six months post-discharge. There is a mean difference of 12.79 points (p < .001).

Comparisons between intake and all other time points (discharge, three months, six months, and one year) were also highly significant, indicating strong gains made during treatment. These results affirm that the program leads to immediate and meaningful reductions in anxiety symptoms. Pairwise comparisons between discharge, three months, six months, and one year did not show statistically significant differences. This suggests that the improvements made during treatment largely held over time, with no significant rebound in symptoms.

The consistency of scores across these post-discharge intervals reinforces the idea that Solutions Healthcare's treatment has a lasting impact on clients' well-being. Overall, the data demonstrates that clients not only improve substantially during treatment but also maintain those improvements long after leaving care.

RQ3 - SUBSTANCE ABUSE
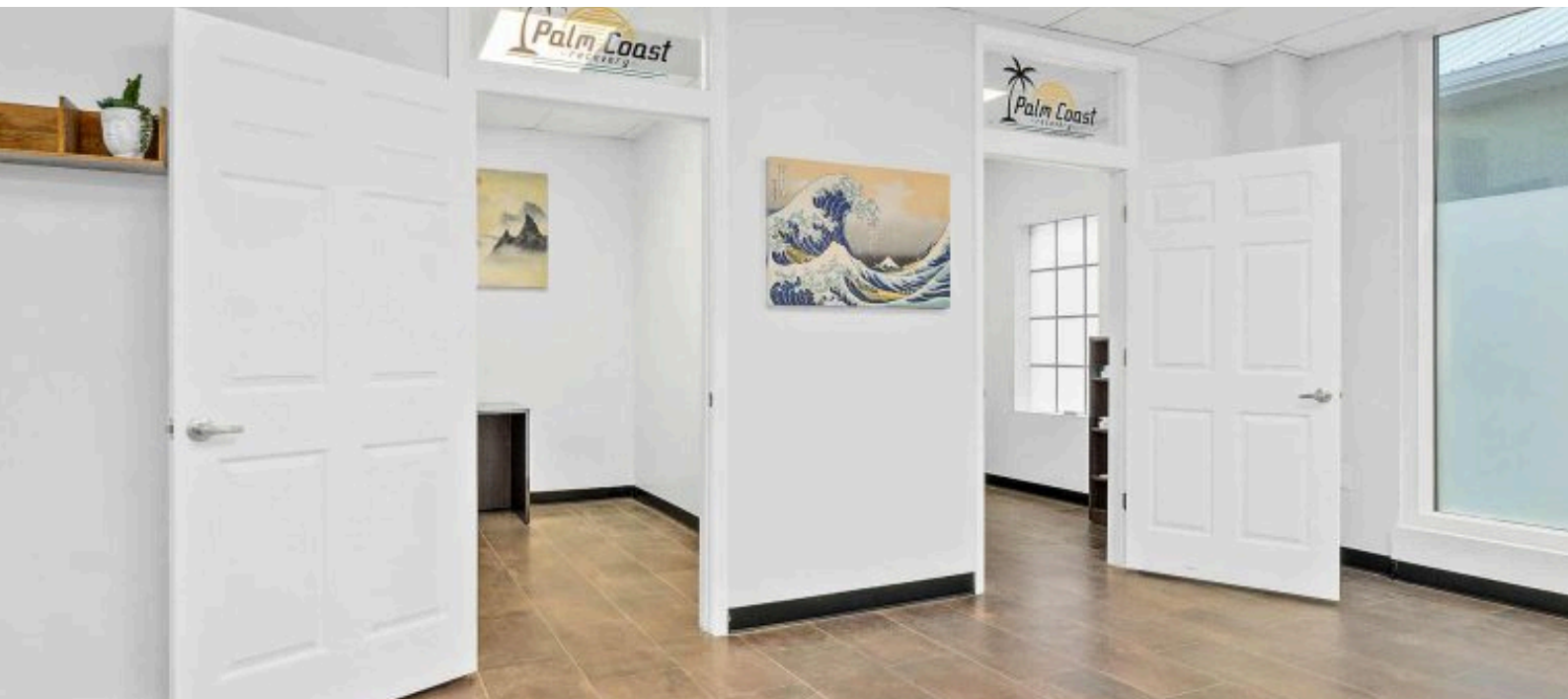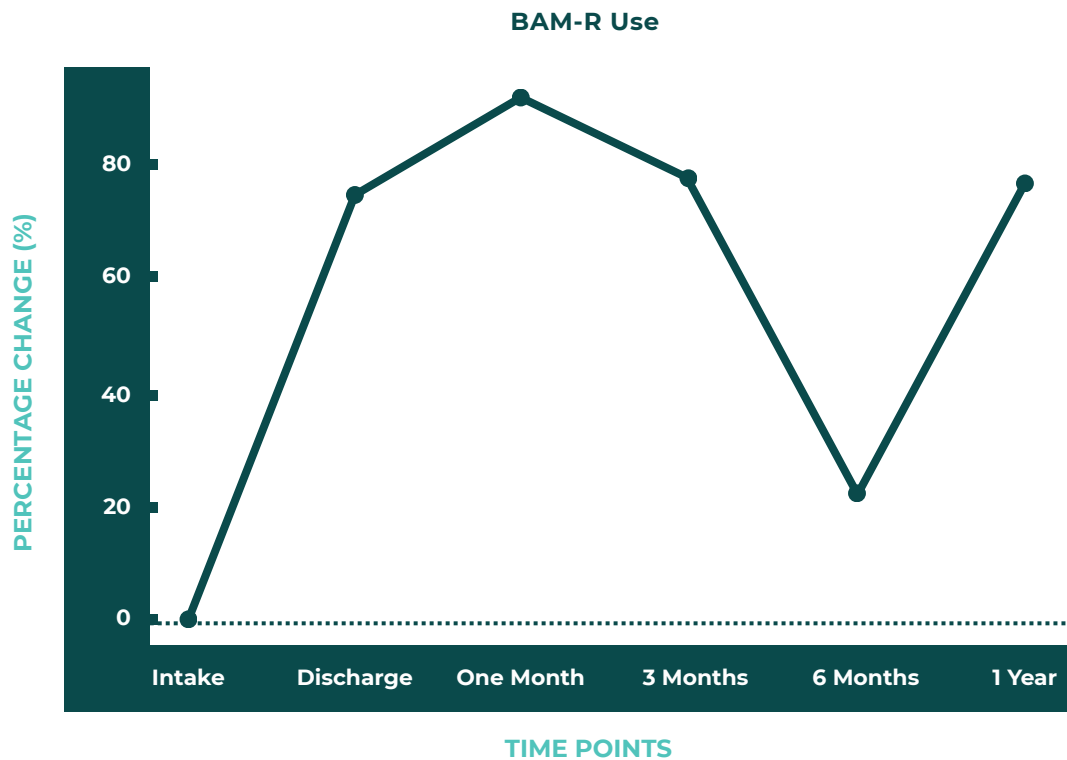
BAM-R Scores Over Time
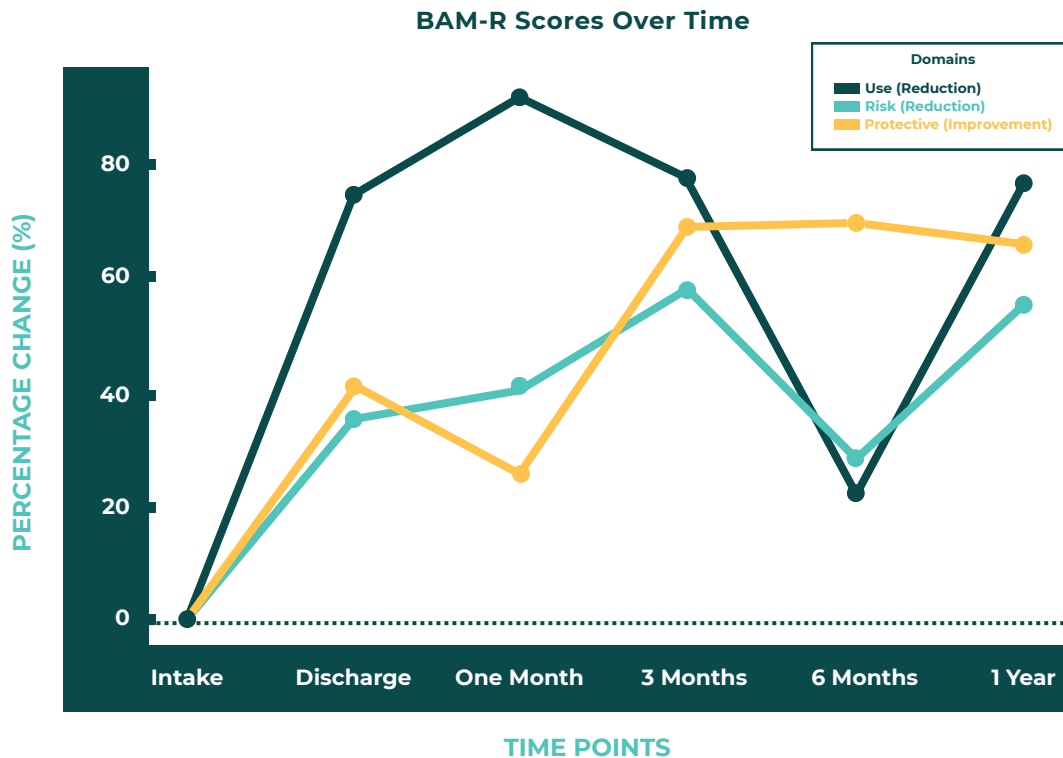
This graph illustrates the percentage change over time in three key areas measured by the BAM-R (Brief Addiction Monitor – Revised): substance use, risk factors, and protective factors. The data tracks client progress from intake through one year after treatment, with follow-ups at discharge, one month, three months, six months, and one year.

Overall, the graph shows significant positive change in all domains shortly after treatment begins. By the time of discharge, clients had already achieved notable reductions in both substance use and risk factors, and had made gains in protective factors. The largest improvements in substance use and risk factors were seen at the one-month follow-up, with substance use dropping by nearly 90% and risk factors decreasing by about 40%. Protective factors, which include healthy coping skills, support systems, and motivation for recovery, continued to improve over time, peaking around the three-month mark and remaining relatively high through one year.

While a dip in progress was observed at the six-month mark, particularly in substance use and risk factors, clients appeared to rebound by the one-year point, with substantial improvements once again evident across all three areas.

This pattern suggests that treatment had a lasting impact, though it also highlights the importance of continued support and monitoring during the mid-term recovery period to help maintain early gains. Overall, the graph reflects a strong and sustained positive trajectory in recovery-related outcomes over the course of a year.

RQ3 - SUBSTANCE ABUSE USE FACTORS

BAM-R Use

This graph displays the percentage change in BAM-R Use scores over time, reflecting reductions in substance use following participation in Solutions Healthcare. At discharge, clients showed a notable reduction of approximately 70 percent in substance use compared to intake. This improvement peaked at over 90 percent reduction by the one-month follow-up, then remained strong at three months.

However, by six months, a drop in percent change indicates a temporary increase in reported use, suggesting potential relapse or challenges in mid-recovery. By the one-year mark, substance use reduction improved again to around 76 percent, demonstrating sustained progress overall. The graph highlights strong early treatment effects with lasting, though dynamic, recovery patterns over time.

BAM-R USE DOMAIN

Descriptive Statistics

Assessment Occurence	Count	Mean	Standard Deviation	Coefficient of Variation
Intake	320	13.6219	20.45388	150.2%
Discharge	140	1.4000	6.65469	475.3%
One Month	12	1.1667	2.32900	199.6%
Three Months	15	3.2000	9.10416	284.5%
Six Months	20	10.6000	20.70189	195.3%
One Year	37	3.2162	6.45986	200.9%
Total	544	9.0956	17.58562	193.3%

a. Dependent Variable: USE.

This table presents descriptive statistics for the BAM-R Use Domain, summarizing self-reported substance use at each assessment point. At intake, the average use score was 13.62, indicating high levels of substance use prior to treatment. By discharge, this average dropped dramatically to 1.40, reflecting a strong early treatment effect. The lowest mean was observed at one month post-discharge (1.17), but this was based on a small sample of 12 individuals. Scores remained relatively low at three months (3.20) and one year (3.22), but showed a temporary increase at six months (10.60), suggesting possible fluctuation or relapse for some clients during that period.

The coefficient of variation, which measures variability relative to the mean, was highest at discharge (475.3%), indicating wide differences in individual experiences after leaving treatment. Overall, the data reflects a significant average reduction in substance use from intake, though some variability and potential return to use occurred during longer-term follow-ups. These findings highlight both the effectiveness of treatment and the importance of ongoing support to maintain gains over time.

BAM-R USE DOMAIN

Model Dimension[a]

		Number of Levels	Number of Parameters
Fixed Effects	**Intercept**	1	1
	Assessment Occurence	6	5
Residual			1
Total		7	7

a. Dependent Variable: USE.

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	538	16.612	0.000
Assessment Occurence	5	538	12.476	0.000

a. Dependent Variable: USE.

The Model Dimension table shows that the model includes two fixed effects: the intercept (overall average use) and assessment occurrence (the time points at which use was measured—intake, discharge, one month, etc.). There are six levels of assessment occurrence, and the model accounts for a total of seven parameters, including residual error.

The Type III Tests of Fixed Effects table provides the statistical significance of these model components. The test for assessment occurrence shows a statistically significant result (F(5, 538) = 12.476, p < .001), indicating that substance use scores changed significantly across time points. The intercept is also significant (F(1, 538) = 16.612, p < .001), suggesting the overall mean differs from zero, which is expected in this context.

In summary, the analysis confirms that the timing of assessment (i.e., intake, discharge, follow-ups) has a significant impact on reported substance use, supporting the conclusion that use levels varied meaningfully across the recovery timeline.

BAM-R USE DOMAIN

Estimates[a]

Assessment Occurence	Mean	Std. Error	df	95% Confidence Interval	
				Lower Bound	**Upper Bound**
Intake	13.622	0.935	538	11.785	15.458
Discharge	1.400	1.413	538	-1.377	4.177
One Month	1.167	4.828	538	-8.317	10.650
Three Months	3.200	4.318	538	-5.283	11.683
Six Months	10.600	3.740	538	3.254	17.946
One Year	3.216	2.749	538	-2.185	8.617

a. Dependent Variable: USE.

The Estimates table shows average BAM-R Use scores across six time points, capturing changes in self-reported substance use. At intake, the average use score was 13.62, indicating high levels of reported use prior to treatment. By discharge, this dropped sharply to 1.40, reflecting substantial improvement. Scores remained low at one month (1.17) and three months (3.20), but rose to 10.60 by six months, suggesting a potential return to use for some clients. By one year, the average dropped again to 3.22, indicating a possible re-engagement with recovery efforts. Overall, the data highlights a strong initial impact of treatment on reducing substance use, with some variability in maintenance over time.

BAM-R USE DOMAIN

Pairwise Comparisons[a]

(I) Assessment Occurence		Mean Difference (I-J)	Std. Error	df	Sig.c	95% Confidence Interval for Difference	
						Lower Bound	Upper Bound
Intake	Discharge	12.222*	1.695	538	0.000	7.225	17.218
	One Month	12.455	4.918	538	0.174	-2.044	26.954
	Three Months	10.422	4.418	538	0.280	-2.605	23.448
	Six Months	3.022	3.855	538	1.000	-8.343	14.387
	One Year	10.406*	2.904	538	0.006	1.843	18.968
Discharge	Intake	-12.222*	1.695	538	0.000	-17.218	-7.225
	One Month	0.233	5.031	538	1.000	-14.598	15.065
	Three Months	-1.800	4.544	538	1.000	-15.196	11.596
	Six Months	-9.200	3.998	538	0.326	-20.987	2.587
	One Year	-1.816	3.091	538	1.000	-10.931	7.299
One Month	Intake	-12.455	4.918	538	0.174	-26.954	2.044
	Discharge	-0.233	5.031	538	1.000	-15.065	14.598
	Three Months	-2.033	6.477	538	1.000	-21.131	17.064
	Six Months	-9.433	6.107	538	1.000	-27.438	8.572
	One Year	-2.050	5.556	538	1.000	-18.430	14.331

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Dependent Variable: USE.

c. Adjustment for multiple comparisons: Bonferroni.

BAM-R USE DOMAIN

Pairwise Comparisons[a]

(I) Assessment Occurence		Mean Difference (I-J)	Std. Error	df	Sig.c	95% Confidence Interval for Difference	
						Lower Bound	Upper Bound
Three Months	Intake	-10.422	4.418	538	0.280	-23.448	2.605
	Discharge	1.800	4.544	538	1.000	-11.596	15.196
	One Month	2.033	6.477	538	1.000	-17.064	21.131
	Six Months	-7.400	5.712	538	1.000	-24.242	9.442
	One Year	-0.016	5.119	538	1.000	-15.109	15.077
Six Months	Intake	-3.022	3.855	538	1.000	-14.387	8.343
	Discharge	9.200	3.998	538	0.326	-2.587	20.987
	One Month	9.433	6.107	538	1.000	-8.572	27.438
	Three Months	7.400	5.712	538	1.000	-9.442	24.242
	One Year	7.384	4.642	538	1.000	-6.301	21.069
One Year	Intake	-10.406*	2.904	538	0.006	-18.968	-1.843
	Discharge	1.816	3.091	538	1.000	-7.299	10.931
	One Month	2.050	5.556	538	1.000	-14.331	18.430
	Three Months	0.016	5.119	538	1.000	-15.077	15.109
	Six Months	-7.384	4.642	538	1.000	-21.069	6.301

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Dependent Variable: USE.

c. Adjustment for multiple comparisons: Bonferroni.

BAM-R USE DOMAIN FINDINGS

The Bonferonni table displays pairwise comparisons of scores across time points in the BAM-R Use Domain, which measures self-reported substance use.

The most notable and statistically significant change is from intake to discharge, where there was an average reduction of 12.22 points ($p < .001$), clearly indicating a substantial decline in reported substance use during treatment. There is also a statistically significant reduction from intake to one year, with a mean difference of 10.41 points ($p = .006$), showing that reductions in use were largely maintained one year after intake. However, other comparisons, including intake to one month, three months, and six months, did not reach statistical significance (p-values ranging from .174 to 1.000), suggesting more variability or smaller sample sizes at these time points.

Additionally, no other time point comparisons (e.g., discharge vs. follow-ups or one month vs. later assessments) showed statistically significant differences, as all p-values were well above .05.

This pattern suggests that the most meaningful change in substance use occurred during the course of treatment itself—between intake and discharge—with sustained improvements seen up to a year later. However, changes between later follow-ups were not statistically significant, which may be due to individual differences in recovery, sample size, or natural variability in post-treatment behavior. Importantly, these results highlight that treatment had a strong immediate impact on reducing substance use, and that many clients were able to maintain much of that progress over time.

RQ3 - SUBSTANCE ABUSE RISK FACTORS
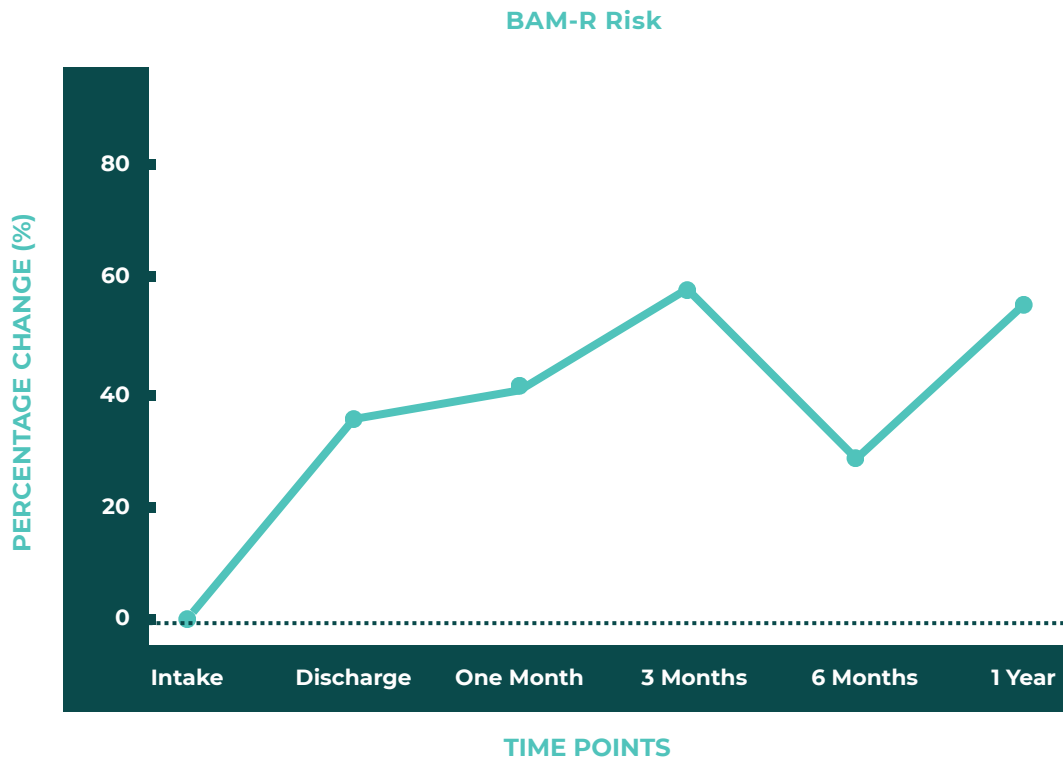
BAM-R Risk

This graph illustrates the percentage reduction in BAM-R Risk scores over time for clients at Solutions Healthcare. From intake to discharge, there was an initial 38 percent reduction in risk, which continued to improve slightly at the one-month mark. By three months, the reduction peaked at approximately 58 percent, reflecting strong early gains in risk stabilization.

However, at six months, there was a noticeable drop, with improvement falling to around 30 percent, suggesting a potential increase in risk factors mid-recovery. By the one-year follow-up, risk reduction rebounded to roughly 56 percent, indicating that many clients regained stability after temporary challenges. Overall, the trend shows significant early decreases in risk, a temporary mid-recovery dip, and a strong return to progress by one year.

RQ3 - SUBSTANCE ABUSE RISK FACTORS

BAM-R Risk
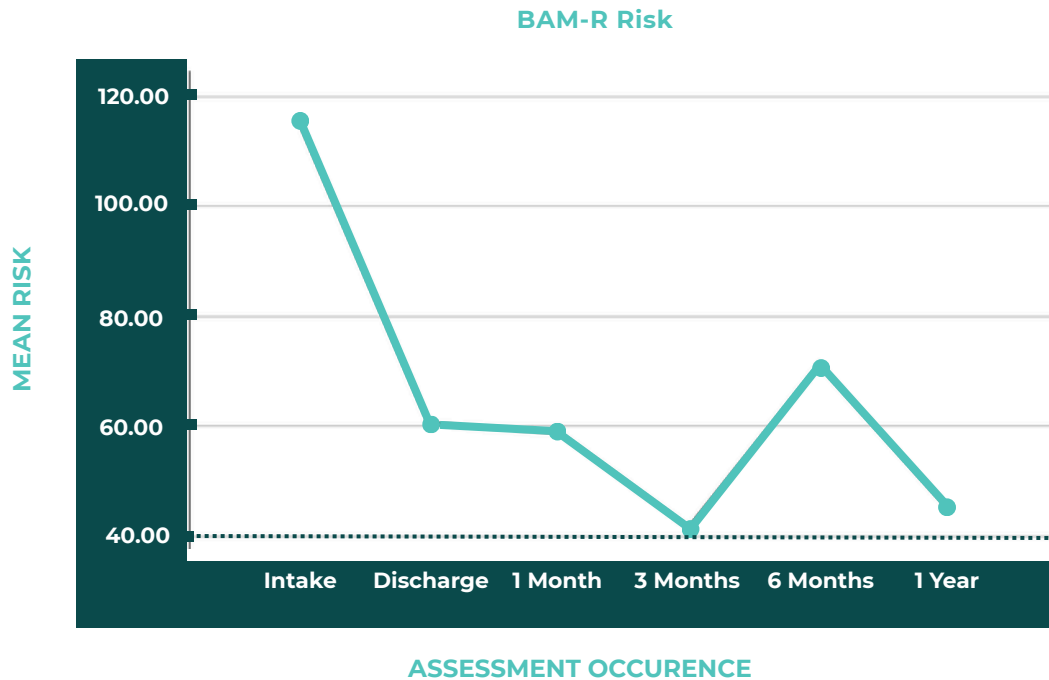
This graph displays the change in risk factors over time, as measured by the BAM-R. At intake, the average risk score was approximately 115. By discharge, that score dropped sharply to about 60, representing a 47.8 percent reduction in risk during treatment. This initial decline was sustained at the one-month mark, with a slight decrease to 58. At three months, risk levels reached their lowest point at approximately 43, which reflects a 62.6 percent total reduction from intake.

However, by six months, the average risk score rose to 75, indicating a partial return of risk factors and reducing the percent improvement to 34.8 percent. At the one-year follow-up, risk decreased again to around 50, yielding an overall 56.5 percent improvement from intake levels

BAM-R RISK DOMAIN

Descriptive Statistics

Assessment Occurence	Count	Mean	Standard Deviation	Coefficient of Variation
Intake	320	115.7375	40.48119	35.0%
Discharge	140	60.5714	30.95231	51.1%
One Month	12	58.8333	25.94341	44.1%
Three Months	15	41.6000	26.92264	64.7%
Six Months	20	71.2000	50.38128	70.8%
One Year	37	44.8108	30.01188	67.0%
Total	544	91.7794	47.30380	51.5%

Model Dimension[a]

		Number of Levels	Number of Parameters
Fixed Effects	Intercept	1	1
	Assessment Occurence	6	5
Residual			1
Total		7	7

a. Dependent Variable: Risk.

BAM-R RISK

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	538	463.755	0.000
Assessment Occurence	5	538	65.764	0.000

a. Dependent Variable: Risk.

Estimates[a]

Assessment Occurence	Mean	Std. Error	df	95% Confidence Interval	
				Lower Bound	Upper Bound
Intake	115.738	2.093	538	111.626	119.849
Discharge	60.571	3.164	538	54.356	66.787
One Month	58.833	10.808	538	37.603	80.064
Three Months	41.600	9.667	538	22.611	60.589
Six Months	71.200	8.372	538	54.755	87.645
One Year	44.811	6.155	538	32.720	56.902

a. Dependent Variable: Risk.

BAM-R RISK

Pairwise Comparisons[a]

(I) AssessmentOccurence		Mean Difference (I-J)	Std. Error	df	Sig.c	95% Confidence Interval for Difference	
						Lower Bound	Upper Bound
Intake	Discharge	55.166*	3.794	538	0.000	43.981	66.351
	One Month	56.904*	11.009	538	0.000	24.447	89.362
	Three Months	74.138*	9.891	538	0.000	44.976	103.299
	Six Months	44.537*	8.629	538	0.000	19.095	69.980
	One Year	70.927*	6.501	538	0.000	51.759	90.094
Discharge	Intake	-55.166*	3.794	538	0.000	-66.351	-43.981
	One Month	1.738	11.262	538	1.000	-31.465	34.941
	Three Months	18.971	10.172	538	0.941	-11.018	48.961
	Six Months	-10.629	8.950	538	1.000	-37.016	15.759
	One Year	15.761	6.921	538	0.347	-4.644	36.166
One Month	Intake	-56.904*	11.009	538	0.000	-89.362	-24.447
	Discharge	-1.738	11.262	538	1.000	-34.941	31.465
	Three Months	17.233	14.500	538	1.000	-25.519	59.986
	Six Months	-12.367	13.671	538	1.000	-52.674	27.940
	One Year	14.023	12.438	538	1.000	-22.648	50.693

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Dependent Variable: Risk.

c. Adjustment for multiple comparisons: Bonferroni.

BAM-R RISK

Pairwise Comparisons[a]

(I) AssessmentOccurence		Mean Difference (I-J)	Std. Error	df	Sig.c	95% Confidence Interval for Difference	
						Lower Bound	Upper Bound
Three Months	Intake	-74.138*	9.891	538	0.000	-103.299	-44.976
	Discharge	-18.971	10.172	538	0.941	-48.961	11.018
	One Month	-17.233	14.500	538	1.000	-59.986	25.519
	Six Months	-29.600	12.788	538	0.315	-67.304	8.104
	One Year	-3.211	11.460	538	1.000	-36.999	30.578
Six Months	Intake	-44.537*	8.629	538	0.000	-69.980	-19.095
	Discharge	10.629	8.950	538	1.000	-15.759	37.016
	One Month	12.367	13.671	538	1.000	-27.940	52.674
	Three Months	29.600	12.788	538	0.315	-8.104	67.304
	One Year	26.389	10.391	538	0.171	-4.247	57.025
One Year	Intake	-70.927*	6.501	538	0.000	-90.094	-51.759
	Discharge	-15.761	6.921	538	0.347	-36.166	4.644
	One Month	-14.023	12.438	538	1.000	-50.693	22.648
	Three Months	3.211	11.460	538	1.000	-30.578	36.999
	Six Months	-26.389	10.391	538	0.171	-57.025	4.247

RQ3 - SUBSTANCE ABUSE PROTECTIVE FACTORS

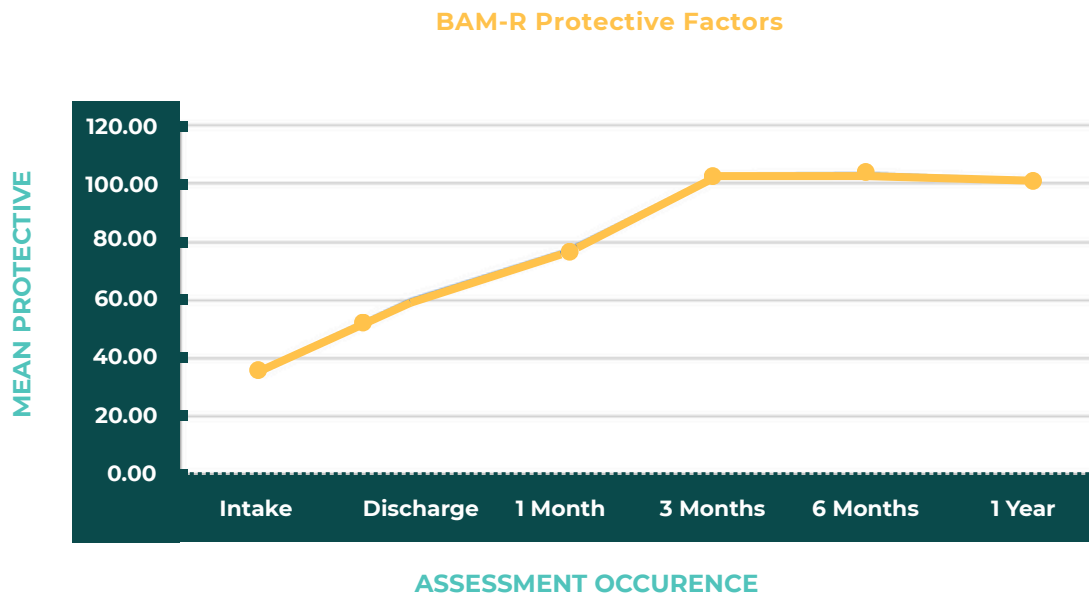**BAM-R Protective Factors**
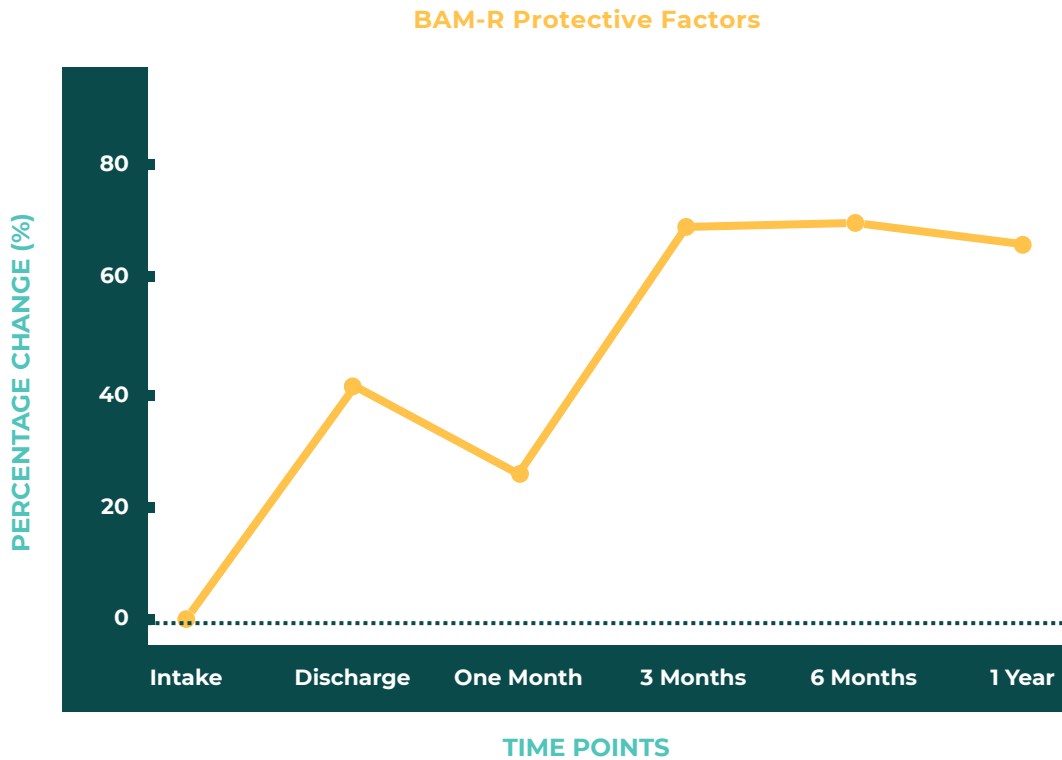
This graph illustrates the percentage change in BAM-R Protective Factor scores over time, reflecting client progress in building recovery-supportive strengths such as motivation, coping skills, and positive routines. Protective factors increased by approximately 43 percent at discharge, peaked at 72 percent by three months, and remained high through one year, ending with a 65 percent improvement from intake.

While these values represent standardized percentage change, the actual raw increase in protective scores from intake to three months reflects a 190 percent gain, demonstrating both meaningful and sustained growth in protective resources following treatment at Solutions Healthcare.

RQ3 - SUBSTANCE ABUSE PROTECTIVE FACTORS

BAM-R Protective Factors

This graph shows the progression of protective factors over time, as measured by the BAM-R. Protective factors include strengths such as healthy coping skills, motivation, supportive relationships, and engagement in meaningful activities, all of which contribute to sustained recovery.

At intake, the average protective score was approximately 35. By discharge, that score increased to around 60, reflecting a 71.4 percent improvement during treatment. At the one-month follow-up, the average climbed to about 80, marking a 128.6 percent improvement from intake. The highest increase occurred by three months, where the average protective score reached just above 100, representing a 185.7 percent improvement compared to intake.

From three months through one year, protective factor scores remained high and stable, with only a very slight decline noted at the one-year point. Even then, the score remained nearly 190 percent higher than at intake. This pattern indicates that clients build significant protective strengths during and immediately after treatment, and most importantly, maintain these gains over the long term. These results demonstrate the program's effectiveness not just in reducing risk and use, but also in strengthening the internal and external supports that are vital to ongoing recovery.

BAM-R PROTECTIVE

Descriptive Statistics

Assessment Occurence	Count	Mean	Standard Deviation	Coefficient of Variation
Intake	320	35.1406	30.98673	88.2%
Discharge	140	60.0571	33.35352	55.5%
One Month	12	76.8333	38.23809	49.8%
Three Months	15	102.6667	33.95305	33.1%
Six Months	20	103.0000	43.15334	41.9%
One Year	37	100.8378	39.98924	39.7%
Total	544	51.2978	40.07488	78.1%

Model Dimension[a]

		Number of Levels	Number of Parameters
Fixed Effects	Intercept	1	1
	Assessment Occurence	6	5
Residual			1
Total		7	7

a. Dependent Variable: Protective.

BAM-R PROTECTIVE

Type III Tests of Fixed Effects[a]

Source	Numerator df	Denominator df	F	Sig.
Intercept	1	538	885.827	0.000
Assessment Occurence	5	538	52.497	0.000

a. Dependent Variable: Protective.

Estimates[a]

Assessment Occurence	Mean	Std. Error	df	95% Confidence Interval	
				Lower Bound	Upper Bound
Intake	35.141	1.845	538	31.516	38.765
Discharge	60.057	2.790	538	54.577	65.537
One Month	76.833	9.528	538	58.117	95.550
Three Months	102.667	8.522	538	85.926	119.407
Six Months	103.000	7.380	538	88.502	117.498
One Year	100.838	5.426	538	90.179	111.497

a. Dependent Variable: Protective.

BAM-R PROTECTIVE

Pairwise Comparisons[a]

(I) Assessment Occurence		Mean Difference (I-J)	Std. Error	df	Sig.c	95% Confidence Interval for Difference	
						Lower Bound	Upper Bound
Intake	Discharge	-24.917*	3.345	538	0.000	-34.777	-15.056
	One Month	-41.693*	9.705	538	0.000	-70.307	-13.079
	Three Months	-67.526*	8.720	538	0.000	-93.235	-41.817
	Six Months	-67.859*	7.608	538	0.000	-90.289	-45.430
	One Year	-65.697*	5.731	538	0.000	-82.595	-48.799
Discharge	Intake	24.917*	3.345	538	0.000	15.056	34.777
	One Month	-16.776	9.928	538	1.000	-46.048	12.495
	Three Months	-42.610*	8.967	538	0.000	-69.048	-16.171
	Six Months	-42.943*	7.890	538	0.000	-66.205	-19.680
	One Year	-40.781*	6.101	538	0.000	-58.769	-22.792
One Month	Intake	41.693*	9.705	538	0.000	13.079	70.307
	Discharge	16.776	9.928	538	1.000	-12.495	46.048
	Three Months	-25.833	12.783	538	0.657	-63.523	11.856
	Six Months	-26.167	12.052	538	0.455	-61.701	9.368
	One Year	-24.005	10.965	538	0.435	-56.333	8.324

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Dependent Variable: Protective.

c. Adjustment for multiple comparisons: Bonferroni.

BAM-R PROTECTIVE

Pairwise Comparisons[a]

(I) Assessment Occurence		Mean Difference (I-J)	Std. Error	df	Sig.c	95% Confidence Interval for Difference	
						Lower Bound	Upper Bound
Three Months	Intake	67.526*	8.720	538	0.000	41.817	93.235
	Discharge	42.610*	8.967	538	0.000	16.171	69.048
	One Month	25.833	12.783	538	0.657	-11.856	63.523
	Six Months	-0.333	11.274	538	1.000	-33.573	32.906
	One Year	1.829	10.103	538	1.000	-27.959	31.616
Six Months	Intake	67.859*	7.608	538	0.000	45.430	90.289
	Discharge	42.943*	7.890	538	0.000	19.680	66.205
	One Month	26.167	12.052	538	0.455	-9.368	61.701
	Three Months	0.333	11.274	538	1.000	-32.906	33.573
	One Year	2.162	9.160	538	1.000	-24.846	29.171
One Year	Intake	65.697*	5.731	538	0.000	48.799	82.595
	Discharge	40.781*	6.101	538	0.000	22.792	58.769
	One Month	24.005	10.965	538	0.435	-8.324	56.333
	Three Months	-1.829	10.103	538	1.000	-31.616	27.959
	Six Months	-2.162	9.160	538	1.000	-29.171	24.846

BAM-R PROTECTIVE DOMAIN FINDINGS

This table shows that protective factors significantly increased from intake through all follow-up periods, highlighting strong and lasting gains in recovery-related strengths. Protective factors include coping skills, motivation, supportive relationships, and engagement in healthy routines. From intake to discharge, scores increased by an average of 24.92 points, and by the six-month follow-up, this improvement peaked at nearly 68 points above intake, all statistically significant ($p < .001$).

Improvements also continued after treatment, with significant increases between discharge and both the three-month and six-month follow-ups, indicating that clients continued to build recovery capital over time. The only non-significant change was between discharge and one month, where the increase was smaller and more variable.

As a result of participation in Solutions Healthcare, clients not only reduce risk and substance use but also build and sustain meaningful strengths that support long-term recovery

DISCUSSION

The results of this outcomes analysis show that clients at Solutions Healthcare experienced substantial improvements across multiple dimensions of recovery, including substance use, mental health, and recovery supports. Substance use scores, as measured by the BAM-R, declined sharply from intake to discharge and remained significantly lower through the one-year follow-up, reflecting the program's strong impact on early stabilization and sustained abstinence. Risk factors followed a similar pattern, with a notable drop during treatment and a rebound at six months that corrected by one year, suggesting the need for continued monitoring during mid-recovery. Protective factors increased steadily across time, with the most significant gains occurring between discharge and three to six months, indicating that clients continue building recovery capital even after formal treatment ends.

In addition to improvements in behavioral health measures, clients also reported clinically meaningful reductions in symptoms of depression and anxiety, as measured by the PHQ-9 and GAD-7. Depression scores decreased significantly from intake through all post-treatment periods, moving from moderate-to-severe levels into the mild range. Anxiety scores followed a similar trend, with large reductions observed by discharge and sustained through one year. These mental health gains highlight the program's effectiveness in addressing co-occurring conditions that often accompany substance use disorders.

CONCLUSION

Participation in Solutions Healthcare resulted in significant improvements in substance use, risk factors, protective strengths, and mental health symptoms. Clients not only reduced harmful behaviors and risks, but also developed the emotional resilience, coping strategies, and support systems necessary for long-term recovery. The positive outcomes in depression and anxiety further reinforce the program's comprehensive, whole-person approach to treatment. While most gains were sustained over time, the temporary increase in risk factors at six months points to the importance of continued support during the post-treatment transition. Overall, the findings affirm Solutions Healthcare's effectiveness in promoting stable, meaningful, and lasting recovery outcomes.

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[1] Kroenke K, Spitzer RL. The PHQ-9: a new depression diagnostic and severity measure. Psychiatry Ann. 2002;32:509-21.

[1] Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001;16:606-13.

[1] Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. 2006;166:1092-7.

CLINICAL OUTCOMES REPORT

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July 2025

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