Briefing Paper

Employment Outcomes of Chemical Dependency Treatment and Additional Vocational Services Publicly Funded by Washington State

A Four-and-a-Half Year Follow-up Study of Indigent Persons Served by Washington State's Alcoholism and Drug Addiction Treatment and Support Act (ADATSA)

Key Findings

Washington State Department of Social and Health Services
Administrative Services Division
Research and Data Analysis

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Introduction and Summary of Results

Background

This research involved a four-and-a-half year follow-up study of clients receiving chemical dependency treatment under the Alcohol and Drug Addiction Treatment and Support Act (ADATSA). This legislation, passed in Washington State in 1987, created a program to treat adults addicted to alcohol or other drugs. To qualify, clients must be indigent, unemployable and incapacitated due to their addiction. A maximum of six months of treatment and financial support is provided in any two-year period. The immediate goal of the program is abstinence, while ancillary goals include improved personal coping skills, as well as vocational and social skills. Success in moving toward these goals is expected to result in improvements in reaching the long term goal of self-sufficiency. The program is administered by Washington State's Division of Alcohol and Substance Abuse (DASA).

The typical ADATSA client is an unmarried, white male in his early thirties, often homeless, living alone or with non-relatives, and often involved with the law. One-third of the clients are female; one-third are ethnic minority. The average client has had a 15-year history of substance abuse starting at age 16, with one or more prior treatment episodes. A significant number of clients have physical, mental, or emotional problems. Clients with such characteristics provide a formidable test of the effectiveness of treatment.

Data for this study came from both case records of a *representative* sample of ADATSA clients who were assessed in the Fall of 1989, and also from case records of *all* ADATSA clients who received additional vocational services from three pilot programs: The Vocational Opportunity Training Education Program (VOTE) located on the campus of Pierce College in Tacoma; Rapid Rehabilitation Resolution (RRR) located in Spokane; and the ADATSA Cooperative Employment Program (ACEP) located in Seattle. (See our previous report, Longhi, Brown and Comtois, 1994, for a description of these three programs.)

One thousand, two hundred and fifteen (1,215) clients were followed for 4½ years (54 months) after treatment; data were also collected for two years (24 months) before treatment. Monthly data were standardized based on the starting and ending dates of treatment for each client. Most clients were assessed in the fall of 1989 and declared eligible to receive chemical dependency treatment through the ADATSA program; most clients completed treatment during 1990. Therefore, the typical client has more than seven years of monthly data from late 1987 to early 1995.

Five groups of clients were analyzed. The charts and graphs compare three groups: clients who completed both chemical dependency treatment and additional vocational services (n=319); clients who completed at least the primary phase of treatment through ADATSA but received no additional vocational services (n=287); and clients who were eligible for ADATSA services but did not receive them during the same time period (n=138). Clients who started treatment and did not complete (n=132) and clients who started vocational services and did not complete (n=339) were included in the analyses but excluded from the charts and graphs.

Regression analyses were used to compare clients in the five treatment groups on several employment outcomes including: percent employed, average number of months of employment, and average monthly earnings. Estimates of average employment outcomes for the three treatment groups shown in the tables and graphs were statistically adjusted for differences between groups on the available background characteristics. Complete data for these analyses were available for 1,146 of the 1,215 clients. (See the Appendix for a further discussion of the data and methods.)

Because the effects of chemical dependency treatment and additional vocational services were often significantly different for clients with and without recent employment in the two years before treatment, we present separate analyses for these two groups.

Outline of Report

First, we compare the overall employment outcomes of the three groups of clients across the entire 4½ year follow-up period (Figures 1 and 2). Figure 1 (p. 6-7) shows rates of employment at three levels and answers the basic question of whether completing chemical dependency treatment or additional vocational services leads to *higher levels of employment* (more people employed at higher average monthly earnings) in the 4½ years following treatment. Figure 2 (p. 8-9) addresses length of employment and answers the question of whether completing treatment or additional vocational services leads to *longer employment* (more months of employment at higher average monthly earnings) in the 4½ years following treatment.

Second, we look at *trends through time in employment levels* by comparing the three treatment groups in each six-month period over the 4½ years following treatment (Figures 3 and 4).

These first four analyses lead us to conclude the following:

- Both completing chemical dependency treatment and completing additional vocational services lead to higher levels of employment and more months of employment at $320/month or more (the general assistance grant standard).
- These higher levels of employment and higher average earnings persist in each 6-month period throughout the 4½ years following treatment.

Two further patterns emerge from the data:

- Many clients have no reported earnings in the 4½ years following treatment;
- Many other clients have only seasonal employment for short periods of time (6 months) but no continuous employment across time.

These results lead us to explore two further questions concerning the average earnings of the three treatment groups. First, we compare average earnings among *employed* clients (Figure 5). Second, we compare earnings of clients who were *employed continuously* starting in the first 6-month period following treatment or assessment (Figure 6b).

Finally, we compare average monthly earnings in the first 1½ years post-treatment to the earnings in the subsequent three years, 1½ to 4½ years after treatment (Figures 7, 8 and 9). We were led to these comparisons because our earlier study (Longhi, Brown and Comtois, November, 1994) reported findings for the first 1½ years only, and current analyses on employment outcomes of DSHS clients follow the clients for only two years post-treatment.

Summary of Results

Employment Outcomes

- Over the 4½ years post-treatment, clients who completed chemical dependency treatment earned $145/month more, on average, than clients who were assessed but not treated.
-
- Clients who completed vocational services in addition to chemical dependency treatment earned $90/month more, on average, than clients who only completed treatment.

Higher total earnings for groups of clients over the 4½ years could be explained by two factors—more clients employed or higher earnings among those clients who were employed or both. The answer is both.

More Clients Employed

Over the 4½ years, clients who completed chemical dependency treatment were more likely to be employed than clients who were assessed but received no ADATSA-funded treatment. Clients who received additional vocational services were significantly more likely to be employed over the 4½ years than clients who only completed treatment.

- 83% of clients completing chemical dependency treatment were employed at some time in the 4½ year follow-up period compared to 75% of those who received no ADATSA-funded treatment.
- 46% of clients who completed additional vocational services earned more over the 4½ years post-treatment than they would have received from a general assistance grant[1] ($320/month), compared to only 22% of those clients who completed treatment only, and 17% of those clients who did not receive ADATSA-funded treatment.

Higher Earnings of Employed Clients

Average earnings of *employed* clients who completed chemical dependency treatment were higher than those of *employed* clients who received no ADATSA-funded treatment. Earnings of *employed* clients who completed additional vocational services were significantly higher than earnings for *employed* clients who only completed chemical dependency treatment.

- Among clients who were employed at some time in the follow up period, those who completed additional vocational services earned an average of $497/month compared to $365/month for those with treatment only and $265/month for those without treatment.

Trends Through Time—4½ Years after Treatment

The 4½ years were divided into nine 6-month periods. Comparisons among treatment groups for these time periods should be considered as trends because the tests of significance for the different 6-month time periods are not statistically independent of one another.

Effects of Completing Chemical Dependency Treatment over Receiving no ADATSA-funded Treatment:

Over the 4½ years following treatment, completing chemical dependency treatment increased the *chances of employment* in the first 1½ years (18 months) but not thereafter. Completing chemical dependency treatment also increased the *earnings of employed clients* during the 4½ years following treatment.

- By the last six months of the follow-up period (4-4½ years after treatment), the average wage for *employed* clients who completed chemical dependency treatment with or without additional vocational services was over $840/month compared to only $480/month for clients who didn't enter treatment.

[1] In January of 1991 the general assistance grant standard for one person rose from $320/month to $339/month.

- For clients *continuously employed for three years*, 1½ - 4½ years post treatment, the average wage for clients who completed chemical dependency treatment with or without additional vocational services was over $1000/month in the last 6 months (4 - 4½ years after treatment) compared to $740/month for those clients who didn't enter ADATSA funded treatment in 1989 - 90 but were continuously employed in the same three year period, 1½ - 4½ years later.

Effects of Completing Additional Vocational Services over Completing Chemical Dependency Treatment Only:

Completing additional vocational services increased the *chances of employment* in the first 4 years after treatment, and increased *the earnings of employed clients* in the first 2½ years after treatment..

Employment outcomes for clients with and without recent employment in the two years before treatment

Seventy-one percent (71%) of the clients who were assessed had some reported Social Security wages in the two years before assessment. Because we believed the effects of treatment, and the effects of additional vocational services, would be different for clients with and without recent employment experience, we analyzed these two groups of clients separately.

Chemical Dependency Treatment

- Among clients *with some recent employment experience* in the two years prior to treatment, 29% of those clients who completed at least the primary phase of chemical dependency treatment earned an average of at least $320/month (the general assistance grant standard[1]) compared to only 22% of clients who did not receive ADATSA-funded treatment.

Additional Vocational Services

Among clients *both with and without recent employment experience*, those clients who completed additional vocational services were more likely to earn an average wage of at least $320/month (the general assistance grant standard) than those clients who only completed treatment.

- *For clients with recent employment experience,* over half (52%) of those who completed additional vocational services earned an average wage of at least $320/month compared to less than one third (29%) of those clients who completed treatment only and less than one fourth (22%) of those clients who did not receive ADATSA-funded treatment.

- *For clients with no employment experience in the two years before assessment***,** one third (32%) of clients who completed additional vocational services earned an average wage of at least $320/month compared to 10% or less of the other groups of clients, including those who completed chemical dependency treatment only.

Key Findings

Level of Employment

Percent Employed in the 4½ Year Follow-up Period

Question: *Are ADATSA clients more likely to be employed in the 4½ year follow-up period if they receive chemical dependency treatment and additional vocational services?*
Do clients earn at least $320/month (the general assistance grant standard for one person)?
Do clients earn at least $1000/month?

Chemical Dependency Treatment

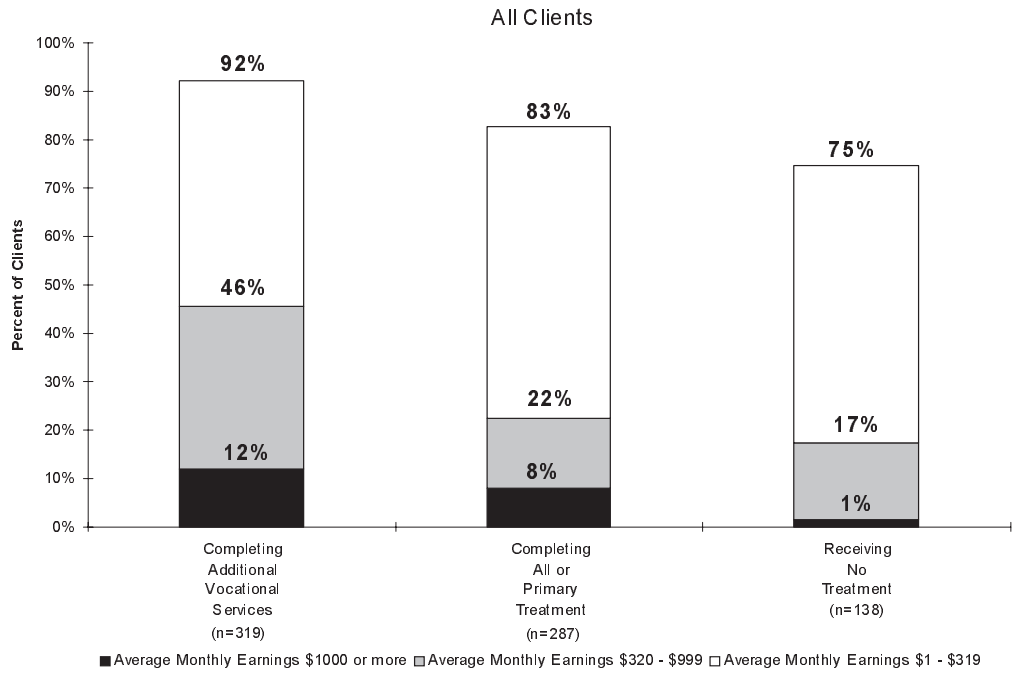
- Treatment completers[1] were more likely to be employed (83% vs. 75% over 4½ years) than similar clients receiving no treatment through ADATSA.
- Treatment completers *with recent employment experience* earned significantly higher wages over the 4½ years than similar clients receiving no treatment through ADATSA:
  29% vs 22% earned at least $320/month
  11% vs 3% earned at least $1000/month.

Additional Vocational Services

- Clients who completed vocational services in addition to treatment were more likely to be employed (92% vs 83% over 4½ years) than similar clients who completed treatment but received no vocational services.
- Clients completing additional vocational services were also more likely to earn an average wage of $320/month *even among clients with no recent employment in the 2 years prior to treatment:*
  52% vs 29% of clients *with recent employment* earned at least $320/month post-treatment.
  32% vs 8% of clients *with no recent employment* earned at least $320/month post-treatment .

Rates of Achieving Three Income Levels: Any Earnings, $320/Month or Higher; $1000/Month or Higher

Figure 1a



[1] Clients who completed at least the primary phase of chemical dependency treatment through ADATSA programs and did not receive ADATSA support for additional vocational services.

Percent Employed in the 4½ Year Follow-up Period

Figure 1b

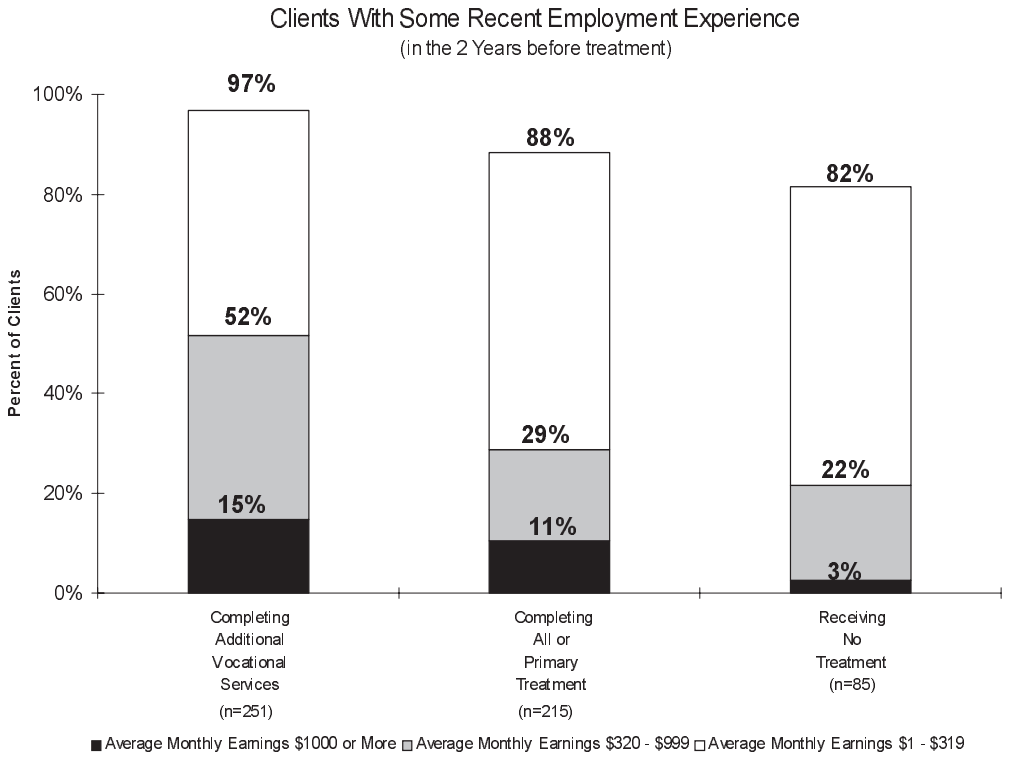
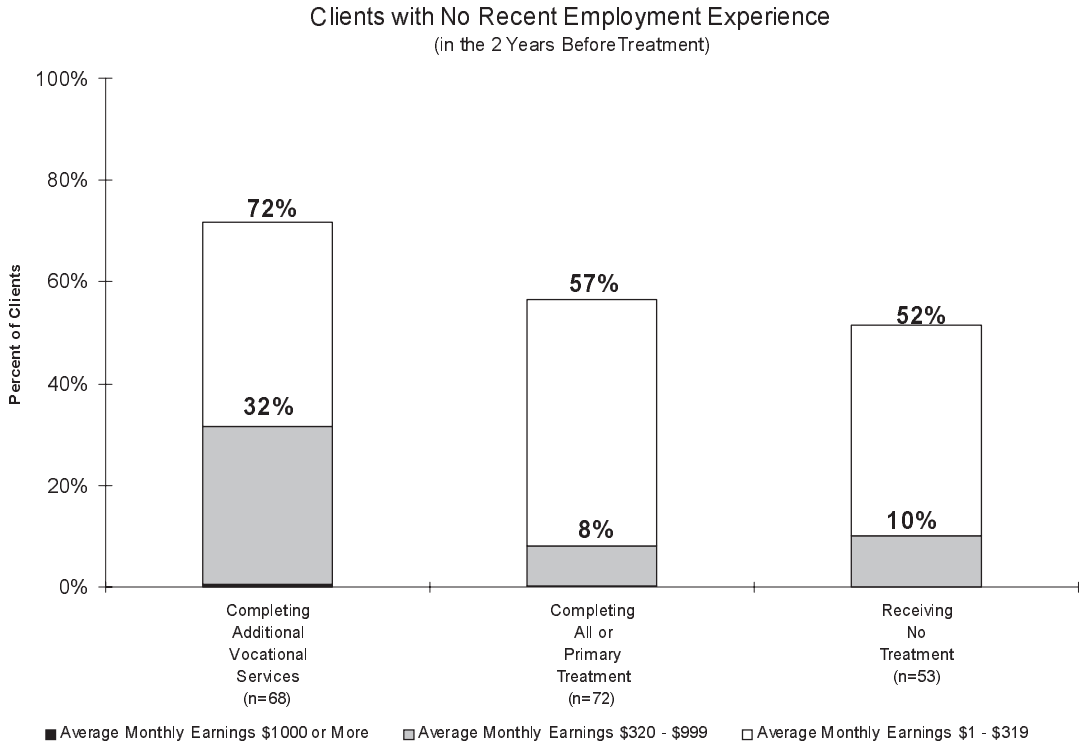


Figure 1c



Adjusted Earnings in a 4 ½ Year Follow-up Period Among Clients in Three Groups: Completing Additional Vocational Services, Completing All or Primary Treatment, and Receiving No Treatment

Length of Employment

Number of Months of Employment in the 4½ Year Follow-up Period

Question: *Are ADATSA clients who complete chemical dependency treatment and additional vocational services employed longer than untreated clients?*

Chemical Dependency Treatment

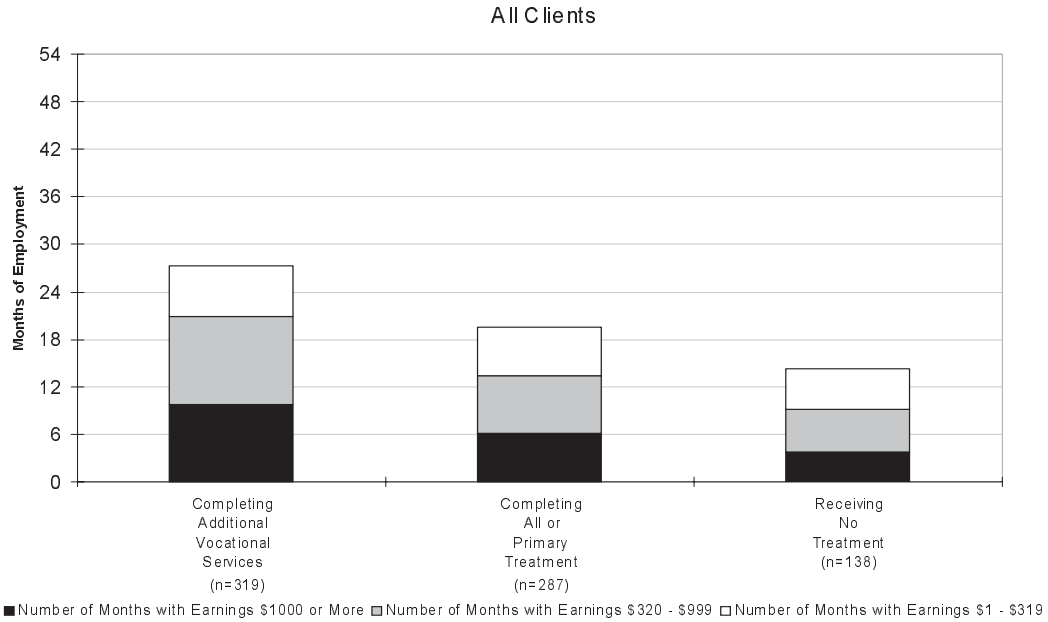
- Treatment completers[1] were employed longer (20 months vs 14 months over 4½ years) than similar clients receiving no treatment through ADATSA.
- Treatment completers *with recent employment experience* also were employed for more months during the 4½ year follow-up period than similar clients receiving no treatment:
  17 months vs 11 months at $320/month (the general assistance grant standard for one person);
  8 months vs 5 months at $1000/month.

Additional Vocational Services

- Clients completing additional vocational services were employed longer (27 months vs 20 months over 4½ years) than similar clients receiving no additional vocational services.
- Clients completing additional vocational services were also more likely to be employed longer at $320/month (the general assistance grant standard for one person) and at $1000/month. *These differences are statistically significant for all clients, even for those clients with no recent employment.*
  Clients with recent employment (2 years before treatment)
  24 months vs 17 months at $320/month
  11 months vs 8 months at $1000/month.
  Clients with no recent employment (2 years before treatment)
  13 months vs 5 months at $320/month,
  7 months vs 2 months at $1000/month.

Number of Months of Employment at Three Income Levels: Any Earnings; $320/Month or Higher; $1000/Month or Higher

Figure 2a



[1] Clients who completed at least the primary phase of chemical dependency treatment through ADATSA programs and did not receive ADATSA support for additional vocational services.

Number of Months of Employment in the 4½ Year Follow-up Period

Figure 2b

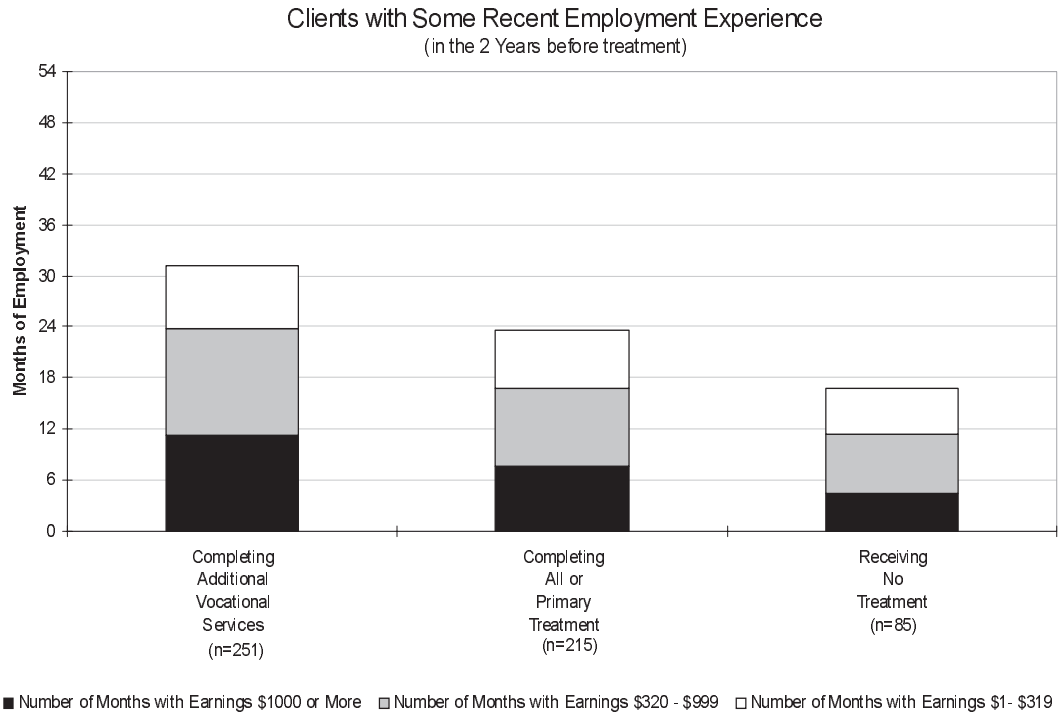
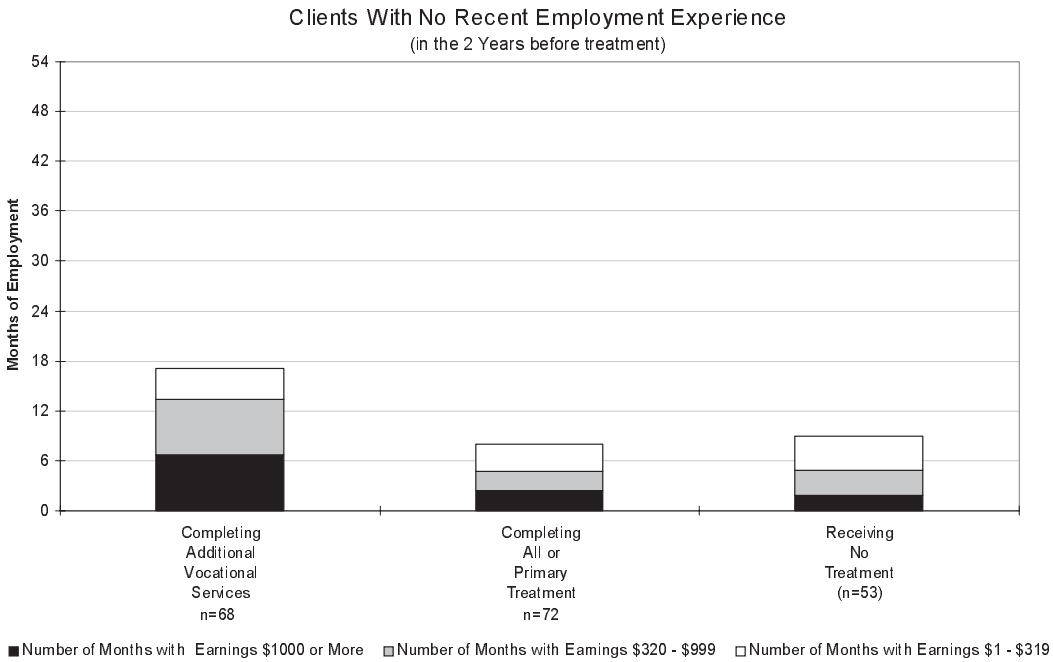


Figure 2c



Trends Through Time

Percent Employed in Each 6-Month Period

Question: *Are ADATSA clients more likely to be employed during the 4½ year follow-up period if they receive chemical dependency treatment and additional vocational services?*

Chemical Dependency Treatment

- During the first 1½ years post-treatment only, treatment completers[1] *with recent employment* were more likely to be employed than clients who received no treatment.
- The differences were no longer significant after the first 1½ years.

Additional Vocational Services

Clients with recent employment (2 years before treatment)

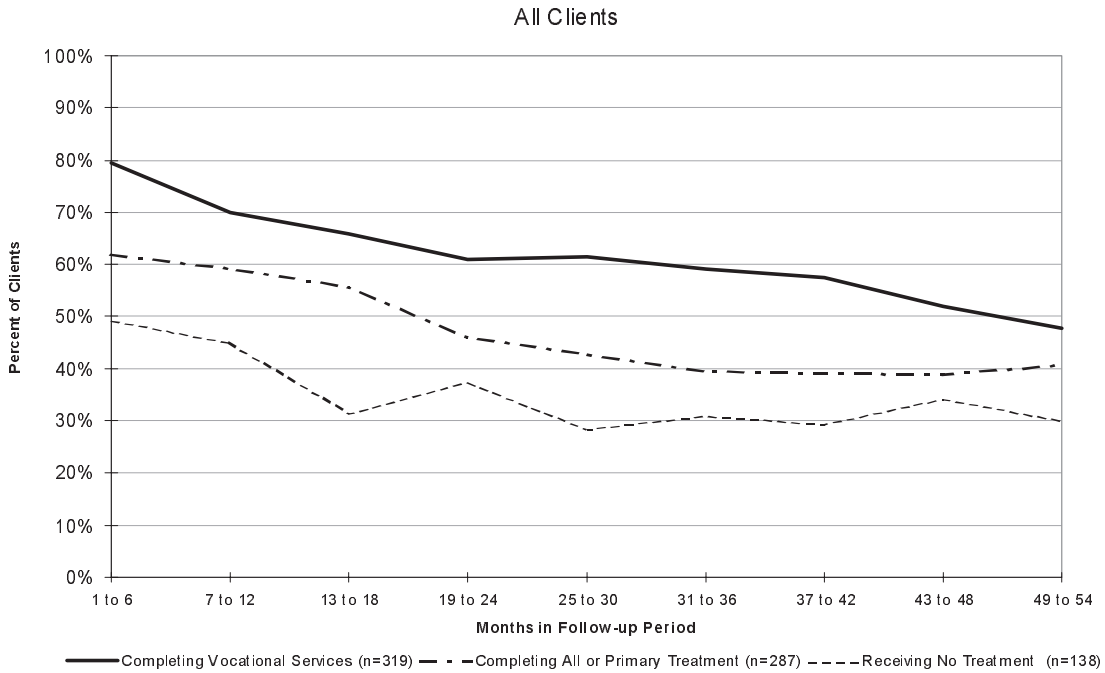
- During the first 4 years post-treatment, clients who completed additional vocational services were more likely to be employed than clients who received treatment only.
- This difference was no longer significant 4 - 4½ years post-treatment.

Clients with no recent employment (2 years before treatment)

- After the first 1½ years post-treatment, clients who completed additional vocational services were more likely to be employed than clients who received treatment only in every 6-month period for the subsequent 3 years (1½ - 4½ years post-treatment)

Percent Employed

Figure 3a



[1]Clients who completed at least the primary phase of chemical dependency treatment through ADATSA programs and did not receive ADATSA support for additional vocational services.

Percent Employed in Each 6-Month Period

Figure 3b

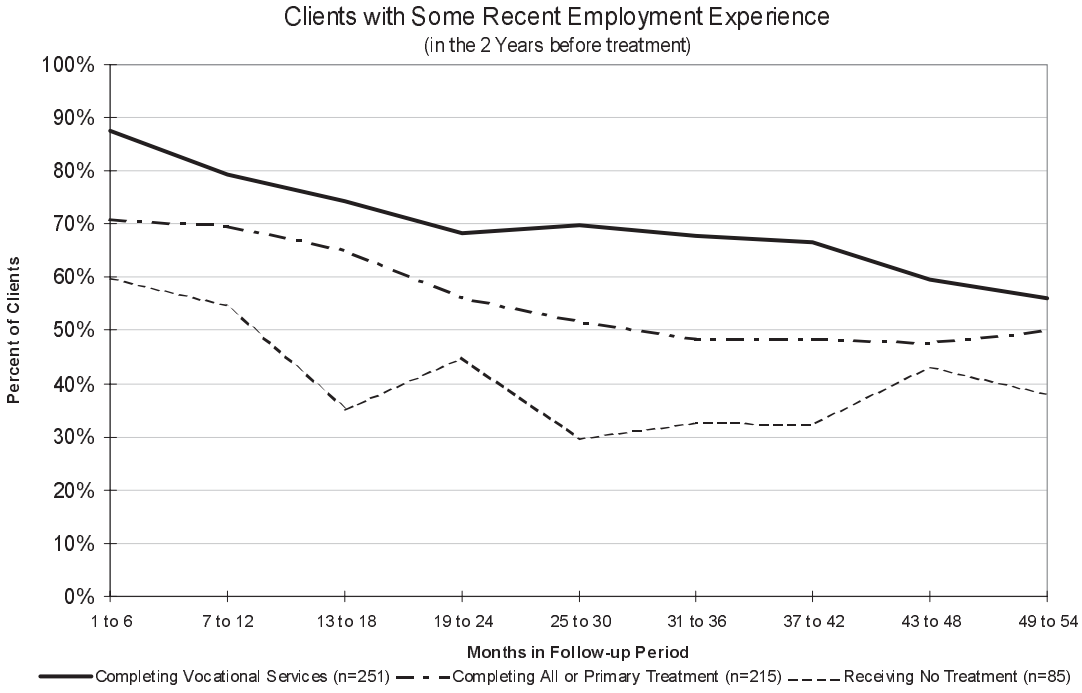
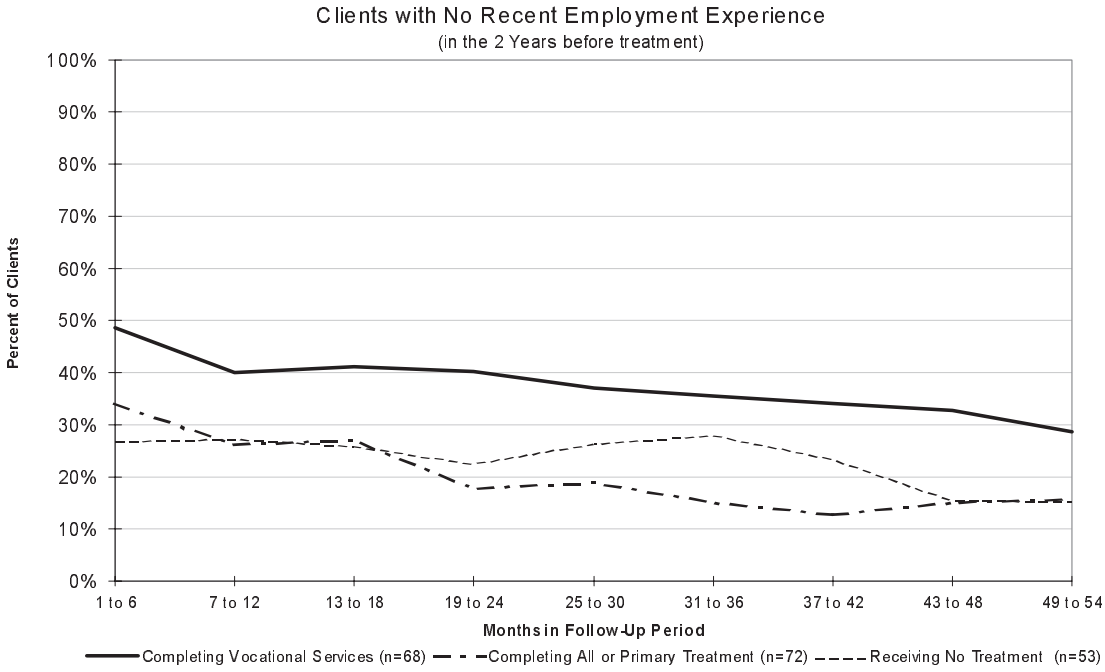


Figure 3c



Trends Through Time

Average Monthly Earnings in Each 6-Month Period

Question: *Do ADATSA clients who complete chemical dependency treatment and additional vocational services earn higher wages in the following 4½ years?*

Chemical Dependency Treatment

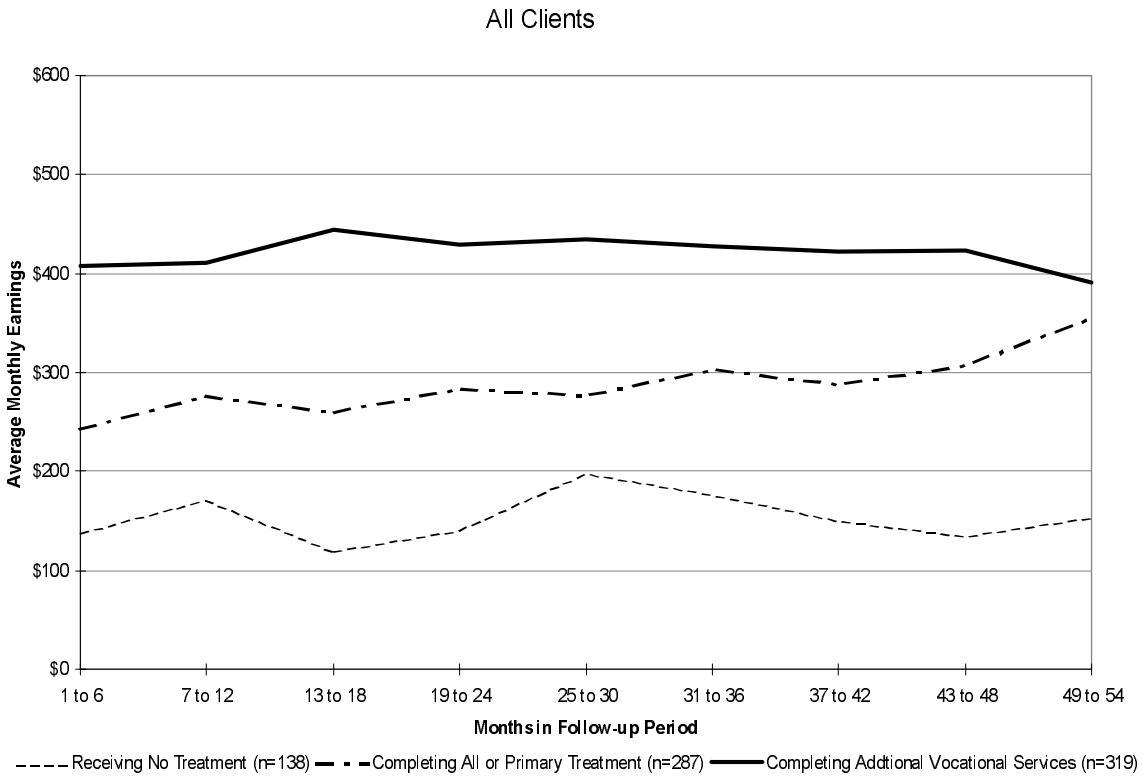
- Treatment completers[1] *with recent employment experience* earned more during the 4 ½ years post-treatment than similar clients receiving no treatment through ADATSA.
  - $6,550 more over 4½ years, on average.
  - $121.30/month more, on average.

Additional Vocational Services

- Clients completing additional vocational services earned more during the 4 ½ year follow-up period than similar clients receiving chemical dependency treatment only.
  - *Clients with recent employment (2 years before treatment)*
    - $7,529 more over 4½ years
    - $139.42/month more, on average
  - *Clients with no recent employment (2 years before treatment)*
    - $9,127 more over 4½ years
    - $169.03/month more, on average

Average Monthly Earnings

Figure 4a



[1] Clients who completed at least the primary phase of chemical dependency treatment through ADATSA programs and did not receive ADATSA support for additional vocational services.

Average Monthly Earnings in Each 6-Month Period

Figure 4b

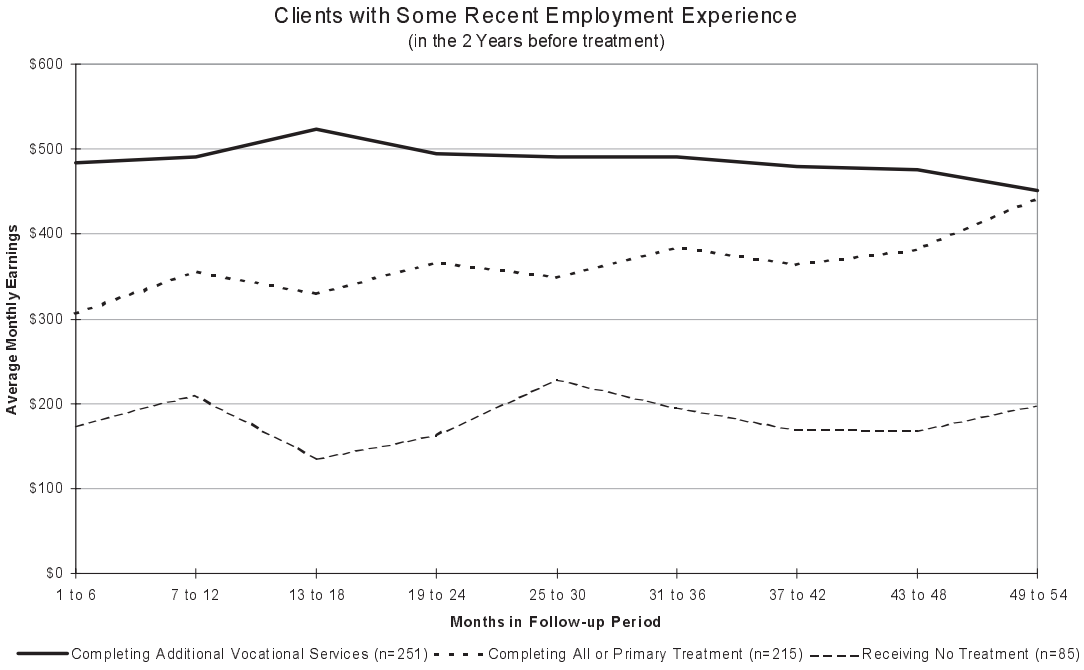
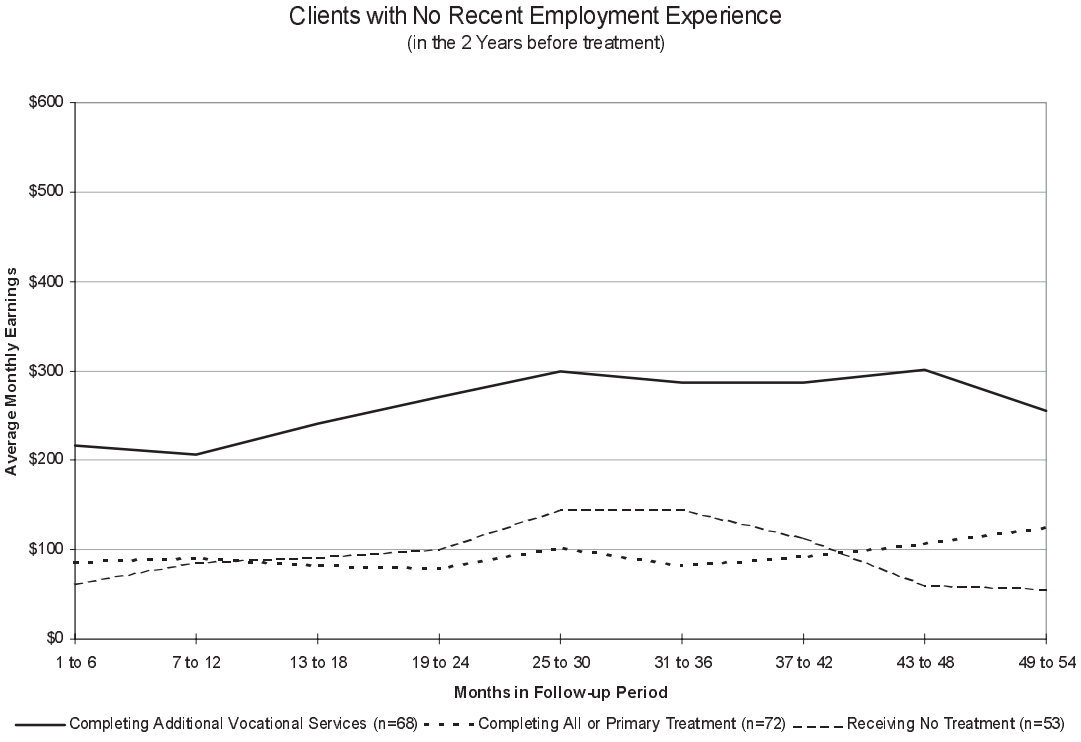


Figure 4c



Adjusted Earnings in a 4 ½ Year Follow-up Period Among Clients in Three Groups: Completing Additional Vocational Services, Completing All or Primary Treatment, and Receiving No Treatment

Trends Through Time

Average Monthly Earnings Among Clients Employed in Each 6-Month Period

Question: *Are average earnings higher among* employed *clients who complete chemical dependency treatment and additional vocational services?*

To answer this question, we restricted our analysis to those clients who were *employed* in each period in the 4½ years following treatment. Therefore, for each 6-month period, the average monthly earnings are based on only those clients who were employed in that period. Since many clients were employed intermittently for short periods of time, the clients included in the analysis varied from one 6-month period to the next.

Chemical Dependency Treatment

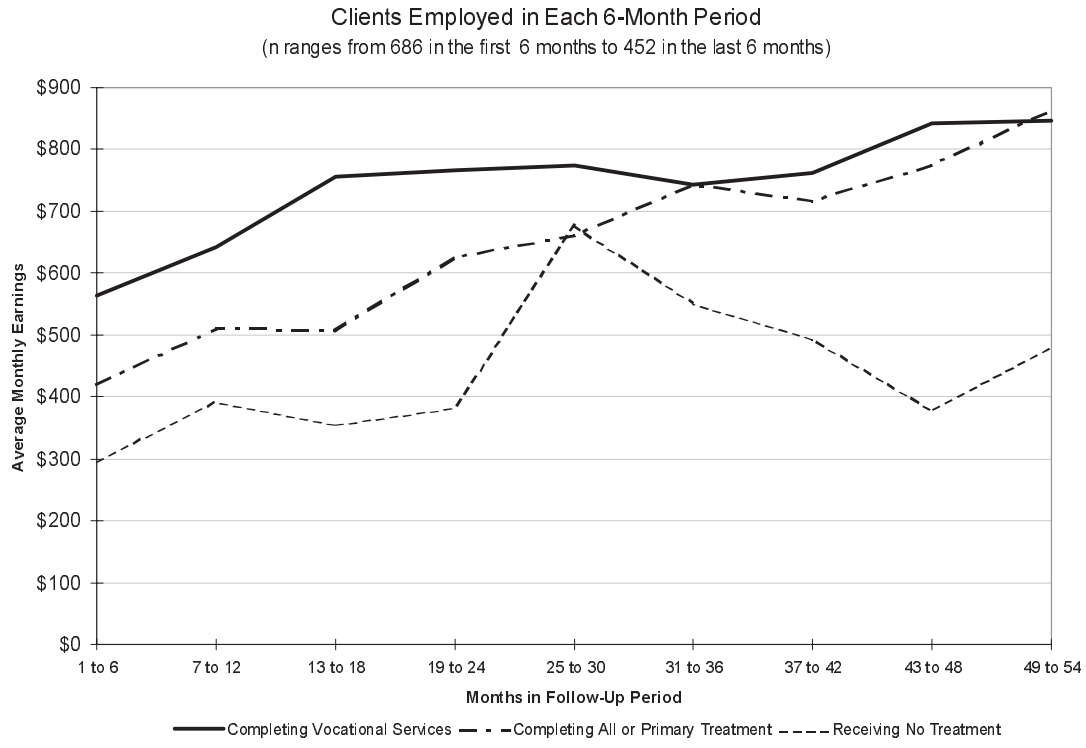
- 3½ to 4½ years after treatment, *employed* clients who completed chemical dependency treatment, with or without additional vocational services, earned more than clients who received no ADATSA-funded treatment.

Additional Vocational Services

- In each of the 6-month periods in the first 2½ years after treatment, the *employed* clients who completed additional vocational services earned more than clients who completed chemical dependency treatment only.

Average Monthly Earnings

Figure 5



Adjusted Earnings in a 4 ½ Year Follow-up Period Among Clients in Three Groups: Completing Additional Vocational Services, Completing All or Primary Treatment, and Receiving No Treatment

Trends Through Time

Summary Findings

Level of Employment and Length of Employment

- Clients who completed additional vocational services were more likely to earn at least $320/ month and more likely to earn this level for longer periods of time than clients who completed chemical dependency treatment only but received no additional vocational services.

Table 1

Percent Employed with Average Earnings of at least $320/month during the 4½ Years Post-Treatment

	All Clients	Clients with Some Recent Employment	Clients with No Recent Employment
Additional Vocational Services	46% (n=319)	52% (n=251)	32% (n=68)
Chemical Dependency Treatment Only	22% (n=287)	29% (n=215)	8% (n=72)
No Treatment	17% (n=138)	22% (n=85)	10% (n=53)

Table 2

Average Number of Months Employed with Average Earnings of at least $320/month during the 4½ Years Post Treatment

	All Clients	Clients with Some Recent Employment	Clients with No Recent Employment
Additional Vocational Services	21 (n=319)	24 (n=251)	13 (n=68)
Chemical Dependency Treatment Only	13 (n=287)	17 (n=215)	5 (n=72)
No Treatment	9 (n=138)	11 (n=85)	5 (n=53)

Average Monthly Earnings

- Clients who completed additional vocational services and clients who completed chemical dependency treatment only had higher average earnings over the long term (4½ years) than the comparison group of clients who did not receive treatment through ADATSA.

Table 3

Average Monthly Earnings during the 4½ Years Post-Treatment

	All Clients	Clients with Some Recent Employment	Clients with No Recent Employment
Additional Vocational Services	$424 (n=319)	$492 (n=251)	$263 (n=68)
Chemical Dependency Treatment Only	$279 (n=287)	$353 (n=215)	$94 (n=72)
No Treatment	$189 (n=138)	$231 (n=85)	$25 (n=53)

Continuity of Employment

Employment Rates and Average Monthly Earnings for Clients with Continuous Employment in the 4½ Year Follow-up Period

Question: *Are ADATSA clients more likely to be* continuously employed *in the 4½ year follow-up period if they complete chemical dependency treatment and additional vocational services?*
Are average earnings higher among the continuously employed *clients who complete chemical dependency treatment and additional vocational services?*

Among clients who were employed in the first six months following vocational services, treatment, or assessment:

- Half (51%) of those clients who completed additional vocational services were subsequently *employed continuously for* ***3 years or more***.
- Half of those clients who completed chemical dependency treatment only were subsequently *employed continuously for* ***two years or less.***
- Half (48%) of those clients who were eligible but received no ADATSA-funded treatment were subsequently *employed continuously for* ***1½ years or less***.

Table 4

Employment Rates in the 4½ Year Follow-up Period

	All Clients	*Of Clients Employed in the First 6 Months:*		
	% Employed in First 6 Months	% Still Employed After 1½ Years	% Still Employed After 3 Years	% Still Employed After 4½ years
Additional Vocational Services (n=319)	77%	73%	51%	40%
Chemical Dependency Treatment Only (n=287)	61%	67%	34%	25%
No Treatment (n=138)	44%	48%	30%	18%

Chemical Dependency Treatment

- Completing chemical dependency treatment did not significantly increase the chances of "survival" (staying continuously employed) over the 4½ years following treatment (Figure 6a).
- Earnings of *employed* clients who completed chemical dependency treatment with or without additional vocational services were significantly higher 3½- 4½ years after treatment (Figure 6b).

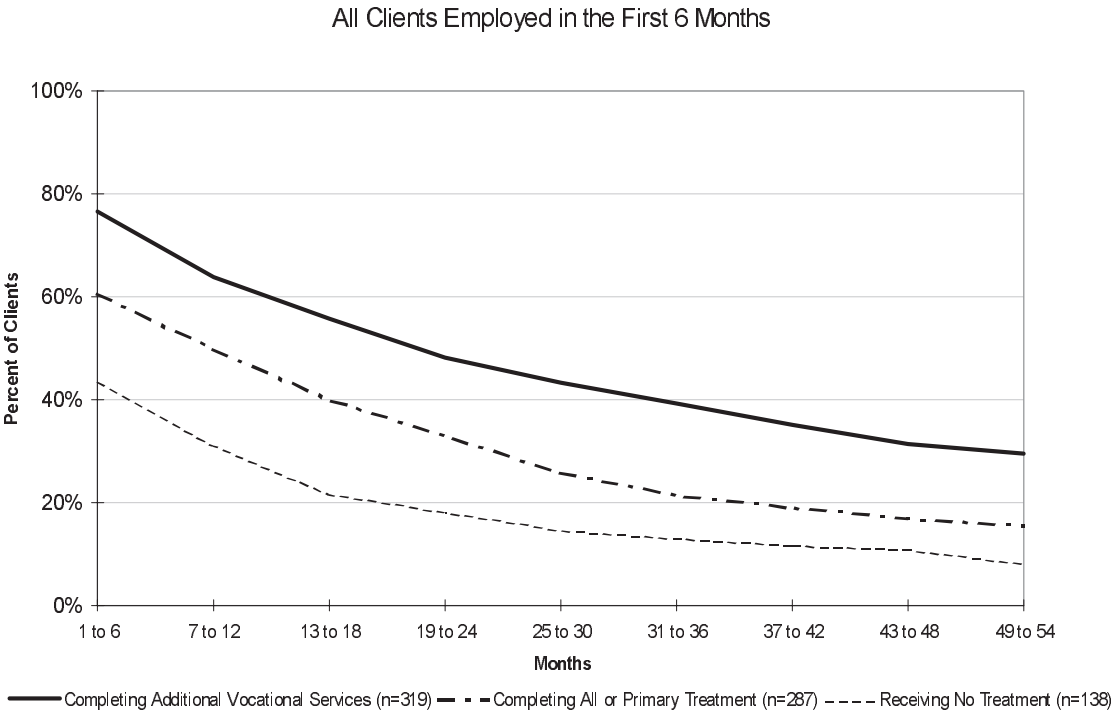
Additional Vocational Services

- Completing additional vocational services did significantly increase the chances of "survival" (staying continuously employed) over the 4½ years following treatment (Figure 6a).

Continuous Employment in the 4½ Year Follow-up Period

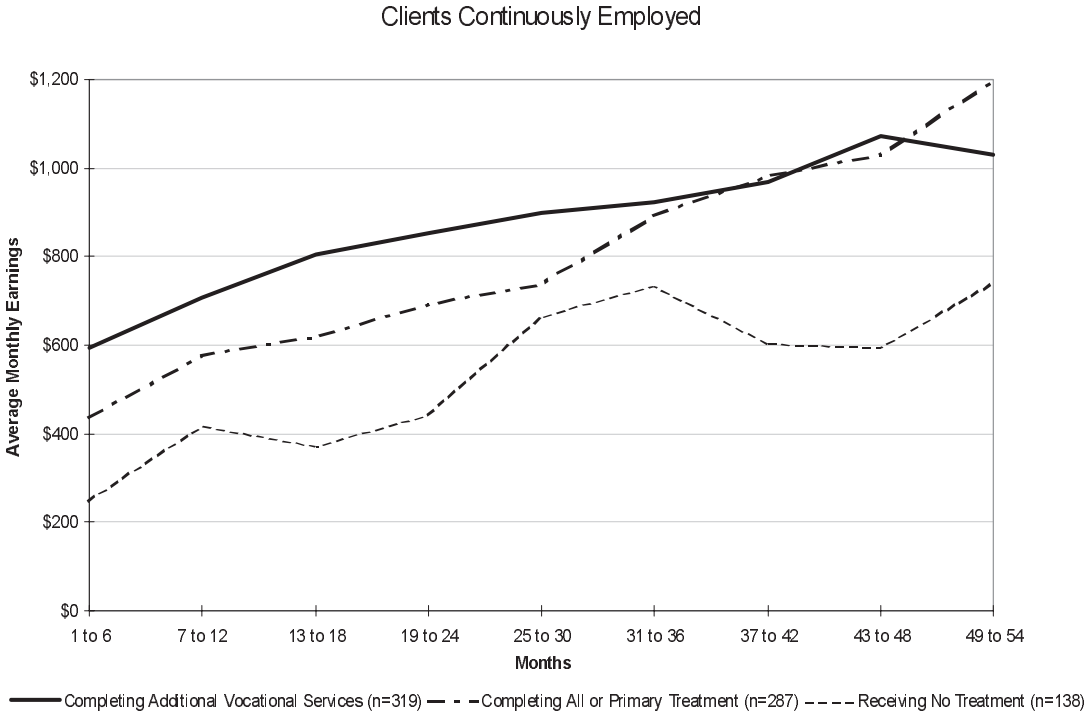
Percent of Clients Continuously Employed

Figure 6a



Average Monthly Earnings

Figure 6b



The average earnings in Figure 6b are not adjusted for background characteristics.

Long Term Employment Outcomes

Average Monthly Earnings Short Term and Long Term: Comparing the First 1½ Years to the Subsequent 3 Years in the 4½ Year Follow-up Period

Question: *Do employment outcomes increase or decrease over time?*
Do ADATSA clients who complete chemical dependency treatment and additional vocational services earn more 1½ - 4½ years after treatment?

Average monthly earnings were compared for clients in three treatment groups for both the short term (the first 1½ years after treatment) and the long term (the subsequent 3 years, 1½ - 4½ years after treatment).

- Clients who completed additional vocational services earned more 1½ - 4½ years after treatment ($425/month) than clients who completed chemical dependency treatment only ($291/month).
- Average earnings for each of the three treatment groups remained constant over time.
- Differences in average earnings among the three groups remained constant over time.

Table 5 Employment Outcomes Over Time —Average Monthly Earnings

	First 1½ Years After Treatment (18 Months)	1½ -4½ Years After Treatment (36 Months)	4½ Years After Treatment (54 Months)
Additional Vocational Services (n=319)	$424	$425	$424
Chemical Dependency Treatment Only (n=287)	$256	$291	$279
No Treatment (n=138)	$171	$198	$189

Adjusted Earnings in a 4 ½ Year Follow-up Period Among Clients in Three Groups: Completing Additional Vocational Services, Completing All or Primary Treatment, and Receiving No Treatment

Long Term Employment Outcomes

Average Monthly Earnings 1½ - 4½ Years After Treatment

Question: *Do effects of treatment and additional vocational services persist in the long term after the first 1½ years post-treatment?*

The three treatment groups were compared on average earnings and length of employment in the long term (1½ - 4½ years after treatment).

Both completing chemical dependency treatment and completing additional vocational services were significantly related to higher average earnings in the long term (1½ to 4½ years post-treatment). These effects were significant for clients *both with and without employment in the first 1½ years after treatment.*

- Clients who completed additional vocational services earned an average of $425/month in the long term compared to $291/month for clients who completed chemical dependency treatment only and $198 for clients receiving no ADATSA-funded treatment.
- Clients who completed additional vocational services were employed for 17 (of 36) monthy long term compared to 12 months for clients completing chemical dependency treatment only and 9 months for clients receiving no ADATSA-funded treatment.

Table 6 Average Monthly Earnings during 3 Years (1½ - 4½ Years After Treatment)

	All Clients	Clients With Some Employment in the First 1½ Years	Clients with No Employment in the First 1½ Years
Additional Vocational Services	$425 (n=319)	$518 (n=267)	$119 (n=52)
Chemical Dependency Treatment Only	$291 (n=287)	$400 (n=212)	$42 (n=75)
No Treatment	$198 (n=138)	$320 (n=80)	$18 (n=58)

Table 7 Average Months Employed during 3 Years (1½ - 4½ Years After Treatment)

	All Clients	Clients With Some Employment in the First 1½ Years	Clients with No Employment in the First 1½ Years
Additional Vocational Services	17 (n=319)	20 (n=267)	5 (n=52)
Chemical Dependency Treatment Only	12 (n=287)	16 (n=212)	2.0 (n=75)
No Treatment	9 (n=138)	14 (n=80)	3 (n=58)

Adjusted Earnings in a 4½ Year Follow-up Period Among Clients in Three Groups Completing Additional Vocational Services, Completing All or Primary Treatment, and Receiving No Treatment

Long Term Employment Outcomes

Percent Employed 1½ - 4½ Years After Treatment

Question: *Are ADATSA clients more likely to be employed in the long term (1½ - 4½ years after treatment) if they complete chemical dependency treatment and additional vocational services?*
Do clients continue to earn at least $320/month (the general assistance grant standard for one person)?
Do clients earn at least $1000/month?

Chemical Dependency Treatment

- Completing chemical dependency treatment was not significantly related to an increased likelihood of employment in the long term (1½ to 4½ years after treatment). There was, however, a trend (p=.075) for clients *with recent employment* who completed at least the primary phase of treatment to earn at least $1000/month or more in the long term 1½ - 4½ years after treatment. (14% compared to 4% of clients receiving no ADATSA-funded treatment).

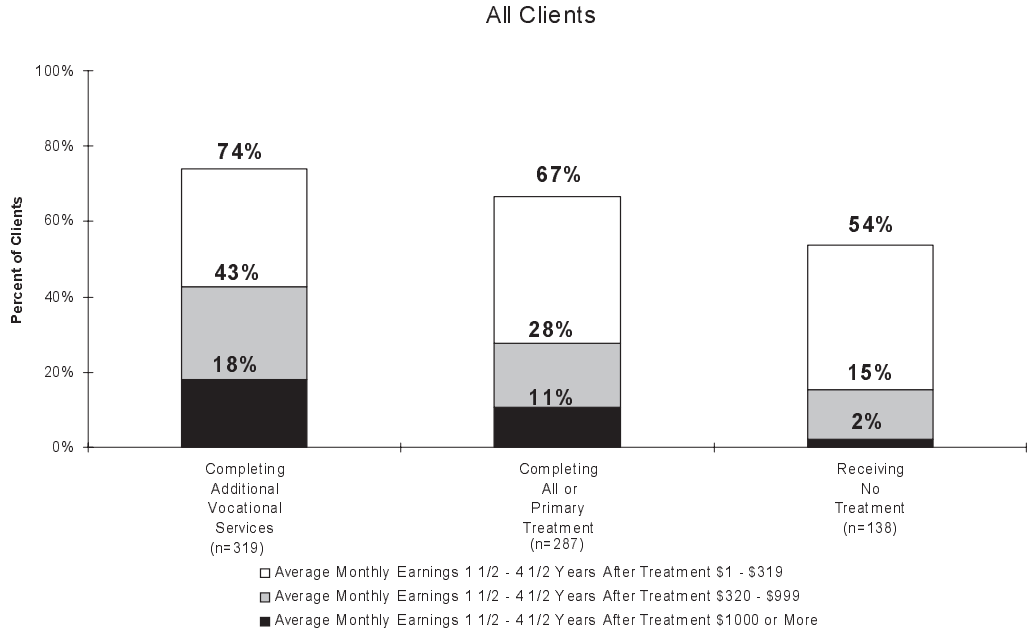
Additional Vocational Services

Clients with Some Short term Employment Experience (the First 1 ½ Years Post-Treatment)
Completing additional vocational services was significantly related to an increased likelihood of employment at $320/month in the long term (1½ to 4½ years after treatment).

- 49% of clients who completed additional vocational services earned at least $320/month in the long term (1½ - 4½ years after treatment) compared to 35% of clients who only completed treatment and 25% of the clients who received no treatment..

Rates of Achieving Three Income Levels: Any Earnings; $320/Month or Higher; $1000/Month or Higher

Figure 7a



Percent Employed 1½ - 4½ Years After Treatment

Figure 7b

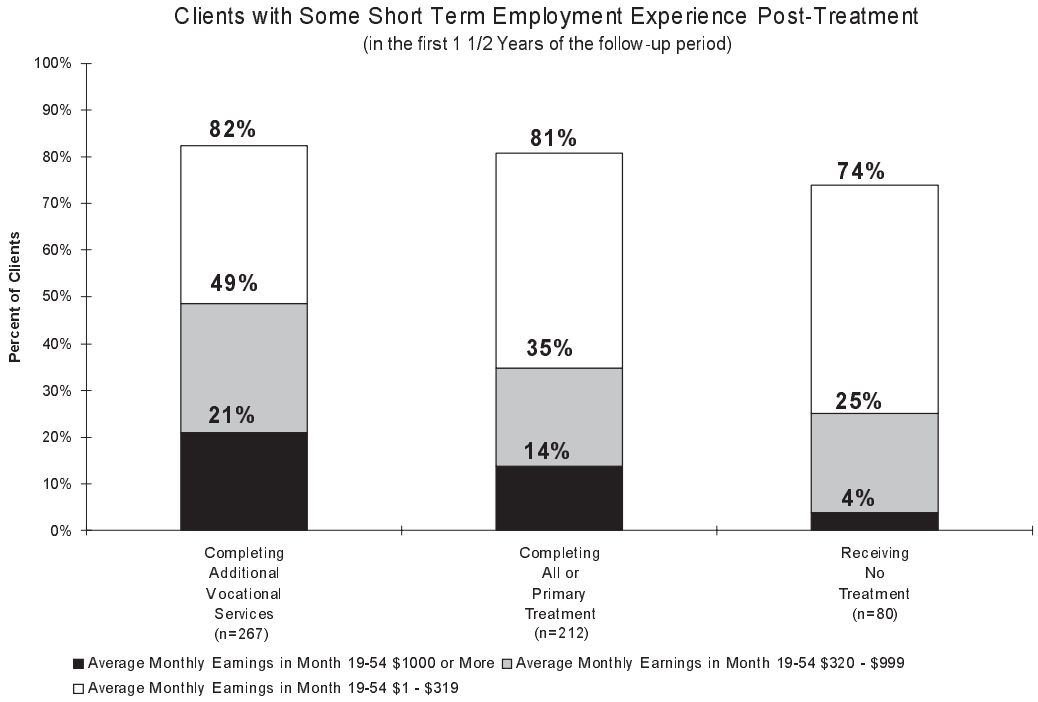
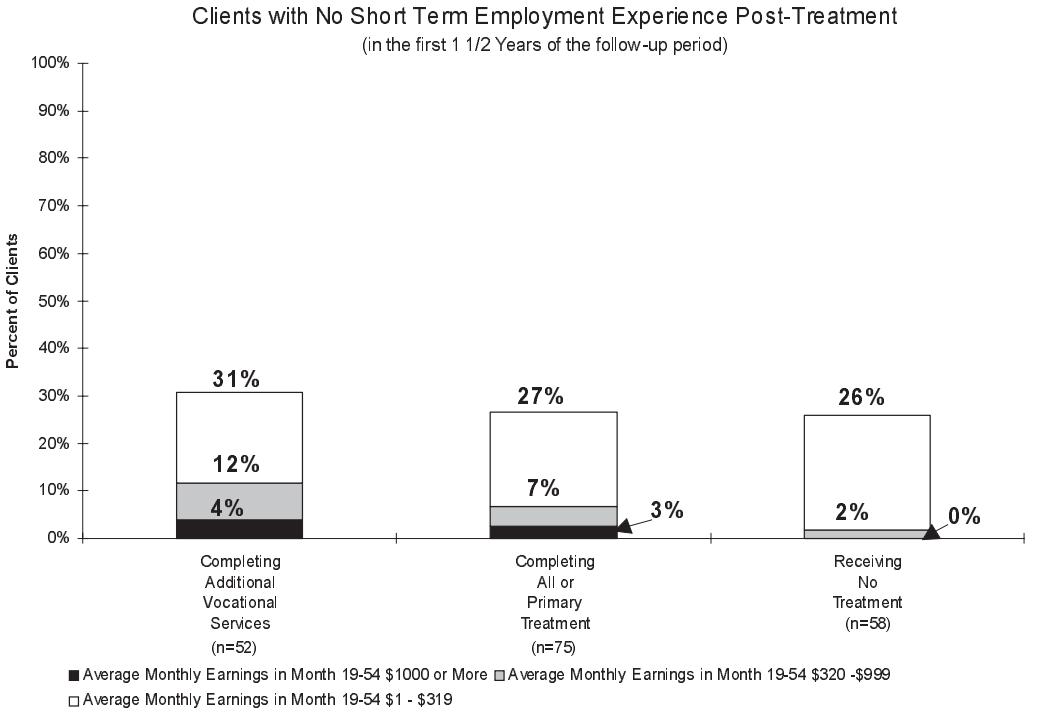


Figure 7c



Adjusted Earnings in a 4½ Year Follow-up Period Among Clients in Three Groups: Completing Additional Vocational Services, Completing All or Primary Treatment, and Receiving No Treatment

Long Term Employment Outcomes

Number of Months of Employment 1½ - 4½ Years After Treatment

Question: *Do ADATSA clients who complete chemical dependency treatment and additional vocational services stay employed longer than untreated clients in the long term (1½ - 4½ years after treatment)?*

Chemical Dependency Treatment

Completing at least the primary phase of chemical dependency treatment was related to longer periods of employment over the long term (1½ - 4½ years after treatment).

- Treatment completers were employed at $320/month (the general assistance grant standard for one person) for 9 (of 36) months long term compared to 6 (of 36) months for clients receiving no-treatment through ADATSA..

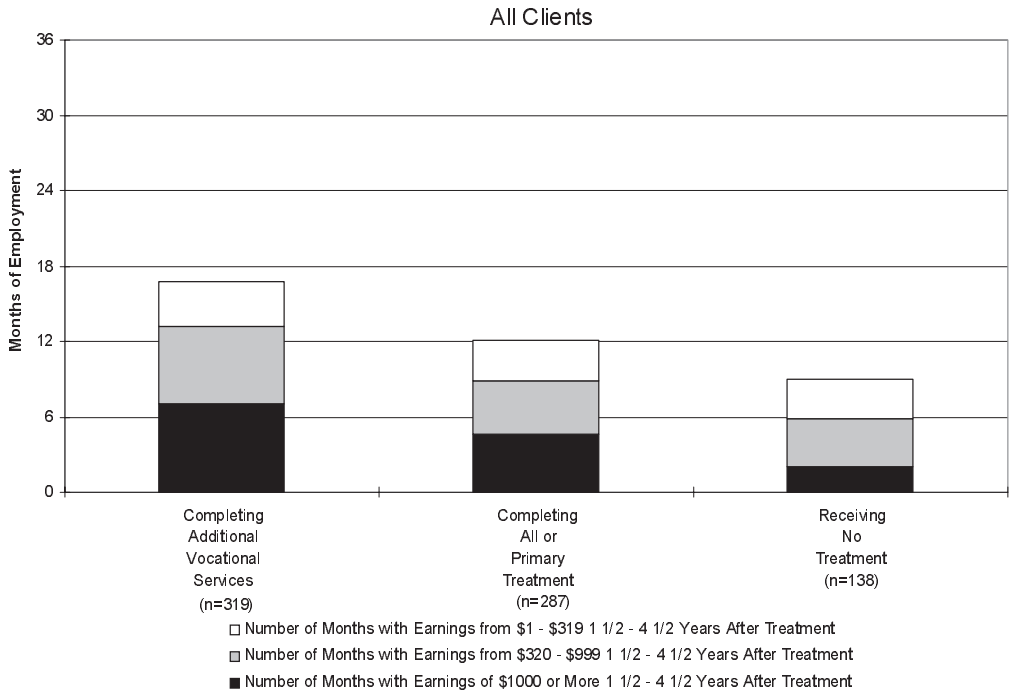
Additional Vocational Services

Completing additional vocational services was related to longer periods of employment at all levels in the long term (1½ - 4½ years after treatment).

- Clients who completed additional vocational services were employed in the long term for 13 (of 36) months at $320/month compared to 9 months for similar clients who completed treatment only.

Number of Months of Employment at Three Income Levels: Any Earnings; $320/ Month or Higher; $1000/Month or Higher

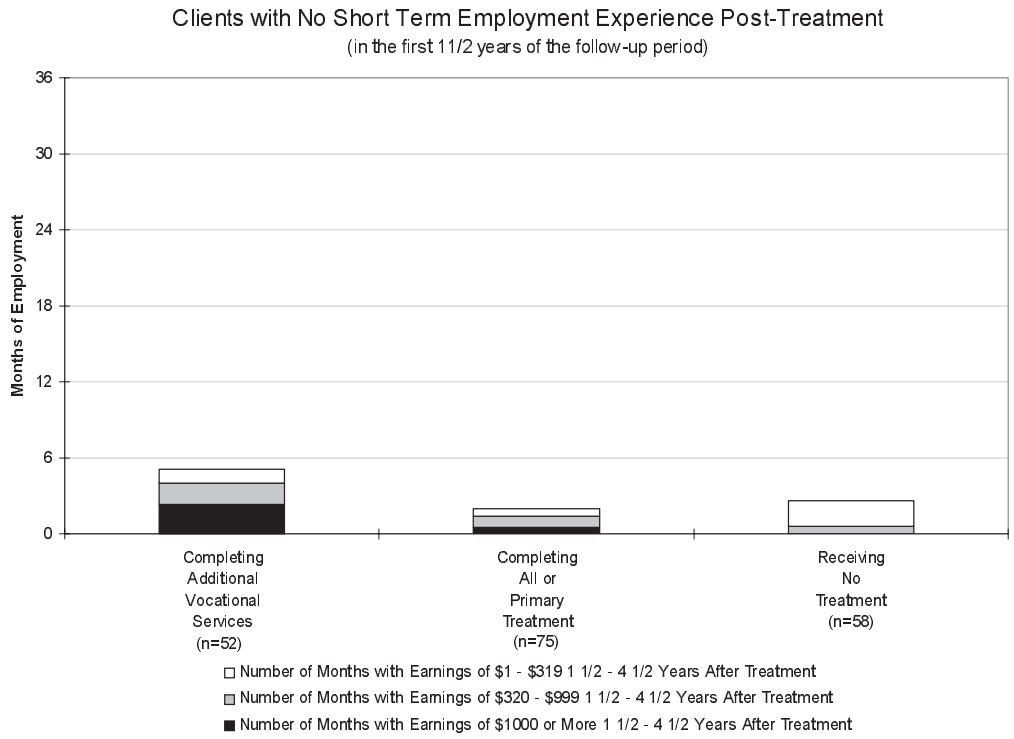
Figure 8a



Number of Months of Employment 1½ - 4½ Years After Treatment

Figure 8b

Figure 8c



Adjusted Earnings in a 4½ Year Follow-up Period Among Clients in Three Groups: Completing Additional Vocational Services, Completing All or Primary Treatment, and Receiving No Treatment

Long Term Employment Outcomes

The Relationship between Short Term Employment Outcomes (the First 1½ Years) and Long Term Employment Outcomes (the Subsequent 3 Years)

Question: *How important are short term employment outcomes?*
Are the relationships between treatment and vocational services and long term earnings determined by what happens in the short term?

The unique strength of these data is the opportunity to look at the effects of chemical dependency treatment and additional vocational services over a long period of time. Of particular interest is the relationship between short term and long term employment outcomes. For example, are long term earnings likely to be higher for treated clients even if they are not already higher in the short term? This question is important for treatment and vocational providers since they want to know to what extent long term outcomes depend on what clients have achieved in the short term. It is also important for evaluation purposes, as data are more readily available on shorter periods; therefore, if long term employment outcomes can be accurately predicted from short term ones, then program evaluation is easier and less costly.

- The primary effects of completing treatment and additional vocational services on long term employment outcomes are not direct, but depend upon their effects on employment outcomes in the short term.

- The direct effect of short term earnings on long term earnings is high (.645); 42% of the differences in long term earnings are related to differences in earnings in the short term among clients with the same characteristics.

Chemical Dependency Treatment

- Clients who completed chemical dependency treatment earned $85/month more in the short run (the first 1½ years) than clients with no ADATSA-funded treatment.

- The difference between these groups in long term earnings, adjusting for earnings in the first 1½ years, was much smaller and not significant, only $33/month.

- 73% of the effect of completing chemical dependency treatment on long term earnings is explained by the short term effects in the first 1½ years.
  (.06 x .645 = .039 is the effect of treatment on long term earnings through short term earnings. It is much larger than the independent effect of treatment which is only .014).

The Relationship between Short Term and Long Term Employment Outcomes

Additional Vocational Services

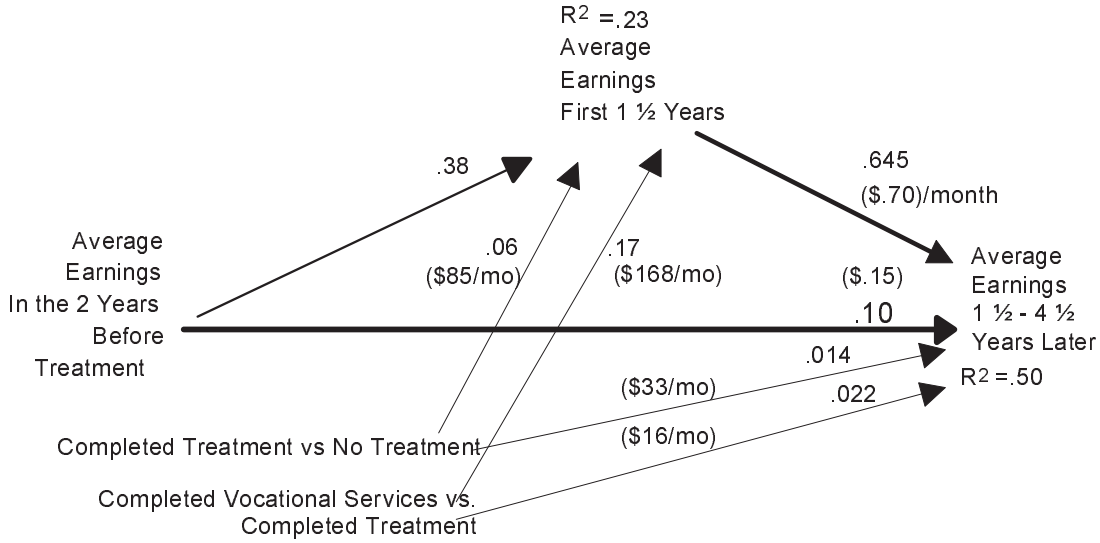
- Clients who completed additional vocational services earned $168/month more in the short-run (the first 1½ years) than clients who completed chemical dependency treatment but received no additional vocational services.

- The difference between these groups in long term earnings, adjusting for earnings in the first 1½ years, was much smaller and not significant, only $16/month.

- 83% of the effect of completing additional vocational services on long term earnings is explained by the short term effects in the first 1½ years.
  (.17 x .645 = .110 is the effect of vocational services on long term earnings through short term earnings. It is much larger than the independent effect of vocational services which is only .022).

Effects of Completing Chemical Dependency Treatment and Additional Vocational Services on Employment Outcomes: Short Term (First 1½ Years) and Long Term (1½ - 4½ Years After Treatment)

Figure 9



Appendix

Data Sources

Follow-up data for this study came from two computerized data systems operated by Washington State agencies.

Employment Security Department's Wage and Hour File: This file records data, submitted by employers, on all wages paid and hours worked. Data are reported for individual employees on a quarterly basis.

SAMS: The Substance Abuse Management System was operated by the Division of Alcohol and Substance Abuse until 1993, when it was succeeded by the Treatment and Assessment Report Generation Tool (TARGET). Both systems contain information about chemical dependency services provided to publicly funded clients including assessment, residential treatment, and outpatient treatment. This treatment is designed to assist in the recovery of alcohol or drug addiction. Data include a wide variety of client characteristics, treatment activities, information about those who provide treatment, and discharge status.

Creating a common database to analyze the effects of treatment on both employment outcomes and Medicaid medical expenses involves matching data on individual clients from both of these systems. In general, this process involves determining which variables identify clients in each system (for example, name, date of birth, Social Security number), and which of those variables are held in common by both systems. If an appropriate common variable does not exist, matching from one system to another often means creating a variable which is typically a composite of a number of client identifiers common to both systems. While it is necessary to have some means of identifying clients to match information from different sources, all client data are kept confidential.

The Process of Determining the Magnitude of Treatment Effects

Step 1: Minimizing the Problem of Selectivity Through Careful Selection of Treatment and Comparison Groups

Differences in motivation or disposition may occur as clients select themselves to receive or not receive treatment. This is the crux of the selectivity problem. If motivation and disposition are not the same in both treatment and comparison groups, differences in outcomes may be due, not to the effectiveness of treatment, but to unequal levels of motivation. Such differences are difficult to eliminate. However, differences in these factors can be minimized in a retrospective design by the careful choice of a comparison group and by reducing differences between treatment and comparison groups through statistical regression analysis.

The clients in this study who received no treatment shared with clients who completed treatment (primary or all phases) the fact that they sought public assistance at a local Community Service Office (public assistance office). Given an appointment for an ADATSA assessment, they showed up to meet with an ADATSA counselor at the Assessment Center. They were then assessed and considered eligible for treatment. Up to this point motivational factors should have been similar.

The possible differences due to selectivity lie in the fact that comparison group clients did not accept (and/or were not accepted for) a particular treatment path or did not show up for treatment (about two out of three clients in this group). However, a finding from our earlier report suggests that these differences may be minor and unrelated to treatment outcomes:

- Client profiles changed little from eligibility to starting and completing treatment. In particular, only two out of fifteen factors significantly decreased the chances of starting treatment: having physical or mental problems (Longhi et. al., 1991: 58-63).

We also attempted to reduce the effect of selectivity with a two-stage statistical regression model proposed by Heckman (1976). The first step in this process involves attempting to predict, using a logistic regression equation, who will participate in chemical dependency treatment and who will not. From that equation, a correction factor is calculated which is then included in the subsequent regression equation to predict employment outcomes in the second stage. In the first stage, we found that clients in the treatment and no treatment groups did not vary significantly on the available background variables. Therefore, no statistical correction was needed in the final regression model in the second stage.

Step 2: The Final Statistical Model and the Effects of Treatment

Pre-treatment differences in client characteristics can be controlled for, or adjusted statistically, as long as these characteristics are measured. Six background variables were available for all clients: Sex (Male/Female); Race (White/Non-white); Age (less than 30/30 or more); Marital Status (Married/Other); Education (More than 12 years/12 years or less); and Recent Employment (Pre-Treatment Wages Averaged over 24 Months Prior to Assessment).

The second step was a statistical model that incorporated the additive and/or interactive effects of background variables and treatment. This model statistically tests for overall effects of treatment among all clients (i.e. additive effects) adjusting the background characteristics to be equal, on average, for all treatment groups.

Statistical models in regression analyses take the form of :

$$y = b_o + b_1 x_1 + b_2 x_2 + \ldots + b_n x_n + e$$

The terms in this equation are as follows:

y is the dependent variable (outcome)
x_1 to x_n are the independent variables (client background characteristics and treatment)
e is an error term
b_1 through b_n are the coefficients which depict the independent effects of background variables and treatment of each variable on the dependent variable (outcome).

Step 3: The Calculation of Adjusted Employment Outcomes: The Magnitude of Treatment Effects

The last step is to present the results of the statistical model in the most understandable form. This means showing the employment levels achieved by the average client in all treatment groups assuming clients in these groups had the same average background characteristics.

In statistical terminology this step is referred to as calculating the estimated (predicted or expected) values of employment outcomes. By using values of the average client in this calculation, we minimize differences due to client characteristics. The difference between the adjusted outcomes for the two groups constitutes the statistically estimated or adjusted effect of treatment.

The Definition of the Average Client

There were different options for defining the average ADATSA client. We chose to define the average client as the client who had the average pre-treatment characteristics of the combined group of clients who completed ADATSA treatment only and those clients who received no treatment. The adjusted outcomes of treatment for this average ADATSA client are the outcomes he/she would have achieved had all ADATSA assessed and eligible clients received treatment. These adjusted outcomes also approximate the most probable effects of a randomized assignment of ADATSA clients to a treatment and a control group had we conducted an experimental study rather than a retrospective one. Randomization would have made the average pre-treatment characteristics very similar for both treatment and control groups; these averages would, by definition, be similar to the average characteristics of all assessed ADATSA clients.

Calculations of Adjusted Outcomes for Average Clients

To calculate the point estimates of employment outcomes, we first found the average values for the relevant pre-treatment characteristics combining both treatment and no treatment group clients. Then we multiplied the average value for each pre-treatment characteristic by the expected effect of that characteristic on the outcome. Finally, we added the effects of chemical dependency treatment and additional vocational services.

Statistical Adjustments to Control for the Effect of Seasonal Labor

Clients receiving chemical dependency treatment who resided in Yakima and surrounding counties reported making considerably higher earnings than their counterparts in other areas of the state. After discussions with economists at Washington State Employment Security, we hypothesized that this unexpected result might reflect differing labor market conditions. A primary difference between the areas in and around Yakima county, and the rest of the state, is the availability of employment that is seasonal in nature.

To control for this difference, we included in our statistical equations a variable which measured the average percent of seasonal labor in the county where the client was assessed over the 4½ year follow-up period. The need for this adjustment is particularly important when considering the wages of those receiving additional vocational services. These programs were offered in three counties only—King, Pierce and Spokane—areas where the availability of seasonal labor is very low. An appropriate comparison of the wages of those receiving vocational services with those receiving chemical dependency treatment only, who might be anywhere in the state, demands that important labor market factors be statistically controlled.

Treatment Variables

Five dichotomous variables were created to represent the different treatment completion rates: completing vocational services, dropping out of vocational services, completing chemical dependency treatment, dropping out of chemical dependency treatment, and not receiving treatment. All of these five groups were included in our analysis. The category omitted from the regression equations was 'completing chemical dependency treatment', and thus it became the group to which the others were compared. Only three groups are presented in the tables: completing vocational services, completing at least the primary phase of treatment, and receiving no treatment. In most cases clients who dropped out of treatment or vocational services were not significantly different from clients who did not start treatment or vocational services.

Interactions between Background Variables and Treatment Variables

We analyzed numerous models to explore the question of whether chemical dependency treatment and additional vocational services differentially affect clients with different demographic characteristics; that is, whether there are statistically significant interaction effects between treatment and background variables. The only significant interactions were between treatment and prior employment in the two years before treatment. Because the effects of chemical dependency treatment and additional vocational services often differed for those with and those without recent employment, we present separate analyses for these two groups.

Inflation Adjustment

All wages have been adjusted to reflect constant 1992 dollars.

Generalizing Our Findings

The Division of Alcohol and Substance Abuse (DASA) within the Department of Social and Health Services (DSHS) serves many different types of clients. This study examines only those clients funded by ADATSA (the Alcohol and Drug Addiction Support Act of 1987). Therefore, generalizations should be confined accordingly and not projected to all clients receiving DASA services.

These findings pertain to nearly all ADATSA clients although some small subgroups of clients were excluded from the analyses. AFDC clients were excluded because of some unique characteristics: first, 78% of that subgroup is female, and 17% of those females were pregnant at the time of assessment; second, at the time of this study, employment was not considered a primary goal for these clients, especially in the short term. Clients convicted of a felony in the year prior to treatment were excluded as well. These clients were identified with data from the Washington State Department of Corrections and comprised 16 percent of our sample. Their criminal history and extended incarceration reduced their employment prospects, especially in the short-term.

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The ADATSA Program: Clients, Services and Treatment Outcomes
A Study of Indigent Persons Served by Washington State's Alcoholism and Drug Addiction Treatment and Support Act, Longhi, et. al., Report Number 4.17, October 1991.

ADATSA Treatment Outcomes: Employment and Cost Avoidance
An Eighteen Month Follow-Up Study of Indigent Persons Served by Washington State's Alcoholism and Drug Addiction Treatment and Support Act, Longhi, Brown and Comtois, Report Number 4.19, November 1994.

Heckman, J.J. Sample Selection Bias as a Specification Error. *Econometrica.* 1979, 47: 153-161.

Tables

Table A.1a (See Figures 1a,b.c and 3a,b,c.)

Statistical Model (Logistical Regression)
Probability of Any Earnings In the 4½ Year Follow-up Period
The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients With Some Earnings in the 2 Years Before Treatment (n=809)**		**Clients With No Earnings in the 2 Years Before Treatment (n=337)**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0041	0.0001 ***	0.0024	0.0001 ***		
Post-High School Education	0.5947	0.0035 **	0.9017	0.0047 **	0.5143	0.0763 *t*
White	-0.4031	0.0168 *	-0.7473	0.0040 **	-0.1268	
Married	0.0895		0.1726		0.0941	
Age Less Than 30	0.9701	0.0001 ***	1.3739	0.0001 ***	0.5247	0.0578 *t*
Male	0.0063		-0.0039		-0.0662	
Percent of Seasonal Labor	0.0209	0.1526 *t*	-0.0016		0.0582	0.0183 *
Completed Tx vs No Tx	0.4813	0.0512 *t*	0.5312	0.1166 *t*	0.2045	n.s.
Completed Tx vs Dropping Out	0.5103	0.0568 *t*	0.1362		0.6244	0.1277 *t*
Completed Voc Services vs Tx	0.9290	0.0003 ***	1.3733	0.0003 ***	0.6649	0.0812 *t*
R-Square	.15		.12		.06	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance are statistically independent.

Note: 69 cases with missing data were excluded from the analyses.

Table A.1b (See Figures 1a,b,c and 3a,b,c.)

Statistical Model (Logistic Regression)

Probability of Average Earnings of $320/Month or More In the 4½ Year Follow-up Period

The Effects of Client Characteristics, Pre-Treatment Experiences, and ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients With Some Earnings in the 2 Years Before Treatment (n=809)**		**Clients With No Earnings in the 2 Years Before Treatment (n=337)**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0023	0.0001 ***	0.0018	0.0001 ***		
Post-High School Education	0.6226	0.0043 **	0.5830	0.0181 *	1.0700	0.0341 *
White	0.0169		0.0634		-0.2389	
Married	0.0122		-0.0935		0.6199	
Age Less Than 30	0.5052	0.0801 *t*	0.5508	0.0471 *	-0.0881	
Male	-0.0052		-0.0460		0.1896	
Percent of Seasonal Labor	0.0272	0.0398 *	0.0229	0.0517 *t*	0.0542	
Completed Tx vs No Tx	0.3184		0.3768		0.2347	n.s.
Completed Tx vs Dropping Out	0.5740	0.1592 *t*	0.2659		2.5355	0.1271 *t*
Completed Voc Services vs Tx	1.0614	0.0001 ***	0.9782	0.0002 ***	1.6520	0.0140 *
R-Square	.16		-.14		.09	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance are statistically independent.

Note: 69 cases with missing data were excluded from the analyses.

Table A.1c (See Figures 1a,b,c and 3a,b,c)

Statistical Model (Logistic Regression)
Probability of Average Earnings of $1000/Month or More In the 4½ Year Follow-up Period
The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients With Some Earnings in the 2 Years Before Treatment (n=809)**		**Clients With No Earnings in the 2 Years Before Treatment (n=337)[1]**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0017	0.0050 **	0.0015	0.0072 **		
Post-High School Education	0.8015	0.1424 *t*	0.5877		2.426	0.0233 *
White	0.1118		0.0418		.5214	0.0736 *t*
Married	-0.3813		-0.2888			
Age Less Than 30	0.0943	0.1341 *t*	0.0083	0.1095 *t*	.4446	
Male	0.4092	0.0975 *t*	0.3545	0.1384 *t*	.3513	
Percent of Seasonal Labor	0.0337		0.0314		-.2351	0.1248 *t*
Completed Tx vs No Tx	1.7367	0.0517 *t*	1.5022	0.1282 *t*		
Completed Tx vs Dropping Out	1.5625	0.0450 *	1.4084	0.0427 *		
Completed Voc Services vs Tx	0.4430		0.3919		.9400	n.s.
R-Square	.08		.08		.08	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance are statistically independent.

Note: 69 cases with missing data were excluded from the analyses.

[1] Due to the small number of clients with no earnings in the 2 years before treatment who earned $1000/month or more in the follow-up period, we were not able to compare the Treatment and No Treatment groups.

Table A.2a (See Figure 2a,b,c)

Statistical Model (Logistic Regression)
Number of Months with Any Earnings in the 4 ½ Year Follow-up Period
The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients With Some Earnings in the 2 Years Before Treatment (n=809)**		**Clients With No Earnings in the 2 Years Before Treatment (n=337)**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0176	0.0001 ***	0.0124	0.0001 ***		
Post-High School Education	5.2208	0.0001 ***	5.9073	0.0001 ***	4.7663	0.0136 *
White	-0.6142		-0.6976		-1.4241	
Married	0.3338		-0.9767		3.8335	0.1543 *t*
Age Less Than 30	5.7256	0.0001 ***	6.0798	0.0001 ***	1.4753	
Male	1.0400		0.4009		1.4946	
Percent of Seasonal Labor	0.2364	0.0076 **	0.2332	0.0279 *	0.2484	0.0859 *t*
Completed Tx vs No Tx	5.2449	0.0031 **	6.9024	0.0022 **	-1.0381	n.s.
Completed Tx vs Dropping Out	6.3306	0.0006 ***	4.6700	0.0442 *	4.2331	0.1197 *t*
Completed Voc Services vs Tx	7.8306	0.0001 ***	7.5772	0.0001 ***	9.0906	0.0003 ***
Mean	19.81		24.14		9.52	
Standard Deviation	16.58		16.96		13.85	
R-Square	0.2144	0.0001 ***	0.1742	0.0001 ***	0.0933	0.0004 ***
Adjusted R-Square	0.2067		0.1628		0.0655	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance for number of months with any earnings are not statistically independent of tests of significance for number of months with earnings of $320 and tests of significance for number of months with earnings of $1000.

Note: 69 cases with missing data were excluded from the analyses.

Table A.2b (See Figure 2a,b,c)

Statistical Model (Regression Analysis)
Number of Months with Average Earnings of $320/Month or More In the 4½ Year Follow-up Period
The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients With Some Earnings in the 2 Years Before Treatment (n=809)**		**Clients With No Earnings in the 2 Years Before Treatment (n=337)**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0171	0.0001 ***	0.0139	0.0001 ***		
Post-High School Education	4.3535	0.0002 ***	4.7088	0.0013 **	4.2295	0.0100 **
White	-0.0391		0.1672		-1.2178	
Married	0.8986		-0.5504		4.3721	0.0562 *t*
Age Less Than 30	3.3545	0.0008 ***	3.7730	0.0023 **	0.1124	
Male	0.3614		-0.2027		0.9503	
Percent of Seasonal Labor	0.1845	0.0230 *	0.1909	0.0586 *t*	0.1695	0.1676 *t*
Completed Tx vs No Tx	4.3000	0.0081 **	5.4064	0.0117 *	-0.0509	
Completed Tx vs Dropping Out	5.2842	0.0017 **	4.6560	0.0351 *	3.1926	0.1671 *t*
Completed Voc Services vs Tx	7.3989	0.0001 ***	7.0524	0.0001 ***	8.6408	0.0001 ***
Mean	14.00		17.35		6.05	
Standard Deviation	15.19		16.14		11.77	
R-Square	0.2121	0.0001 ***	0.1740	0.0001 ***	0.1099	0.0001 ***
Adjusted R-Square	0.2045		0.1626		0.0826	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance for number of months with earnings of $320 are not statistically independent of tests of significance for number of months with any earnings or tests of significance for number of months with earnings of $1000.

Note: 69 cases with missing data were excluded from the analyses.

Table A.2c (See Figure 2a,b,c)

Statistical Model (Regression Analysis)

Number of Months with Average Earnings of $1000/Month or More In the 4½ Year Follow-up Period

The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients With Some Earnings in the 2 Years Before Treatment (n=809)**		**Clients With No Earnings in the 2 Years Before Treatment (n=337)**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0125	0.0001 ***	0.0119	0.0001 ***		
Post-High School Education	2.7984	0.0008 ***	2.5273	0.0209 *	3.5057	0.0016 **
White	-0.4214		-0.0690		-1.3012	0.1599 t
Married	0.1586		0.1627		-0.0073	
Age Less Than 30	0.7852		0.9783		-0.4303	
Male	1.7726	0.0173 *	2.0968	0.0345 *	0.9262	
Percent of Seasonal Labor	0.0757	0.1965 *t*	0.0859		0.0436	
Completed Tx vs No Tx	2.3946	0.0412 *	3.1246	0.0507 *t*	0.5049	
Completed Tx vs Dropping Out	3.4813	0.0041 **	3.6870	0.0254 *	2.2886	0.1414 t
Completed Voc Services vs Tx	3.7260	0.0001 ***	3.6465	0.0028 **	4.3251	0.0028 **
Mean	6.21		7.74		2.58	
Standard Deviation	10.98		12.05		7.92	
R-Square	0.1852	0.0001 ***	0.1679	0.0001 ***	0.0926	0.0004 ***
Adjusted R-Square	.01773		0.1564		0.0648	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at.$05 < \alpha < .20$

Tests of significance for number of months with earnings of $1000 are not statistically independent of tests of significance for number of months with any earnings or tests of significance for number of months with earnings of $320.

Note: 69 cases with missing data were excluded from the analyses.

Table A.4 (See Figure 4a,b,c)

Statistical Model (Regression Analysis)

Average Monthly Earnings In the 4½ Year Follow-up Period

The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients With Some Earnings in the 2 Years Before Treatment (n=809)**		**Clients With No Earnings in the 2 Years Before Treatment (n=337)**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.5116	0.0001 ***	.4654	0.0001 ***		
Post-High School Education	111.94	0.001 ***	116.53	0.0027 ***	110.43	0.0020 **
White	2.071	n.s.	13.51		-32.29	n.s.
Married	2.028	n.s.	-17.14		44.12	n.s.
Age Less Than 30	47.03	0.0631 *t*	54.69	0.0951 *t*	-8.64	n.s.
Male	46.92	0.0730 *t*	50.60	0.1506 *t*	31.28	n.s.
Percent of Seasonal Labor	4.074	0.0483 *	4.19	0.1170 *t*	3.628	0.1737 *t*
Completed Tx vs No Tx	90.38	0.0285 *	121.30	0.0328 *	1.64	n.s.
Completed Tx vs Dropping Out	127.31	0.0029 **	129.75	0.0267 *	70.28	0.1613 *t*
Completed Voc Services vs Tx	144.93	0.0001 ***	139.42	0.0013 **	169.03	0.0003 ***
Mean	$288.42		$360.61		$117.29	
Standard Deviation	$386.23		$427.86		$255.53	
R-Square	0.2263	0.0001 ***	0.1941	0.0001 ***	0.1007	0.0001 ***
Adjusted R-Square	0.2188		0.1830		0.0731	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance are statistically independent.

Note: 69 cases with missing data were excluded from the analyses.

Table A.5 (See Figure 5.)

Significance Levels for Statistical Model (Regression Analysis)

Average Earnings Among Clients with Employment In Each Six-Month Period of the 4½ Year Follow-up Period

The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

Significance Levels

	Months Post-Treatment									
	1-6	**7-12**	**13-18**	**19-24**	**25-30**	**31-36**	**37-42**	**43-48**	**49-54**	**1-54**
	Period 1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**All**
Independent Variables	*n=686*	*n=634*	*n=568*	*n=532*	*n=508*	*n=500*	*n=491*	*n=457*	*n=452*	*n=893*
Pre-Treatment Wages Averaged over 24 Months	+.0001	+.0001	+.0001	+.0001	+.0001	+.0001	+.0001	+.0001	+.0001	+.0001
Post-High School Education		+.0685	+.0101	+.0693	+.0508			+0.1469		+.0017
White	+.0921	+.1194								
Married	+.1549				-.0522		-.0776			
Age Less Than 30						-.0616	-.0263	-.1550	-.1426	
Male	+.0848	+.1254	+.1598	+.1900		+.1900		+.1973		+.0286
Percent of Seasonal Labor			+.1578							+.0376
Completed Tx vs No TX	+.1557			+.0899		+.0919		+.0251	+.0280	+.0646
Completed Voc	+.0058	+.0197	+.0001	+.0341	+.0486					+.0013
Completed TX vs Dropping Out	+.1382			+.1724	+.0198	+.1839	+.1369		+.0425	+.0064
Overall Equation	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***

Tests of significance are *not* statistically independent.

Table A.6 (See Figure 6a)

Statistical Probability of Model (Survival Analysis)

Probability of Continuous Employment In the 4½ Year Follow-up Period

The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

Clients Employed in the First 6 Months After Treatment (n=657)		
Independent Variables	Parameter Estimate	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0005	0.0020 **
Post-High School Education	0.2120	0.0591 t
White	0.0832	
Married	-0.1670	
Age Less Than 30	0.0646	
Male	-0.0618	
Percent of Seasonal Labor	0.0106	
Completed Tx vs No Tx	0.0950	n.s.
Completed Tx vs Dropping Out	0.1629	n.s.
Completed Voc Services vs Tx	0.4322	0.0010 ***
Percent of those Employed in first 6 months who were still employed after 4½ years	42.7%	
Chi Square	37.817	p=0.0001 ***

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Table A.7a (See Figure 7a,b,c)

Statistical Model
Probability of Any Earnings
1½ - 4½ Years After Treatment
The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients with Some Earnings in the First 1½ Years After Treatment (n=810)**		**Clients with No Earnings in the First 1½ Years After Treatment (n=336)**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0026	0.0001 ***	0.0016	0.0001 ***	0.0024	0.0027 **
Post-High School Education	0.4568	0.0073 **	0.1967		0.5301	0.1269 *t*
White	-0.2379	0.0984 *t*	-0.0099		-0.2877	
Married	0.2145		0.3895		0.0081	
Age Less Than 30	0.6989	0.0001 ***	0.2831	0.1479 *t*	0.9988	0.0007 ***
Male	0.1834		0.3717	0.0561 *t*	-0.2265	
Percent of Seasonal Labor	0.0289	0.0202 *	0.0358	0.0592 *t*	0.0299	0.1945 *t*
Completed Tx vs No Tx	0.2639	n.s.	0.1763	n.s.	0.5416	n.s.
Completed Tx vs Dropping Out	0.2300	n.s.	0.0533	n.s.	0.2767	n.s.
Completed Voc Services vs Tx	0.6607	0.0009 ***	0.3781	0.1321 *t*	0.7712	0.1098 *t*

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance are statistically independent.

Note: 69 cases with missing data were excluded from the analyses.

Table A.7b (See Figure 7a,b,c)

Statistical Model
Probability of Average Earnings of $320/Month or More 1½ - 4½ Years After Treatment
The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients with Some Earnings in the First 1½ Years After Treatment (n=810)**		**Clients with No Earnings in the First 1½ Years After Treatment (n=336)**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0022	0.0001 ***	0.0017	0.0001 ***	0.0031	0.1873 *t*
Post-High School Education	0.4949	0.0644 *t*	0.3439	0.1227 *t*	1.1783	0.1190 *t*
White	-0.0448		0.1158		-0.6588	
Married	-0.1112		-0.2207	0.1763 *t*	0.9670	
Age Less Than 30	0.4880		0.2314		1.2195	
Male	-0.0674		-0.0228		-0.7568	
Percent of Seasonal Labor	0.0241		0.0239		0.0353	
Completed Tx vs No Tx	0.5377	n.s.	0.2111	n.s.	1.8888	n.s.
Completed Tx vs Dropping Out	0.7642	0.0373 *	0.5836	0.1082 *t*		
Completed Voc Services vs Tx	0.7277	0.0109 *	0.5629	0.0238 *	1.4464	n.s.

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at.$05 < \alpha < .20$

Tests of significance are statistically independent.

Note: 69 cases with missing data were excluded from the analyses.

Table A.7c (See Figure 7a,b,c)

Statistical Model
Probability of Average Earnings of $1000/Month or More
1½ - 4½ Years After Treatment
The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients with Some Earnings in the First 1½ Years After Treatment (n=810)**		**Clients with No Earnings in the First 1½ Years After Treatment (n=336)** [1]	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0015		0.0012		0.0019	
Post-High School Education	0.5727		0.5069		0.2526	
White	-0.2009		-0.0893		-0.7247	
Married	-0.3862		-0.4291			
Age Less Than 30	0.1236	0.1164 *t*	-0.0794	0.1239 *t*	0.7807	
Male	0.6340	0.0025 **	0.5996	0.0070 **		
Percent of Seasonal Labor	0.0352	0.1553 *t*	0.0407	0.0965 *t*	-0.3655	
Completed Tx vs No Tx	1.4579	0.0557 *t*	1.1191	0.0750 *t*		
Completed Tx vs Dropping Out	1.2542	0.1508 *t*	1.1229	0.1654 *t*		
Completed Voc Services vs Tx	0.6143	n.s.	0.5421	n.s.	0.9765	n.s.

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance are statistically independent.

Note: 69 cases with missing data were excluded from the analyses.

[1] Due to the small number of clients both with no earnings in the first 1 ½ years and with earnings over $1000 in the subsequent 3 years, we were not able to compare the Treatment and No Treatment groups.

Table A.8a (See Figure 8a,b,c)

Statistical Model
Number of Months with Any Earnings
During the Last 3 Years of the 4½ Year Follow-up Period
The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients with Some Earnings in the First 1½ Years After Treatment (n=810)**		**Clients with No Earnings in the First 1½ Years After Treatment (n=336)**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0111	0.0001 ***	0.0079	0.0001 ***	0.0082	0.0005 ***
Post-High School Education	3.4196	0.0002 ***	2.7117	0.0175 *	1.8881	0.0596 *t*
White	-0.2868		1.2119		-1.1896	0.1495 *t*
Married	0.0210		-0.3676		-0.0313	
Age Less Than 30	3.5493	0.0001 ***	1.4122	0.1545 *t*	3.3771	0.0001 ***
Male	0.9060		1.3286		-0.2764	
Percent of Seasonal Labor	0.1913	0.0034 **	0.2410	0.0032 **	0.0288	
Completed Tx vs No Tx	2.9745	0.0229 *	2.4793	0.1655 *t*	0.5326	n.s.
Completed Tx vs Dropping Out	4.4228	0.0011 **	4.1905	0.0170 *	0.9863	n.s.
Completed Voc Services vs Tx	4.9531	0.0001 ***	3.9057	0.0024 **	3.1369	0.0169 *
Mean	12.22		16.27		2.86	
Standard Deviation	12.23		12.78		6.67	
R-Square	0.1676	0.0001 ***	0.0997	0.0001 ***	0.1220	0.0001 ***
Adjusted R-Square	0.1596		0.0873		0.0922	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance for number of months with earnings of $320 are not statistically independent of tests of significance for number of months with any earnings or tests of significance for number of months with earnings of $1000.

Note: 69 cases with missing data were excluded from the analyses.

Table A.8b (See Figure 8a,b,c)

Statistical Model
Number of Months with Average Earnings of $320/Month or More During the Last 3 Years of the 4½ Year Follow-up Period
The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients with Some Earnings in the First 1½ Years After Treatment n=810)**		**Clients with No Earnings in the First 1½ Years After Treatment (n=336)**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0109	0.0001 ***	0.0089	0.0001 ***	0.0054	0.0041 **
Post-High School Education	2.8814	0.0007 ***	2.4625	0.0238 *	1.4849	0.0599 *t*
White	-0.0750		1.0561		-0.7489	
Married	-0.0737		-0.7400		0.6230	
Age Less Than 30	1.9441	0.0080 **	0.4194		1.7087	0.0138 *
Male	0.0575		0.2100		-0.2582	
Percent of Seasonal Labor	0.1469	0.0139 *	0.2011	0.0100 **	0.0038	
Completed Tx vs No Tx	2.7033	0.0236 *	1.9120	n.s.	0.8296	n.s.
Completed Tx vs Dropping Out	3.9497	0.0014 **	4.2263	0.0117 *	1.0719	n.s.
Completed Voc Services vs Tx	4.5944	0.0001 ***	4.0035	0.0011 **	2.6671	0.0098 **
Mean	9.00		12.18		1.64	
Standard Deviation	11.17		12.20		5.25	
R-Square	0.1685	0.0001 ***	0.1134	0.0001 ***	0.0990	0.0003 ***
Adjusted R-Square	0.1605		0.1012		0.0684	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance for number of months with earnings of $320 are not statistically independent of tests of significance for number of months with any earnings or tests of significance for number of months with earnings of $1000.

Note: 69 cases with missing data were excluded from the analyses.

Table A.8c (See Figure 8a,b,c)

Statistical Model
Number of Months with Average Earnings of $1000/Month or More During the Last 3 Years of the 4½ Year Follow-up Period
The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		Clients with Some Earnings in the First 1½ Years After Treatment (n=810)		Clients with No Earnings in the First 1½ Years After Treatment (n=336)	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.0082	0.0001 ***	0.0076	0.0001 ***	0.0027	0.0398 *
Post-High School Education	1.8831	0.0040 ***	1.8448	0.0348 *	0.9915	0.0737 *t*
White	-0.3869		0.0435		-0.5159	
Married	-0.5660		-1.4052		0.6798	
Age Less Than 30	0.5079		-0.0890		0.2954	
Male	1.2505	0.0323 *	1.7842	0.0258 *	0.2929	
Percent of Seasonal Labor	0.0687	0.1353 *t*	0.1077	0.0854 *t*	-0.0152	
Completed Tx vs No Tx	1.6179	0.0788 *t*	1.4593	n.s.	0.4746	n.s.
Completed Tx vs Dropping Out	2.9187	0.0022 **	3.8681	0.0041 **	0.5404	n.s.
Completed Voc Services vs Tx	2.6992	0.0004 ***	2.4411	0.0130 *	1.7882	0.0137 *
Mean	4.49		6.14		0.68	
Standard Deviation	8.62		9.79		3.69	
R-Square	0.1454	0.0001 ***	0.1180	0.0001 ***	0.0676	0.0178 *
Adjusted R-Square	0.1371		0.1058		0.0359	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance for number of months with earnings of $320 are not statistically independent of tests of significance for number of months with any earnings or tests of significance for number of months with earnings of $1000.

Note: 69 cases with missing data were excluded from the analyses.

Table A.9a (See Figure 9)

Statistical Model

Predicting Average Monthly Earnings In the First 1½ Years after Treatment

The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)	
Independent Variables	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.5170	0.0001 ***
Post-High School Education	101.6	0.0006 ***
White	13.1155	
Married	47.6205	
Age Less Than 30	53.5904	0.0361 *
Male	41.6318	0.1153 *t*
Percent of Seasonal Labor	2.3355	
Completed Tx vs No Tx	85.2340	0.0409 *
Completed Tx vs Dropping Out	70.5588	0.1015 *t*
Completed Voc Services vs Tx	167.5513	0.0001 ***
Mean	$282.52	
Standard Deviation	$390.23	
R-Square	0.2262	0.0001 ***
Adjusted R-Square	0.2187	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Note:: 69 cases with missing data were excluded from the analyses.

Table A.9b (See Figure 9)

Statistical Model

Predicting Average Monthly Earnings
1½ - 4½ Years After Treatment

The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs

	All Clients (n=1146)		**Clients with Some Earnings in the First 1½ Years After Treatment (n=810)**		**Clients with No Earnings in the First 1½ Years After Treatment (n=336)**	
Independent Variables	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.5089	0.0001 ***	0.4645	0.0001 ***	0.1734	0.0086 **
Post-High School Education	117.0790	0.0004 ***	115.6888	0.0081 **	49.1651	0.0781 t
White	-3.4263		30.2131		-19.8228	
Married	-20.7656		-58.6222		25.7883	
Age Less Than 30	43.7524	0.1259 *t*	-1.0980		40.2336	0.1005 t
Male	49.5887	0.0934 *t*	75.3631	0.0593 *t*	3.8512	
Percent of Seasonal Labor	4.9417	0.0340 *	7.3372	0.0191 *	-0.2644	
Completed Tx vs No Tx	92.9357	0.0462 *	80.2774	n.s.	23.6225	n.s.
Completed Tx vs Dropping Out	155.6623	0.0013 **	193.0153	0.0041 **	34.3606	n.s.
Completed Voc Services vs Tx	133.6732	0.0005 ***	117.3898	0.0169 *	77.2326	0.0342 *
Mean	$291.39		$395.81		$49.71	
Standard Deviation	$436.36		$489.26		$185.75	
R-Square	0.1864	0.0001 ***	0.1504	0.0001 ***	0.0733	0.0091 ***
Adjusted R-Square	0.1785		0.1387		0.0419	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance are statistically independent.

Note: 69 cases with missing data were excluded from the analyses.

Table A.9c (See Figure 9)

Statistical Model

Predicting Average Monthly Earnings
1½ - 4½ Years After Treatment
Adjusting for Earnings in the First 1½ Years After Treatment

The Effects of Client Characteristics, Pre-Treatment Experiences, ADATSA Treatment and Pilot Vocational Programs, and Earnings in the First 1 ½ Years after Treatment

	All Clients (n=1146)	
Independent Variables	Regression Coefficients	Significance Levels
Pre-Treatment Wages Averaged over 24 Months	0.1450	0.0001 ***
Post-High School Education	45.5223	0.0780 *t*
White	-12.6581	
Married	-54.2850	0.1328 *t*
Age Less Than 30	6.0309	
Male	20.2847	
Percent of Seasonal Labor	3.2978	0.0688 *t*
Average Earnings in the First 1½ years	0.7039	0.0001 ***
Completed Tx vs No Tx	32.9407	n.s.
Completed Tx vs Dropping Out	105.9970	0.0047 **
Completed Voc Services vs Tx	15.7363	n.s.
Mean	$291.39	
Standard Deviation	$339.22	
R-Square	0.5088	0.0001 ***
Adjusted R-Square	0.5036	

* Significance at $\alpha < .05$ level

** Significance at $\alpha < .01$ level

*** Significance at $\alpha < .001$ level

t Significance at $.05 < \alpha < .20$

Tests of significance are statistically independent.

Note:: 69 cases with missing data were excluded from the analyses.