EXPANDING THE PATHWAYS TO HOUSING FOR INDIVIDUALS WITH COMPLEX BIOSOCIAL CHALLENGES: A COMPARISON OF TWO SERVICE DELIVERY MODELS FOR HOMELESS INDIVIDUALS

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ABSTRACT OF THE DISSERTATION

Expanding the Pathways to Housing for Individuals with Complex Biosocial Challenges: A Comparison of Two Service Delivery Models for Homeless Individuals

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This dissertation investigates the ability of two service treatment systems—one focusing on a lifestyles and the other on a life-chances perspective—have in addressing barriers to self-sufficiency faced by homeless clients enrolled in the Newark (New Jersey) Department of Health and Human Services (NDHHS) Substance Abuse and Mental Health Services Administration (SAMHSA) homeless program. The study examines how program clients fare in regards to overcoming mental health and substance abuse (MH/SA) disorders, obtaining housing and employment, and halting criminal activity after receiving program treatment services. This research provides an overview of the prominent challenges faced by homeless individuals, and adds to the growing body of knowledge on effective service interventions to assist homeless individuals achieve independent living.

This investigation was accomplished through a quantitative and qualitative analysis. The quantitative analysis examined data from the Government Performance Results Act (GPRA) on 181 clients enrolled in the NDHHS SAMHSA program between 2007 and 2011. The qualitative analysis included a direct observation of program activities and structured staff and client interviews.

The results from this study found a comparative benefit of the lifestyles service interventions over the life-chances service interventions in addressing clients' outcomes related to:

1. Anxiety disorders – reducing symptoms by more than 11 days per month
2. Housing – causing a 6 times higher odds of housing for clients receiving brief treatment service intervention.
3. Employment – for each increase in lifestyles services received, clients had a 2.362 times higher odds of being employed compared to being unemployed and not looking for work. Clients receiving the lifestyles intensive outpatient service had a 53.324 times higher odds of being employed versus to being unemployed and not looking for work.
4. Illegal drug use – decreasing use by 41 percent as services got more intense.
5. Criminal activity – decreasing activity by 47 percent as intensity of services increased.

The qualitative results from this study reveal that the NDHHS SAMHSA program staff viewed clients' inability to manage existing psychiatric and addictive disorders as the primary cause of homelessness. Accordingly, the staff regarded the treatment of MH/SA disorders as essential to helping clients achieve independent living.

Preface

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CHAPTER 1

Introduction

Homelessness in the United States is not a new phenomenon. It has long been recognized as a significant social concern. During the 1980s, however, the problem of homelessness was thrust into national prominence as the United States experienced a precipitous increase in the number of homeless Americans (Torrey 1988; Burt et al. 1999). Unlike homeless populations observed in previous decades, the "new homeless" of the 1980s were more visible and heterogeneous. Younger, more ethnically diverse, and having weaker attachments to the labor force than their counterparts in previous eras, the homeless population of the 1980s was also more likely to exhibit symptoms of mental health and substance abuse (MH/SA) disorders (Rossi 1990; McCaty et al. 1991). Initially, many observers attributed the homelessness epidemic of the 1980s to the national economic recession of the period, and insisted that the issue was of temporary importance that would soon fade away as economic conditions improved. Temporary emergency shelter was the typical public policy response to homelessness during this period. Homelessness, particularly the chronic homelessness that dominated the period, was viewed as a tragic social problem that would gradually vanish as the United States economic forecast improved and the concomitant structural problems of high unemployment and the scarcity of affordable housing improved along with it.

With the proliferation of imprisonment rates since the 1980s, still others began to draw parallels between homelessness and contact with the criminal justice system (Ditton 1999; Friedman et al. 1997; Langan and Levin 2002; Roman and Travis 2004). Research related to the nexus between homelessness and incarceration pointed to the zero-tolerance

public policies that had come to dominate criminal justice policy since the 1980s that prohibited the homeless from engaging in life-sustaining activities, such as sleeping/camping, eating, and panhandling within the public domain.

Theoretical and Empirical Background

In the three decades since homelessness was thrust into the national consciousness, it continues to be a major point of interest and concern among the lay public, social scientists, and policymakers alike. Homelessness is no longer perceived as a fleeting social concern that is of temporal importance. Within the homelessness literature, two broad and distinct frameworks have been used to explain homelessness: one emphasizes personal behaviors, attitudes, and/or values (or lifestyles) and the other emphasizes structural factors (or life-chances) (Fischer et al. 1986, Lepton et al. 1983, Roth et al. 1985, Clapham 2003, Cockerham 2005). Within classical social theory, the debate between the role of personal versus structural forces to shape life conditions dates back at least as far as Karl Marx and Max Weber. The two theorists argued that life circumstances are conditioned by structure as well as life choices (LaGory et al. 2001). Marx ([1869]) 1963, 15), for instance, theorized that “men make history, but they do not make it just as they please; they do not make it under circumstances chosen by themselves, but under circumstances directly encountered, given and transmitted from the past.” Whereas Weber held that life circumstances are primarily a result of “choice within the social context” (Cockerham et al. 1997, 322).

At the heart of these two perspectives is a question that is central to the field of sociology and public policy: What is the role of agency versus structure in shaping the

social stratification? The agency-versus-structure debate is particularly pertinent in the study of vulnerable populations. Social science has long been concerned with understanding the role which individual behavioral patterns and broader environmental structures play in determining life outcomes and social inequalities. Lifestyles research "emphasize[s] the individual's control over illness, focusing on personal choices that lead to financial and social strain and ultimately to disease" (Jagannathan, Camasso, and Sambamoorthi 2010, 153). Examined in this light, social inequality is conceptualized in terms of individual pathologies, and life outcomes are thought to contour around the aggregate of individuals' personal traits (Frohlich et al. 2001). Within this social construct, distinctions are made between 'deserving' and 'undeserving,' which engender a public policy focus on behavioral modification and the need for greater personal responsibility from those that are poor.

The study of vulnerable populations from a life-chances perspective is rooted in the field of public health. The field of public health has long recognized that while illnesses (as well as increased susceptibility to illness) are ultimately expressed at the individual level, important linkages exist between individuals and the social environment in which they live. As a result, the field of public health has been instrumental in elevating the study of vulnerability from a micro to a macro level by suggesting that individuals operate within social hierarchies that are highly systematic and deterministic (Furumoto-Dawson et al. 2007). Within this social construction, poor health status and the susceptibility to disease are no longer seen as individual defects but are linked to larger social determinants shaped by societal structures. The lifestyles and life-chances

perspectives have played a major role in shaping US public policy response to the plight of vulnerable populations.

Lifestyles Versus Life-chances: Public Policy Response

Public policy is the primary tool used by government to identify problems to be addressed, goals to be achieved, and the specific populations to be targeted. Central to public policy is the social construction of targeted populations. Anne Schneider and Helen Ingram define social construction of targeted populations as "the cultural characterization or popular images of persons or groups whose behavior and well-being are affected by public policy" (Schneider and Ingram 1993, 334). The authors contend that public policy does not happen within a vacuum, but is closely aligned to either the positive or negative social construction of targeted populations. When targeted populations are positively constructed, emerging public policy is predominantly incentive driven, replete with inducements to entice participation in the policy preferred activity. Conversely, policies affecting negatively constructed targeted populations tend to be sanction based and heavily reliant on the use of force to get "people to do things that they might not otherwise do" (Schneider and Ingram 1990, 513).

The vigorous public policy debates over welfare reform that came to a climax during the 1990s highlight the role of social constructions and the dialectical gulf between the roles lifestyles and life-chances play in creating and maintaining individuals' poverty status. During the 1990s, there was a general consensus among the American public, and a growing bipartisan belief, that the welfare system was not the most effective system to promote self-sufficiency and prevent intergenerational poverty (Sawhill 1995). While there was consensus on the need to "end welfare as we know it," there was less

agreement on how to replace the existing system. In the end, the signing of the Personal Responsibility and Work Opportunity Reconciliation Act in 1996 marked major changes in the American welfare system, with greater emphasis on modifying lifestyles by changing the opportunity costs associated with welfare benefits and labor force participation (Jagannathan, Camasso, and Sambamoorthi 2010). The Act included a number of behavioral provisions that required greater personal responsibility on the part of those receiving governmental assistance and direct sanctions (for example, loss of benefits) for noncompliance with work requirements. The legislation encouraged the poor to enter the labor force by attempting to remove barriers to employment such as the lack of childcare and job training (Blank 2002). Welfare reform reflected the general belief of the period that less than optimal choices had suffused and consigned a subculture of the poor to the margins of society (Jagannathan, Camasso, and Sambamoorthi 2010).

The lifestyles framework is also viewed as a prominent explanation of homelessness. According to this framework, homelessness is directly linked to individuals' flawed personal characteristics. Personal defects, particularly those related to mental illness and substance abuse, serve to disrupt people's ability to carry out essential aspects of daily life and to form and maintain stable relationships. The cyclical and persistent nature of MH/SA disorders serves to create a series of precarious socioeconomic circumstances, not the least of which is the inability to obtain and keep stable housing. Consequently, there is an assumption that cognitive and behavioral lifestyles impede individuals' ability to successfully navigate the demands associated with functioning at a high level within society. Lifestyles theory postulates that individual maladies create a subculture of a chronically homeless population whose housing status is

largely unaffected by the fluctuations in the national economy (Eagle and Caton 1990). Whereas extreme poverty and economic deprivation are virtually universal conditions among the homeless, they are not seen as the sole or central pathway to homelessness. Those lacking adequate coping mechanisms are consequently unable to secure and maintain housing regardless of the contextual social and economic environment in which they operate. Individuals with personal deficiencies associated with MH/SA disorders are thought to be unable to make optimal decisions which results in their inability to secure domicile status (Roth et al. 1985; Fischer et al. 1986).

In stark contrast to the lifestyles model, the life-chances theoretical model points to structural factors, rather than individual characteristics, to explain homelessness. Social scientists have long been interested in the complex role that the environment can play in shaping the actions and circumstances of disadvantaged populations. In his seminal thesis, psychologist Kurt Lewin (1935) developed the now-famous life-chances equation, B=f(P,E), to suggest that behavior is a function of the interaction of personal characteristics and the environment, where B is behavior, P is person, and E is environment. The ecological theoretical model proposes that “people have needs and environments exert presses or pulls for the expression or inhibition of needs” (Toro et al. 1991, 1208). The perspective suggests that researchers and program interventions should consider contextual elements in order to understand the challenges of homelessness. At the forefront of the life-chances, theoretical model is the recognition that the social context in which individuals live is a factor in causing and prolonging homelessness. These larger societal factors, including economic challenges, the scarcity of low-income housing, and high rates of contact with the criminal justice system, can all serve to create

a social context that exert presses and pulls on vulnerable populations to increase the propensity of homelessness (McCarthy and Hagan 1991; Elliott and Krivo 1991).

Extant literature on homelessness focuses almost exclusively on the personal pathologies of homeless populations rather than on how the structural context can foster and maintain a homeless state (Toro 1991). The general consensus is that mental illness (Arce et al. 1983; Bacrach 1984; Lipton et al. 1983; Dennis et al. 1999) and substance abuse disorders (Dennis 1987; Fisher 1989; McCarty et al. 1991, Edens et al. 2011) are the primary pathways to homelessness. Estimates suggest that approximately one third of homeless individuals suffer from severe mental illness and approximately 30 percent have chronic substance abuse problems (National Resource Center on Homelessness and Mental Illness 2010). Not surprisingly, the premise that MH/SA disorders are the central passageway to homelessness has had a tremendous impact on treatment interventions for homeless populations (Drake et al. 1991; Gulcur et al. 2003). The predominant intervention to assist the homeless is based on the lifestyles theoretical framework and views the treatment of MH/SA disorders as central to the homeless individuals' ability to obtain long-term housing and to lead productive lives (Gulcur et al. 2003). The lifestyles service intervention, also termed the linear treatment model, requires that program participants successfully address their MH/SA disorders prior to receiving assistance in overcoming existing ecological challenges related to housing and employment needs (Edens et al. 2011).

Notwithstanding its prominence, the linear treatment model is not without its detractors. Mojtabai (2005), for instance, reports that "homeless persons with mental health disorders often attribute their housing problems to economic and social factors

rather than their psychiatric problems," a view that is also shared by many homeless service providers (172). Cohen and Thompson (1992) argue that it is "illusory" and "tenuous on empirical and strategic grounds" to assume that mental illness and substance use have a linear causal effect on homelessness (816). McCarty et al. (1991) argue that rather than a causal association, the relationship between MH/SA disorders and homelessness may actually be bi-directional in nature. The authors contend that whereas MH/SA disorders can increase the risk of homelessness, the threat of displacement and/or the loss of housing can also increase the onset and intensity of MH/SA disorders. Increasingly, researchers and service providers have come to challenge the lifestyles theoretical framework's service response to homelessness. Proponents of the life-chances theoretical model maintain that a proper service response for the homeless is one that also addresses existing structural challenges. Such a life-chances model would provide social supportive services aimed at addressing a cross section of ecological barriers, including those related to shelter, employment, and criminal justice involvement.

Significance of the Problem

National estimates place the US homeless population at well over half a million people, with approximately 150,000 to 200,000 classified as chronically homeless (Mares and Rosenheck 2011; Olivet et al. 2010). The homeless represent one of the most extreme subsets of the poor, and they have limited access to many of life's basic necessities. The right to privacy, safety, and the possession and control of personal space are all severely compromised for those that are homeless (Fitzpatrick and LaGory 1993). Although the non-domiciled face a number of consistent challenges, homelessness is not a uniform

experience. Research has identified a number of important variations within the homeless population. For instance, homelessness disproportionately affects African Americans, men, and individuals with disabilities (HUD 2010 Annual Homeless Assessment). Although the most common image of homelessness is the unsheltered, that is, people living on the streets or other areas not fit for human habitation, a less visible subgroup of the homeless are the sheltered and those who are doubled up. Sheltered homeless are individuals residing in emergency shelters or transitional housing and those who are considered doubled up are temporarily staying with family or friends (United States Interagency Council on Homelessness 2010).

No matter the circumstances or causal factors, the consequences of homelessness are profound. The average age of death for homeless adults is estimated to be between 42 and 52 years, with 30 to 70 percent of deaths related to substance abuse (O'Connell 2005). For homeless mothers, the infant mortality rate is more than twice the rate of non-poor domiciled mothers, and more than 25 percent higher than that of poor domiciled mothers. Other risks to homeless populations include increased risk of chronic illnesses such as human immunodeficiency virus (HIV), hypertension, and diabetes. The lack of adequate and regular housing, coupled with environmental exposure to extreme heat and cold, and the uneven access to medical treatment serve to further exasperate illnesses among the homeless (Stein 1995, Sadowski et al. 2009). Moreover, chronic illnesses among the homeless are often neglected or poorly managed due to their desperate living circumstances. Homeless individuals also tend to delay care of minor medical problems until they become more severe or unbearable.

The consequences of homelessness are not solely confined to the homeless community. The monetary cost to society of homelessness is significant and is spread across public systems. The non-domiciled are extensive users of many publicly funded services and tend to routinely cycle through treatment programs, hospitals, and correctional institutions. It is not unheard of for the homeless to use emergency rooms as their primary source of health care. A 2002 study showed that mentally ill homeless persons in New York amassed an average of $40,451 per year expenses across judicial, health, and social service sectors (Culhane et al. 2002).

Homelessness is a complex and multifaceted phenomenon that involves a broad set of causes and circumstances, and is tangentially connected to a wide range of public issues (Toro et al. 1991). The complexity of homelessness complicates the ability of service interventions to effectively reduce or prevent homelessness. The costly pattern of service utilization by the homeless, as well as the population's health and mortality outcomes, create a level of urgency that makes the problem of homelessness too big to ignore. This sense of urgency has prompted a number of governmental interventions over the past three decades. These interventions are largely divided into two subsets: a linear continuum of care service model (based on a lifestyles approach) and a social supportive model (based on a life-chances approach).

The linear continuum of care model anticipates that homeless persons will receive program services in a linear sequence that starts with mental health and/or substance abuse treatment and ends with assistance in housing placement. The model is rooted in the lifestyles theoretical perspective and is strongly influenced by the predominant focus within social science research that contends that homelessness is strongly correlated with,

if not directly caused by, the personal pathologies of the homeless. According to the linear continuum of care model, the debilitating nature of psychiatric and addictive disorders serve to inhibit sufferers from exercising the cognitive acumen and behavioral management necessary to navigate ordinary landlord-tenant situations, sustain employment, or maintain prosocial relationships (Cohen and Thompson 1992). The treatment of MH/SA disorders, therefore, takes precedent over other service needs, including housing support and employment assistance (Edens, et al. 2011).

Although the linear treatment model remains the dominant service model, over the past decade a number of social supportive models have gained momentum (Milby et al. 2005, Kertesz et al. 2009). The social supportive model is rooted in the life-chances theoretical perspective. The typical social supportive models provide service treatment interventions on the ecological factors that contribute to homelessness beyond MH/SA lifestyle disorders, by addressing the social context in which homeless persons live. The model assumes that the social context plays an important role in fostering and maintaining individuals' homeless status. Social supportive service models are grounded in the belief that the homeless, including the chronic homeless, can be stably housed via self-sufficiency services that address and seek to remove structural impediments. While there is little question about the correlation between MH/SA disorders and homelessness, debate remains on the causal relationship. More nuanced than previously believed, MH/SA disorders and homelessness can be either a cause or a result of each other (Mojtabai 2005, Edens et al. 2011). Just as mental health and substance abuse disorders can increase the risk of homelessness, the complex social interactions between person and environment can also adversely impact individuals' substance use and mental

stability (American Public Health Association 1990, Bassuk and Rubin 1984). It is not difficult to understand how the inability to secure stable housing could contribute to increased substance use and adversely impact an individual's mental state. Likewise, stable housing may also in and of itself contribute to reduced substance use and improved mental capacity. The ecological perspective encourages researchers and service treatment models to "assess the problems of homelessness at multiple levels…and to assess carefully the social contexts" between the individual and environment (Toro et al. 1991, 1208). Notwithstanding the important theoretical implications associated with the contrasting lifestyles and life-chances service models to address homelessness, Edens et al. (2011) noted a lack of studies that have documented outcomes for a homeless population across lifestyles and life-chances service models (Edens et al. 2011).

Purpose of this Research

MH/SA maladies are complex and powerful biosocial disorders that are all the more problematic when they occur together. Increasingly, among the many difficulties faced by the homeless, co-occurring MH/SA disorders consistently rank as highly prevalent. A corollary of the high rates of MH/SA disorders among homeless populations has been a tendency of homeless treatment programs to focus almost exclusively on the lifestyle challenges related to MH/SA disorders. This treatment approach has been successful for many homeless persons but has repeatedly failed for others (Kertesz and Weiner 2009). The mixed success of an exclusively focused lifestyles service model has led to an emergence of service programs that also focus on structural determinants of homelessness.

The purpose of this thesis is to examine the Newark (New Jersey) Department of

Health and Human Services (NDHHS) homeless program's success in addressing a series of barriers to self-sufficiency and positive social adaptation faced by the program clients. According to the Corporation of Housing Solutions (2013), Essex County (the county in which Newark is the largest city) has the highest percentage of homeless adults in the state of New Jersey, representing close to 15 percent of the state total. To address the pressing problem of homelessness in Newark and the surrounding jurisdictions, the NDHHS program had two homeless treatment tracks—one focusing on a lifestyles' theoretical perspective and the other focusing on a life-chances' theoretical perspective. This study analyzes the NDHHS program's two homeless treatment tracks' ability to address clients' MH/SA disorders, as well as their housing, employment and criminal justice outcomes. Although "no contemporary theoretical perspective denies that either agency or structure is important;" debate remains on which is the most dominant (Cockerham 2005, 51). This study builds upon existing research by analyzing the service outcomes for the same population (versus populations from multi-site studies) of homeless clients exposed to lifestyles and life-chances treatment models. Locke et al. (2007) noted that multi-site studies often fail to take into account the differences that exist across varied locations, including the distinctions in housing markets, which can impact program outcomes. With multi-site findings, researchers may not actually be comparing the proverbial apples to apples. Moreover, although the linear continuum of care and the social supportive models have become popular service delivery programs in the United States (Wong et al. 2006, Tsemberis 2000, Mares and Rosenheck 2004), Edens and colleagues noted the scarcity of studies that examine client outcomes on homeless populations with mental and addictive disorders (Edens et al. 2011). This study

does not, however, attempt to disentangle the causal association between homelessness and MH/SA disorders, namely if MH/SA disorders lead to homelessness or if homelessness cause MH/SA disorders.

Data for this research come from the US Substance Abuse and Mental Health Services Administration (SAMHSA) funded homeless program implemented by NDHHS. The dual service tracks of the NDHHS SAMHSA program provided services to homeless clients that addressed personal pathologies (related to MH/SA) and larger structural factors related to shelter, unemployment, and criminal involvement. Consequently, the NDHHS program provides a unique opportunity to study the impact of a linear continuum of care and a social supportive treatment model on a population of homeless clients. This research will empirically test and compare the two models on client outcomes for the program periods between 2007 and 2011. The objective of this research is to ascertain the impact that each treatment model has on client outcomes. The lifestyles theoretical model will examine the impact that lifestyle interventions have on homeless clients' mental health, substance use, employment, housing placement, and criminal involvement outcomes. The life-chances theoretical model will examine the impact that life-chances interventions have on these same outcomes.

Research Questions and Associated Hypotheses

This research examines the service treatment outcomes of the lifestyles and life-chances service models. The following research questions and hypotheses will guide this research. Since the lifestyles theoretical model was the dominant model of the NDHHS SAMHSA

program, it is therefore hypothesized to lead to improved client outcomes compared to the life-chances theoretical model.

Question 1: To what degree did NDHHS SAMHSA program clients' lifestyle outcomes improve over the course of the program?

Hypothesis 1: NDHHS clients are predicted to experience improved outcomes related to (1) mental health status and (2) substance use.

Question 2: To what degree did NDHHS SAMHSA program clients' life-chances outcomes improve over the course of the program?

Hypothesis 2: NDHHS clients are predicted to experience improved outcomes related to (1) housing status, (2) employment status, and (3) criminal involvement.

Question 3: Are individuals receiving lifestyle services experiencing better outcomes compared to clients receiving life-chances services?

Hypothesis 3: Controlling for relevant variables, clients exposed to lifestyle treatment interventions are predicted to have improved outcomes compared to clients receiving life-chances treatment interventions.

Question 4: Does intensity of lifestyle services create improved outcomes compared to the intensity of life-chances services?

Hypothesis 4: Controlling for relevant variables, the intensity of lifestyle service interventions are predicted to have improved outcomes compared to clients receiving an intensity of life-chances services.

CHAPTER 2

Conceptual Framework

In response to the growing public health challenges faced by individuals with dual addiction and mental health disorders, the US SAMHSA has emerged as the principal federal agency charged with providing and improving the availability of treatment, prevention, and rehabilitative services for populations suffering from MH/SA disorders. A part of the United States Department of Health and Human Services, SAMHSA annually commits millions of dollars to homeless programs targeting individuals with mental health and/or substance abuse ailments, including over $75 million in the 2012 fiscal year (National Alliance to End Homelessness 2012). A main goal of SAMHSA funding is "to increase the quality and quantity of substance abuse treatment and/or co-occurring substance abuse and mental health services provided for people who are homeless or at risk of becoming homeless" (Broner et al. 2009, 234). Although funded programs are not specifically designed to meet the rigors of scholarly research, services provided through SAMHSA funding provide a unique opportunity to examine a variety of homeless services in a natural setting (Young et al. 2009). This research examines the treatment outcomes of a linear continuum of care and a social supportive service model for homeless clients enrolled in the NDHHS SAMHSA funded Project between the years of 2007 and 2011.

Newark Department of Health and Human Services SAMHSA Project

In 2004, the NDHHS was awarded a grant from SAMHSA to provide service support for homeless individuals in the greater Newark area. The purpose of the program was to expand and strengthen treatment services for persons who are homeless and have mental health disorders, substance use disorders, or co-occurring MH/SA disorders. The stated goals of the NDHHS SAMHSA program were to:

1. Increase access to quality substance abuse treatment at five medical clinic sites for the homeless by completing a standardized initial assessment and evaluation for substance abuse and mental illness in conjunction with receipt of medical care.
2. Ensure that 100% of clients with identified substance abuse and mental health treatment needs were linked to appropriate services.
3. Ensure that appropriate mental health or substance abuse treatment services are provided to an estimated 1,500 homeless individuals, either directly (500) or by referral (1,000).

Nationally, the US SAMHSA required all locally funded agencies to secure the services of an independent evaluator. In accordance to this stipulation, the NDHHS SAMHSA program contracted with Rutgers University. As the evaluator, Rutgers focused on three primary questions:

1. Is the NDHHS SAMHSA program operating in accordance to stated program goals

2. Are there any opportunities to improve program services
3. To what degree have program services helped to improve client MH/SA outcomes.

NDHHS SAMHSA Lifestyles and Life-chances Service Tracks

Upon intake, NDHHS SAMHSA program clients are eligible to receive lifestyles or life-chances services based on identified needs. Clients with both lifestyles and life-chances service needs may receive services across the service models. US SAMHSA has a long history of requiring its grantees, including the NDHHS SAMHSA program, to use logic models in the implementation of locally funded projects. Logic models are an important tool in the operationalizing, monitoring and evaluation of homelessness interventions. Logic models are a visual schematic of a program that shows the project's essential elements, expected accomplishments and displays the relationship between contextual factors and programmatic inputs, processes and outcomes (Conrad et al. 1999). Although variation exists in the type of graphic representation, the purpose of logic models is to convey the principal theory, set of assumptions or hypotheses that underlie the rationality of why and how a particular intervention will be successful. Within the graphic representation, logic models illustrate links along a continuum by showing the directional chain of reasoning that lead to the desired outcomes.

The logic models for the NDHHS SAMHSA program's lifestyles and life-chances service tracks represent two distinct genealogies of service support. Contextually, the service models mirror the larger public policy discussions related to the central pathways of homelessness, one favoring personal defects and the other ecological determinants. While evidence suggests that both agency and structure have a causal relationship to

homelessness (Anderson 2001), disagreement remains on the degree to which one factor or the other is a more dominant precursor. Within this debate, proponents of structural factors have pointed to the power of ecological conditions to contour "behavior along socially prescribed lines, while advocates of agency have accentuated the capacity of individual actors to choose their behavior regardless of structural influences" (Cockerham 2005, 51).

The essential elements of the NDHHS SAMHSA program are summarized in Figure 1. The central theory and assumptions of the lifestyles service model ascribe homelessness to personal and clinical defects that serve to impair individuals' ability to carry out critical facets of daily life, cope with life's daily stressors, and form and maintain interpersonal relationships. A distinct feature of the linear continuum of care service model is the primacy the model places on mental health treatment and sobriety. The service model maintains that the treatment of MH/SA disorders is a principal pathway in which clients can achieve the restoration of behavioral self-regulation, increased capacity to constructively interact in social environments and to secure stable long-term housing. The service model interventions mandate abstinence from substance use and the management of mental disorders prior to receiving housing placement assistance. Clients are deemed "housing ready" once they have made improvements in their clinical status and have met program benchmarks related to problems associated with addiction and psychiatric maladies.

Conversely, the central theory and assumptions of the life-chances service model suggest that ecological factors are the central antecedent of homelessness (Padgett and Henwood 2009). Unlike the lifestyles service model, which has a treatment-first

orientation, the life-chances service model adopts a “harm reduction” approach to MH/SA disorders. Rather than requiring abstinence or mandating mental health treatment as a precondition to gaining access to housing placement assistance, the harm reduction perspective posits that by providing a spectrum of services to address clients’ ecological challenges, individuals will experience reduced incidents of MH/SA disorders and improved housing placement (Zerger 2002; Burt 2012). Although many variations of the life-chances service models exist (Kertesz 2009), the NDHHS SAMHSA program addressed structural challenges related to employment, criminal justice involvement, and the lack of adequate shelter. The model is based on the general belief that ecological factors not only contribute to increased risk of homelessness but also has a direct causal relationship with lifestyle related disorders associated with MH/SA maladies.

The NDHHS SAMHSA program logic model reveals that admission criteria, points of program entry, and client baseline characteristics are consistent across each of the service models. The Newark Medical Care Services Division, a city-operated primary free health clinic for Newark’s homelessness population, serves as the principal point of entry for NDHHS SAMHSA clients. Clients who are currently homeless or are vulnerable to homelessness are eligible for the NDHHS SAMHSA program. Eligible patients are referred to the NDHHS SAMHSA program during their intake process. All of the NDHHS SAMHSA program clients are over the age of eighteen, from Newark and the surrounding area, have a history of one or more challenges, including psychiatric and substance abuse maladies, weak attachments to the labor force, and criminal involvement.

Figure 1

NDHHS SAMHSA Program Logic Model

	Client Point of Entry, Population & Environment Characteristics	Theory & Assumptions	Concept of Intervention	Intervention /Theory of Change	Goals/Outcomes
NDHHS SAMHSA Lifestyles Theoretical Service Model	• Primary program point of entry is from referrals from City of Newark's Medical Care Services Division • Program population is made up of homeless adults (18+) with mental ailments, substance abuse aliments, comorbidity MH/SA disorders, and/or ecological barriers • Population is larger urban poor residents from Newark and surrounding area • Population is 95% racial and ethnic minorities • Limited housing options for low income residents • Limited legitimate low skill, high paying, sustainable employment opportunities • City with higher than average criminal rates	• Mental ailments, substance abuse or comorbidity of MH/SA disorders are central barriers to stable housing • Clients have poor stress coping skills • Clients have complex MH/SA etiologies and high rates of relapse • Successful treatment for MH/SA disorders is key to stable	• Client progress along a continuum from MH/SA treatment to become 'housing ready' • Case management plan has clinical focus • Case management plan calls for client to be in treatment for an extended period of time • Case management plan has tangential focus on housing	• Clients are referred for MH/SA clinical service support to St. Michael's Medical Center • Clients receive one-on-one MH/SA case management counseling from NDHHS SAMHSA program staff • Clients receive MH/SA group counseling from NDHHS SAMHSA program staff	• Abstinence from SA • Improved MH through direct treatment services • Improved health status through MH/SA treatment services • Reduced criminal involvement through management of MH/SA disorders • Increased employment outcomes through MH/SA treatment • Reduced incidents of homelessness
NDHHS SAMHSA Life-chances Theoretical Service Model		• Ecological factors, such as criminal involvement, lack of affordable housing and employment are central barriers to stable housing • Homelessness is an antecedent to MH/SA disorders • Linear treatment model will be ineffective for segment of homeless population	• Clients receive service support to address criminal justice issues, employment and direct housing needs • Strict fidelity to MH/SA treatment plan is not required • Case management plan has tangential clinical focus • Duration of services provided not extensive, limited time needed to overcome challenges	• Clients receive a series of social supportive services • Clients receive one-on-one counseling from NDHHS SAMHSA program staff to overcome ecological challenges • Clients receive group counseling from NDHHS SAMHSA program staff to help overcome ecological challenges	• Minimize harmful effects of SA • Improved MH through housing services • Improved health status through ecological services • Reduced criminal involvement through direct services • Increased employment outcomes through direct services • Reduced incidents of homelessness

CHAPTER 3

Review of Literature

In recent years, there has been a renewed interest in combating homelessness in the United States (HUD 2010 Annual Homeless Assessment). Over the past ten years, 49 states and more than 800 cities and counties across the country have launched collaborative campaigns to address homelessness (Sadowski et al. 2009). Since 2008, the federal government has invested more than $1 billion in Homelessness Reduction and Prevention initiatives. In the United States, stable housing is a foundational standard upon which individuals' lives are structured; without it virtually everything else in life—from quality of health to obtaining a good education—becomes much more difficult to achieve (Opening Doors, Federal Strategic Plan to Prevent and End Homelessness 2010).

Why some people experience homelessness is a central question in the study of social policy related to vulnerable populations. The pathways to homelessness involve a series of complex and often interrelated factors that include mental illness and substance abuse disorders (Steinhaus et al. 2004), unemployment (Muñoz et al. 2006), and involvement with the criminal justice system (Draine et al. 2002). The pathways to homelessness play a major role in determining if a person's non-domiciled status will be transitional, episodic, or chronic. An understanding of the dynamic process that contributes to homelessness has important implications on the form and type of policy and treatment interventions to aid the homeless (Meanwell 2012). Research and policy discussions on the pathways of homelessness tend to vacillate between lifestyle and ecological causal factors. This social construction frequently focuses on a dichotomy between individual causes related to MH/SA factors and structural factors related to

housing, employment and criminal justice involvement. This chapter will examine homelessness literature related to four factors:

1. The lifestyles and life-chances antecedents of homelessness
2. Service costs and interventions for addressing homelessness
3. Typologies of homelessness (transitional, episodic, or chronic)
4. Deserving and undeserving poor

Theoretical Origins of Lifestyles Research

The role of lifestyles as a function in social stratification is rooted in the field of sociology and is heavily influenced by the work of Max Weber. Although others, including Karl Marx (1960) and Thorstein Veblen (1899) examined the theoretical underpinnings of lifestyles to discuss social classes and the leisure class respectively, it was Weber who set the analytical foundation of lifestyles research. In *Economy and Society* (1922), he conceptualized a broad notion of lifestyles that linked human choices to the larger social context in which individuals lived. Within this context, lifestyles are explicitly tied to the larger structure and choices are influenced by life-chances. Choices and constraints influence each other to determine the individual's distinctive lifestyle. Notwithstanding Weber's original formulation of lifestyles, the theory has changed significantly since it was first developed (Cockerham et al. 1997). Abel and Cockerham (1993) suggest that much of the variation in the lifestyles concept can be traced to a mistranslation of Weber's work from its original German to English. The lasting legacy of this mistranslation is that today the concept of lifestyles is widely adopted by researchers to reference the role that individual behavioral patterns have in explaining

social stratification (Cockerham 2005). These patterns are often operationalized as habits of so-called behaviors measured discretely and independently (Dean et al 1995), quantified as behavioral risk factors and subsequently targeted for strategic planning in public health interventions. Lifestyles then are derived from, and are directly related to risk factors. Examined in this way, lifestyles are conceptualized as a pathology that is based on a number of discrete and specific behaviors that epidemiologists deem risky (Frohlich and Potvin 1999).

Lifestyles MH/SA Disorder Antecedents of Homelessness

It is estimated that over half a million people experience homelessness in any given week in the United States. Disorders related to alcohol abuse (38 percent), drug abuse (26 percent), and mental illness (38 percent) are highly prevalent among individuals experiencing homelessness (Mares and Rosenheck 2011). Mental illness and addictive disorders are highly correlated with each other. Watkins et al. (2001) report that nearly half of individuals with substance disorders also have a co-occurring psychiatric malady. Likewise, between 15 and 40 percent of those suffering from a psychiatric disorder also have a co-occurring addictive disorder. Overall, homeless individuals with MH/SA disorders are often the most disadvantaged and underserved segment of the homeless population (Gonzalez and Roseneck 2002) and are vulnerable to a number of negative outcomes, including higher rates of relapse (McGraw et al. 2009), increased risked of chronic homelessness and deterioration of mental health (Salit et al. 1998) and criminal involvement (McNiel et al. 2005).

"Epidemiological research consistently demonstrates, and service providers can confirm, the high prevalence of substance abuse and mental health disorders in homeless populations" (Orwin et al. 2004, S23). Evidence indicates that homeless individuals with co-occurring MH/SA disorders represent a special subset of the homeless population that has traditionally been underserved by service delivery systems. Velasquez et al. (2000) and Orwin et al. (2004) cite the limited funding and access to MH/SA treatment programs as among the many barriers faced by homeless individuals with dual addiction and psychiatric disorders. Considering that approximately 32 percent of homeless men and 36 percent of homeless women are afflicted by comorbidity, a significant percentage of homeless individuals are at jeopardy of not receiving support services (Broner et al. 2009).

There are a myriad of factors for the poor outcomes for individuals afflicted with MH/SA disorders. Watkins et al. (2001) found that not the least of these is due to the inherent difficulty and higher treatment costs associated with addressing two types of disorder rather than one type. Coupled with the transient nature of the homeless, which means that treatment often must take place in nontraditional settings such as shelters, positive treatment outcomes for the homeless is a very challenging process. Additionally, in the past there has been a lack of coordination and collaboration between the MH/SA treatment communities. In their assessment of the state of the MH/SA delivery system in the 1980s, Drake et al. (1991) reported that notwithstanding their extensive treatment needs, homeless individuals with dual MH/SA disorders are unlikely to receive the appropriate treatment for either ailment. The authors observed that because of the treatment silos resulting from the categorical and disability-specific structure that

clinicians, programs, institutions, and funding mechanisms operate under, homeless persons with MH/SA ailments “are often refused admission to or prematurely discharged” from treatment programs (Drake et al. 1991, 1151). Similarly, Foster et al. (2009) found that because the treatment field has been slow to coalesce across categorical service conditions, a minority of the homeless in need of MH/SA services was actually receiving simultaneous treatment. The funding and management of various treatment systems for MH and SA disorders has made the coordination of divergent treatment regimens difficult.

Homeless individuals with co-occurring MH/SA disorders face a myriad of challenges and have very complex treatment needs. In their review of service delivery systems for individuals with MH/SA disorders, Watkins et al. (2001) note that psychiatric and addiction disorders have complicated etiologies and high rates of relapse. This is particularly the case of the homeless, for whom MH/SA disorders can be an antecedent or a consequence of homelessness. The state of homelessness is a challenge to treatment and can hasten relapse. Moreover, the authors point out that the correlation between psychiatric and addictive disorders does not necessary suggest a causal relationship. The researchers maintain that only a fraction of psychiatric disorders are actually caused by substance abuse. Because the majority of psychiatric maladies are independent ailments and not caused by substance abuse, most people with co-occurring MH/SA disorders will require independent treatment services for their mental illness and substance use problems in order to maximize treatment outcomes.

Social science research has come to recognize the importance of integrated treatment services for those with the dual diagnosis of MH/SA maladies (Drake et al.

2007). Ample evidence suggests that improvements in mental health and the reduction in substance abuse are "associated with improvements in functioning across a broad range of areas" that are essential for stable housing (Evans et al. 2008, 252). Kresky-Wolff et al. (2010) report that in recent years there has been a gradual shift in treatment and service delivery systems to recognize the importance of coordinated MH/SA interventions to maximize long-term recovery. Commonly cited components of integrated treatment for MH/SA include dual screening and assessment for psychiatric and addictive disorders, a common treatment plan addressing all conditions, motivation and behavioral interventions, a multidisciplinary team that includes a specialist in psychopharmacological interventions and supported employment services.

Life-chances Research: Nexus Between Homelessness and the Criminal Justice System

Historically, the deinstitutionalization of the mentally ill has been associated with increased vulnerability for homelessness (Mechanic and Rochefort 1990). Starting in the 1950s and continuing into the 1980s, cutbacks in federal and state funding for mental health services led to the wholesale closing of mental institutions. In the 1950s, there were nearly 600,000 patients in state mental hospitals, compared to less than 50,000 today (Torrey et al. 2010, Stephey 2007). The closing of mental institutions forced large numbers of mentally ill patients back into society, usually into large urban communities with few corresponding services to address the needs of this reentry population. Despite the association between deinstitutionalization and homelessness, Rossi and Wright (1987) concluded that the link was not the result of deinstitutionalization per se but was instead a consequence of the lack of planning for structured living arrangements and appropriate

rehabilitative services for the returning population. With few treatment alternatives, psychiatrist Marc Abramson (1972) first observed in the 1970s that correctional settings were becoming the de facto mental health institutions. Torrey et al. (2010) found that there are “three times more seriously mentally ill persons in jails and prisons than hospitals” (Torrey et al. 2010, 1), although these are structurally inappropriate to address the needs of mental patients and socially more costly than a medical setting.

Today homelessness is also linked to another form of deinstitutionalization: individuals being released from correctional settings. Over the past thirty years, the United States has come to place a greater reliance on incarceration as a public policy response to deviance. Consequently, the number of Americans under correctional control has dramatically increased. The United States has become the global leader in the sheer numbers and the overall rate in which individuals are incarcerated, outpacing more populous nations such as China, as well as countries with repressive political histories such as South Africa and Russia (Pew Center on the States 2008). Sociologist David Garland coined the term “mass incarceration” to speak to two unique features of US penal system. First, according to Garland, the US correctional system has a “rate of imprisonment that is markedly above the historical and comparative norm” for industrial societies. Second, as a result of the social concentration of incarceration, the system ceases to simply incarcerate individuals but becomes a systematic mechanism to imprison entire groups of a population (Garland 2001, 5–6). From a different vantage point, however, what is often missed in the discussion of the dramatic increase in incarceration rates over the past four decades is that not all segments of the American society have been affected in the same manner. Consequently, terms such as “mass incarceration” can

serve to obscure the role that individuals' position in the larger socioeconomic stratification has on their increased vulnerability of being incarcerated during their lifetime.

The nexus between disadvantageous socio-demographic characteristics and involvement with the criminal justice system is evident in the study of homelessness. In their review of 60 social science studies on homelessness, Shlay and Rossi (1992) noted that during the 1980s, approximately 18 percent of the homeless population reported having been incarcerated in prison and another third had served time in jail. Overall, 41 percent of the homeless population reported that they had been incarcerated during the 1980s (Shlay and Rossi 1992). More recently, several studies have continued to support the strong correlation between homelessness and incarceration. A study by Zugazawa (2004) of homeless adults found that 82 percent of men and 52 percent of women report histories of incarceration. A review of 2002 inmate data by the Bureau of Justice Statistics showed that jail inmates who were homeless prior to arrest made up 15 percent of the U.S. jail population (Greenberg and Rosenheck 2008). Moreover, the authors report that inmates who were homeless at the time of arrest were more likely to be incarcerated for property crimes, had more extensive criminal histories, were more likely to suffer from MH/SA disorders and had higher rates of unemployment than their domiciled counterparts. The Bureau of Justice Statistics (BJS) found that 12 percent of state inmates scheduled for release in 1999 reported that they were homeless at the time of their arrest (Hughes, Wilson, and Beck 2001).

Individuals released from prison also have an elevated risk of homelessness. For instance, of the estimated 630,000 prisoners (more than 1,700 a day) who are released

from state and federal prisons annually, approximately one-tenth will end up homeless. The rates of homelessness are even higher for those with MH/SA disorders (Roman and Travis 2004). Almost without exception, those leaving correctional settings return to fragile communities that are unprepared and unable to address a large influx of individuals with a myriad of special needs (Greenberg and Rosenheck 2008). A 1997 California study reported that 10 percent of the state's parolees were homeless in the months subsequent to their release. The study also found that homeless rates for parolees in Los Angeles reached as high as 50 percent (California Department of Corrections 1997). In many ways, the deinstitutionalization of the prisoner reentry population mirrors the deinstitutionalization of the mentally ill during the later half of the twentieth century.

In their report *No Place Like Home: Housing and the Ex-prisoner*, Bradley et al. observed that finding housing is one of the biggest challenges faced by the prisoner reentry population and that it "portends success or failure for the entire reintegration process" (Bradley et al. 2001, 1). Despite the nexus between successful prisoner reentry and housing, criminal justice literature has paid little attention to this important issue (Petersillia 2003, Alexander 2011). Little is known, for instance, about the overall impact of the legal barriers to housing faced by the reentry population. These legal restrictions are most evident and impactful on two important housing options available to the reentry population. First, parole requirements preclude parolees from living with or associating with individuals, including family members and friends, who are criminally involved. This legal restriction potentially impacts an important source of housing for the reentry population. In its study on individuals' experiences during their first 30 days after release from a correctional setting, the Vera Institute of Justice (1999) found that families are a

critical resource center and support system for ex-offenders. The majority of participants in their study reported that they lived with family members and relied on them for financial and emotional support.

The second legal barrier involves government-subsidized housing. Public housing represents a last option for the poor. Yet, during the 1990s, a set of public policies was enacted to strengthen eviction rules for individuals with past criminal convictions, as well as for individuals who may be engaged in criminal activities. The Quality Housing and Work Responsibility Act of 1998 "not only authorized public housing agencies to exclude automatically (and evict) drug offenders and other felons; it also allowed agencies to bar applicants believed to be using illegal drugs or abusing alcohol" (Alexander 2011, 238). Because of the stringent eviction policies related to criminal activity, individuals living in public housing were increasingly wary of extending housing to family members returning to society from correctional settings. Because of the diminishing access to public housing, the reentry population was forced to rely on the private housing market, which often proved cost prohibitive (Petersillia 2003).

The increased reliance on incarceration as a public policy response to control social deviance has led to the criminalization of homelessness (Steward 1998). The criminalization of the homeless is evident in the zero-tolerance public policies that have come to dominate criminal justice policy since the 1980s, particularly the "broken windows" policing theory originally developed by James Q. Wilson and George Kelling (1982). The "broken windows" theory posited that minor infractions and low-level antisocial behavior were a starting point for more serious criminal activity. Law enforcement officials, emboldened by the shift in criminological public policy that

emphasized social control, began to focus their attention on combating antisocial public disorder and quality of life issues in order to prevent the escalation of crime. In their pivotal article "Broken Windows: The Police and Neighborhood Safety," Wilson and Kelling (1982) suggest that the arrest and prosecution of the homeless and vagrants was an appropriate means to prevent the intensification of crime. According to the authors, "arresting a single drunk or a single vagrant who has harmed no identifiable person seem unjust, and in a sense it is. But failing to do anything about a score of drunks or a hundred vagrants may destroy an entire community" (Wilson and Kelling 1982, 34). Stewart (1998) argued that the "criminalization" of the "undesirable" not only broadened police discretion but also accelerated the incarceration rates of the disadvantaged, including the homeless.

Life-chances Research: Nexus Between Homelessness and Employment

Three decades ago sociologist Peter Rossi popularized the term "new homelessness" to describe and contrast the changing face of the homeless that characterized the 1980s versus previous decades. An important difference between the "old" and the "new" homeless was employment. Rossi maintained that the rise of homelessness in the 1980s was a reflection of the growing economic inequality and that homelessness could more accurately be "viewed as the most aggravated state of a more prevalent problem, extreme poverty" (Rossi 1989, 8). According to Rossi, the homeless and the precariously housed were "adjoining segments at the bottom of the American standard-of-living continuum", with far weaker ties to the labor market compared to previous decades (Rossi 1989, 10). Research of Chicago's Skid Row in the early 1960s indicated that as many as 28 percent of the homeless were employed (Bogue 1963),

whereas later research, in the 1980s, showed only 3 percent of a sample of Chicago homeless reported having full-time work (Rossi 1990). Rossi cited changes in the demand for low-skilled workers as the main culprit for the decreased labor-market participation of the homeless.

Recent research on the nexus between homelessness and employment suggest a more complicated relationship than that suggested by Rossi. Current barriers to employment are multiple and stretch across a number of personal, programmatic, and systemic categories. Although the limited skills and work experiences of the homeless remain a problematic barrier to employment, Muñoz, Reichenbach, and Hansen (2005) cite the lack of stress management, social interaction, and independent living skills, while Taylor (2001) points to the lack of transportation as a significant barrier to employment faced by the homeless. Moreover, research by Borchard (2010) and Muñoz (2004) suggests that MH/SA disorders are a central factor contributing to the poor employment participation of the homeless. The adverse impact that MH/SA disorders have on employment is well documented (Tsai et al. 2009). A study by Cook et al. (2007) indicated that nationally less than one in five individuals with severe mental health conditions are employed, while research by Bradford et al. (2005) and Cook et al. (2007) reports that homeless persons with co-occurring MH/SA disorders are at increased risk for chronic homelessness, death, involvement in the criminal justice system and unemployment.

A number of studies have explored the impact of the digital divide on communities of color (Fairlie 2004), rural communities (National Telecommunications and Information Administration 2002), and poor households (Crandall 2000), but far less

attention has been paid to the homeless. Information technology has become woven into the fabric of American society and has become increasingly important in labor market participation (Autor et al. 1998). Computer and Internet use are a primary medium of interaction in an information society. “Each year, being digitally connected becomes ever more critical to economic and educational advancement and for community participation” (US Department of Commerce 2000). Labor market participation is largely contingent upon having access to and the “understanding of and comfort and competency with information technology” (Long et al. 2007, 5). The homeless make up one of the more severely underserved communities, and because of their non-domicile status, they face very limited access to information technology. In their study of homeless men residing in a long-term shelter, Miller and colleagues reported that several study participants lacked the knowledge of “how to turn on a computer,” and one individual expressed the desire to “blow computers up” because of an overwhelming sense of frustration (Miller et al. 2005, 194). Miller and colleagues concluded that the lack of awareness of and access to computer technology represent a significant barrier to employment for the study participants.

The research is somewhat mixed on the impact of interventions to improve labor market outcomes for the homeless. Although evidence suggest that interventions can help the homeless secure employment, extended job retention appears to be much more elusive. For instance, Wenzel (1992) found positive employment outcomes for homeless participants in job training program that provided psychological therapy and social reintegration support. The author reported that psychosocial support served to buffer against the negative effects associated with longer duration of homelessness and

improved the labor market participation in the three-week follow-up period at the conclusion of the program. The author concluded that the poor (homeless and non-homeless alike) were susceptible to stigmatization and declining self-image due to their lack of high-quality and stable employment for extended periods of time. Special attention to countering homeless individuals' fragile self-image and self-destructive tendencies was an important factor in improving their labor market outcomes. Similarly, Muñoz, Reichenbach, and Hansen (2005) found that the homeless face a myriad of challenges related to labor market participation, not the least of which are poor stress management and social skills. The author's evaluation of Project Employ, a grant-funded employment program aimed at homeless individuals residing in an emergency shelter, found that life skills and pre-employment training that focused on interpersonal and self esteem development were related to positive labor market outcomes.

In a study by Schutt and Hursh (2009), the authors pointed out that a glaring weakness in vocational rehabilitation program research is that studies tended to focus on the ability to secure employment, but few looked at job retention over time. The authors suggest that this scholarly lacuna is due in large part to the nature of rehabilitative employment programs that viewed job placement, and not job retention, as the primary measure of program success. Sustained employment, therefore, was considered outside the purview of vocational program goals and thus has not garnered much attention in employment studies. In their five-year follow-up with 35 homeless participants suffering from a substance abuse and/or mental health disability, the authors found that although all of the clients were successfully placed in a job, close to half of the participants (12) were no longer employed at the follow-up. Schutt and Hursh findings offer a number of

important revelations on the nexus between employment and homelessness. Their conclusions suggest that:

- Long-term case management from a supportive staff that can also help clients build (and in some cases repair) prosocial relationships with community-based support systems (i.e. family, faith-based institutions and friends) is instrumental to participants' continued employment.
- The maintenance of sobriety is instrumental to sustained employment. Availability of ongoing substance abuse treatment is important for long-term employment.
- Lastly, the authors conclude that while welfare benefits such as SSI may be a critical source of financial support, they may be a disincentive to employment.

Public Services Costs Associated with Homelessness

As the crisis of homelessness enters a fourth decade, concerns about the high public sector costs imposed by the homeless have emerged as a major public policy issue (Burt et al. 2004). The homeless typically experience multiple economic, addictive, and psychiatric challenges that are further complicated by their lack of stable housing. The multiple challenges faced by the homeless directly contribute to the population's high rates of public service utilization (Larimer et al. 2009). Notwithstanding the relationship between homelessness and high public service utilization, Culhane (2008) maintains that historically the homeless have represented an invisible population of sorts to most mainstream public agencies and systems. The author cited the infrequency of emergency healthcare providers, social welfare agencies and criminal justice systems to document the domicile status of those receiving services as the main reason for this oversight. Despite the lack of systematic reporting, public agencies are frequently the frontline

responders to the homeless and in the process end up dedicating substantial time and resources to the homeless.

The homeless commonly occupy dual spaces in various public service systems. As individuals who experience a series of maladies, the homeless are often underserved as they move from one system to another, experiencing the consequences of too little cross-systems coordination in the development of treatment interventions. Recent research on the aggregations of service utilization histories of the nondomiciled has proven to be an important analytical tool to identify, enumerate, and monetize the homeless population use of mainstream public services. Through the cross-referencing of extant data on persons served in homeless programs with data of persons served by mainstream public agencies, researchers are better able to document the use of traditional public services by homeless individuals. Studies have consistently shown that even when compared to low-income but housed populations, the homeless tend to have higher rates of public service use and have higher public service costs (Fischer 1989, Culhane et al. 2007). For instance, in noting the costly burden that emergency medical treatment places on the health care system, Kushel et al. (2002) reported that the homeless have higher rates of emergency department use than other poor populations. In a study by Kuno et al. (2000), the authors found that the homeless with mental health disorders have more inpatient admissions and longer hospitalization stays than the domiciled poor. A review of hospital-discharge data of homeless adults in New York City by Salit and colleagues (1998) reported that on average the homeless stayed 4.1 days, or 36 percent, longer per admission than the domiciled poor. The authors noted that the longer stays by homeless individuals translated into a higher average cost of more than $2,400. Annually, Culhane

et al. (2002) reported that the average service utilization cost of homeless individuals with severe mental health disorders was $40,500 per person, significantly higher than their domiciled counterparts.

Ample evidence suggests that the responsibility for, and the support service management directed to, the homeless rest with public service sectors that are often structurally inadequate to manage the extensive treatment needs of the homeless (Culhane et al. 2007, Mondello et al. 2007, Gulcur et al. 2003). In practice, the current US homeless system of care is largely underfunded, “fragmented, duplicative and [is made up of] a set of uncoordinated services” (Bird et al. 2002, 717) that have proven to be ineffective in reducing rates of homelessness (Culhane 2008). The structural inadequacy of public sector services is an issue of both macro and micro significance. On a macro level, the homeless come into contact with a variety of treatment and support agencies that tend to be fairly independent and are rarely linked within or across sectors. As a high-needs population, the homeless come into contact with an assortment of social welfare, mental health, substance abuse, emergency medical and criminal justice systems that are governed by a complex series of legal requirements, unique record-keeping procedures, and individualized policy imperatives that only further complicate their ability to coordinate services and ultimately develop a comprehensive response to the service needs of the homeless. Bird et al. (2002) and Rosenheck et al. (2003) each posit that this lack of coordination within and across the multiple sectors has hampered the ability of public systems to develop an integrated system of care to effectively meet the varied treatment needs of the homeless. The absence of an integrated system of care

results in public sector providers operating in isolation from each other and being unable to develop service interventions that is complementary and expansive.

On a micro level, homeless populations tend to be overly represented within public systems that lack the properly skilled personnel to effectively address their service needs. In their examinations of the homeless use of criminal justice related services, for instance, Bird et al. (2002), Torrey et al. (2010) and Roman and Travis (2004) each observed that homeless individuals with substance abuse and psychiatric disorders placed a substantial economic strain on local judicial and law enforcement entities. The authors cited the lack of the appropriately trained personnel within the criminal justice system to address the special needs of the homeless population. Particularly in the case of mental health disorders, the studies suggest that correctional institutions lack the necessary infrastructure to serve as a type of de facto mental health institution in order to meet the treatment needs of mentally ill inmates. In advancing the structural inappropriateness of correctional institutions to address the numerous needs of the mentally ill, Torrey et al. (2010) noted that the annual cost to house those with psychiatric disorders range from $30,000 to $50,000 compared to only $22,000 for inmates without a mental disorder.

Larimer et al. (2009) and Culhane et al. (2007) contend that the documentation of service utilization by the homeless is an important analytical tool within the field of public policy. The authors posited that the monetizing of service utilization provides an effective cost/benefit analysis to demonstrate the high societal costs of homelessness and encourages investment in evidence-based treatment interventions. Two of the more prominent evidence-based service delivery models that have emerged in recent years are the linear continuum of care and the social supportive service intervention models.

Service Delivery Models

Although homelessness is not a new problem, recent attention to the disproportionate use and exorbitant direct and indirect public system costs incurred by those who are homeless is a more nuanced way to look at this decades-old social concern. The financial burden that the homeless population places on a variety of public systems illustrates the community's complex range of service needs. The reporting of utilization of public services by the homeless has led to a renewed interest in the role that service interventions can play in reducing homelessness rates, and, by extension, reducing homeless individuals' inordinate reliance on costly public systems that are often ill equipped structurally to address their multifaceted service needs (Culhane et al. 2007). There are two primary homeless service intervention models in the United States: the linear continuum of care, grounded in a lifestyles perspective; and the social supportive services model, grounded in a life-chances perspective (Edens et al. 2011, Schinka et al. 2011, Kertesz et al. 2009).

As a lifestyles-oriented intervention, the linear continuum of care is a treatment-first model based on the assumption that stable housing is contingent upon the ability of the homeless to first abstain from substance use and to successfully manage any existing psychiatric disorders. Treatment and management of MH/SA disorders is viewed as a prerequisite to receiving housing placement consideration/assistance. Schinka et al. (2011) assert that the preeminence of this model is linked to the funding priorities and the service delivery emphasis originally outlined in the McKinney-Vento Homeless Assistance Act of 1987. The McKinney-Vento Act was patterned after the accepted conventional wisdom of the times which maintained that MH/SA disorders were the

central pathways to homelessness. The McKinney-Vento Act was the first federal legislation to specifically address homelessness in the United States and served as the principal funding source for homeless programs nationwide. The act helped to solidify a service delivery landscape which concluded that housing security happened at the end of a continuum where obtaining and maintaining sobriety and mental stability occurred first (Locke et al. 2007). Few questioned the legislation's putative response to eradicate homelessness by directing service providers to adhere to a multi-tiered service delivery system that moved clients in a linear fashion from MH/SA services to stable housing. Kertesz et al. (2006) observed that the theoretical underpinning of the linear model postulates that housing stability is contingent on the reinstatement of behavioral self-regulation and the improved capacity of individuals to interact in a constructive manner in the larger social environment. Moreover, the authors observed that the inability of clients to comply fully with the treatment protocols and program stipulations (such as abstinence from substance use and adherence to psychiatric treatment plans) required in the continuum of care modality has regularly lead to high termination rates for program clients. Consequently, many individuals in need of housing assistance have routinely failed to receive such support within the linear service model.

The widespread inability of homeless clients to meet the restrictive guidelines mandated in the continuum of care treatment modality has in recent years spurred greater utilization of supportive housing programs. Unlike the continuum of care program model, supportive housing programs do not ascribe homelessness solely to personal or clinical disorders (such as psychiatric or substance abuse disorders) and consequently do not stipulate MH/SA treatment as a precondition to housing support/placement. Rather,

the service model focuses on the series of ecological pathways that contribute to homelessness. In the process, the supportive housing service model posits that the relationship between mental health, chemical dependence, and homelessness is interactive instead of linear. This circuitous view maintains that MH/SA disorders do not necessarily cause homelessness so much as they are exacerbated by the lack of stable shelter (Zerger 2002). The supportive housing model promotes the perspective that MH/SA maladies are as much a consequence of homelessness as they are a precipitating factor.

Under the supportive housing program service model, housing placement, and not abstinence or mental health treatment, is the prime objective (Padgett et al. 2006). This stands in stark contrast to the continuum of care model, which uses housing placement assistance as an enticement to secure clients' adherence to MH/SA treatment. In fact, in their examination of the nexus between homelessness and MH/SA treatment, Robbins and colleagues (2009) reported that housing placement assistance is "the most frequently used form of leverage to secure adherence to treatment by persons with mental illness" and substance abuse (Robbins et al. 2009, 1251). The authors maintained that supportive housing programs tend to use less coercive treatment oriented measures, while attempting to meet clients "where they are" in terms of addressing the specific ecological challenges they face. The larger theoretical premise of the supportive housing model maintains that ecologically oriented stressors are the catalyst for a series of debilitating conditions which are associated with the increased vulnerability of homelessness, mental health maladies, and substance dependency. Moreover, supportive housing proponents argue that people are more likely to abuse drugs and have mental disorders if they are homeless and not the

other way around. Consequently, the model attempts to separate MH/SA treatment from housing placement assistance, considering the former an ancillary manifestation of the latter (Padgett et al. 2006).

In their review of supportive housing programs, Locke et al. (2007) and Kertesz et al. (2009) each noted that as an ecological intervention model, it is customary for supportive housing programs to feature a varied series of programmatic interventions that are not necessarily consistent across different programs. Supportive housing programs tend to reflect a philosophical construct that focuses on ecological oriented challenges but do not necessarily conform to an exact set of programmatic precepts. For instance, two of the more prominent supportive housing models are “housing first” (focusing on the chronically homeless) and the “rapid rehousing” (focusing on the episodically homeless). Each of these programs first gained prominence in the 1990s and adopted a more straightforward interpretation of homelessness by contending that individuals are homeless because they lack shelter. Consequently, the most immediate and effective way to end homelessness is through a strategy that places the homeless in permanent housing promptly (Tsemberis and Eisenberg 2000; Burt 2012). These programs place the homeless in permanent housing that is not contingent upon participation in MH/SA treatment. Occasionally referred to as a “central antidote” to homelessness (Locke et al. 2007), the housing first and rapid rehousing models nonetheless are difficult service models to bring to scale because of the cost associated with securing the facilities needed to provide prompt housing placement to the homeless.

Homelessness Typologies

Far from being a unitary phenomenon, ample evidence indicates that persons without permanent living arrangements experience a number of distinct circumstances (Jahiel and Babor 2002). One factor that contributes to the distinctiveness of homelessness is the length of time individuals spend without permanent shelter. In this sense, Kuhn and Culhane (1998) argue that homelessness can best be understood as a time-based event that can have an uneven impact on the lives of individuals. This recognition of the heterogeneity of homelessness has not always been present. It was common for homelessness literature during the 1950s and 1960s to characterize those without permanent shelter as a monolithic subset of society whose "deviant behaviors, lifestyle preferences, and subcultural adaptations produced a nearly permanent state of disaffiliation" (Kuhn and Culhane 1998, 208). Not until the latter half of the twentieth century, as social science begin to pay closer attention to the impact of rising inflation, lack of low-income housing options, and the diminished economic prospects of low-skilled workers, did research crystallize around the impact ecological factors can have in producing a segment of society that are "precariously housed" and thus vulnerable to transitional and episodic homelessness, as well as persistent homelessness (Rossi 1989). This expanded analysis has led to a more textured understanding of homelessness and the varied background characteristics, degrees of social connection, and treatment outcomes for the nondomiciled across the homeless typologies (Kuhn and Culhane 1998).

For instance, homelessness is a transitory event for many that they will quickly exit from which will cause relatively limited life disruption (Jahiel 1987). For others homelessness is a recurrent event in which they will episodically shuttle in and out of a

non-domicile state. Yet, others will become chronically entrenched in homelessness for an extended period. Research suggests that where individuals fall in this typology has important consequences for the intensity of life disruption associated with homelessness, as well as for insight into the most effective service intervention. McAllister et al. (2011), for example, found that the episodic and chronic homeless experienced worse mental health outcomes than the transitional homeless, while Kertesz et al. (2005) linked homeless chronicity to higher incidence of substance dependency and greater use of public services. Moreover, Sosin (2003) posited that while individual-level explanations that focus on individuals' inability to compete in the marketplace and secure the monetary resources needed to maintain shelter may help to explain transitional homelessness, they do little to increase the understanding of episodic or chronic homelessness. Instead, the author points to the interaction between personal deficits (i.e. limited educational and work histories and MH/SA disorders) and larger ecological factors.

According to Sosin, seldom is episodic and chronic homelessness linked to a single event; rather, it is a result of a complex interaction between personal deficits and structural factors that take place over an extended time period and ultimately end in protracted bouts of homelessness. In their homelessness typology cluster analysis of shelter use in New York City and Philadelphia, Kuhn and Culhane (1998) reported that the chronic homeless were more likely to be nonwhite, older, and more likely to suffer from MH/SA disorders relative to the other clusters. The authors also found that although the transitional homeless constituted the largest category of individual users of the shelter system, the chronically homeless account for a disproportionate percentage of shelter use

and experienced higher rates of involuntary discharge from the shelter system because of their inability to comply with substance use policies. Not surprisingly, the researchers reported that the chronically homeless tend to use the shelter system as a long-term housing option rather than a source for temporary emergency housing. The authors concluded that the experiences of homeless are uniquely defined by the typology of homelessness. Consequently, the authors suggested that service delivery systems could more efficiently address and more effectively reduce homelessness by developing interventions that took into account the unique needs and circumstances that exist within homeless typologies. Consequently, the scholars maintain that given their inordinate use of the shelter system for long-term refuge, chronically homeless individuals' would better benefit from supported housing interventions that attempt to address existing barriers to sustained housing. Conversely, the transitionally homeless would benefit from service interventions that provided immediate assistance for those "between jobs or housing arrangements and/or seeking treatment for behavioral health problems" (Kuhn and Culhane 1998, 228). Lastly, the episodic homeless would benefit from a combination of transitional housing and residential treatment support interventions.

Public Policy Response to the Deserving and the Undeserving Poor

When homelessness reemerged as a significant social concern in the 1980s, the question of why people become homeless dominated the public discourse. This public discourse was routinely framed along the distinctions of those thought to be deserving and those thought to be undeserving of public support and assistance (Rosenthal and Foscarinis 2006). The competing perspectives aligned, albeit imprecisely, with the role

that structural and individual factors were perceived to play in causing homelessness. If, on the one hand, homelessness was the displacement of the housed by "larger social forces for which individuals have little control—in particular, the scarcity of low-income housing, deindustrialization, deinstitutionalization, increasing holes in the welfare safety net and changes in family structures"—then the homeless were considered to be part of a deserving subset of the poor (Bratt et al. 2006, 317). However, if homelessness was due to personal characteristics—whether "voluntary" use of illicit substances or poor self-control, or involuntary mental maladies—the homeless were by and large viewed as undeserving of anything more than the most onerous forms of support (Rosenthal 2000).

In his critically acclaimed work *The Undeserving Poor: America's Enduring Confrontation with Poverty* (first edition 1989 and second edition 2013), author Michael Katz pointed out that the concept of deserving and undeserving poor has a long history that has been shaped by the field of public policy. According to the author, determining whom among the poor merit public support is a central point of contention in the study of the poor. This question of how best to help those assigned to the margins of society without increasing their dependence on aid exists within a political context where resources are finite and the public and private sectors lack the ability to provide support to all who need it. The creation of classifications of deserving and undeserving poor is an attempt to establish a principled criteria for who should—and, even more problematic, who should not—receive aid. Katz argued that despite the best of intentions, the resulting differentiation of a deserving and undeserving poor is as arbitrary as it is imprecise. Not only do human lives rarely fit satisfactorily into artificial classifications, but society's view of the poor has undergone a number of iterations that often have more to do with

public opinion and prevailing political sentiment than the actual circumstances of the poor. “At times, men—allegedly drunk and lazy—have dominated; at other points, women—unmarried mothers, especially women of color have been the focus”—more recently, however, undocumented immigrants have been added to the ever changing class of the undeserving (Katz 2013, 1). Who makes up the undeserving poor at any point in time can largely be determined by what is being said and written about them.

In *Framing the Poor: Media Coverage and US Poverty Policy, 1960–2008*, Max Rose and Frank Baumgartner (2013) traced shifts in public policy towards the poor from initial optimism and generosity during the 1960s to an ever-increasing cynicism in the consequent years. The authors report that during the 1960s many Americans viewed poverty as a consequence of an uneven playing field that effectively trapped the poor in socially and economically deprived communities. This perspective, influenced by Michael Harrington’s *The Other America: Poverty in the United States* (1962), suggested that poverty was linked to a number of systemic factors, not the least of which were a dysfunctional educational system and a racial caste system that made poverty an almost inescapable existence. The poor were thought to be victims of institutional barriers that could only be dismantled by the most audacious of interventions. By the mid-1960s, federal action was thought to be an urgent need, and it came in dramatic fashion through a series of federal interventions, beginning first with civil rights legislation and ending with the expansion of welfare policies though the War on Poverty legislation.

Rose and Baumgartner contend that despite the expansion of the welfare state during the 1960s (and in some cases because of it), in the decades that followed the media coverage and public view of poverty shifted from seeing the poor less as victims

and more as indolent cheaters and chiselers who were emboldened by generous government programs that rewarded individuals for making poor life choices and encouraged them to do so. Few politicians were more successful than Ronald Reagan in tapping into the growing sentiment that many poor people were undeserving and that government programs were doing more harm than good. As far back as the 1976 Republican primary, Reagan routinely referenced Linda Taylor, a 47-year-old African American women who purportedly had "80 names, 30 addresses, 12 Social Security cards and is collecting veterans benefits on four non-existing deceased husbands". Although Reagan's representation of Taylor was more hyperbole than fact, the effect was the same as if it had been completely true (*New York Times* 1976). The term "welfare queen" was introduced into the American lexicon and presented as an accurate depiction of a significant and growing segment of the poor. Rose and Baumgartner conclude that just as media coverage and public sentiment about the disadvantaged have shifted since the 1960s, so too has government spending directed at the poor.

Of course, lost in the rigid distinctions between the deserving and undeserving poor is the realization that both perspectives may be needed to understand the circumstances of the poor, particularly in the case of the homeless. Koegel et al. (1995) recognized that while structural factors can explain why pervasive homelessness exists, individual factors can help identify those who are "least able to compete for scarce housing" (Koegel et al. 1995 p. 1642). Rosenthal noted, however, that this perspective implicitly accepts the primacy of the structuralists' view (and therefore the deserving poor perspective) by arguing that homelessness is "essentially a game of musical chairs: personal factors may help explain which individual ends up without a chair (i.e. home),

but structural factors mandate that someone—some millions—will" (Rosenthal 2000, p. 112).

Finally, Schneider and Ingram have written extensively on social construction, public policy, and the differentiation of deserving and undeserving populations. The authors trace the designation of deserving and undeserving groups in the United States to the nation's inception, and the special entitlements (such as the right to vote and hold public office) reserved for white landowning males but not extended to other populations. The special consideration granted to white landowning males was deemed justifiable under a social construction that rewarded one group's identity and membership while exploiting the differences in appearance and circumstances of other groups. Further, Schneider and Ingram (2005) noted that while group social constructions are not permanent, they are highly persistent and are difficult to change. Notwithstanding the expansion of rights extended to Americans during the nineteenth and twentieth century, the social construction of some groups, most notably the poor and African Americans, remains largely negative. The negative construction of African Americans as prone to crime and the poor as lazy remains strong and have important public policy implications in suggesting who is and who is not deserving of governmental assistance and support.

CHAPTER 4

Data and Methods

In recent years, the yet unrealized goal to end homelessness has spurred increased efforts to find the most effective intervention to connect individuals to permanent housing. Although extensive literature exists on the challenges faced by the homeless, including the population's increased risk of mental illness (Steinhaus 2004), substance abuse (Kim et al. 2010) and criminal involvement (Metraux and Culhane 2004), debate continues over the most appropriate service intervention to assist those without shelter. In the United States, efforts to combat homelessness have largely been through the implementation of the linear continuum of care and the social supportive service models (Federal Strategic Plan to Prevent and End Homelessness 2010; Kertesz and Weiner 2009, Edens et al. 2011). Despite the popularity of these two service delivery models, there has been very limited research on their comparative impact on homeless populations.

The purpose of this research is to examine a linear continuum of care oriented service model and a social supportive oriented service model for an identical population of homeless clients. The two service models are based on a lifestyles and life-chances theoretical perspective. This research analyzes data from the NDHHS SAMHSA program.

Sample

Two hundred and fifty-one participants were enrolled in the NDHHS SAMHSA program during the study period, of which, 181 (72.1 percent) completed baseline and

six-month follow-up assessment measures. Individuals who were homeless, or at risk of becoming homeless (including those with histories of episodic homelessness), and suffering from one or more mental health and/or substance abuse disorders were eligible for program services. The NDHHS SAMHSA program included disadvantaged individuals across the homelessness typology. The program defined homelessness as those who lack a fixed, regular, or adequate nighttime residence, including persons that meet the following criteria:

- Individuals whose primary nighttime residence is a supervised public or private shelter designed to provide temporary living accommodations; a time-limited/nonpermanent transitional housing arrangement for individuals engaged in mental health and/or substance use disorder treatment; or a public or private facility not designed for, or ordinarily used as, a regular sleeping accommodation.
- Individuals who are living in the residence of another person on a temporary basis where the continued tenancy is contingent upon the hospitality of the primary leaseholder or owner and can be rescinded at any time without notice.
- The chronically homeless, or unaccompanied homeless individuals with a substance use disorder, mental disorder, or co-occurring substance use and mental disorder and have either been continuously homeless for a year or more or have had at least four (4) episodes of homelessness in the past three (3) years.

Participant demographics upon program entry are presented in Table 1. Most participants were male and African American. Participants averaged 41 years of age, but ranged from 18 to 85 years of age. Most participants had at least completed high school,

with less than a quarter reporting coursework beyond high school. Nearly 90 percent of participants were unemployed on program entry.

TABLE 1: Baseline Demographics		
Characteristics	N	Percent
Age:		
18-24	14	7.7
25-34	28	15.5
35-44	55	30.4
45-54	58	32
55-64	15	8.3
65+	1	.5
Missing	10	5.5
Sex:		
Male	111	61.3
Female	60	33.1
Missing	10	5.5
Race:		
Caucasian	37	20.4
African American	117	64.6
Asian	1	.5
Hispanic/Latino ethnicity	24	13.3
Missing	2	1.1
Education Years		
Less than high school	67	37
High school diploma	76	42
College, 1st year completed	11	6.1
College, 2nd year completed/associates degree	16	8.8
College, 3rd year completed	5	2.8
Bachelor's degree or higher	2	1.1
Voc/Tech diploma	3	1.7
Missing	1	.5
Employment Status:		
Employed, full-time	9	5
Employed, part-time	11	6.1
Unemployed, looking for work	73	40.3
Unemployed disabled	25	13.8
Unemployed, volunteer work	4	2.2
Unemployed, Retired	1	.5
Unemployed, not looking for work	54	29.8
Missing	4	2.2

Measures

The City of Newark's Medical Care Services Division served as the principal point of entry for participants in the NDHHS SAMHSA program. The Medical Care Services provide basic health promotion and care for the Newark's vulnerable populations through a variety of units, including primary medical care/immunizations, communicable disease prevention, and treatment and dental care. The comprehensive services provided by the Medical Care Services make it a well-known and highly used treatment service provider for the city's homeless population. During intake into the Medical Care Services clinic, medical professionals completed a baseline assessment questionnaire of patients' health status and their current living arrangements. Patients without shelter or those who were marginally or precariously housed were advised of homeless services provided by the NDHHS SAMHSA program. Patients interested in enrolling in the NDHHS SAMHSA program were provided with the necessary referral documentation and an appointment date was arranged to meet with the NDHHS SAMHSA program staff.

Other than the Medical Care Services, secondary points of admittance into the NDHHS SAMHSA program included referrals from a variety of Newark based health and human service agencies, including the New Jersey State Parole Board. Client self-selection into the NDHHS SAMHSA program in the form of walk-ins and word-of-mouth referrals from other program participants also served as an occasional but nonetheless tertiary point of entry into the program.

Data Sources

Creswell (2009) argues that the validity of the instruments used to collect data is paramount when conducting quantitative research. The NDHHS SAMHSA Government Performance Results Act (GPRA) was the primary data source for this research. GPRA, enacted by Congress in 1993 with broad bipartisan support, is a federally mandated data management and accountability system used by US SAMHSA–funded agencies to improve strategic planning, program implementation, reporting, and outcomes. GPRA is part of a long line of federal initiatives—including the planning, programming, and budgeting system (PPBS) of the 1960s and the management by objectives (MBO) and the zero-based budgeting of the 1970s—to increase government transparency and to link public spending to objective program performance outcome measures (Radin 2000). The Act reflected the larger interests of the Clinton administration to "reinvent government" by holding publicly funded agencies accountable for achieving program results through a regular series of data driven program evaluations to explain project achievements and gaps in performance (Gueorguieva 2008).

The NDHHS SAMHSA GPRA data used in this research covers the period from July 2007 to August 2011, and include specific client-level outcome measures related to clients' substance use, criminal activity, mental health, family and living conditions, education/ employment status, social connectedness and treatment services. The data measures, collected during face-to-face interviews with clients at three possible points in time (intake, six-month intervals, and discharge), are based on several nationally recognized evidence-based instruments, including the Addiction Severity Index and the

McKinney Homeless Program reporting system (Government Performance and Results Act Client Outcome Measures 2013).

Ancillary data sources included for this research include qualitative analysis of NDHHS SAMHSA staff interviews that took place in two phases. The first phase took place during the NDHHS SAMHSA program's implementation, and the second phase of follow-up interviews was conducted in July of 2013. The qualitative analyses also rely on direct observation of program operations as well as on a limited number of in-depth interviews with 25 program clients.

Quantitative Analyses

This study utilized ordinary least squares (OLS), negative binomial regression, and logistical regression analyses to examine the NDHHS SAMHSA program's linear and the social supportive service models. The total number of observations for this study comprised the 181 clients who completed baseline and six-month follow-up assessment measures. Statistical results with a significance at alpha levels .01, .05, and .10 are discussed in the text. The alpha level communicates the maximum risk of mistakenly rejecting the null hypothesis in favor of the research hypothesis. Mistakenly rejecting the null hypothesis is commonly referred to as a Type I or false positive error. The .05 alpha level means, for instance, that there is a 5 percent or less chance that the null hypothesis will be rejected when it is actually true. Though not an absolute rule, the use of an alpha of .05 is a common measure for determining if discrepancy exists between the research and null hypothesis (Neyman and Pearson 1933).

While some of the outcome variables lent themselves to analysis by ordinary least squares (OLS) regression, several of the continuous dependent variables in this study

were not normally distributed and represented counts of events, which required negative binomial regression analysis, rather than OLS regression analysis. Long and Freese (2006) found that "even though there are situations in which linear regression models provide reasonable results, it is much safer to use models specifically designed for count outcomes" (p. 349). Negative binomial regression is designed to analyze skewed or over-dispersion count data. Count data measures the number of times an event happens. When the count data measure events that rarely happen, particularly when values with zero observations are common, the data will be skewed rather than normally distributed. Negative binomial regression is a common model to correct for over-dispersion of data. While other options are available for examining censored data, including creating binary dummy variables and conducting logit or probit analysis, such methods effectively disregard available information on the dependent variable. Additionally, Poisson regression is also a common measure to analyze rare events count data. The over-dispersed data for this research, however, violated the assumption of Poisson regression that requires the conditional mean and variance to be equally distributed (Long and Freese 2006). The negative binomial regression model does not make such assumptions and is therefore the most appropriate model for the over-dispersed count data in this study.

Outcome variables

The MH lifestyles analyses for this study examined program clients' depression and anxiety outcomes. Using data from the GPRA database, the NDHHS SAMHSA program captured the clients' depression and anxiety disorders by a count of days that individuals exhibited the respective ailments. The SA lifestyles analysis for this study

examined program clients' use of alcohol and illegal drugs, also measured by the number of days of use. Table 2 below describes the MH/SA outcome variables used in this study and the variable descriptions.

TABLE 2: LIFESTYLES VARIABLES (DV)			
MH/SA VARIABLES	**GPRA VARIABLES**	**DEFINITIONS OF VARIABLES**	**VARIABLE MEASUREMENT**
Mental Health	Depression	In the past 30 days, not due to your use of alcohol or drugs, how many days have you experienced serious depression?	Continuous
	Anxiety	In the past 30 days, not due to your use of alcohol or drugs, how many days have you experienced serious anxiety or tension?	Continuous
Substance Abuse	Use of Alcohol	In the past 30 days how many days have you used alcohol?	Continuous
	Use of Illegal Drugs	In the past 30 days how many days have you used illegal drugs?	Continuous

The life chance analysis for this study considered program clients' housing, criminal involvement, and employment status. GPRA data measured clients' domicile status and criminal involvement in the thirty-day timeframe prior to their assessment interview. The housing category included clients who were precariously housed, or individuals living in the residence of another person where their continued tenancy was contingent upon the hospitality of another and could have been rescinded at any time without notice. The employment measure recorded clients' current labor market attachment. Table 3 below describes the life-chances outcome variables used in this study.

TABLE 3: LIFE-CHANCES VARIABLES (DV)			
VARIABLES	**GPRA VARIABLES**	**FOR OPERATIONALIZATION OF VARIABLE, CLIENTS ARE ASKED:**	**VARIABLE MEASUREMENT**
Housing	Housing Arrangement	In the past 30 days, have you been living in a shelter, street/outdoors, institution, home or other for most of the time?	0 = shelter and street/outdoors 1 = housed
Criminal Justice	New Crimes	In the past 30 days, how many times have you committed a crime?	Continuous
Employment	Employment Arrangement	What is your current employment status?	1 = working (full or part time) 2 = unemployed, looking for work or volunteering 3 = unemployed, disabled or retired 4 = unemployed, not looking for work

Focal Explanatory variables

The NDHHS SAMHSA program provided clients with an assortment of service interventions that were based on individuals' MH/SA and ecological treatment needs identified during the GPRA intake assessment. Based on the availability of MH/SA and social supportive service interventions, this research grouped program service interventions into two categories: (1) lifestyle service interventions that specifically provide MH/SA treatment related support; and (2) life-chances service interventions that specifically provide ecological related support. In addition to the service interventions, which comprise the focal explanatory variables, this research also controls for clients' gender, race, and educational attainment. Table 4 below displays the NDHHS SAMHSA program lifestyles services for this study and how the services are defined.

TABLE 4: LIFESTYLES SERVICES (IV)	
MH/SA SERVICES	**DEFINITION OF SERVICES**
Intensive Outpatient	Intense multimodal treatment for emotional or behavioral symptoms that interfere with normal functioning. These clients require frequent treatment in order to improve, while still maintaining family, student, or work responsibilities in the community. Intensive outpatient services differ from outpatient services by the intensity and number of hours per week. Intensive outpatient services are provided 2 or more hours per day for 3 or more days per week.
Screening	A gathering and sorting of information used to determine if an individual has a problem with alcohol or other drug abuse, and if so, a detailed clinical assessment is developed.
Brief Treatment	A systematic, focused process that relies on assessment, client engagement, and rapid implementation of change strategies. Brief therapies usually consist of more (as well as longer) sessions than brief interventions. The duration of brief therapies is reported to be anywhere from 1 session to 40 sessions, with the typical therapy lasting between 6 and 20 sessions.
Relapse Prevention	Identifying each client's current stage of recovery and establishing a recovery plan to identify and manage the relapse warning signs.
Substance Abuse Education	A program of instruction designed to assist individuals in drug prevention, relapse, and/or treatment.
Alcohol-Drug-Free Social Activities	An action, event, or gathering attended by a group of people that promotes abstinence from alcohol and other drugs.

Table 5 displays the distribution for the lifestyles service interventions for the 181 NDHHS SAMHSA clients who received baseline and follow-up assessments. The most frequently provided lifestyles service intervention was alcohol-drug-free social activities. More than half (51.93) of the NDHHS SAMHSA program clients received alcohol-drug-free social activities services. Conversely, the least used service intervention was the substance abuse education, with only 22 percent of clients receiving the service.

TABLE 5: Distribution of Lifestyles Services Received by Clients		
Type of Service	Number of Clients Receiving Service	Percent
Intensive Outpatient	73	40.33
Screening	66	36.46
Brief Treatment	42	23.20
Relapse Prevention	48	26.51
Substance Abuse Education	41	22.65
Alcohol-Drug-Free Social Activities	94	51.93

Table 6 displays the NDHHS SAMHSA program life-chances services, and how the services are defined. Table 7 shows the distribution for the life-chances service interventions for the 181 NDHHS SAMHSA clients who received baseline and follow-up assessments. The most frequently provided life-chances service intervention was referral to treatment. Over 50 percent (56.90) of the NDHHS SAMHSA program clients received referral to treatment services. Conversely, the least used service intervention was the self-help and support group services, with approximately 23 percent of clients receiving the service.

TABLE 6: LIFE-CHANCES SERVICE VARIABLES (IV)	
SERVICES	**DEFINITION OF SERVICES**
Referral to Treatment	A process for facilitating client/consumer access to specialized treatments and services through linkage with, or directing clients/consumers to, agencies that can meet their social needs.
Treatment/Recovery Planning	A program administered to the client to address physical illness, disease, or injury.
Continuing Care	Providing health care for an extended period of time, as well as addressing barriers to access to health care.
Peer to Peer coaching	Services involving a trusted counselor or teacher to another person of equal standing or others in support of a client's social and environmental needs or concerns
Self-help and Support Group	Helping or improving oneself with assistance from others; and/or an assemblage of persons who have similar social challenges and experiences in order to assist in encouraging and keeping individuals from failing.

TABLE 7: Distribution of Life-chances Services Received by Clients		
Type of Service	Number of Clients Receiving Service	Percent
Referral to Treatment	103	56.90
Treatment/Recovery Planning	63	34.80
Continuing Care	63	33.14
Peer to Peer coaching	44	24.30
Self-help and Support Group	41	22.65

Service Treatment Intensity

In addition to analyzing exposure to individual lifestyle and life-chances treatment services, this research also examined the impact that the intensity of treatment (that is, an aggregate of lifestyles or life-chances treatment services) had on clients MH/SA and

ecological outcomes. Elhai and Ford (2007) reported that while numerous studies have analyzed the impact that specific service interventions have had on clients' outcomes, far less attention has been paid to the impact of service intensity. For the lifestyles and the life-chances services, indices of service use intensity were created to determine if predictor variables performed differently when administered collectively.

Tables 8 and 9 show the distribution for the lifestyles and life-chances service treatment intensity for the 181 NDHHS SAMHSA clients who received baseline and follow-up assessments. Treatment intensity is measured by the number of lifestyles or life-chances services clients have received. Thirty-seven percent of clients received at least one lifestyles or life-chances service interventions. Eight percent of clients received three or more lifestyles service interventions; and 6 percent of clients received three or more life-chances service interventions.

TABLE 8: Distribution of Lifestyles Treatment Service Intensity

Number of Services Received	Number of Clients Receiving Service	Percent
One Service	67	37.01
Two Services	53	29.28
Three Services	10	5.52
Four Services	3	1.65
Five Services	1	.55
Six Services	1	.55

TABLE 9: Distribution of Life-chances Treatment Service Intensity		
Number of Services Received	Number of Clients Receiving Service	Percent
One Service	68	37.56
Two Services	29	16.02
Three Services	8	4.41
Four Services	3	1.65

Regression Analyses

The regression models used in this study are presented in Table 10. All MH/SA lifestyle data and life-chances supportive service data were measured over two points in time. A baseline measurement was taken upon entry into the NDHHS SAMHSA program (measures indicated with a subscript of ‘1’) and follow-up assessments were taken at six-month follow-up intervals (indicated with a ‘2’ subscript). In cases where the dependent variables were continuous and normally distributed, OLS regression analysis was used. In cases of count measures where an over-dispersion of the data was present, the negative binomial regression analysis was used. Logit and multinomial analyses were used for categorical dependent variables.

TABLE 10: REGRESSION MODELS		
LIFESTYLE INTERVENTIONS	**OLS**	MH_2 = f(MH_1, Intensive Outpatient, Screening, Brief Treatment, Relapse Prevention, Substance Abuse Education, Alcohol-Drug-Free Social Activities, educational attainment, gender, race)
	OLS	MH_2 = f(MH_1, Life Styles_Variable Intensity, educational attainment, gender, race)
	NEGATIVE BINOMIAL	SA_2 = f(SA_1, Intensive Outpatient, Screening, Brief Treatment, Relapse Prevention, Substance Abuse Education, Alcohol-Drug-Free Social Activities, educational attainment, gender, race)
	NEGATIVE BINOMIAL	SA_2 = f(SA_1, Life Styles_Variable Intensity, educational attainment, gender, race)
	LOGIT	$LivingArrangement_2$ = f ($LivingArrangement_1$, Intensive Outpatient, Screening, Brief Treatment, Relapse Prevention, Substance Abuse Education, Alcohol-Drug-Free Social Activities, educational attainment, gender, race)
	LOGIT	$LivingArrangement_2$ = f ($LivingArrangement_1$, Life Styles_Variable Intensity, educational attainment, gender, race)
	MULTINOMIAL	$EmployStatus_2$ = f($Employ_1$, Intensive Outpatient, Screening, Brief Treatment, Relapse Prevention, Substance Abuse Education, Alcohol-Drug-Free Social Activities, educational attainment, gender, race)
	MULTINOMIAL	$EmployStatus_2$ = f($Employ_1$, Styles_Variable Intensity, educational attainment, gender, race)
	NEGATIVE BINOMIAL	$NewCrimes_2$ = f($NewCrimes_1$, Intensive Outpatient, Screening, Brief Treatment, Relapse Prevention, Substance Abuse Education, Alcohol-Drug-Free Social Activities, educational attainment, gender, race)
	NEGATIVE BINOMIAL	$NewCrimes_2$ = f($NewCrimes_1$, Styles_Variable Intensity, educational attainment, gender, race)
LIFE-CHANCES INTERVENTIONS	**OLS**	MH_2 = f(MH_1, Referral to Treatment, Treatment/Recovery Planning, Continuing Care, Peer to Peer coaching, Self-help and Support Group, educational attainment, gender, race)
	OLS	MH_2 = f(MH_1, Life-chances_Variable Intensity, educational attainment, gender, race)
	NEGATIVE BINOMIAL	SA_2 = f(SA_1, Referral to Treatment, Treatment/Recovery Planning, Continuing Care, Peer to Peer coaching, Self-help and Support Group, educational attainment, gender, race)
	NEGATIVE BINOMIAL	SA_2 = f(SA_1, Life-chances_Variable Intensity, educational attainment, gender, race)
	LOGIT	$LivingArrangement_2$ = f ($LivingArrangement_1$, Referral to Treatment, Treatment/Recovery Planning, Continuing Care, Peer to Peer coaching, Self-help and Support Group, educational attainment, gender, race)

	LOGIT	$LivingArrangement_2$ = f ($LivingArrangement_1$, Life-chances_Variable Intensity, educational attainment, gender, race)
	MULTINOMIAL	$EmployStatus_2$ = f($Employ_1$, Referral to Treatment, Treatment/Recovery Planning, Continuing Care, Peer to Peer coaching, Self-help and Support Group, educational attainment, gender, race)
	MULTINOMIAL	$EmployStatus_2$ = f($Employ_1$, Life-chances_Variable Intensity educational attainment, gender, race)
	NEGATIVE BINOMIAL	$NewCrimes_2$ = f($NewCrimes_1$, Referral to Treatment, Treatment/Recovery Planning, Continuing Care, Peer to Peer coaching, Self-help and Support Group, educational attainment, gender, race)
	NEGATIVE BINOMIAL	$NewCrimes_2$ = f($NewCrimes_1$, Life-chances_Variable Intensity, educational attainment, gender, race)
LIFESTYLE INTERVENTIONS AND LIFE-CHANCES INTERVENTIONS	**OLS**	MH_2 = f(MH_1, Intensive Outpatient, Screening, Brief Treatment, Relapse Prevention, Substance Abuse Education, Alcohol-Drug-Free Social Activities, Referral to Treatment, Treatment/Recovery Planning, Continuing Care, Peer to Peer coaching, Self-help and Support Group, educational attainment, gender, race)
	OLS	MH_2 = f(MH_1, Life Styles_Variable Intensity, Life-chances_Variable Intensity, educational attainment, gender, race)
	NEGATIVE BINOMIAL	SA_2 = f(SA_1, Intensive Outpatient, Screening, Brief Treatment, Relapse Prevention, Substance Abuse Education, Alcohol-Drug-Free Social Activities, Referral to Treatment, Treatment/Recovery Planning, Continuing Care, Peer to Peer coaching, Self-help and Support Group, educational attainment, gender, race)
	NEGATIVE BINOMIAL	SA_2 = f(SA_1, Life Styles_Variable Intensity, Life-chances_Variable Intensity, educational attainment, gender, race)
	LOGIT	$LivingArrangement_2$ = f ($LivingArrangement_1$, Intensive Outpatient, Screening, Brief Treatment, Relapse Prevention, Substance Abuse Education, Alcohol-Drug-Free Social Activities, Referral to Treatment, Treatment/Recovery Planning, Continuing Care, Peer to Peer coaching, Self-help and Support Group, educational attainment, gender, race)
	LOGIT	$LivingArrangement_2$ = f ($LivingArrangement_1$, Life Styles_Variable Intensity, Life-chances_Variable Intensity, educational attainment, gender, race)
	MULTINOMIAL	$EmployStatus_2$ = f($Employ_1$, Intensive Outpatient, Screening, Brief Treatment, Relapse Prevention, Substance Abuse Education, Alcohol-Drug-Free Social Activities, Referral to Treatment, Treatment/Recovery Planning, Continuing Care, Peer to Peer coaching, Self-help and Support Group, educational attainment, gender, race)
	MULTINOMIAL	$EmployStatus_2$ = f(Life Styles_Variable Intensity, Life-chances_Variable Intensity educational attainment, gender, race)

	NEGATIVE BINOMIAL	$NewCrimes_2$ = f($NewCrimes_1$, Intensive Outpatient, Screening, Brief Treatment, Relapse Prevention, Substance Abuse Education, Alcohol-Drug-Free Social Activities, Referral to Treatment, Treatment/Recovery Planning, Continuing Care, Peer to Peer coaching, Self-help and Support Group, educational attainment, gender, race)
	NEGATIVE BINOMIAL	$NewCrimes_2$ = f($NewCrimes_1$, Life Styles_Variable Intensity, Life-chances_Variable Intensity, educational attainment, gender, race)

Qualitative Analysis

In addition to the quantitative analysis of the NDHHS SAMHSA program, this research also employed several qualitative research methods. The use of multiple qualitative research methods, also known as triangulation, enables the researcher to gain varying perspectives on a particular topic (Whitley and Siantz 2012). For this reason, this research uses the qualitative research methods of structured staff and client interviews and a direct observation of the NDHHS SAMHSA program. The structured interviews took place in two phases. First, during the periods of the NDHHS SAMHSA program implementation from July 2007 to August 2011, the program staff was interviewed annually to gather their perceptions of program strengths, weaknesses, opportunities for improvement, and threats to future program success. The program director and three case managers participated in each of these annual interviews. Much of the success of the NDHHS SAMHSA program was dependent upon the efforts of the program's staff. The program staff worked with homeless clients from the point of entry through clients' completion of treatment plan and/or termination from the program. Accordingly, the NDHHS SAMHSA project manager was responsible for overseeing and allocating programmatic resources, delegating staff work assignments, synthesizing complex and diverse sets of information, and building morale and aligning staff responsibilities to

achieve program goals and objectives. The NDHHS SAMHSA case managers served as primary problem solvers where the goal was less about “fixing” clients than about working in collaboration with homeless individuals to link them to needed resources and to help them develop the tools necessary for self-management and transformative change.

The next phase of staff interviews took place during the summer of 2013 and was designed to provide a retrospective assessment of the NDHHS SAMHSA program. The NDHHS SAMHSA program’s former director, three case managers, and clinical manager all participated in the retrospective interviews. The program’s former clinical manager was responsible for monitoring clients’ compliance with clinical treatment plans and appointments with medical staff. Despite repeated attempts, two of the former case managers could not be located and thus did not participate in this phase of interviews. The retrospective assessment interviews asked the participating former staff members about lessons learned, program successes and gaps in implementation. The staff interview instruments appear in Appendix 1 and Appendix 2.

Twenty-five in-depth interviews were conducted with program participants during the NDHHS SAMHSA program implementation period. Each interview lasted approximately forty minutes and the questions focused on the program participants’ current and past income levels, employment status, substance use, criminal involvement, and their physical/mental health status. The clients interviewed included twelve females and thirteen males. Their ethic makeup consisted of seventeen African Americans, three whites and five individuals of Hispanic/Latino/Spanish origin. The client interview questionnaire was adapted from the National Survey of Drug Use and Health (NSDUH) instrument sponsored by the United States Health and Human Services and the Research

Triangle Institute. The program participant interviews captured supplemental information on client demographics, work history, household composition, health insurance, income/public assistance, use of cigarettes, alcohol and drugs, criminal history, social environment and mental health status. The client interview instrument appears in Appendix 3.

This study's direct observation consisted of weekly visits with the staff of the NDHHS SAMHSA program as they conducted case management services, client support group meetings, and staff support activities. The direct observation focused mainly on the services provided by the program's direct staff, consisting of three case managers, an outreach worker, and a client program locator.

Levy (2006) found that structured interviews are an effective tool that allows the researcher to obtain robust and informative data on sensitive programmatic features that are often difficult to capture using quantitative research methods. Boyce and Neale (2006) stated that in-depth interviews are an important tool to provide broader context to quantitative data by allowing for a more detailed perspective into a program's operations, processes and various dimensions. Thomas (2003) observed that in direct observation the researcher remains as unobtrusive as possible and remains in the background. The author added that direct observational research is beneficial in documenting information on events as they occur in a natural setting.

Research Questions and Associated Hypotheses

This research examines the service treatment outcomes of the lifestyles and life-chances service models. The following research questions and hypotheses will guide this research.

Question 1: To what degree did NDHHS SAMHSA program clients' lifestyle outcomes improve over the course of the program?

Hypothesis 1: NDHHS clients are predicted to experience improved outcomes related to (1) mental health status and (2) substance use.

Question 2: To what degree did NDHHS SAMHSA program clients' life-chances outcomes improve over the course of the program?

Hypothesis 2: NDHHS clients are predicted to experience improved outcomes related to (1) housing status, (2) employment status, and (3) criminal involvement.

Question 3: Are individuals receiving lifestyle services experiencing better outcomes compared to clients receiving life-chances services?

Hypothesis 3: Controlling for relevant variables, clients exposed to lifestyle treatment interventions are predicted to have improved outcomes compared to clients receiving life-chances treatment interventions.

Question 4: Does intensity of lifestyle services create improved outcomes compared to the intensity of life-chances services?

Hypothesis 4: Controlling for relevant variables, the intensity of lifestyle service interventions are predicted to have improved outcomes compared to clients receiving an intensity of life-chances services.

Cautionary Remarks about the Data Used in this Research

A strength of this research is that it addressed a study limitation identified by several earlier researchers, most notably by Locke et al. (2007) and Young et al. (2009), regarding the importance of quasi-experimental analyses to include a sample of clients

that are identical in their baseline characteristics, health symptoms, and service treatment needs. This analysis tested the impact of lifestyles and life-chances service interventions across an identical population of homeless clients to assess impacts on clients' MH/SA, employment, housing, and criminal justice outcomes. Despite the use of a rigorous research design in conjunction with a standardized measurement instrument with reliability among homeless persons with co-occurring MH/SA disorders (Government Performance and Results Act Client Outcome Measures 2013), this study has several limitations. First, Calsyn et al. (1997) report that despite the exponential increase in research of homeless populations with affective and addictive disorders, concerns remain regarding individuals' recall accuracy and social desirability bias. These concerns are amplified when using self-reported data for those suffering from the debilitating interactive affects of MH/SA disorders. It is not difficult to reason that homeless clients with MH/SA disorders may also have high incidence of memory loss, experience difficulty in responding to survey questions, or attempt to deliberately mislead the interviewer (Goldberg 2002). Additionally, Padgett et al. (2006) cautions that self-reported data should not be interpreted as a clinically equivalent measure. "The absence of verification measures (e.g. urine toxicology tests and psychological assessments) makes it impossible to draw definitive conclusions about" the clinical reliability of self-reported data (Padgett 2006, p. 80).

Notwithstanding the above-mentioned limitations of self-reported data, there is indication that within controlled settings such as NDHHS SAMHSA, self-reported data are an appropriate research procedure. Wolford et al. (1999), for instance, found in their study of 320 mentally ill patients recently admitted to a mental institution that self-

reported data was actually a stronger predictor of substance use than several clinical measures. The authors cite a number of methodology detection issues related to clinical examinations, including length of time between substance use and drug urine or saliva analysis and evidence that “dual diagnosed patients tend to use relatively small amounts of alcohol compared with alcoholics whose drinking is uncomplicated by major mental illness” (Wolford et al. 1999, p. 323). Furthermore, Goldberg et al. (2002) study of 171 outpatients with the most severe forms of psychiatric disorders, such as schizophrenia, “can reliably report behavioral events such as use of medical services” (Goldberg et al. 2002, p. 881).

Another potential limitation of this study is that the principal focus of the NDHHS SAMHSA program was to facilitate MH/SA treatment services. The NDHHS SAMHSA program comported closely to the traditional linear treatment model that views the treatment of MH/SA disorders as essential to connecting the homeless to permanent housing. However, with the emergence of social supportive programs in the 1990s, the US SAMHSA has come to embrace the value of expanding homeless services to address the host of environmental factors that also contribute to homelessness. With this increased awareness, US SAMHSA has actively encouraged locally funded agencies to address the complex ecological barriers housing by providing housing, employment, and other socially relevant supportive services to program clients. Although the NDHHS SAMHSA program included an array of supportive services that extended beyond the sole focus on MH/SA disorders, evidence suggested that an organizational culture existed that strongly favored the linear, rather than the social supportive services program track.

Further complicating this matter is that this study does not analyze the quality or scope of either the MH/SA or the social supportive service interventions.

This study does, however, attempt to address this limitation by including several quantitative research methods to provide a more contextual examination of the NDHHS SAMHSA program. First, interviews were conducted with the NDHHS SAMHSA program staff in an attempt to gain a more nuanced understanding of the dual program tracks, including efforts to strengthen the social supportive services. Next, this study also includes a direct observation of the NDHHS SAMHSA program, including staff interactions with program clients and program staff meetings.

A final limitation of this study is that although mental maladies encompass a wide range of disorders, the NDHHS SAMHSA program had a limited mental health focus. Consequently, the mental health analysis in this report only focuses on two types of mood disorders: depression and anxiety. Comparatively speaking, depression and anxiety disorders are considerably lesser forms of mental illness than, say, schizophrenia or affective difficulties related to psychosis or hallucinations. In the case of depression and anxiety, a number of effective low intensity treatment modalities are possible to assist individuals dealing with either a persistent or excessively lowering of mood or an elevated angst. Depression and anxiety allow for low intensity treatment modalities that do not require the attention of psychiatric professionals or expensive hospitalization. This option is typically not a practical or an effective treatment for more complicated forms of mental illness that tend to be more protracted in nature. It is reasonable to assume that a study that focuses on more intricate mental health disorders would yield dissimilar results from those presented in this study.

CHAPTER 5

Empirical Analysis

Since the 1980s, as society has gained greater insight into the barriers to independent living faced by homeless populations, the number of homeless-assistance programs has grown significantly. Homeless programs have evolved from an almost exclusive focus on emergency shelter to include a set of coordinated strategies to address the root causes of homelessness. Figuring prominently in the early strategies to end homelessness were provisions to address individuals' personal defects related to MH/SA disorders. This treatment-first approach dominated the service delivery landscape in the decades immediately following the 1980s. Although still a dominant service delivery model, more recent homeless strategies have come to include social supportive services that focus less on personal defects and more on the complicated interplay of environmental forces that contribute to homelessness. Debate remains, however, on which approach is the best way to aid individuals in need of stable housing. Data from the NDHHS SAMHSA program provides a unique opportunity to compare the two divergent homeless service models. Using data from the 181 NDHHS SAMHSA program clients who received baseline and follow-up assessments, it is possible to estimate the program's impact across a number of lifestyles and life-chances oriented outcomes.

Bivariate Results: Lifestyles and Life-chances Outcomes

In order to determine if statistical differences in outcomes occurred for clients as a result of their participation in the NDHHS SAMHSA program, paired t-tests for continuous outcomes and marginal homogeneity chi square tests for categorical

outcomes were employed. Table 11 highlights changes in lifestyle outcomes related to length of time clients experience mental health and substance abuse challenges. The t-test results indicate that clients experienced a significant reduction in length of time they suffer from depression by 7.47 days per month (from 15.14 days at intake to 7.67 days at follow-up assessment) and anxiety by 7.26 days per month (from 14.03 days at intake to 6.76 days at follow-up measure). This translates to a reduction of 89.64 depression days per year and 87.12 anxiety days per year. The length of time clients engaged in the use of addictive substances was also lower between the measurement periods. Clients' use of alcohol was lowered by 1.39 days per month (from 4.19 days at intake to 2.80 days at follow-up measure) and by 1.91 days per month for illegal drug (from 3.80 days at intake to 1.88 days at follow-up measure). This translates to a reduction of 16.68 days of alcohol consumption and 22.92 days per year of illegal drug use. These reductions in MH/SA outcomes were significant at a .05 level.

Table 11: Changes in Client Lifestyle Outcomes

Lifestyles Measure	Clients	Mean At Intake	Mean At Follow-up	Change (Intake – Follow-up)	Significant?
Depression Days	180	15.14	7.67	-7.47	Yes**
Anxiety Days	180	14.03	6.76	-7.26	Yes**
Alcohol Days	181	4.19	2.80	-1.39	Yes**
Drug Days	181	3.80	1.88	-1.91	Yes**

*Significant at 10 percent level; ** Significant at 5 percent level: ***Significant at 1 percent level.

Tables 12, 13, 14, and 15 present clients' life-chances outcomes. Table 12 reveals that the number of clients who were connected to full- or part-time employment increased from 14 individuals at intake assessment to 19 individuals at follow-up assessment, while

the number of individuals who were unemployed, looking for work or volunteering increased from 55 at intake assessment to 77 individuals at follow-up assessment, and the number of individuals unemployed, and not looking for work decreased from 88 at intake assessment to 53 at follow-up assessment. The marginal homogeneity chi-square for clients' employment status was 18.14, significant at a .05 level. Most of the change in clients' employment status occurred due to an increase in the number of unemployed clients looking for work or volunteering (22) and a reduction in the number of unemployed clients not looking for work (35).

Table 12: Changes in Client Life-chances Outcomes: Employment Status

Employment Status	Intake Assessment	Follow-up Assessment	Change (Intake – Follow-up)
Working full or part time	14	19	5
Unemployed, looking for work or volunteering	55	77	22
Unemployed, disabled or retired	18	26	8
Unemployed, not looking for work	88	53	-35
Number of clients	175	175	

Marginal homogeneity χ^2 = 18.14, p-value = 0.00

Changes in clients' living arrangements are presented in Table 13. The number of clients who were homeless (living in homeless shelters, on streets, or outdoors) decreased from 85 during the initial assessment to 62 during the follow-up assessment. Moreover, the number of clients who were successfully connected to housing increased from 83 at intake to 106 during the follow-up assessment. The marginal homogeneity chi-square for clients' living arrangement was 15.11, significant at .05 level.

Table 13: Changes in Client Life-chances Outcomes: Living Arrangement			
Living Arrangement	Intake Assessment	Follow-up Assessment	Change (Intake – Follow-up)
Shelter, street, or outdoors	85	62	-23
Housed	83	106	23
Number of Clients	168	168	

Marginal homogeneity χ^2 = 15.11, p-value = 0.00

Changes in clients' criminal activity are presented in Table 14. The number of clients who committed at least one crime in the month prior to their assessment declined from 56 clients at the intake assessment to 32 clients at the follow-up assessment. The marginal homogeneity chi-square for the clients' criminal involvement was 16.94, significant at .05 level.

Table 14: Changes in Client Life-chances Outcomes: Criminal Activity			
Criminal Activity	Intake Assessment	Follow-up Assessment	Change (Intake – Follow-up)
No	125	149	24
Yes	56	32	-24
Number of Clients	149	181	

Marginal homogeneity χ^2 = 16.94, p-value = 0.00

Table 15 presents the t-test results from NDHHS SAMHSA clients' reported criminal and violent behaviors reported in the 30 days prior to their assessment measure. Clients experienced reductions in the number of days of criminal and violent activity. Between the initial and follow-up assessments, clients experienced a reduction in the number of days they committed a crime by 1.73 days and the number of days that they engaged in violent behavior by a half a day (-.52). While the number of days that clients

engaged in criminal activity was statistically significant at a .05 level, the reduction in violent activity was not significant.

Table 15: Changes in Client Life-chances Outcomes					
Behavioral/ Attitudinal Measure	Clients	Intake Assessment	Follow-up Assessment	Change (Intake – Follow-up)	Significant?
Days of Criminal	181	3.84	2.11	-1.73	Yes**
Days of Violent	180	1.67	1.15	-.52	No

*.10 level **.05 level ***.01 level

The initial bivariate results show that the NDHHS SAMHSA program was successful in reducing clients MH/SA disorders, as well as improving client outcomes across the life-chances measures of housing, employment, and criminal justice involvement. Questions remain, however, on the role that lifestyle versus life-chances service interventions played in these improvements, while holding other relevant demographic variables constant. Next, this study looks at NDHHS SAMHSA lifestyles and life-chances service interventions impact on client outcomes using a multivariate statistical approach.

Multivariate Results: Impact of Lifestyles Interventions on Clients' Mental Health Outcomes

Multivariate analyses were conducted to predict the occurrence of mental health challenges among NDHHS SAMHSA clients' after receiving lifestyles service interventions while controlling for gender, race, and educational attainment.

In order to rule out multicollinearity among the predictor variables, first a bivariate Pearson correlation test was conducted to ensure that none of the pairwise correlations among the predictor variables in this analysis were at or above 0.8. Next, a multivariate collinearity diagnostics test was used to ensure that none of the predictor variables had a variance inflation factor above 10. A common indicator of collinearity is a variance inflation factor that is greater than 10, indicating that the variable represents a linear combination of two or more variables. Other indictors of multicollinearity include condition index values greater than 30 or a tolerance value less than 0.1. The results, reported in Tables 16 and 17, confirm that multicollinearity of the predictor variables for the lifestyles analysis is not an issue. The results show that none of the pairwise correlations among the predictor variables are at or above 0.8. The highest correlation is between brief treatment and screening service intervention at 0.726. The highest variance inflation factor is 2.81 for screening service intervention, well below the rule of thumb threshold of 10. The lowest tolerance value is 0.355 for screening service intervention, well above the 0.1 rule of thumb threshold.

Table 16: Bivariate Collinearity Test

	Intensive Outpatient	Screening	Brief Treatment	Relapse Prevention	Substance Abuse Education	Alcohol-Drug Free Social	Black	Male	Education
Intensive Outpatient	1.000								
Screening	-0.086	1.000							
Brief Treatment	-0.091	.726	1.000						
Relapse Prevention	.146	-.121	-.151	1.000					
Substance Abuse Education	.142	-.251	-.267	.438	1.000				
Alcohol-Drug Free Social	.261	-.024	-.107	.017	.017	1.000			
Black	-.016	.043	.025	-.034	.010	-.037	1.000		
Male	.156	-.138	-.068	-.059	-.003	-.127	.178	1.000	
Education	.0387	.021	.019	.051	.003	-.008	-.024	.072	1.000

Table 17: Multivariate Collinearity Test					
Variable	VIF	Tolerance	R-Square	Eigenvalue	Condition Index
Intensive Outpatient	1.08	.922	.077	5.207	1.000
Screening	2.81	.355	.644	1.570	1.821
Brief Treatment	2.76	.367	.637	1.050	2.226
Relapse Prevention	1.29	.776	.223	.811	2.533
Substance Abuse Education	1.39	.721	.223	.610	2.919
Alcohol-Drug Free Social	1.08	.927	.072	.299	4.172
Black	1.05	.953	.046	.216	4.906
Male	1.14	.875	.124	.143	6.015
Education	1.01	.989	.011	.069	8.639

The lifestyles multivariate analyses for clients' mental health outcomes used three models. For each lifestyle outcome, the first model tests levels of mental health outcomes at follow-up as a function of depression and anxiety levels at intake, controlling for gender, race and educational attainment. This model examines change in outcomes overtime, from intake to final measurement. The second model builds upon the first model and tests for the effect of the intensity of lifestyles treatment provided during program participation. As previously noted, the intensity of service treatment is the aggregate of lifestyles treatment services. The third model augments the first model by adding specific lifestyles treatment services that clients received over the program period.

Tables 18 and 19 display the distribution of days clients' reported experiencing mental health symptoms during their follow-up assessments. Tables 20 and 21 display the descriptive statistics of depression and anxiety mental health outcome variables. Table 22 shows the OLS equations used for the analyses of mental health outcomes.

Table 18: Reported Depression Days After Receiving Lifestyles Interventions			
Number of Days	Frequency	Percent	Cumulative
0	59	32.78	32.78
2	7	3.89	36.67
3	10	5.56	42.22
4	11	6.11	53.33
5	12	6.67	60
6	9	1.67	61.67
7	5	2.78	64.44
8	4	2.22	66.67
10	11	6.11	72.78
12	3	1.67	74.44
14	1	.56	75
15	15	8.33	83.33
18	3	1.67	85
20	7	3.89	88.89
21	1	.56	89.44
22	2	1.11	90.56
25	2	1.11	91.67
26	1	.56	92.22
30	14	7.78	100
Total	180	100	

Table 19: Number of Days Clients' Reported Experiencing Anxiety Subsequent to Lifestyle Service Interventions			
Number of Days	Frequency	Percent	Cumulative
0	74	41.11	41.11
1	5	2.78	43.89
2	7	3.89	47.78
3	6	3.33	51.11
4	4	2.22	53.33
5	12	6.67	60.00
6	4	2.22	62.22
7	6	3.33	65.56
8	3	1.67	67.22
10	19	10.56	77.78
11	1	.56	78.33
12	1	.56	78.89
15	15	8.33	87.22
18	3	1.67	88.89
20	4	2.22	91.11
21	2	1.11	92.22
25	3	1.67	93.89
26	1	.56	93.89
30	10	5.56	94.44
Total	180	100	100

Table 20: Depression Descriptive Statistics			
Mean	Standard Deviation	Min	Max
7.672	9.279	0	30

Table 21: Anxiety Descriptive Statistics			
Mean	Standard Deviation	Min	Max
6.766	8.647	0	30

	TABLE 22: MENTAL HEALTH REGRESSION EQUATIONS
Model	**Mental Health Outcome - Depression**
1.	$\text{Depression}_2 = \beta_0 + \beta_1 *\text{baseline depression} + \beta_{2*} *\text{black} + \beta_3 *\text{male} + \beta_4 *\text{education} + \varepsilon_{1.}$
2.	$\text{Depression}_2 = \beta_0 + \beta_1 *\text{ baseline depression} + \beta_{2*} \text{ lifestyle intensity} + \beta_3 *\text{black} + \beta_4 *\text{male} + \beta_5 *\text{education} + \varepsilon_{1.}$
3.	$\text{Depression}_2 = \beta_0 + \beta_1 *\text{ baseline depression} + \beta_{2*}\text{intensive outpatient} + \beta_3 *\text{screening} + \beta_4 *\text{brief treatment} + \beta_5 *\text{relapse prevention} + \beta_6 *\text{substance abuse education} + \beta_7 *\text{alcohol-drug free activities} + \beta_8 *\text{black} + \beta_9 *\text{male} + \beta_{10} *\text{education} + \varepsilon_{1.}$
Model	**Mental Health Outcome - Anxiety**
4.	$\text{Anxiety}_2 = \beta_0 + \beta_1 *\text{baseline anxiety} + \beta_{2*} *\text{black} + \beta_3 *\text{male} + \beta_4 *\text{education} + \varepsilon_{1.}$
5.	$\text{Anxiety}_2 = \beta_0 + \beta_1 *\text{baseline anxiety} + \beta_{2*} \text{ lifestyle intensity} + \beta_3 *\text{black} + \beta_4 *\text{male} + \beta_5 *\text{education} + \varepsilon_{1.}$
6.	$\text{Anxiety}_2 = \beta_0 + \beta_1 *\text{baseline anxiety} + \beta_{2*}\text{intensive outpatient} + \beta_3 *\text{screening} + \beta_4 *\text{brief treatment} + \beta_5 *\text{relapse prevention} + \beta_6 *\text{substance abuse education} + \beta_7 *\text{alcohol-drug free activities} + \beta_8 *\text{black} + \beta_9 *\text{male} + \beta_{10} *\text{education} + \varepsilon_{1.}$

While the bivariate t-test results indicated statistically significant reductions in the number of days that NDHHS SAMHSA clients exhibited depression and anxiety disorders, the multivariate tests used to predict the occurrence of mental health outcomes were less conclusive. Table 23 (columns 1-3) display results for depression symptoms at follow-up with relevant control variables. Model 1, which predicted depression days at follow-up, as a function of depression at intake and control variables, had an R-square value of 0.157. The model indicates that baseline depression levels were the best predictor of subsequent depression levels. For each day increase in depression days at baseline, the follow-up depression days increased by 0.290 days per month, significant at 0.01 level, when holding all other variables constant. This translates into an increase of depression days by close to three and half days (3.48) a year. None of the other variables in the model were significant within a 0.10 or lower range of p-values.

Model 2, which predicted depression days at follow-up as a function of lifestyle service intensity and demographic control variables, had an R-square value of 0.167. The statistically significant effect of baseline depression is maintained in this model, with a coefficient indicating an increase of 0.294 days per month at follow-up. This translates to an increase in depression days by three and a half days (3.528) a year.

Model 3 predicted depression days at follow-up as a function of the full array of lifestyles variables. The model indicates that baseline depression levels were the best predictor of subsequent depression levels, with a coefficient indicating an increase of 0.306 days per month, significant at 0.01 level, when holding all other variables constant. This translates into an increase of depression days by close to four days (3.67) a year. None of the other predictor variables, including the different types of lifestyles services, were significant at 0.10 level or lower.

Model 4, which predicted anxiety days at follow-up, as a function of anxiety levels at intake and control variables, had an R-square value of 0.119. The model indicates that baseline anxiety levels were the best predictor of subsequent anxiety levels, with a coefficient of 0.233, significant at 0.01 level, when holding all other variables constant. This translates into an increase of anxiety days by close to three days (2.79) a year. None of the other variables were significant at 0.10 or lower.

Model 5, which predicted anxiety days at follow-up as a function of lifestyles service intensity and had an R-square value of 0.145. This model shows that in addition to baseline anxiety levels, the intensity of service had a significant bearing on anxiety levels. In terms of baseline anxiety levels, clients' anxiety symptoms increased by 0.241 days a month, or close to three days (2.892) a year. For each increase in lifestyles

services provided, the amount of time clients experienced anxiety symptoms were reduced by a little more than one and half days (-1.507) per month or by eighteen days a year, a finding that is statistically significant

Model 6, which predicted anxiety days at follow-up as a function of the full array of lifestyles variables, had an R-square value of 0.172. The model indicates that baseline anxiety levels were the most significant predictor of subsequent anxiety levels, with a coefficient of 0.255 days per month. This translates into an increase of anxiety days by three days (3.06) a year. None of the other predictor variables, including the different types of lifestyles services, were significant at .10 level or lower.

In summary, baseline mental health symptoms were the best predictor of subsequent depression and anxiety levels. Lifestyles service intensity led to a reduction by a day and a half in clients' anxiety symptoms. Lifestyles service intensity did not have a statistically significant impact on clients' depression symptoms. Additionally, none of the individual lifestyle service interventions administered individually produced any statistically significant reductions in clients' mental health symptoms.

Table 23: Lifestyles Linear Regression Results for Mental Health Outcomes						
	Depression Symptoms Model 1	**Depression Symptoms Model 2**	**Depression Symptoms Model 3**	**Anxiety Symptoms Model 4**	**Anxiety Symptoms Model 5**	**Anxiety Symptoms Model 6**
Constant	-2.962 (4.044)	-1.443 (4.195)	-1.063 (4.288)	-.703 (3.772)	1.480 (3.881)	2.542 (3.966)
Baseline Depression	.290*** (.060)	.294*** (.060)	.306*** (.060)			
Baseline Anxiety				.233*** (.057)	.241*** (.057)	.255*** (.059)
Intensive Outpatient			1.860 (3.254)			1.577 (3.074)
Screening			-3.801 (2.417)			-3.339 (2.269)
Brief Treatment			-.061 (2.489)			-1.025 (2.352)
Relapse Prevention			.446 (2.001)			-.120 (1.890)
Substance Abuse Education			-.887 (1.690)			-1.934 (1.598)
Alcohol-Drug-Free Activities			.185 (4.101)			-6.240 (3.846)
Black	1.365 (1.605)	1.513 (1.604)	1.767 (1.614)	1.808 (1.523)	2.042 (1.511)	.145 (1.536)
Male	.614 (1.556)	.243 (1.577)	-.175 (1.638)	1.325 (1.466)	.791 (1.473)	.145 (1.536)
Education	.390 (.275)	.419 (.275)	.414 (.275)	.089 (.258)	.128 (.256)	.119 (.257)
Lifestyle Service Intensity		-1.041 (.790)			-1.507** (.741)	
R-squared	.157	.167	.197	.119	.145	.172
No. of observations	144	144	144	144	144	144

*.10 level **.05 level ***.01 level

Multivariate Results: Impact of Lifestyles Interventions on Clients' Substance Abuse Outcomes

Multivariate analyses were conducted to predict the occurrence of substance abuse challenges experienced by NDHHS SAMHSA clients' after receiving lifestyle service interventions while controlling for gender, race, and educational attainment. Tables 24 and 25 display the distribution of the number days clients' reported using alcohol and illegal drugs during their follow-up assessments. The large percent of clients reporting that they refrained from using alcohol (74 percent) and illegal drugs (82 percent) in the month prior to their follow-up assessment suggests that there may be an over-dispersion in the substance abuse data. Over-dispersion refers to a condition where the variance in the data exceeds the mean. Table 26 reveals that indeed an over-dispersion of NDHHS SAMHSA clients' alcohol and illegal drug use data is present. The over-dispersion of the data violates the OLS assumption that the dependent variable is normally distributed. Rather than OLS regression, two of the more appropriate statistical techniques to analyze count data are Poisson and negative binomial regression models. Though similar in their ability to analyze count data, Poisson and negative binomial regression models differ in their assumptions regarding the conditional mean and variance of the dependent variable. While Poisson models assume that the conditional mean and variance of the dependent variable are equal, negative binomial models do not make such assumptions and corrects for the over-dispersion in the data. Reported in Tables 28 and 29, the likelihood ratio chi-square test of alpha checks for the over-dispersion parameter. The likelihood ratio chi-square test is significant, indicating that the negative binomial model is a more appropriate choice than a Poisson regression model for these data. The chi-square results indicate that the Poisson model is not the

appropriate model for the distribution of the alcohol and illegal drug use data. For comparison purposes, the results from both the less appropriate Poisson model and the more accurate negative binomial model are reported here to illustrate the possible bias in the results. Table 27 shows the equations used to fit the regression models for the analyses of substance abuse outcomes.

Table 24: Number of Days Clients' Reported Using Alcohol at Follow-up Assessment

Number of Days	Frequency	Percent	Cumulative
0	134	74.03	74.03
1	4	2.21	76.24
2	6	3.31	79.56
3	5	2.76	82.32
4	4	2.21	84.53
5	4	2.21	86.74
6	1	.55	87.29
7	2	1.10	88.40
8	4	2.21	90.61
10	2	1.10	91.71
12	1	.55	92.27
19	1	.55	92.82
20	5	2.76	95.58
27	1	.55	96.13
30	7	3.87	96.13
Total	181	100	100

Table 25: Number of Days Clients' Reported Using Illegal Drugs at Follow-up Assessment			
Number of Days	Frequency	Percent	Cumulative
0	150	82.87	82.87
1	6	3.31	86.19
2	3	1.66	87.19
3	1	.55	88.40
4	1	.55	88.95
5	2	1.10	90.06
6	1	.55	90.61
7	2	1.10	91.71
8	1	.55	92.27
10	3	1.66	93.92
11	1	.55	94.48
18	1	.55	95.58
20	2	1.10	96.69
25	1	.55	97.24
27	1	.55	97.79
30	4	2.21	100
Total	181	100	100

Table 26: Dispersion of Mean and Variance of Substance Abuse Data			
Substance Use	Mean	Variance	N
Alcohol Use	2.801	49.671	181
Illegal Drug Use	1.889	35.221	181

	TABLE 27: SUBSTANCE ABUSE REGRESSION EQUATIONS
Model	**Alcohol Use**
1.	Alcohol Use_2= exp(β_0+ β_1*baseline alcohol use + β_{2*}*black+ β_3*male + β_4*education + ε_1)
2.	Alcohol Use_2= exp(β_0+ β_1*baseline alcohol use + β_{2*} lifestyle intensity + β_3*black + β_4*male + β_5*education + ε_1)
3.	Alcohol Use_2= exp(β_0+ β_1*baseline alcohol use + β_{2*}intensive outpatient + β_3*screening + β_4*brief treatment + β_5*relapse prevention + β_6*substance abuse education + β_7*alcohol-drug free activities + β_8*black+ β_9*male+ β_{10}*education +
Model	**Illegal Drug Use**
1.	Illegal Drug Use_2= exp(β_0+ β_1*baseline drug use + β_{2*}*black+ β_3*male + β_4*education + ε_1)
2.	Illegal Drug Use_2= exp(β_0+ β_1*baseline drug use + β_{2*} lifestyle intensity + β_3*black + β_4*male + β_5*education + ε_1)
3.	Illegal Drug Use_2= exp(β_0+ β_1*baseline drug use + β_{2*}intensive outpatient + β_3*screening+ β_4*brief treatment + β_5*relapse prevention + β_6*substance abuse education + β_7*alcohol-drug free activities + β_8*black+ β_9*male+ β_{10}*education + ε_1)

T-test results of the NDHHS SAMHSA clients' alcohol and illegal drug use indicated statistically significant reductions in the number of days of substance use between intake and follow-up measurements. Table 28 displays the coefficient and the percentage change in the expected number of days for alcohol use as a function of lifestyle service interventions, and relevant control variables. The percent change provides an easier way to communicate the independent variables' influence on substance use than the model's coefficients. Model 1, which predicted days of alcohol use at follow-up as a function of alcohol use at intake and control variables, had a log likelihood value of -209.554. The model indicates that between clients' baseline and their follow-up assessments, clients' monthly alcohol use increased by 14 percent, when holding all other variables constant. For each increase in educational attainment, clients' monthly alcohol

use decreased by 16.6 percent, significant at 0.01 level, when holding all other variables constant.

Model 2 predicted alcohol use as a function of lifestyle service intensity and demographic control variables. Similar to model 1, alcohol use reported during the baseline assessment was the most significant predictor of alcohol consumption levels during the follow-up assessment. Between baseline and follow-up assessment, there was a statistically significant increase by a little more than 14 percent in the number of days clients used alcohol per month, when holding all other variables constant. With each increase in clients' education level, there was a statistically significant decrease in their alcohol consumption by 16.4 percent, when holding all other variables constant. None of the other service interventions were significant within a 0.10 and lower range.

Model 3 predicted alcohol use as a function of the full array of lifestyles service variables. Between baseline and follow-up assessments, there was a statistically significant increase by 14.8 percent in the number of days clients used alcohol per month, when holding all other variables constant. The brief treatment service was the only intervention that had a significant relationship with alcohol consumption at the follow-up measurement. Clients receiving the brief treatment service intervention experienced a 210 percent increase in alcohol consumption between their intake assessment and follow-up assessment, a finding that is contrary to expectations. None of the other predictor variables were significant within a 0.10 and lower range.

Table 29 shows the results of the Poisson model for alcohol use. Compared to the negative binomial regression model, the Poisson regression model shows that more of the predictor variables are statistically significant at a .10 level and lower. This is due to the

over-dispersion of the dependent variable, resulting in the standard errors in the Poisson model being biased downward and the t-values being spuriously large. These results

Table 28: Lifestyles Negative Binomial Regression Results for Days of Alcohol Use

	Model 1		Model 2		Model 3	
	Coefficient	% Change	Coefficient	% Change	Coefficient	% Change
Constant	-1.436 (1.279)		1.323 (1.384)		-.125 (1.608)	
Baseline Alcohol Use	.133*** (.032)	14.3*** (223)	.132*** (.032)	14.2*** (220.8)	.138*** (.032)	14.8*** (236.8)
Intensive Outpatient					-.734 (1.116)	-52.0 (-15.5)
Screening					-.961 (.621)	-61.8 (-37.3)
Brief Treatment					1.131* (.671)	210.0* (69.1)
Relapse Prevention					.468 (.672)	59.8 (20.7)
Substance Abuse Education					.122 (.579)	13.0 (6.3)
Alcohol-Drug-Free Activities					.344 (1.336)	41.2 (6.5)
Black	.838 (.574)	131.4 (46.9)	.847 (.575)	133.5 (47.5)	.748 (.580)	111.3 (40.9)
Male	-.101 (.533)	-9.6 (-4.7)	-.096 (.533)	-9.2 (-4.5)	.235 (.556)	26.5 (11.8)
Education	-.181* (.101)	-16.6* (-37.7)	-.179* (.101)	-16.4* (-37.4)	-.101 (.108)	-9.6 (-23.2)
Lifestyle Service Intensity			.057 (.276)	5.9 (5.4)		
ln α	1.875	1.875	1.874	1.874	1.798	1.798
α	6.527	6.527	6.519	6.519	6.041	6.041
Log likelihood	-209.554	-209.554	-209.533	-209.533	-207.706	-207.706
Chi-square	.000	.000	.000	.000	.000	.000
No. observations	145	145	145	145	145	145

*.10 level **.05 level ***.01 level

further confirm that the negative binomial regression model is the more appropriate model for these data.

Table 29: Lifestyles Poisson Regression Results for Days of Alcohol Use						
	Model 1		Model 2		Model 3	
	Coefficient	% Change	Coefficient	% Change	Coefficient	% Change
Constant	.677 (.251)		.600 (.258)		.455 (.267)	
Baseline Alcohol Use	.090*** (.003)	9.4 (121.1)	.090*** (.003)	9.4*** (120.9)	.092*** (.003)	9.7*** (125.2)
Intensive Outpatient					-.746 (.458)	-52.6 (-15.8)
Screening					-.594*** (.186)	-44.8*** (-25.0)
Brief Treatment					1.032*** (.199)	181.3*** (61.6)
Relapse Prevention					-.321** (.131)	-27.5** (-12.1)
Substance Abuse Education					.379*** (.128)	46.1*** (21.0)
Alcohol-Drug-Free Activities					-.060)	-5.9 (-12.5)
Black	.308** (.128)	36.1 (15.2)	.307** (.128)	36.1** (15.2)	.320** (.130)	37.8** 15.8)
Male	-.055 (.101)	-5.4 (-2.6)	.307 (.128)	-5.7 (-2.7)	-.146 (.104)	-13.6 -6.6)
Education	-.056*** (.015)	-5.5 (-13.7)	-.061*** (.015)	-5.9*** (-14.8)	.092*** (.003)	-5.0*** (-12.5)
Lifestyle Service Intensity			.088 (.066)	9.2 (8.5)		
Log likelihood	-517.761	-496.713	-516.869	-324.460	-496.713	-496.713
Pseudo R^2	.352	.378	.353	.502	.378	.378
No. observations	145	145	145	145	145	145

*.10 level **.05 level ***.01 level

Table 30 displays the coefficient and the percentage change in the expected number of days for illegal drug use at follow-up as a function of lifestyle service interventions, and relevant control variables. Model 1, which predicted days of illegal drug use at follow-up and control variables, had a log likelihood value of -149.735. The model indicates that between their baseline assessment and follow-up assessment, clients' monthly illegal drug use increased significantly by 18 percent, when holding all other variables constant. Male clients' illegal drug use increased significantly by close to 220 percent compared to female clients, when holding all other variables constant.

Model 2, predicted illegal drug use at follow-up as a function of use at intake, lifestyle intensity and demographic control variables. The model had a log likelihood value of -148.294. Clients' illegal drug use reported during the baseline assessment was a significant predictor of drug use levels during the follow-up assessment. The model indicates that between their baseline assessment and their follow-up assessment, clients' monthly illegal drug use increased by close to 20 percent, when holding all other variables constant. The most significant finding from this model, however, is the reduction in drug use by 41 percent that is due to the intensity of lifestyles services provided.

Model 3 predicted illegal drug use as a function of the full array of lifestyles variables. The model had a log likelihood value of -145.343. Similar to the previous models, illegal drug use reported during the baseline assessment was the most significant predictor of drug use levels during the follow-up assessment. Between the baseline assessment and follow-up assessment, there was a statistically significant increase in days

of illegal drug use per month by 19.7 percent, when holding all other variables constant. None of the service interventions were significant at 0.10 level or lower.

Table 31 shows the results of the Poisson model for illegal drug use. Similar to the analysis of alcohol use, the over-dispersion of the illegal drug use dependent variable lead to biased standard errors resulting in spuriously large t-values and a large number of predictor variables that were statistically significant. These results are reported here to indicate that the negative binomial regression model is the more appropriate model. In summary, the over-dispersion of the substance abuse data necessitated the use of a regression model specially designed to analyze skewed data, (i.e., the negative binomial model).

The models for clients' substance use indicated that baseline substance use was a significant predictor of subsequent consumption levels during clients' follow-up assessment. For instance, across the three models tested, between their assessments, alcohol use increased by at least 14 percent. Between the assessment periods, illegal drug use increased by at least 18 percent. When testing the full array of lifestyles service interventions, the brief treatment service intervention led to a more than 200 percent increase in days of monthly alcohol consumption, a finding that is counter intuitive. Across two of the three models for alcohol use, for each level of increase in clients' education level there was a decrease by at least 16 percent in alcohol use at follow-up. Model 3, which examined the full array of lifestyles service interventions, failed to show any statistically significant change in clients' alcohol use based on their educational attainment. The only other statistically significant decrease in clients' substance use was for the lifestyle intensity model for illegal drug use. The model indicated that for each

increase in lifestyles service interventions provided, clients' illegal drug use decreased by approximately 41 percent.

Table 30: Lifestyles Negative Binomial Regression Results for Days of Illegal Drug Use						
	Model 1		Model 2		Model 3	
	Coefficient	% Change	Coefficient	% Change	Coefficient	% Change
Constant	-2.300 (1.412)		-1.114 (1.611)		-1.518 (1.732)	
Baseline Illegal Use	.166*** (.036)	18.1*** (292.1)	.178*** (.039)	19.5*** (331.0)	.179*** (.035)	19.7*** (336.0)
Intensive Outpatient					.436 (1.037)	54.8 (10.5)
Screening					-1.243 (1.101)	-71.2 (-45.3)
Brief Treatment					-.529 (1.134)	-41.1 (-21.8)
Relapse Prevention					-.740 (.819)	-52.3 (-25.7)
Substance Abuse Education					-.121 (.708)	-11.4 (-5.9)
Alcohol-Drug-Free Activities					-.529 (1.134)	117.6 (15.3)
Black	.263 (.624)	30.2 (12.9)	.535 (.665)	70.9 (27.8)	.777 (1.413)	43.8 (18.1)
Male	1.161* (.649)	219.6* (73.1)	.806 (.645)	123.9 (46.3)	-.846 (1.710)	179.9 (62.6)
Education	-.046 (.121)	-4.5 (-11.4)	-.068 (.123)	-6.6 (-16.4)	.179 (4.116)	-6.5 (-16.1)
Lifestyle Service Intensity			-.526* (.314)	-40.9* (-38.4)		
ln α	2.003	2.003	1.948	1.948	1.821	1.821
α	7.415	7.415	7.017	7.017	6.180	6.180
Log likelihood	-149.735	-149.735	-148.294	-148.294	-145.343	-145.343
Chi-square	.000	.000	.000	.000	.000	.000
No. observations	145	145	145	145	145	145

*.10 level **.05 level ***.01 level

Table 31: Lifestyles Poisson Regression Results for Days of Illegal Drug Use						
	Model 1		Model 2		Model 3	
	Coefficient	% Change	Coefficient	% Change	Coefficient	% Change
Constant	-.374 (.326)		-.341 (.334)		-.470 (.355)	
Baseline Illegal Drug Use	.119*** (.005)	12.6*** (165.3)	.119*** (.005)	12.7*** (166.2)	.130*** (.006)	13.9*** (190.5)
Intensive Outpatient					1.317*** (.240)	273.4*** (35.2)
Screening					-1.133*** (.319)	-67.8*** (-42.3)
Brief Treatment					-.603* (.337)	82.9* (32.3)
Relapse Prevention					-.508*** (.192)	-39.9*** (-18.5)
Substance Abuse Education					-.062 (.183)	-6.0 (-3.1)
Alcohol-Drug-Free Activities					.219 (.473)	24.6 (4.1)
Black	.104 (.135)	11.1 (4.9)	.237** (.141)	26.8* (11.5)	.336** (.142)	40.0** (16.7)
Male	.264** (.139)	30.2** (13.3)	.279** (.141)	32.2** (14.1)	.136 (.153)	14.7 (6.7)
Education	-.058*** (.020)	-5.6*** (-14.1)	-.043** (.021)	-4.3** (-10.8)	-.045** (.022)	-4.4** (-11.2)
Lifestyle Service Intensity			-.236*** (.064)	-21.1*** (19.6)		
Log likelihood	-331.111	-331.111	-324.460	-324.460	-301.360	-301.360
Pseudo R^2	.492	.492	.502	.502	.538	.538
No. observations	145	145	145	145	145	145

*.10 level **.05 level ***.01 level

Impact of Lifestyles Interventions on Clients' Living Arrangement Outcomes

Next, multivariate analyses were conducted to examine clients' housing outcomes after receiving lifestyle service interventions, controlling for gender, race, and educational attainment. Table 31 displays the distribution of dependent variable for living arrangement on 171 clients, with a binary outcome of 'Housed' or 'Shelter/Outdoors'. It is worth restating here that the 'Housed' category included clients who were precariously housed, or individuals living with others where their continued occupancy was contingent upon the hospitality of the individuals they were living with, and could be rescinded at any time without notice. The variable specifies clients' living arrangement in the month prior to their follow-up assessment. The 'Housed' category reveals that close to 64 percent of clients resided in a home for the month prior to their follow-up assessment. Because of the binary nature of the dependent variable the analysis for the living arrangement outcomes will be conducted with a logistic regression model. Table 33 shows the three equations used to fit the regression model.

Table 32: Clients' Living Arrangement

Type of Living Arrangement	Frequency	Percent
Housed	109	63.74
Shelter/Outdoors	62	36.26
Total	171	100

Model	TABLE 33: LIVING ARRANGEMENT LOGISTIC REGRESSION EQUATION
1.	$p(\text{Housed}) = \dfrac{exp(a+b_1*\text{living arrangement}_1 + b_2*\text{black} + b_3*\text{male} + b_4*\text{education})}{1+exp(a+b_1\ \text{living arrangement} + b_2*\text{black} + b_3*\text{male} + b_4*\text{education}}$
2.	$p(\text{Housed}) = \dfrac{exp(a+b_1\ \text{living arrangement}_1 + b_2*\text{black} + b_3*\text{male} + b_4*\text{education} + b_5*\text{lifestyles intensity})}{1+exp(a+b_1\ \text{living arrangement}_1 + b_2\ \text{black} + b_3\ \text{male} + b_4*\text{education} + b_5*\text{lifestyles intensity})}$
3.	$p(\text{Housed}) = \dfrac{exp(a+b_1*\text{living arrangement}_1 + b_2*\text{intensive outpatient} + b_3*\text{screening} + b_4*\text{brief treatment} + b_5*\text{relapse prevention} + b_6*\text{substance abuse education} + b_7*\text{alcohol-drug-free activities} + b_8*\text{black} + b_9*\text{male} + b_{10}*\text{education} + \varepsilon_1)}{1+exp(a+b_1*\text{living arrangement}_1 + b_2*\text{intensive outpatient} + b_3*\text{screening} + b_4*\text{brief treatment} + b_5*\text{relapse prevention} + b_6*\text{substance abuse education} + b_7*\text{alcohol-drug-free activities} + b_8*\text{black} + b_9*\text{male} + b_{10}*\text{education} + \varepsilon_1)}$

Previously reported (Table 13) t-test results for NDHHS SAMHSA clients' living arrangements indicated statistically significant reductions in the number of clients who were homeless (living in shelter/outdoors) from 85 during the initial assessment down to 62 during their follow-up assessment. Table 34 displays the coefficient and the odds ratio results for the outcome of housing status as a function of lifestyle service interventions, and relevant control variables. Model 1, which predicted housing status at follow-up as a function of status at intake and control variables, had a log likelihood value of -58.035. The model indicated that clients' baseline housing status is a strong indicator of their follow-up housing status. The odds of housing at follow up for clients who were housed during their baseline assessment were 33 times higher, when holding all other variables constant, finding that is statistically significant.

Model 2 examined clients' living arrangement outcomes as a function of lifestyle service intensity, demographic control variables, and housing status at intake. The model had a log likelihood value of -57.347. Similar to model 1, housing status reported during the baseline assessment was the most significant predictor of clients' housing status during their follow-up assessment. Clients who were housed at their baseline assessment had close to 35 times higher odds to have maintained their housing during their follow-up assessment, a finding that is statistically significant.

Model 3 examined clients' living arrangement as a function the full array of lifestyles service variables. The model had a log likelihood value of -54.556. Again, the model indicated that clients' baseline housing status is a strong indicator of their follow-up housing status. Clients who were housed at their baseline assessment had 43 times higher odds of housing at follow-up, a result that is statistically significant. Additionally, clients who received brief treatment service intervention had close to 5 times higher odds of being housed during their follow-up assessment. None of the other predictor variables were statistically significant at a 0.10 level or lower.

In summary, other than brief-treatment lifestyle services, none of the lifestyle service interventions or the intensity of lifestyle services led to an improvement of clients' housing status at follow-up. For clients who received the brief treatment service intervention the odds of housing were close to 5 times higher. Additionally, across the three models tested, clients who reported being housed during their intake assessment had between a 33 and 43 times higher odds of having remained housed at their follow-up assessment.

Table 34: Lifestyle Logistic Regression Results for Clients' Living Arrangements						
	Model 1		Model 2		Model 2	
	Coefficient	Odds Ratio	Coefficient	Odds Ratio	Coefficient	Odds Ratio
Constant	.888 (1.237)		.316 (1.343)		.779 (1.499)	
Housed	3.519*** (.685)	33.777*** (23.163)	3.554*** (.693)	34.958*** (24.238)	3.762*** (.756)	43.036*** (32.538)
Intensive Outpatient					1.433 (1.050)	4.194 (4.404)
Screening					-.473 (.832)	.622 (.518)
Brief Treatment					1.573* (.901)	4.824* (4.349)
Relapse Prevention					-.207 (.647)	.813 (.526)
Substance Abuse Education					.115 (.574)	1.122 (.644)
Alcohol-Drug-Free Activities					1.024 (1.113)	2.786 (3.102)
Black	-.709 (.497)	.496 (.244)	-.731 (.501)	.481 (.241)	-.733 (.523)	.480 (.251)
Male	.333 (.605)	1.396 (.845)	.452 (.622)	1.571 (.979)	.288 (.691)	1.333 (.922)
Education	-.109 (.096)	.896 (.086)	-.112 (.098)	.893 (.087)	-.135 (.109)	.872 (.095)
Lifestyle Service Intensity			.311 (.268)	1.365 (.366)		
Log likelihood	-58.035	-58.035	-57.347	-57.347	-54.556	-54.556
Pseudo R^2	.338	.338	.345	.345	.377	.377
No. observations	136	136	136	136	136	136

*.10 level **.05 level ***.01 level

Impact of Lifestyles Interventions on Clients' Employment Outcomes

Table 35 displays employment status of the 177 clients at follow-up. This dependent variable is nominal, with the possible outcomes of: 1) Working full- or part-time; 2) Unemployed and looking for work; 3) Unemployed, disabled or retired; and 4) Unemployed and not looking for work. Table 35 reveals that a little more than 43 percent of clients were unemployed and looking for work during their follow-up assessment. Because of the categorical nature of the dependent variable, the analysis of employment outcome will use a multinomial logistic regression model. To ensure that the employment dependent variable does not violate the Independence of Irrelevant Alternatives (IIA) Assumption of multinomial logistic regression that membership in one category is independent of membership in another category, a Hausman test was performed. Table 36 shows the results of the Hausman test, indicating that the assumption of independence was not violated. Table 37 shows the three multinomial regression equations.

Table 35: Clients' Employment Outcomes

Employment Status	Frequency	Percent
Working full or part time	20	11.30
Unemployed, looking for work	77	43.50
Unemployed, disabled or retired	26	11.69
Unemployed, not looking for work	54	30.51
Total	177	100

Table 36: Hausman Test of Independence		
Employment Status	Chi2	P>chi2
Working full or part time	0.279	1.000
Unemployed, looking for work	0.300	1.000
Unemployed, disabled or retired	1.008	1.000
Unemployed, not looking for work	2.164	0.999
Ho: Odds Outcomes are independent of other alternatives		

Model	TABLE 37: EMPLOYMENT STATUS REGRESSION EQUATIONS
1.	$\ln \frac{Pr(Employment=1)}{Pr\ (Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{black} + \beta_3 * \text{male} + \beta_4 * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=2)}{Pr\ (Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{black} + \beta_3 * \text{male} + \beta_4 * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=3)}{Pr\ (Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{black} + \beta_3 * \text{male} + \beta_4 * \text{education} + \varepsilon_1$
2.	$\ln \frac{Pr(Employment=1)}{Pr\ (Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{ lifestyle intensity } \beta_2 * + \text{black} + \beta_4 * \text{male} + \beta_5 * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=2)}{Pr\ (Employment=K)} = \beta_0 + \beta_1 * \text{ Employment Status}_1 + \beta_2 * \text{ lifestyle intensity } \beta_2 * \text{black} + \beta_4 * \text{male} + \beta_5 * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=3)}{Pr\ (Employment=K)} = \beta_0 + \beta_1 * \text{ Employment Status}_1 + \beta_2 * \text{ lifestyle intensity } \beta_2 * \text{black} + \beta_4 * \text{male} + \beta_5 * \text{education} + \varepsilon_1$
3.	$\ln \frac{Pr(Employment=1)}{Pr\ (Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{intensive outpatient} + \beta_3 * \text{screening} + \beta_4 * \text{brief treatment} + \beta_5 * \text{relapse prevention} + \beta_6 * \text{substance abuse education} + \beta_7 * \text{alcohol-drug free activities} + \beta_8 * \text{black} + \beta_9 * \text{male} + \beta_{10} * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=2)}{Pr\ (Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{intensive outpatient} + \beta_3 * \text{screening} + \beta_4 * \text{brief treatment} + \beta_5 * \text{relapse Prevention} + \beta_6 * \text{substance abuse education} + \beta_7 * \text{alcohol-drug free activities} + \beta_8 * \text{black} + \beta_9 * \text{male} + \beta_{10} * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=3)}{Pr\ (Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{intensive outpatient} + \beta_3 * \text{screening} + \beta_4 * \text{brief treatment} + \beta_5 * \text{relapse prevention} + \beta_6 * \text{substance abuse education} + \beta_7 * \text{alcohol-drug free activities} + \beta_8 * \text{black} + \beta_9 * \text{male} + \beta_{10} * \text{education} + \varepsilon_1$

Tables 38a – 38c show clients' employment outcomes at follow up as a function of employment status at intake, lifestyle service interventions, and demographic control variables. In these models, employment status at intake is dichotomized with a '1' indicating full or part-time employment and a '0' indicating all other employment status. Unemployed and looking for work is the reference category (category K) for the regression models. Both the coefficients and the relative risk ratio (RRR), or the exponentiated of the coefficient, are reported in Tables 38a-38c. The relative risk ratio provides an easier way to communicate the independent variables' influence on employment outcomes than the model's coefficients. The RRR indicates the relative risk (or roughly speaking, the odds) of an outcome in comparison to the referent group. "An RRR > 1 indicates that the risk of the outcome falling in the comparison group relative to the risk of the outcome falling in the referent group increases as the variable increases. In other words, the comparison outcome is more likely. An RRR < 1 indicates that the risk of the outcome falling in the comparison group relative to the risk of the outcome falling in the referent group decreases as the variable increases" (Bruin 2006). Only statistically significant findings are discussed, and the results reported are contingent upon holding all other variables in the models constant.

Table 38a predicted clients' employment status at follow-up as a function of employment status at intake and control variables. The model had a log likelihood value of -158.110 and indicated that clients who were employed during their intake assessment had a 9.405 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work.

Table 38b predicted clients' employment status at follow-up as a function of lifestyle service intensity and demographic control variables. The model had a log likelihood value of -158.110. Clients who were employed at intake had a 13.160 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work. Relative to females, male clients had a 2.632 times higher odds of being unemployed and looking for work at their follow-up assessment compared to being unemployed and not looking for work. Lastly, for each increase in lifestyles service interventions, clients had a 2.480 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work. For each increase in lifestyles service interventions, clients had a 1.662 times higher odds of being unemployed and looking for work compared to being unemployed and not looking for work.

Table 38c predicted clients' employment status at follow-up as function of the full array of lifestyles variables, had a log likelihood value of -141.132. Clients who were employed at intake had a 12.474 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work. Clients receiving intensive outpatient services had a 35.679 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work. Clients who received intensive outpatient services had a 9.751 times higher odds of being unemployed and disabled or retired compared to being unemployed and not looking for work. Clients receiving relapse prevention and alcohol-drug-free activities had a 3.474 and 9.394 times higher odds respectively, of being unemployed and looking for work compared to being unemployed and not looking for work. Lastly, for each increase in

educational attainment, clients had a 0.918 times higher odds of being unemployed and looking for work compared to being unemployed and not looking for work.

In summary, across the three models tested, clients who were employed at intake had higher odds of reporting that they remained employed at their follow-up assessment compared to being unemployed and not looking for work. With each increase in lifestyles service interventions, clients had a 2.480 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work. Clients receiving the intensive outpatient services experienced the largest improvement in employment outcomes. The intensive outpatient services led to a 35.679 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work.

Table 38a: Multinomial Odds Ratio for Lifestyles Interventions on Clients' Employment Status, Reference Category is Unemployed, Looking for Work

	Working (full or part-time) vs. Unemployed and not looking for work		Unemployed, disabled or retired vs. Unemployed and not looking for work		Unemployed and looking for work vs. Unemployed and not looking for work	
	Coefficient	RRR	Coefficient	RRR	RRR	Coefficient
Constant	-4.040 (1.861)		-.197 (1.394)		-.706 (1.106)	
Employed	2.241*** (.859)	9.405*** (8.088)	.858 (.409)	2.359 (2.348)	-.192 (.955)	.824 (.788)
Intensive Outpatient						
Screening						
Brief Treatment						
Relapse Prevention						
Substance Abuse Education						
Alcohol-Drug-Free Activities						
Black	-.412 (.700)	.662 (.464)	.409 (.650)	1.506 (.980)	.267 (.463)	1.306 (.605)
Male	.651 (.701)	1.918 (1.346)	.312 (.608)	1.367 (.832)	.728 (.463)	2.072 (.904)
Education	.115 (.124)	1.112 (.140)	-.161 (.099)	.851 (.085)	-.070 (.080)	.931 (.074)
Lifestyle Service Intensity						
Log likelihood	-158.110	-158.110	-158.110	-158.110	-158.110	-158.110
Pseudo R^2	.062	.062	.062	.062	.062	.062
No. observations	140	140	140	140	140	140

*.10 level **.05 level ***.01 level

Table 38b: Multinomial Odds Ratio for Lifestyles Interventions on Clients' Employment Status, Reference Category is Unemployed, Looking for Work

	Working (full or part-time) vs. Unemployed and not looking for work		Unemployed, disabled or retired vs. Unemployed and not looking for work		Unemployed and looking for work vs. Unemployed and not looking for work	
	Coefficient	RRR	Coefficient	RRR	Coefficient	RRR
Constant	-5.371 (2.082)		.926 (.998)		-1.597 (1.202)	
Employed	2.577*** (.934)	13.160*** (12.300)	.183 (.316)	2.525 (2.522)	-.035 (.971)	.965 (.937)
Intensive Outpatient						
Screening						
Brief Treatment						
Relapse Prevention						
Substance Abuse Education						
Alcohol-Drug-Free Activities						
Black	-.536 (.729)	2.480 (.959)	.407 (.656)	1.502 (.986)	.182 (.472)	1.662 (.386)
Male	.982 (.742)	2.669 (1.982)	.406 (.624)	1.502 (.986)	.967** (.461)	2.632** (1.215)
Education	.073 (.134)	1.076 (.144)	-.164 (.100)	.848 (.085)	-.080 (.081)	.922 (.075)
Lifestyle Service Intensity	.908** (.387)	2.480** (.959)	.183 (.316)	1.201 (.379)	.508** (.232)	1.662** (.386)
Log likelihood	-153.724	-153.724	-153.724	-153.724	-153.724	-153.724
Pseudo R^2	.088	.088	.088	.088	.088	.088
No. observations	140	140	140	140	140	140

*.10 level **.05 level ***.01 level

Table 38c: Multinomial Odds Ratio for Lifestyles Interventions on Clients' Employment Status, Reference Category is Unemployed, Looking for Work

	Working (full or part-time) vs. Unemployed and not looking for work		Unemployed, disabled or retired vs. Unemployed and not looking for work		Unemployed and looking for work vs. Unemployed and not looking for work	
	Coefficient	RRR	Coefficient	RRR	Coefficient	RRR
Constant						
Employed	2.523** (1.177)	12.474** (14.694)	.824 (1.008)	2.281 (2.300)	-.084 (.968)	.919 (.890)
Intensive Outpatient	3.574** (1.781)	35.679** (63.574)	2.277* (1.322)	9.751* (12.899)	1.451 (1.186)	4.268 (5.066)
Screening	2.055 (1.274)	7.810 (9.995)	-1.007 (1.051)	.365 (.384)	-1.048 (.847)	.350 (.297)
Brief Treatment	.928 (1.052)	2.529 (2.663)	1.497 (1.069)	4.470 (4.780)	1.770 (.868)	5.871 (5.101)
Relapse Prevention	.299 (1.358)	1.349 (1.833)	.619 (.851)	1.857 (1.581)	1.245** (.563)	3.474** (1.957)
Substance Abuse Education	-.623 (.962)	.536 (.516)	-.761 (.673)	.466 (.314)	-.003 (.495)	.997 (.496)
Alcohol-Drug-Free Activities	-11.573 (1169.159)	9.410 (.011)	1.430 (1.583)	4.181 (6.623)	2.240** (1.237)	9.394** (11.628)
Black	-.545 (.807)	.579 (.468)	.549 (.696)	1.733 (1.207)	.307 (.495)	1.360 (.674)
Male	.856 (.896)	2.353 (.468)	.437 (.671)	1.548 (1.040)	.979 (.498)	1.360 (.674)
Education	.155 (.161)	1.165 (.188)	-.173 (.102)	.840 (.086)	-.084* (.082)	.918* (.075)
Lifestyle Service Intensity						
Log likelihood	-141.132	-141.132	-141.132	-141.132	-141.132	-141.132
Pseudo R^2	.163	.163	.163	.163	.163	.163
No. observations	140	140	140	140	140	140

*.10 level **.05 level ***.01 level

Impact of Lifestyle Service Interventions on Clients' Criminal Justice Involvement

Table 39 displays the number and frequency of the days clients' reported committing a new crime in the month prior to their follow-up assessment. The vast majority of clients (82 percent) reported that they did not commit any new crimes in the month prior to their follow-up assessment. As previously observed with the substance abuse dependent variable, the distribution of the crime variable indicates that the data are strongly skewed to the right. Table 40 reveals that the variance of new crimes committed is nearly 25 times larger than the mean, verifying that over-dispersion is present. As discussed earlier during the analysis of the substance abuse data, negative binomial regression is the more appropriate model to analyze over-dispersed data. Like with the substance abuse data (and reported in Table 42), the likelihood-ratio chi-square test of alpha for the negative binomial models of crime data is significant at a 0.01 level. This verifies that the negative binomial model is a more appropriate choice than a Poisson regression model. Although the Poisson model is not an appropriate model for the distribution of the criminal justice data for this study, the results of the Poisson model are reported here for comparison purposes to illustrate the bias in results. Table 41 shows the equations used to fit the regression models for the analyses criminal justice outcomes.

Table 39: Number of Days Clients' Reported Committing Crimes Subsequent to Receiving Lifestyle Service Interventions			
Number of Days	Frequency	Percent	Cumulative
0	149	82.32	82.32
1	4	2.21	84.53
2	3	1.66	86.19
3	2	1.10	87.29
4	2	1.10	88.40
5	3	1.66	90.06
6	1	.55	90.61
7	2	1.10	91.71
8	1	.55	92.27
10	3	1.66	93.92
11	1	.55	94.48
14	1	.55	95.03
18	1	.55	95.58
20	2	1.10	96.69
25	1	.55	97.24
27	1	.55	97.79
30	4	2.21	100
Total	181	100	100

Table 40: Dispersion of Mean and Variance of Crime Data			
	Mean	Variance	N
Committing New Crime	2.110	49.598	181

TABLE 41: CRIMINAL JUSTICE REGRESSION EQUATIONS	
1.	New $Crimes_2$= exp(β_0+ β_1*baseline crimes + β_{2*}*black + β_3*male + β_4*education + ε_1)
2.	New $Crimes_2$= exp(β_0+ β_1*baseline crimes+ β_2* lifestyle intensity + β_3*black + β_4*male + β_5*education + ε_1)
3.	New $Crimes_2$= exp(β_0+ β_1*baseline crimes + β_2*intensive outpatient + β_3*screening + β_4*brief treatment + β_5*relapse prevention + β_6*substance abuse education + β_7*alcohol-drug free activities + β_8*black + β_9*male + β_{10}*education + ε_1)

Table 42 displays the negative binomial coefficient and the percentage change in the number of crimes committed by clients during the previous month as a function of crimes at intake, lifestyle service interventions, and relevant control variables. Model 1, which predicted number of crimes committed at follow-up determined by crimes at intake, and control variables, had a log likelihood value of -157.996. The model indicates that between their baseline and follow-up assessments, clients' criminal activity increased significantly by 18 percent, when holding all other variables constant. For each year increase in educational attainment, there was a statistically significant decrease in intake criminal activity of 5.9 percent.

Model 2 shows criminal justice outcomes as a function of previous crimes, lifestyle intensity and demographic control variables. Similar to model 1, criminal justice activity reported during the baseline assessment was a significant predictor of criminal justice activity during the follow-up assessment. Between their baseline and follow-up assessments, there was a statistically significant increase of approximately 20 percent in the number of new crimes clients committed, after holding all other variables constant. More importantly, each increase in lifestyle service interventions provided led to a statistically significant decrease (of 47 percent) in the number of crimes clients committed, when holding all other variables constant.

Model 3 examined clients' criminal justice outcomes as a function of previous crimes, the full array of lifestyles variables, and control variables. The model had a log likelihood value of -152.588. Similar to previously reported results, the model indicated that between the baseline and follow-up assessments, clients' criminal activity increased

by close to 20 percent, when holding all other variables constant. None of the lifestyles service interventions, however, had a significant effect on crimes at the follow-up.

Table 43 shows the results of the Poisson model for criminal activity. Similar to the previously reported Poisson model for substance use, the over-dispersion of the crime dependent variable lead to biased standard errors resulting in spuriously large t-values and a large number of predictor variables that were statistical significant. These results provide further confirmation that the negative binomial regression model is a more appropriate model.

In summary, results from the three models examining criminal activity show that clients' criminal activity increased by 18 percent or more between the assessment periods. For model 1, with each year increase in educational attainment, there was a decrease in intake criminal activity by 5.9 percent. However, the increases in aggregate of lifestyles service intervention deceased clients' criminal activity by 47 percent.

Table 42: Lifestyles Negative Binomial Regression Results for New Crimes Committed						
	Model 1		Model 2		Model 3	
	Coefficient	% Change	Coefficient	% Change	Coefficient	% Change
Constant	-1.833 (1.348)		-.564 (1.524)		-1.100 (1.680)	
Baseline Crimes Committed	.165*** (.036)	18.0*** (286.6)	.177*** (.039)	19.5*** (328.8)	.180*** (.034)	19.8*** (33.6)
Intensive Outpatient					.298 (1.028)	34.8 (7.1)
Screening					-1.338 (1.083)	-73.8 (-47.8)
Brief Treatment					-.614 (1.119)	-45.9 (-24.8)
Relapse Prevention					-1.132 (.778)	-67.8 (-36.5)
Substance Abuse Education					.045 (.701)	4.7 (2.3)
Alcohol-Drug-Free Activities					.458 (1.391)	58.2 (8.8)
Black	.540 (.637)	71.6 (28.1)	.808 (.649)	124.4 (44.8)	.726 (.674)	106.8 (39.5)
Male	.888 (.636)	143.0 (52.1)	.531 (.616)	70.1 (28.5)	.743 (.713)	110.4 (42.1)
Education	-.060*** (.114)	-5.9*** (-14.6)	-.080 (.116)	-7.7 (-18.9)	-.080 (.115)	-7.7 (-18.9)
Lifestyle Service Intensity			-.632* (.310)	-46.9* (-44.2)		
ln α	2.014	2.014	1.930	1.930	1.793	1.793
α	7.497	7.497	6.893	6.893	6.000	6.000
Log likelihood	-157.996	-157.996	-155.879	-155.879	-152.588	-152.588
Chi-square	.000	.000	.000	.000	.000	.000
No. observations	145	145	145	145	145	145

*.10 level **.05 level ***.01 level

Table 43: Lifestyles Poisson Regression Results for New Crimes Committed						
	Model 1		Model 2		Model 3	
	Coefficient	% Change	Coefficient	% Change	Coefficient	% Change
Constant	.340 (.302)				.261 (.335)	
Baseline Crimes Committed	.120*** (.004)	12.8*** (168.7)	.120*** (.004)	12.8*** (167.9)	.131*** (.006)	14.0*** (193.3)
Intensive Outpatient					1.318*** (.239)	274.0*** (35.3)
Screening					-1.179*** (.317)	-69.3*** (27.2)
Brief Treatment					.519 (.333)	68.0 (27.2)
Relapse Prevention					-.680*** (.186)	-49.4*** (-23.9)
Substance Abuse Education					-.074 (.172)	-7.2 (-3.7)
Alcohol-Drug-Free Activities					.015 (.472)	1.5 (.3)
Black	-.077 (.122)	-7.5 (-3.5)	.111 (.128)	11.8 (5.2)	.194 (.129)	21.4 (9.3)
Male	.150 (.137)	16.3 (7.4)	.170 (.140)	18.6 (8.4)	.011 (.153)	1.2 (.6)
Education	-.090*** (.018)	-8.7*** (-21.1)	-.071*** (.019)	-6.9*** (-17.1)	-.073*** (.019)	-7.1*** (-17.4)
Lifestyle Service Intensity			-.320*** (.060)	18.6*** (8.4)		
Log likelihood	-357.544	-357.544	-343.743	-343.743	-152.588	-152.588
Pseudo R^2	.520	.520	.539	.539	.114	.114
No. observations	145	145	145	145	145	145

*.10 level **.05 level ***.01 level

Multivariate Results: Impact of Life-chances Interventions on Clients' Mental Health Outcomes

Multivariate analyses were conducted to predict the occurrence of mental health challenges among NDHHS SAMHSA clients' after receiving life-chances service interventions while controlling for gender, race, and educational attainment.

Similar to the analyses of the lifestyles predictor variables, the Pearson correlation test and the multivariate collinearity diagnostics test were conducted for the life-chances predictor variables. To rule out multicollinearity among the life-chances predictor variables, the Pearson correlation test was conducted. The Pearson correlation test was used to ensure that none of the pairwise correlations among the predictor variables in this analysis were at or above 0.8. The multivariate collinearity diagnostics test was used to ensure that none of the predictor variables had a variance inflation factor above 10. A variance inflation factor greater than 10 is an indication that the variable represents a linear combination of two or more variables. As mentioned earlier, additional indictors of multicollinearity include condition index values greater than 30 or a tolerance value less than 0.1. Tables 44 and 45 show the results of the Pearson correlation and the collinearity diagnostics tests. The results reported in the tables confirm that multicollinearity of the predictor variables for the lifestyles analysis is not an issue. The results show that none of the pairwise correlations among the predictor variables are at or above 0.8. The highest correlation is between male and black control variables at 0.178. The highest variance inflation factor is 1.08 for self-help and support group intervention, well below the rule of

thumb threshold of 10. The lowest tolerance value is 0.9294 for self-help and support group intervention, well above the 0.1 rule of thumb threshold.

Table 44: Bivariate Collinearity Test

	Treatment Referral	Treatment /Recovery Planning	Continuing Care	Peer to Peer coaching	Self-help and Support Group	Black	Education	Male
Treatment Referral	1.00							
Treatment/ Recovery Planning	-0.013	1.00						
Continuing Care	.024	.052	1.00					
Peer to Peer coaching	.061	.048	.081	1.00				
Self-help and Support Group	-.131	-.197	-.112	-.088	1.00			
Black	.054	.068	.021	.115	.050	1.00		
Education	-.012	-.012	-.108	-.031	.152	-.024	1.00	
Male	.042	-.112	-.033	-.067	.138	.178	-.024	1.00

Table 45: Multivariate Collinearity Test					
Variable	VIF	Tolerance	R-Square	Eigenvalue	Condition Index
Treatment Referral	1.02	.9783	.0217	3.1082	1.0000
Treatment/Recovery Planning	1.04	.9576	.0424	.9857	1.7757
Continuing Care	1.02	.9813	.0187	.7988	1.9726
Peer to Peer coaching	1.02	.9835	.0165	.6439	2.1970
Self-help and Support Group	1.08	.9294	.0706	.4210	2.7170

Similar to the lifestyles analysis, the life-chances multivariate analyses used three models. For each life-chances analysis, the first model tests levels of mental health outcomes at follow-up assessment as a function of depression and anxiety levels at intake, controlling for gender, race and educational attainment. This model examines change in outcomes overtime from intake to final measurement. The second and third models build upon the first, by testing for the effect of the intensity of life-chances services, and by adding the full array of life-chances treatment services, respectively. Only statistically significant findings for each of the models are discussed, and the results reported are contingent upon holding all other variables in the model constant. Table 46 shows the OLS equations used for the analyses of mental health outcomes.

	Table 46: MENTAL HEALTH REGRESSION EQUATIONS
Model	**Mental Health Outcome - Depression**
1.	$Depression_2 = \beta_0 + \beta_1$*baseline depression + β_{2*}*black + β_3*male + β_4*education + $\varepsilon_{1.}$
2.	$Depression_2 = \beta_0 + \beta_1$* baseline depression + β_{2*} life-chances intensity + β_3*black+ β_4*male+ β_5*education + $\varepsilon_{1.}$
3.	$Depression_2 = \beta_0 + \beta_1$* baseline depression + β_{2*}treatment referral + β_3*treatment/recovery planning + β_4*continuing care+ β_5*peer to peer coaching + β_6*self-help and support group + β_7*black+ β_8*male + β_9*education + ε_1
Model	**Mental Health Outcome - Anxiety**
1.	$Anxiety_2 = \beta_0 + \beta_1$*baseline anxiety+ β_{2*}*black+ β_3*male + β_4*education + $\varepsilon_{1.}$
2.	$Anxiety_2 = \beta_0 + \beta_1$* baseline anxiety + β_2^*life-chances intensity + β_3*black+ β_4*male+ β_5*education + $\varepsilon_{1.}$
3.	$Anxiety_2 = \beta_0 + \beta_1$* baseline anxiety + β_{2*}treatment referral + β_3*treatment/recovery planning+ β_4*continuing care+ β_5*peer to peer coaching + β_6*self-help and support group + β_7*black+ β_8*male+ β_9*education + ε_1

Table 47 (columns 1-3) display results for depression symptoms at follow-up with relevant control variables. Model 1, which predicted depression days at follow-up, as a function of depression at intake and control variables, had an R-square value of 0.157. The model indicates that baseline depression levels were the best predictor of subsequent depression levels. Between the initial and follow-up measures, clients' depression days increased by 0.290 days per month, significant at 0.01 level, when holding all other variables constant. This translates into an increase of depression days by close to three and half days (3.48) a year. None of the other variables in the model were significant within a 0.10 or lower range of p-values.

Model 2, which predicted depression days at follow-up as a function of life-chances service intensity and demographic control variables had an R-square value of 0.169. The statistically significant effect of baseline depression is maintained in this model, with a coefficient indicating an increase by less than half a day (.304) a month. This translates to an increase in depression days by close to four days a year.

Model 3 predicted depression days at follow-up as a function of the full array of life-chances variables. Baseline depression days increased by 0.316 days per month, significant at 0.01 level. This translates into an increase in depression symptoms by close to four days (3.79) a year. Clients receiving treatment recovery planning services, however, experienced a reduction in depression symptoms by close to four days (-3.736) a month, significant at 0.05 level. This translates into a reduction of depression symptoms by approximately one and a half months (44.76 days) a year.

Models 4–6 display anxiety mental health symptoms as a function of life-chances service interventions. Model 4, which predicted anxiety days at follow-up, as a function of anxiety levels at intake and control variables, had an R-square value of 0.119. The model indicates that baseline anxiety levels were the best predictor of subsequent anxiety levels, with a coefficient of 0.233, significant at 0.01 level. This translates into an increase of anxiety days by close to three days (2.79) a year. None of the other variables were significant within a 0.10 or lower.

Model 5, which predicted anxiety days at follow-up as a function of lifestyles service intensity and had an R-square value of 0.146. Between baseline and follow-up assessments, clients anxiety symptoms increased by less than half a day (0.241) a month or just under three days (2.892) a year. With each increase in life-chances service

interventions, clients' anxiety symptoms decreased by close to two days (1.870) a month or twenty-two days (22.44) a year. This finding was significant at 0.05 level, when holding all other variables constant.

Model 6, which predicted anxiety days at follow-up as a function of the full array of lifestyles variables, had an R-square value of 0.178. Between baseline and follow-up assessment measures, client anxiety symptoms increased slightly by less than half a day (0.270) a month or three days (3.24) a year. The treatment recovery planning intervention remained the most effective MH service intervention, reducing clients' intake anxiety symptoms by more than three days (3.123) a month or a more than one full month (37.476 days) year. None of the other predictor variables were significant at 0.10 level or lower.

In summary, baseline mental health symptoms were the best predictor of subsequent depression and anxiety levels. Across the three models, between baseline and follow-up assessments, clients' depression symptoms increased by over three days a year and anxiety symptoms increased by over two and half days a year. However, the intensity of life-chances services led to a decrease in clients' anxiety symptoms by close to two days a month (1.870) or by nearly twenty-two days (21.6) a year. Additionally, clients receiving the treatment recovery planning service intervention experienced a reduction in intake depression and anxiety symptoms by more than three days a month or more than thirty days a year.

Table 47: Life-chances Linear Regression Results for Mental Health Outcomes						
	Depression Symptoms Model 1	**Depression Symptoms Model 2**	**Depression Symptoms Model 3**	**Anxiety Symptoms Model 4**	**Anxiety Symptoms Model 5**	**Anxiety Symptoms Model 6**
Constant	-2.962 (4.044)	-.509 (4.264)	-.450 (5.203)	-.703 (3.772)	2.765 (4.080)	5.031 (4.827)
Baseline Depression	.290*** (.060)	.304*** (.060)	.316*** (.060)			
Baseline Anxiety				.233*** (.057)	.241*** (.057)	.270*** (.058)
Treatment Referral			-1.456 (3.158)			-4.289 (2.965)
Treatment/ Recovery Planning			-3.736** (1.553)			-3.123** (1.455)
Continuing Care			-.755 (1.597)			-2.079 (1.492)
Peer to Peer coaching			2.384 (2.447)			2.648 (2.324)
Self-help and Support Group			-2.491 (2.135)			-2.406 (1.989)
Black	1.365 (1.605)	1.700 (1.615)	1.635 (1.614)	1.808 (1.523)	2.266 (1.521)	2.176 (1.519)
Male	.614 (1.556)	.445 (1.554)	.428 (1.574)	1.325 (1.466)	1.135 (1.451)	1.181 (1.471)
Education	.390 (.275)	.388 (.274)	.419 (.279)	.089 (.258)	.077 (.255)	.059 (.260)
Life-chances Service Intensity		-1.409 (.964)			-1.870** (.895)	
R-squared	.157	.169	.201	.119	.146	.178
No. of observations	144	144	144	144	144	144

*.10 level **.05 level ***.01 level

Impact of Life-chances Interventions on Clients' Substance Abuse Outcomes

As previously discussed and displayed in tables 26, 28 and 29, the over-dispersion of the NDHHS SAMHSA substance abuse data violates the assumption of an OLS regression model that requires that the dependent variable is normally distributed. Earlier testing also confirmed that the negative binomial regression model was a more appropriate regression model for the over-dispersion of NDHHS SAMHSA the substance abuse data. Consequently, in this section only the negative binomial regression model will be reported and discussed. Table 48 shows the equations used for the analyses of the substance abuse outcomes. Only statistically significant findings for each of the models are discussed, and the results reported are contingent upon holding all other variables in the model constant.

TABLE 48: SUBSTANCE ABUSE REGRESSION EQUATIONS	
Model	**Alcohol Use**
1.	Alcohol Use_2= exp(β_0+ β_1*baseline alcohol use + β_{2*}*black+ β_3*male+ β_4*education + ε_1)
2.	Alcohol Use_2= exp(β_0+ β_1*baseline alcohol use + β_2* life-chances intensity + β_3*black+ β_4*male+ β_5*education + ε_1)
3.	Alcohol Use_2= exp(β_0+ β_1*baseline alcohol use+ β_2* + β_2*treatment referral+ β_3*treatment/recovery planning +β_4*continuing care +β_5*peer to peer coaching + β_6*self-help and support group + β_7*black+ β_8*male+ β_9*education + ε_1)
Model	**Illegal Drug Use**
1.	Illegal Drug Use_2= exp(β_0+ β_1*baseline drug use + β_2*black + β_3*male + β_4*education + ε_1)
2.	Illegal Drug Use_2= exp(β_0+ β_1*baseline drug use + β_2* life-chances intensity + β_3*black+ β_4*male + β_5*education + ε_1)
3.	Alcohol Use_2= exp(β_0+ β_1*baseline alcohol use + β_2* treatment referral +β_3*treatment/recovery planning+β_4*continuing care+β_5*peer to peer coaching+β_6*self-help and support group + β_7*black+ β_8*male+ β_9*education + ε_1)
4.	Illegal Drug Use_2= exp(β_0+ β_1*baseline drug use + β_2*treatment referral + β_3*treatment/recovery planning+β_4*continuing care+β_5*peer to peer coaching + β_6*self-help and support group + β_7*black+ β_8*male + β_9*education + ε_1)

Table 49 displays the coefficient and the percentage change in the expected number of days for alcohol use as a function of life-chances service interventions, and relevant control variables. Model 1, which predicted days of alcohol use at follow-up as a function of alcohol use at intake and control variables, had a log likelihood value of -209.554. The model indicates that between their baseline and follow-up assessments, clients' monthly alcohol use increased by 14 percent, when holding all other variables constant. For each year increase in educational attainment, clients' monthly alcohol use decreased by 16.6 percent, significant at 0.01 level, when holding all other variables constant.

Model 2, which predicted alcohol use as a function of life-chances service intensity and demographic control variables, had a log likelihood value of -208.005. Similar to model 1, alcohol use reported during the baseline assessment was the most significant predictor of alcohol consumption levels during clients' follow-up assessment. Between their baseline and follow-up assessments, clients' monthly alcohol use increased by close to 16 percent, significant at 0.01 level, when holding all other variables constant. Unexpectedly, for each increase in life-chances services provided, there was an increase in clients' monthly alcohol use by close to 132 percent.

Model 3 predicted alcohol use as a function of the full array of life-chances service variables. Between their baseline and follow-up assessments, clients' monthly alcohol use increased by close to 16 percent. The continuing care service was the only intervention that had a significant relationship with alcohol consumption at the follow-up measurement. Clients receiving the continuing care service intervention experienced a 275 percent increase in alcohol consumption between their intake and follow-up

assessments, a finding that was significant at 0.01 level, when holding all other variables constant. This finding that is highly unexpected.

Table 49: Life-chances Negative Binomial Regression Results for Days of Alcohol Use

	Model 1		Model 2		Model 3	
	Coefficient	% Change	Coefficient	% Change	Coefficient	% Change
Constant	-1.436 (1.279)		-.142 (1.567)		-1.180 (2.033)	
Baseline Alcohol Use	.133*** (.032)	14.3*** (223)	.146*** (.034)	15.8*** (263.1)	.147*** (.925)	15.9*** (265.0)
Treatment Referral					.925 (1.199)	152.2 (23.6)
Treatment/ Recovery Planning					.211 (.583)	23.5 (10.9)
Continuing Care					1.321** (.581)	275.1*** (83.3)
Peer to Peer coaching					1.158 (.880)	218.6 (41.0)
Self-help and Support Group					.731 (.813)	107.8 (30.7)
Black	.838 (.574)	131.4 (46.9)	.739 (.567)	109.6 (40.4)	.702 (.562)	101.8 (38.0)
Male	-.101 (.533)	-9.6 (-4.7)	-.308 (.544)	-26.5 (-13.5)	-.239 (.558)	-21.3 (-10.7)
Education	-.181* (.101)	-16.6* (-37.7)	-.164 (.101)	-15.2 (-35.0)	-.088 (.113)	-8.5 (-20.6)
Life-chances Service Intensity			.840* (.485)	131.7* (88.7)		
ln α	1.875	1.875	1.841	1.841	1.775	1.775
α	6.527	6.527	6.304	6.304	5.901	5.901
Log likelihood	-209.554	-209.554	-208.005	-208.005	-206.423	-206.423
Chi-square	.000	.000	.000	.000	.000	.000
No. observations	145	145	145	145	145	145

*.10 level **.05 level ***.01 level

Table 50 displays the coefficient and the percentage change in the expected number of days for illegal drug use as a function of life-chances service interventions, and relevant control variables. Model 1, which predicted days of illegal drug use at follow-up and control variables, had a log likelihood value of -149.735. The model indicates that between their baseline assessment and follow-up assessment, clients' monthly illegal drug use increased by 18 percent. Compared to females, male clients' monthly illegal drug use increased by close to 220 percent, when holding all other variables constant.

Model 2, predicted illegal drug use at follow-up as a function of use at intake, life-chances intensity and demographic control variables, had a log likelihood value of -149.701. Between the initial assessment and their follow-up assessment, clients' drug use increased by 18 percent. Compared to females, males' illegal drug use was 218 percent higher at their follow-up assessment than their initial assessment, when holding all other variables constant.

Model 3 predicted illegal drug use as a function of the full array of life-chances variables. Model 3 had a log likelihood value of -142.908. The model indicates that between clients' baseline assessment and their follow-up assessment, their monthly illegal drug use increased by 19 percent. The reported illegal drug use for clients receiving treatment referral services was 3 percent higher at their follow-up assessment than at intake. Surprisingly, the illegal drug use for clients receiving self-help and support group services was 291 percent higher at their follow-up assessment than their initial assessment. None of the other predictor variables were significant at 0.10 level or lower.

In summary, between their intake and follow-up assessments, clients experienced an increase in their substance use. Across the three models tested, clients' monthly alcohol use increased by at least 14 percent and their illegal use increased by at least 18 percent. Additionally, monthly alcohol use for clients receiving continuing care services was 275 percent higher at their follow-up assessment than at their initial assessment. The monthly illegal drug use for clients receiving self-help and support group services was 291 percent higher at their follow-up assessment than at their initial assessment. For models 1 and 2, compared to females, males' illegal drug use was more than 218 percent higher during their follow-up assessment compared to their initial assessment. Lastly, the intensity of life-chances service interventions did not lead to any significant reductions in clients' subsequent substance use. In fact, for each increase in life-chances services, there was an increase in clients' monthly alcohol use by close to 132 percent.

Table 50: Life-chances Negative Binomial Regression Results for Days of Illegal Drugs Use						
	Model 1		Model 2		Model 3	
	Coefficient	β	Coefficient	β	Coefficient	β
Constant	-2.300 (1.412)		-2.029 (1.764)		-18.235 (3056.689)	
Baseline Illegal Drug Use	.166*** (.036)	18.1*** (292.1)	.166*** (.036)	18.1*** (290.3)	.177*** (.034)	19.5*** (329.8)
Treatment Referral					17.270*** (3056.689)	3.20*** (5129.5)
Treatment/Recovery Planning					-.946 (.585)	-61.2 (-37.1)
Continuing Care					-.746 (.626)	-52.6 (-29.0)
Peer to Peer coaching					.880 (.823)	141.2 (29.8)
Self-help and Support Group					1.364* (.717)	291.4* (64.9)
Black	.263 (.624)	30.2 (12.9)	.274 (.643)	31.5 (13.4)	.681 (.590)	97.7 (36.7)
Male	1.161* (.649)	219.6* (73.1)	1.157* (.647)	218.2* (72.7)	30.2 (12.9)	.274 (.643)
Education	-.046 (.121)	-4.5 (-11.4)	-.048 (.122)	-4.8 (-12.0)	-.054 (.099)	-5.3 (-13.3)
Life-chances Service Intensity			-.129 (.497)	-12.2 (-9.3)		
ln α	2.003	2.003	2.001	2.001	1.698	1.698
α	7.415	7.415	7.397	7.397	5.465	5.465
Log likelihood	-149.735	-149.735	-149.701	-149.701	-142.908	-142.908
Chi-square	.000	.000	.000	.000	.000	.000
No. observations	145	145	145	145	145	145

*.10 level **.05 level ***.01 level

Impact of Life-chances Interventions on Clients' Living Arrangement Outcomes

Table 51 displays the three logistic regression equations used to fit the life-chances analyses for clients' housing status. Similarly to previously reported findings, only statistically significant findings for each of the models are discussed, and the results reported are contingent upon holding all other variables in the model constant.

The first life-chances model tested housing outcomes as a function of housing status at intake, controlling for gender, race and educational attainment. The second model tested for the effect of the intensity of life-chances treatment services has on clients' housing outcomes. The third model tests for the effect of specific life-chances treatment services on clients' housing outcomes.

Model	TABLE 51: LIVING ARRANGEMENT REGRESSION EQUATION
1.	$p(\text{Housed}) = \dfrac{exp(a+b_1*\text{living arrangement}_1 + b_2*\text{black} + b_3*\text{male} + b_4*\text{education})}{1+exp(a+b_1*\text{living arrangement}_1 + b_2*\text{black} + b_3*\text{male} + b_4*\text{education})}$
2.	$p(\text{Housed}) = \dfrac{exp(a+b_1*\text{living arrangement}_1 + b_2*\text{black} + b_3*\text{male} + b_4*\text{education} + b_5*\text{life-chances intensity})}{1+exp(a+b_1*\text{living arrangement}_1 + b_2*\text{black} + b_3*\text{male} + b_4*\text{education} + b_5*\text{life-chances intensity})}$
3.	$p(\text{Housed}) = \dfrac{exp(a+b_1\ \text{living arrangement}_1 + \beta_2*\text{treatment referral} + \beta_3*\text{treatment/recovery planning} + \beta_4*\text{continuing care} + \beta_5*\text{peer to peer coaching} + \beta_6*\text{self-help and support group} + \beta_7*\text{black} + \beta_8*\text{male} + \beta_9*\text{education} + \varepsilon_1)}{1+exp(a+b_1\ \text{living arrangement}_1 + \beta_2*\text{treatment referral} + \beta_3*\text{treatment/recovery planning} + \beta_4*\text{continuing care} + \beta_5*\text{peer to peer coaching} + \beta_6*\text{self-help and support group} + \beta_7*\text{black} + \beta_8*\text{male} + \beta_9*\text{education} + \varepsilon_1)}$

Table 52 displays the coefficient and the odds-ratio results for the outcome of housing status as a function of life-chances service interventions, and relevant control variables. Model 1, which predicted housing status at follow-up as a function of status at intake and control variables, had a log likelihood value of -58.035. The model indicated that clients' baseline housing status is a strong indicator of their follow-up housing status. The odds of housing for clients who were housed during their baseline assessment were 33 times higher at their follow-up assessment, a finding that is statistically significant.

Model 2 examined clients' living arrangement outcomes as a function of life-chances service intensity, demographic control variables, and housing status at intake. The model had a log likelihood value of -58.000. Similar to model 1, housing status reported during the baseline assessment was the most significant predictor of clients' housing status during their follow-up assessment. Clients who were housed at their baseline assessment had a 34 times higher odds to have maintained their housing during their follow-up assessment, a finding that is statistically significant.

Model 3 examined clients' living arrangement as a function of life-chances service intensity and control variables, had a log likelihood value of -56.367. Clients' baseline housing status remained a strong indicator of their follow-up housing status. Clients who were housed at their baseline assessment had a 31 times higher odds of housing at follow-up, a finding that is statistically significant. None of the other predictor variables were significant at 0.10 level or lower.

In summary, none of the life-chances service interventions or the intensity of life-chances services led to an improvement of clients housing status. The strongest predictor of clients follow-up housing status was their baseline housing status. Clients who

reported being housed at intake had between a 30 and 34 times higher odds of maintaining housing at their follow-up assessment.

Table 52: Life-chances Logistic Regression Results for Clients' Living Arrangements						
	Model 1		Model 2		Model 3	
	Coefficient	Odds Ratio	Coefficient	Odds Ratio	Coefficient	Odds Ratio
Constant	.888 (1.237)		1.049 (1.384)		.179 (1.639)	
Housed	3.519*** (.685)	33.777*** (23.163)	3.530*** (.685)	34.149*** (23.423)	3.430*** (.934)	30.878*** (21.716)
Treatment Referral					.520 (.934)	1.682 (1.573)
Treatment/ Recovery Planning					.089 (.514)	1.094 (.563)
Continuing Care					-.369 (.519)	.690 (.358)
Peer to Peer coaching					.375 (.794)	1.455 (1.155)
Self-help and Support Group					-1.022 (.727)	.359 (.261)
Black	-.709 (.497)	.496 (.244)	-.693 (.500)	.499 (.250)	-.755 (.517)	.469 (.243)
Male	-.846 (1.710)	1.396 (.845)	.340 (.606)	1.406 (.852)	.597 (.654)	1.816 (1.189)
Education	.179 (4.116)	.896 (.086)	-.112 (.097)	.893 (.087)	-.095 (.101)	.908 (.092)
Life-chances Service Intensity			-.076 (.288)	.926 (.267)		
Log likelihood	-58.035	-58.035	-58.000	-58.000	-56.367	-56.367
Pseudo R^2	.338	.338	.338	.338	.357	.357
No. observations	136	136	136	136	136	136

*.10 level **.05 level ***.01 level

Impact of Life-chances Interventions on Clients' Employment Outcomes

Table 53 shows the multinomial logistic equation used to fit the regression model. As previously noted, the employment dependent variable is nominal, with the possible outcomes of: 1) Working full- or part-time; 2) Unemployed and looking for work; 3) Unemployed, disabled or retired; and 4) Unemployed and not looking for work.

	TABLE 53: EMPLOYMENT REGRESSION EQUATIONS
1.	$\ln \frac{Pr(Employment=1)}{Pr(Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_{2*}\ \text{black} + \beta_3 * \text{male} + \beta_4 * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=2)}{Pr(Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_{2*}\ \text{black} + \beta_3 * \text{male} + \beta_4 * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=3)}{Pr(Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_{2*}\ \text{black} + \beta_3 * \text{male} + \beta_4 * \text{education} + \varepsilon_1$
2.	$\ln \frac{Pr(Employment=1)}{Pr(Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{life-chances intensity} + \beta_2 * \text{black} + \beta_4 * \text{male} + \beta_5 * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=2)}{Pr(Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{life-chances intensity} + \beta_2 * \text{black} + \beta_4 * \text{male} + \beta_5 * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=3)}{Pr(Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{life-chances intensity} + \beta_2 * \text{black} + \beta_4 * \text{male} + \beta_5 * \text{education} + \varepsilon_1$
3.	$\ln \frac{Pr(Employment=1)}{Pr(Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{intensive outpatient} + \beta_3 * \text{screening} + \beta_4 * \text{brief treatment} + \beta_5 * \text{relapse Prevention} + \beta_6 * \text{substance abuse education} + \beta_7 * \text{alcohol-drug free activities} + \beta_8 * \text{black} + \beta_9 * \text{male} + \beta_{10} * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=1)}{Pr(Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{intensive outpatient} + \beta_3 * \text{screening} + \beta_4 * \text{brief treatment} + \beta_5 * \text{relapse Prevention} + \beta_6 * \text{substance abuse education} + \beta_7 * \text{alcohol-drug free activities} + \beta_8 * \text{black} + \beta_9 * \text{male} + \beta_{10} * \text{education} + \varepsilon_1$ $\ln \frac{Pr(Employment=1)}{Pr(Employment=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_{2*} \text{intensive outpatient} + \beta_3 * \text{screening} + \beta_4 * \text{brief treatment} + \beta_5 * \text{relapse Prevention} + \beta_6 * \text{substance abuse education} + \beta_7 * \text{alcohol-drug free activities} + \beta_8 * \text{black} + \beta_9 * \text{male} + \beta_{10} * \text{education} + \varepsilon_1$

Tables 54a – 54c show clients' employment outcomes at follow-up as a function of employment status at intake, life-chances service interventions, and demographic control variables. For these models, intake employment status is dichotomized with a '1' indicating full or part-time employment and a '0' indicating all other employment status. Similar to the lifestyles analysis of employment outcomes, unemployed and looking for work is the reference category (category K), and the coefficients and the relative risk ration (RRR) are reported in Tables 54a – 54c. Only statistically significant findings are discussed, and the results reported are contingent upon holding all other variables in the model constant.

Table 54a predicted clients' employment status at follow-up as a function of employment status at intake and control variables. The model had a log likelihood value of -158.110 and indicated that clients who were employed during their intake assessment had a 9.405 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work.

Table 54b examined clients' employment status at follow-up as function of lifestyle service intensity and demographic control variables. The model had a log likelihood value of -156.958. Clients who were employed at intake had an 11.491 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work. Relative to females, males had a 2.123 times higher odds of being unemployed and looking for work at their follow-up assessment compared to being unemployed and not looking for work.

The final life-chances employment analysis is reported in Table 54c. The model predicted clients' employment status at follow-up as function of the full array of lifestyles

variables. The model had a log likelihood value of -146.119. Similar to the results reported in Table 54a, clients' intake employment status was a strong indicator of employment status during their follow-up assessment. Clients who were employed at intake had an 11.070 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work. While clients who received the treatment/recovery planning intervention had a 6.990 times higher odds of being employed at their follow-up assessment versus to being unemployed and not looking for work.

In summary, across the three models tested, clients who were employed at intake had higher odds of reporting that they remained employed at their follow-up assessment compared to being unemployed and not looking for work. Relative to females, males had a 2.123 times higher odds of being unemployed and looking for work at their follow-up assessment versus being unemployed and not looking for work. After receiving the treatment/recovery planning intervention, clients had a 6.990 times higher odds of being employed at their follow-up assessment versus to being unemployed and not looking for work.

Table 54a: Multinomial Odds Ratio for Life-chances Interventions on Clients' Employment Status, Reference Category is Unemployed, Looking for Work						
	Working (full or part-time) vs. Unemployed and not looking for work		Unemployed, disabled or retired vs. Unemployed and not looking for work		Unemployed and looking for Work vs. Unemployed and not looking for work	
	Coefficient	RRR	Coefficient	RRR	Coefficient	RRR
Constant	-4.040 (1.861)		-.197 (1.394)		-.706 (1.106)	
Baseline Employment	2.241*** (.859)	9.405*** (8.088)	.858 (.409)	2.359 (2.348)	-.192 (.955)	.824 (.788)
Treatment Referral						
Treatment/Recovery Planning						
Continuing Care						
Peer to Peer coaching						
Self-help and Support Group						
Black	-.412 (.700)	.662 (.464)	.409 (.650)	1.506 (.980)	.267 (.463)	1.306 (.605)
Male	.651 (.701)	1.918 (1.346)	.312 (.608)	1.367 (.832)	.728 (.463)	2.072 (.904)
Education	.115 (.124)	1.112 (.140)	-.161 (.099)	.851 (.085)	-.070 (.080)	.931 (.074)
Life-chances Service Intensity						
Log likelihood	-158.110	-158.110	-158.110	-158.110	-158.110	-158.110
Pseudo R^2	.062	.062	.062	.062	.062	.062
No. observations	140	140	140	140	140	140

*.10 level **.05 level ***.01 level

Table 54b: Multinomial Odds Ratio for Life-chances Interventions on Clients' Employment Status, Reference Category is Unemployed, Looking for Work

	Working (full or part-time) vs. Unemployed and not looking for work		Unemployed, disabled or retired vs. Unemployed and not looking for work		Unemployed and looking for Work vs. Unemployed and not looking for work	
	Coefficient	RRR	Coefficient	RRR	Coefficient	RRR
Constant	-5.002 (2.095)		.130 (1.590)		-.1.125 (1.242)	
Baseline Employment	2.441*** (.900)	11.491*** (10.352)	.771 (1.010)	2.162 (2.184)	-.117 (.961)	.889 (.854)
Treatment Referral						
Treatment/Recovery Planning						
Continuing Care						
Peer to Peer coaching						
Self-help and Support Group						
Black	-.506 (.713)	.602 (.430)	.460 (.659)	1.584 (1.044)	.227 (.466)	1.256 (.586)
Male	.702 (.715)	2.018 (1.444)	.310 (.607)	1.364 (.828)	.752* (.438)	2.123* (.930)
Education	.105 (.126)	1.111 (.140)	-.165 (.101)	.847 (.085)	-.068 (.080)	.934 (.074)
Life-chances Service Intensity	.536 (.445)	1.710 (.761)	-.169 (.381)	.844 (.322)	.199 (.265)	1.220 (.323)
Log likelihood	-156.958	-156.958	-156.958	-156.958	-156.958	-156.958
Pseudo R^2	.062	.062	.062	.062	.062	.062
No. observations	140	140	140	140	140	140

*.10 level **.05 level ***.01 level

Table 54c: Multinomial Odds Ratio for Life-chances Interventions on Clients' Employment Status, Reference Category is Unemployed, Looking for Work

	Working (full or part-time) vs. Unemployed and not looking for work		Unemployed, disabled or retired vs. Unemployed and not looking for work		Unemployed and looking for Work vs. Unemployed and not looking for work	
	Coefficient	RRR	Coefficient	RRR	Coefficient	RRR
Constant	-7.272 (3.009)		-14.814 (1556.443)			
Baseline Employment	2.404** (1.146)	11.070** (12.694)	.581 (1.034)	1.789 (1.851)	-.151 (.966)	.859 (.830)
Treatment Referral	-.203 (1.290)	.816 (1.053)	15.115 (1556.442)	366 (5.71)	1.387 (1.138)	4.006 (4.561)
Treatment/Recovery Planning	1.944** (.865)	6.990** (6.050)	-.033 (.629)	.966 (.608)	-.079 (.456)	.923 (.421)
Continuing Care	-.131 (.915)	.876 (.802)	-1.120 (.734)	.326 (.239)	.126 (.438)	1.134 (.497)
Peer to Peer coaching	-.112 (1.414)	.893 (1.263)	.941 (.855)	2.563 (2.193)	.495 (.690)	1.640 (1.133)
Self-help and Support Group	-14.792 (717.353)	3.760 (.000)	-.487 (.895)	.614 (.550)	.141 (.561)	1.152 (.646)
Black	-.465 (.823)	.627 (.516)	.332 (.681)	1.394 (.950)	.242 (.475)	1.274 (.606)
Male	1.011 (.830)	2.750 (2.284)	.386 (.640)	1.471 (.942)	.701 (.455)	2.016 (.917)
Education	.287 (.185)	1.332 (.247)	-.177 (.111)	.837 (.093)	-.058 (.079)	.942 (.075)
Life-chances Service Intensity						
Log likelihood	-146.119	-146.119	-146.119	-146.119	-146.119	-146.119
Pseudo R^2	.133	.133	.133	.133	.133	.133
No. observations	140	140	140	140	140	140

*.10 level **.05 level ***.01 level

Impact of Life-chances Interventions on Clients' Criminal Justice Involvement

Table 55 shows the equations used to fit the regression models for the analyses of the criminal justice outcomes. As previously discussed and displayed in tables 39, 40, and 42, because of the over-dispersion of the criminal justice data, the negative binomial model is used to fit the dependent variable for number of new crimes committed in the month prior to clients' follow-up assessment. Earlier testing also confirmed that the negative binomial regression model was a more appropriate regression model for over-dispersed NDHHS SAMHSA substance abuse data. Consequently, in this section only the negative binomial regression model will be reported and discussed.

TABLE 55: CRIMINAL ACTIVITY REGRESSION EQUATIONS	
1.	New $Crimes_2$= exp(β_0+ β_1*baseline crimes+ β_{2*}*black+ β_3*male+ β_4*education + ε_1)
2.	New $Crimes_2$= exp(β_0+ β_1*baseline crimes+ β_2* life-chances $intensity_2$ + β_3*black+ β_4*male+ β_5*education + ε_1)
3.	New $Crimes_2$= exp(β_0+ β_1*baseline crimes+ β_{2*}treatment referral + β_3*treatment/recovery planning + β_4*continuing care + β_5*peer to peer coaching + β_6*self-help and support group + β_7*black + β_8*male + β_9*education + ε_1)

Table 56 displays the negative binomial coefficient and the percentage change in the number of crimes committed by clients during the previous month as a function of crimes at intake, lifestyle service interventions, and relevant control variables. Model 1 predicted number of crimes committed at follow-up determined by crimes at intake, and control variables, had a log likelihood value of -157.996. For each year increase in educational attainment, there was a statistically significant decrease in intake criminal activity of 5.9 percent. The model indicates that between their baseline and follow-up assessments, clients' criminal activity increased significantly of 18 percent, when holding all other variables constant.

Model 2 shows criminal justice outcomes as a function of previous crimes, lifestyle intensity services, and demographic control variables. Between the assessment periods, there was a statistically significant increase of approximately 18 percent in the number of new crimes clients committed, after holding all other variables constant.

Model 3 predicted clients' criminal justice outcomes as a function of previous crimes, the full array of life-chances variables, and control variables. The model had a log likelihood value of -150.430, and indicated that between clients' baseline assessment and their follow-up assessment, there was a statistically significant increase in the number of new crimes clients committed increased of 20 percent, after holding all other variables constant. There was a statistically significant decrease in the number of new crimes committed by clients receiving the treatment recovery planning services by 69 percent, after holding all other variables constant.

In summary, the negative binomial model results indicated that the number of new crimes clients committed increased by 17 percent or more between clients' baseline and follow-up assessments. For model 1, with each year increase in educational attainment, there was a decrease in intake criminal activity by 5.9 percent. Furthermore, clients receiving the treatment recovery planning service experienced a reduction in intake criminal activity by 69 percent.

Table 56: Life-chances Negative Binomial Regression Results for Days of Committing a New Crime

	Model 1		Model 2		Model 3	
	Coefficient	% Change	Coefficient	% Change	Coefficient	% Change
Constant	-1.833 (1.348)		-1.445 (1.640)		-17.320 (1193.237)	
Baseline Criminal Activity	.165*** (.036)	18.0*** (286.6)	.164*** (.036)	17.8*** (283.6)	.182*** (.034)	20.0*** (343.5)
Treatment Referral					15.332 (1193.237)	4.60 (3216.3)
Treatment/Recovery Planning					-1.188** (.585)	-69.5** (-44.1)
Continuing Care					-.516 (.609)	-40.3 (-21.0)
Peer to Peer coaching					.955 (.813)	159.9 (32.6)
Self-help and Support Group					1.024 (.713)	179.7 (46.4)
Black	.540 (.637)	71.6 (28.1)	.552 (.637)	73.8 (28.8)	.631 (.626)	88.1 (33.8)
Male	.888 (.636)	143.0 (52.1)	.873 (.631)	139.6 (51.1)	.392 (.590)	48.1 (20.4)
Education	-.060*** (.114)	-5.9*** (-14.6)	-.058 (.115)	-5.7 (-14.1)	-.066 (.094)	-6.4 (-15.0)
Life-chances Service Intensity			-.214 (.493)	-19.3 (-15.0)		
ln α	2.014	2.014	1.679	-157.901	1.679	1.679
α	7.497	7.497	5.360		5.360	5.360
Log likelihood	-157.996	-157.996	-157.901	-157.901	-150.430	-150.430
Chi-square	.000	.000				
No. observations	145	145	146	146	146	146

*.10 level **.05 level ***.01 level

Multivariate Results: Impact of Lifestyles and Life-chances Interventions on Clients' Mental Health Outcomes

In order to determine the comparative impact of lifestyles versus life-chances treatment modalities, a simultaneous test of the two approaches was conducted by including both sets of the variables in a series of regression analyses. The bivariate Pearson correlation test was conducted to ensure that none of the pairwise correlations among the predictor variables in this analysis were at or above 0.8. The multivariate collinearity diagnostics test was used to ensure that none of the predictor variables had a variance inflation factor above 10. The results reported in Tables 57 and 58 confirm that multicollinearity of the predictor variables for the lifestyles and life-chances analysis is not an issue. The results show that none of the pairwise correlations among the predictor variables are at or above 0.8. The highest correlation is the brief treatment and screening service intervention at 0.726. The highest variance inflation factor is 6.14 for screening service intervention, well below the rule of thumb threshold of 10. The lowest tolerance value is 0.355 for screening service intervention, well above the 0.1 rule of thumb threshold.

Table 57: Bivariate Collinearity Test

	Intensive Outpatient	Screening	Brief Treatment	Relapse Prevention	Substance Abuse Education	Alcohol-Drug Free Social	Treatment Referral	Continuing Care	Peer to Peer coaching	Self-help and Support Group	Black	Male	Education
Intensive Outpatient	1.000												
Screening	-0.086	1.00											
Brief Treatment	-0.091	.726	1.00										
Relapse Prevention	.146	-.121	-.151	1.000									
Substance Abuse Education	.142	-.251	-.267	.438	1.00								
Alcohol-Drug-Free Activities	.261	-.024	-.107	.017	.017	1.00							
Treatment Referral	-.141	.070	.175	.017	.055	-.051	1.00						
Treatment/ Recovery Planning	.010	-.706	.678	-.052	-.203	-.100	-.013	1.00					
Continuing Care	.146	.030	-.126	.303	.248	-.100	-.024	.052	1.00				
Peer to Peer coaching	.295	.003	-.170	-.099	.054	.441	.061	.048	.081	1.00			
Self-help and Support Group	.105	-.153	-.164	.046	.148	.132	-131	-.197	-.112	-.088	1.000		
Black	-.016	.043	.025	-.034	.010	-.037	.054	.068	.021	.115	.050	1.00	
Male	.156	-.138	-.068	-.059	-.003	-.127	.042	-.112	-.033	-.067	.138	.178	1.00
Education	.038	.021	.019	.051	.003	-.008	-.012	-.012	-.108	-.031	.152	-.024	.072

Table 58: Multivariate Collinearity Test					
Variable	VIF	Tolerance	R-Square	Eigenvalue	Condition Index
Intensive Outpatient	1.28	.782	.217	7.163	1.000
Screening	6.14	.162	.837	2.024	1.888
Brief Treatment	3.49	.286	.713	1.475	2.203
Relapse Prevention	1.49	.669	.330	1.038	2.626
Substance Abuse Education	1.49	.668	.331	.8346	2.929
Alcohol-Drug-Free Activities	1.37	.730	.269	.6231	3.390
Treatment Referral	1.30	.769	.230	.4971	3.795
Treatment/Recovery Planning	4.25	.235	.764	.4351	4.057
Continuing Care	1.30	.769	.230	.2970	4.910
Peer to Peer coaching	1.64	.608	.391	.2269	5.618
Self-help and Support Group	1.19	.838	.161	.1785	6.323
Black	1.09	.917	.082	.0785	9.554
Male	1.16	.863	.136	.0679	10.272
Education	1.06	.943	.056	.045	12.571

Table 59 shows the OLS equations used for the analyses of mental health outcomes. The equations include all of the lifestyles and life-chances service interventions.

	TABLE 59: MENTAL HEALTH REGRESSION EQUATIONS
Model	**Mental Health Outcome - Depression**
1.	$\text{Depression}_2 = \beta_0 + \beta_1 *\text{baseline depression} + \beta_{2*}\text{ lifestyle intensity} + \text{life-chances intensity} + \beta_4 *\text{black} + \beta_5 *\text{male} + \beta_6 *\text{education} + \varepsilon_1$
2.	$\text{Depression}_2 = \beta_0 + \beta_1 *\text{ baseline depression} + \beta_{2*}\text{intensive outpatient} + \beta_3 *\text{screening} + \beta_4 *\text{brief treatment} + \beta_5 *\text{relapse prevention} + \beta_6 *\text{substance abuse education} + \beta_7 *\text{alcohol-drug free activities} + \beta_{8*}\text{treatment referral} + \beta_9 *\text{treatment/recovery planning} + \beta_{10} *\text{continuing care} + \beta_{11} *\text{peer to peer coaching} + \beta_{12} *\text{self-help and support group} + \beta_{13} *\text{black} + \beta_{14} *\text{male} + \beta_{15} *\text{education} + \beta_{16} *\text{black} + \beta_{17} *\text{male} + \beta_{18} *\text{education} + \varepsilon_1$
Model	**Mental Health Outcome - Anxiety**
3.	$\text{Anxiety}_2 = \beta_0 + \beta_1 *\text{ baseline anxiety} + \beta_2 *\text{ lifestyle intensity} + \beta_3 *\text{ life-chances intensity} + \beta_4 *\text{black} + \beta_5 *\text{male} + \beta_6 *\text{education} + \varepsilon_1$
4.	$\text{Anxiety}_2 = \beta_0 + \beta_1 *\text{baseline anxiety} + \beta_{2*}\text{intensive outpatient} + \beta_3 *\text{screening} + \beta_4 *\text{brief treatment} + \beta_5 *\text{relapse prevention} + \beta_6 *\text{substance abuse education} + \beta_7 *\text{alcohol-drug free activities} + \beta_{8*}\text{treatment referral} + \beta_9 *\text{treatment/recovery planning} + \beta_{10} *\text{continuing care} + \beta_{11} *\text{peer to peer coaching} + \beta_{12} *\text{self-help and support group} + \beta_{13} *\text{black} + \beta_{14} *\text{male} + \beta_{15} *\text{education} + \beta_{16} *\text{black} + \beta_{17} *\text{male} + \beta_{18} *\text{education} + \varepsilon_1$

Table 60 (columns 1-4) displays results for MH outcomes as a function of baseline MH symptoms, lifestyle and life-chances service interventions, and relevant control variables. Only statistically significant findings are discussed, and the results reported are contingent upon holding all other variables in the model constant. Model 1 predicted depression outcomes as a function of baseline depression symptoms, lifestyles and life-chances service intensity, and demographic control variables. The model had an R-square value of 0.174. The statistically significant effect of baseline depression is maintained in this model, with a coefficient indicating an increase of 0.303 days per month. This translates to an increase in depression days by three and a half days (3.636) a year. None of the other variables in the model were significant within a 0.10 or lower range of p-values.

Model 2, which predicted depression days at intake, specific lifestyles and life-chances service interventions, and control variables, had an R-square value of 0.215. Consistent with the previously reported results for the individual lifestyles and life-chances outcomes, baseline depression levels were the best predictor of subsequent depression levels. There is an increase in baseline depression symptoms by 0.317 days per month. This translates into an increase of depression days by close to four days (3.80) a year.

Model 3 predicted anxiety outcomes as a function of baseline anxiety symptoms, lifestyles and life-chances service intensity, and demographic control variables. The model had an R-square value of 0.158. The model indicates an increase in clients' baseline anxiety levels increase by 0.245 days per month, significant at 0.01 level, when holding all other variables constant. This translates into an increase of anxiety symptoms by close to three days (2.94) a year.

Model 4 predicted anxiety days as a function of the full array of lifestyles and life-chances service variables. The model indicates that baseline anxiety levels were the best predictor of subsequent anxiety levels, with a coefficient indicating an increase of 0.293 days per month, significant at a 0.01 level. This translates into an increase of depression days by three and half days (3.51) a year. Clients receiving the lifestyles alcohol-drug-free activities service intervention experienced a reduction of anxiety days by more than eleven days (-11.77) per month or one hundred and forty-one (-141) days a year, significant at a 0.01 level, when holding all other variables constant. Similarly, clients receiving the life-chances continuing of care service intervention experienced a reduction of anxiety symptoms by more than three days (-3.05) per month or thirty-six

days (-36.6) a year, at a 0.10 level, when holding all other variables constant. Counter intuitively, clients receiving the life-chances peer-to-peer service interventions experienced an increased in anxiety symptoms by more than seven days a month (7.05) or more than eighty-four (84.6) days a year.

In summary, results for mental health outcomes as a function of lifestyle and life-chances service interventions indicate the comparative benefit of the lifestyles model over the life-chances model in addressing clients' anxiety outcomes. For instance, clients receiving the lifestyles alcohol-drug-free activities service intervention experienced a reduction of anxiety symptoms by more than eleven days (-11.77) per month. Clients receiving the life-chances continuing of care service intervention, on the other hand, only experienced a reduction in anxiety symptoms by a little more than three days (-3.05) per month. While clients receiving the life-chances peer-to-peer service interventions experienced an increased in anxiety symptoms by more than seven days (7.05) a month. The lifestyles and life-chances service interventions did not lead to any reductions in clients' depression outcomes. Additionally, the intensity of lifestyles and life-chances service interventions did not lead to any reduction in mental health outcomes.

Table 60: Linear Regression Results for Mental Health Outcomes				
	Depression Symptoms Model 1	**Depression Symptoms Model 2**	**Anxiety Symptoms Model 3**	**Anxiety Symptoms Model 4**
Constant	.010 (4.409)	.532 (5.621)	3.497 (4.099)	7.151 (5.053)
Baseline Depression	.303*** (.060)	.317*** (.062)		
Baseline Anxiety			.245*** (.057)	.293*** (.059)
Intensive Outpatient		1.007 (3.522)		-.097 (3.216)
Screening		-3.618 (3.573)		-2.904 (3.250)
Brief Treatment		.715 (2.867)		.540 (2.610)
Relapse Prevention		1.336 (2.216)		2.415 (2.043)
Substance Abuse Education		-.893 (1.761)		-2.373 (1.616)
Alcohol-Drug-Free Activities		-2.949 (4.724)		-11.777*** (4.294)
Treatment Referral		-1.459 (2.979)		-3.960 (3.271)
Treatment/Recovery Planning		-1.459 (2.979)		-2.438 (2.710)
Continuing Care		-1.130 (1.825)		-3.058* (1.663)
Peer to Peer coaching		3.554 (3.207)		7.054** (2.942)
Self-help and Support Group		-2.432 (2.207)		-2.466 (1.994)
Black	1.730 (1.616)	1.554 (1.654)	2.323 (1.511)	1.944 (1.513)
Male	.224 (1.577)	.066 (1.676)	.792 (1.467)	.465 (1.524)
Education	.409 (.275)	.435 (.287)	.108 (.255)	.059 (.260)
Lifestyle Service Intensity	-.727 (.843)		-1.100 (.788)	
Life-chances Service Intensity	-1.098 (1.030)		-1.040 (.952)	
R-squared	.174	.215	.158	.239
No. of observations	144	144	144	144

*.10 level **.05 level ***.01 level

Multivariate Results: Impact of Lifestyles Interventions and Life-chances Interventions on Clients' Substance Abuse Outcomes

Multivariate analyses were conducted to predict the occurrence of substance abuse challenges experienced by NDHHS SAMHSA clients after receiving lifestyles and life-chances service interventions, while controlling for gender, race, and educational attainment. Table 61 shows the equations used to fit the regression models for the analyses substance abuse outcomes.

	TABLE 61: SUBSTANCE ABUSE REGRESSION EQUATIONS
Model	**Alcohol Use**
1.	Alcohol Use$_2$= exp(β_0+ β_1*baseline drug use + β_2* lifestyle intensity + β_3*life-chances intensity +β_4*black+ β_5*male+ β_6*education + ε_1)
2.	Alcohol Use$_2$= exp(β_0+ β_1*baseline alcohol use+ β_{2*}intensive outpatient + β_3*screening + β_4*brief treatment + β_5*relapse prevention + β_6*substance abuse education + β_7*alcohol-drug free activities + β_{8*}treatment referral + β_9*treatment/recovery planning + β_{10}*continuing care + β_{11}*peer to peer coaching + β_{12}*self-help and support group + β_{13}*black + β_{14}*male + β_{15}*education + β_{16}*black+ β_{17}*male + β_{18}*education + ε_1)
Model	**Illegal Drug Use**
1.	Illegal Drug Use$_2$= exp(β_0+ β_1*baseline drug use + β_{2*} lifestyle intensity + β_3*life-chances intensity +β_4*black+ β_5*male+ β_6*education + ε_1)
2.	Illegal Drug Use$_2$= exp(β_0+ β_1*baseline drug use + β_2*intensive outpatient + β_3*screening + β_4*brief treatment + β_5*relapse prevention + β_6*substance abuse education + β_7*alcohol-drug free activities + β_{8*}treatment referral + β_9*treatment/recovery planning + β_{10}*continuing care + β_{11}*peer to peer coaching + β_{12}*self-help and support group + β_{13}*black + β_{14}*male + β_{15}*education + β_{16}*black+ β_{17}*male + β_{18}*education + ε_1)

Table 62 displays results for alcohol usage outcomes as a function of baseline alcohol usage, lifestyle and life-chances service interventions, and relevant control variables. Model 1 predicted alcohol use as a function of baseline alcohol usage, lifestyles and life-chances service intensity, and demographic control variables. The model had a log likelihood value of -202.891. The statistically significant findings for the model are reported, and are contingent upon holding all other variables in the model constant. Between their baseline and follow-up assessments, there was a more than 16 percent increase in the number of days clients used alcohol per month, significant at 0.01 level, when holding all other variables constant. There was also an increase in alcohol usage by close to 152 percent for each increase in life-chances services provided to clients. This finding, which was significant at a 0.10 level when holding all other variables constant, is highly unexpected.

Model 2, which predicted days of alcohol use as a function of lifestyles and life-chances intensity and demographic control variables, had a log likelihood value of -207.915. The statistically significant effect of baseline depression is maintained in this model. Between their baseline and follow-up assessments, there was a 16.5 percent increase in the number of days clients used alcohol per month, significant at a 0.01 level, when holding all other variables constant. For clients receiving the lifestyles brief treatment service intervention, there was an increase in days of alcohol use by 698 percent per month, significant at a 0.01 level, after holding all other variables constant. The life-chances services of continuing care and peer-to-peer coaching service interventions led to an increase in the number of days of alcohol use by 405 percent and

402 percent respectively. The increases in alcohol usage for each of these interventions are counterintuitive.

Table 62: Negative Binomial Regression Results for Days of Alcohol Use

	Model 1		Model 2	
	Coefficient	% Change	Coefficient	% Change
Constant	-.066 (1.597)		-2.082 (2.087)	
Baseline Alcohol Use	.150*** (.035)	16.2*** (274.4)	.152*** (.032)	16.5*** (282.1)
Intensive Outpatient			-.717 (1.170)	-51.2 (-15.2)
Screening			-.914 (1.349)	-59.9 (-35.8)
Brief Treatment			2.077*** (.805)	698.1*** (162.3)
Relapse Prevention			-.089 (.710)	-8.6 (-3.5)
Substance Abuse Education			.413 (.583)	51.1 (23.0)
Alcohol-Drug-Free Activities			.249 (1.516)	28.3 (4.7)
Treatment Referral			.094 (1.237)	9.9 (2.2)
Treatment/Recovery Planning			-.192 (1.325)	-17.5 (-9.0)
Continuing Care			1.619*** (.608)	405.1*** (110.1)
Peer to Peer coaching			1.613* (.965)	402.1* (61.3)
Self-help and Support Group			1.061 (.779)	189.0 (47.6)
Black	.722 (.568)	106.0 (39.3)	.324 (.562)	38.4 (16.1)
Male	-.346 (.554)	-29.3 (-15.1)	.082 (.566)	8.6 (4.0)
Education	-.165 (.103)	-15.3 (-35.2)	-.016 (.106)	-1.6 (4.0)
Lifestyle Service Intensity	-.117 (.274)	-11.1 (-10.3)		
Life-chances Service Intensity	.922* (.529)	151.6* (100.8)		
ln α	1.841	1.841	1.644	1.644
α	6.303	6.303	5.176	5.176
Log likelihood	-207.915	-207.915	-202.891	-202.891
Chi-square	.000	.000	.000	.000
No. observations	145	145	145	145

*.10 level **.05 level ***.01 level

Table 63 displays the coefficient and the percentage change in the expected number of days for illegal drug use as a function of baseline illegal drug usage, lifestyle and life-chances service interventions, and relevant control variables. Model 1 predicted illegal drug use as a function of baseline illegal drug usage, lifestyles and life-chances service intensity, and demographic control variables. The model had a log likelihood value of -148.294. The model indicates that between their baseline assessment and follow-up assessment, clients' monthly illegal drug use increased by 19 percent, significant at a 0.01, when holding all other variables constant. Additionally, for each increase in lifestyles services, there was a decrease in monthly illegal drug use by 41 percent, significant at a 0.10, when holding all other variables constant.

Model 2, which predicted days of illegal drug use as a function of lifestyles and life-chances intensity and demographic control variables, had a log likelihood value of 140.794. Between baseline and follow-up assessments, there was a statistically significant increase in days of illegal drug use per month by 19 percent, significant at a 0.01, when holding all other variables constant. Between clients' baseline and follow-up assessments, individuals receiving the life-chances self-help and support group service intervention experienced an increase in monthly illegal drug use by 246 percent, significant at a 0.10, when holding all other variables constant. It is difficult to explain why the self-help and support group service intervention would lead to such a large increase in illegal drug use.

In summary, for clients receiving the lifestyles brief treatment service intervention, there was an increase in days of alcohol use by 698 percent per month. For each increase in life-chances services provided, there was also an increase in alcohol

usage by close to 152 percent. Additionally, clients receiving the life-chances services of continuing care and peer-to-peer coaching service interventions experienced an increase in the number of days of alcohol use by 405 percent and 402 percent respectively.

The monthly illegal drug use of clients receiving self-help and support group services was 246 percent higher at their follow-up assessment than at their initial assessment. For each increase in lifestyles services, there was a decrease in monthly illegal drug use by 41 percent.

Table 63: Negative Binomial Regression Results for Days of Illegal Drug Use

	Model 1		Model 2	
	Coefficient	% Change	Coefficient	% Change
Constant	-1.159 (1.917)		-19.060 (2681.222)	
Baseline Illegal Drug Use	.178*** (.039)	19.5*** (331.2)	.178*** (.030)	19.5*** (331.0)
Intensive Outpatient			1.401 (1.152)	306.1 (37.9)
Screening			1.338 (2.581)	281.3 (91.4)
Brief Treatment			-1.372 (1.321)	-74.6 (-47.1)
Relapse Prevention			-.237 (.987)	-21.1 (-9.1)
Substance Abuse Education			.129 (.716)	13.8 (6.7)
Alcohol-Drug-Free Activities			1.275 (1.688)	258.1 (26.3)
Treatment Referral			17.708 (2681.221)	4.90 (5681.6)
Treatment/Recovery Planning			-1.121 (2.242)	-67.4 (-42.3)
Continuing Care			-1.059 (.916)	-65.3 (-38.5)
Peer to Peer coaching			-.136 (1.165)	-12.8 (-4.0)
Self-help and Support Group			1.242* (.740)	246.5* (57.7)
Black	.534 (.665)	70.7 (27.8)	.491 (.698)	63.5 (25.3)
Male	.805 (.645)	123.8 (46.3)	.491 (.698)	115.0 (43.5)
Education	-.067 (.124)	-6.6 (-16.3)	-.103 (.107)	-9.8 (-23.6)
Lifestyle Service Intensity	-.528* (.318)	-41.1* (-38.6)		
Life-chances Service Intensity	.022 (.514)	2.2 (1.7)		
ln α	1.948	1.948	1.594	1.594
α	7.016	7.016	4.926	4.926
Log likelihood	-148.294	-148.294	140.794	140.794
Chi-square	.000	.000	.000	.000
No. observations	145	145	145	145

*.10 level **.05 level ***.01 level

Impact of Lifestyles and Life-chances Interventions on Clients' Living Arrangement Outcomes

Table 64 displays the two logistic regression equations used to fit the lifestyles and the life-chances analyses for clients' housing status. The first model tested for the effect of the intensity of lifestyles and life-chances treatment services has on housing outcomes. The second model builds upon the first model by testing the effect of specific lifestyles and life-chances treatment services clients received has on housing outcomes.

Model	TABLE 64: LIVING ARRANGEMENT REGRESSION EQUATIONS
1.	$p(\text{Housed}) = \dfrac{exp(a+b_1*\text{living arrangement}_1+b_2*\text{lifestyles} + b_3*\text{life-chances intensity} + b_4*\text{black} + b_5*\text{male} + b_6*\text{education} + \varepsilon_1)}{1+exp(a+b_1*\text{living arrangement}_1+b_2*\text{lifestyles} + b_3*\text{life-chances intensity} + b_4*\text{black} + b_5*\text{male} + b_6*\text{education} + \varepsilon_1)}$
2.	$p(\text{Housed}) = \dfrac{exp(a+b_1\ \text{living arrangement}_1 + \beta_2*\text{intensive outpatient} + \beta_3*\text{screening} + \beta_4*\text{brief treatment} + \beta_5*\text{relapse prevention} + \beta_6*\text{substance abuse education} + \beta_7*\text{alcohol-drug free activities} + \beta_8*\text{treatment referral} + \beta_9*\text{treatment/recovery planning} + \beta_{10}*\text{continuing care} + \beta_{11}*\text{peer to peer coaching} + \beta_{12}*\text{self-help and support group} + \beta_{13}*\text{black} + \beta_{14}*\text{male} + \beta_{15}*\text{education} + \beta_{16}*\text{black} + \beta_{17}*\text{male} + \beta_{18}*\text{education} + \varepsilon_1)}{1+exp(a+b_1\ \text{living arrangement}_1 + \beta_2*\text{intensive outpatient} + \beta_3*\text{screening} + \beta_4*\text{brief treatment} + \beta_5*\text{relapse prevention} + \beta_6*\text{substance abuse education} + \beta_7*\text{alcohol-drug free activities} + \beta_8*\text{treatment referral} + \beta_9*\text{treatment/recovery planning} + \beta_{10}*\text{continuing care} + \beta_{11}*\text{peer to peer coaching} + \beta_{12}*\text{self-help and support group} + \beta_{13}*\text{black} + \beta_{14}*\text{male} + \beta_{15}*\text{education} + \beta_{16}*\text{black} + \beta_{17}*\text{male} + \beta_{18}*\text{education} + \varepsilon_1)}$

Table 65 displays the coefficient and the odds ratio results for the outcome of housing status as a function of housing status at intake, lifestyles and life-chances service interventions, and relevant control variables. Model 1, which examined clients' living arrangement outcomes as a function of intake hosing status, and lifestyles and life-chances service intensity, and demographic control variables, had a log likelihood of -57.055. The only statistically significant finding was for clients' baseline housing status.

The results indicate that clients who were housed at their baseline assessment had a 36 times higher odds of reporting that they maintain their housing status during their follow-up assessment versus being homeless.

Model 2 examined clients' living arrangements as a function of the housing status at intake, the full array of lifestyles and life-chances service interventions, and demographic control variables. The model had a log likelihood value of -52.932. There were two findings for the model that were statistically significant. Clients who reported that they were housed at their baseline assessment, had a 44 times higher odds of maintaining their housing during their follow-up assessment versus being homeless. Clients receiving the lifestyles brief treatment service intervention had a 6 times higher odds of reporting that they maintained their housing during their follow-up assessment versus being homeless.

In summary, only the lifestyles brief treatment service intervention led to a statistically significant improvement of clients housing status. Overall, the strongest predictor of clients' follow-up housing status was their baseline housing status. Between the two models, clients who reported being housed at intake had a 36 and 44 times higher odds of reporting that they maintain their housing status during their follow-up assessment versus being homeless, respectively. Clients receiving the lifestyles brief treatment service intervention had a 6 times higher odds of to report that they were housed during their follow-up assessment versus being homeless.

Table 65: Logistic Regression Results for Clients' Living Arrangements

	Model 1		Model 2	
	Coefficient	Odds Ratio	Coefficient	Odds Ratio
Constant	.677 (1.440)		.972 (1.943)	
Housed	3.608*** (.697)	36.897*** (25.736)	3.802 (.778)	44.833*** (34.907)
Intensive Outpatient			1.582 (1.230)	4.866 (5.989)
Screening			.162 (1.147)	1.177 (1.351)
Brief Treatment			1.795 (1.036)	6.021* (6.239)
Relapse Prevention			-.047 (.723)	.953 (.689)
Substance Abuse Education			.256 (.606)	1.291 (.7835)
Alcohol-Drug-Free Activities			.153 (1.318)	1.165 (1.537)
Treatment Referral			-.074 (1.167)	.928 (1.084)
Treatment/ Recovery Planning			-1.058 (.962)	.347 (.333)
Continuing Care			-.329 (.610)	.719 (.439)
Peer to Peer coaching			.909 (1.108)	2.482 (2.752)
Self-help and Support Group			-.836 (.771)	.433 (.334)
Black	-.684 (.504)	.504 (.254)	-.776 (.550)	.460 (.253)
Male	.500 (.628)	1.650 (1.037)	.537 (.743)	1.710 (1.272)
Education	-.125 (.100)	.882 (.089)	-.154 (.118)	.856 (.101)
Lifestyle Service Intensity	.395 (.291)	1.484 (.432)		
Life-chances Service Intensity	-.236 (.309)	.789 (.244)		
Log likelihood	-57.055	-57.055	-52.932	-52.932
Pseudo R^2	.349	.349	.396	.396
No. observations	136	136	136	136

*.10 level **.05 level ***.01 level

Impact of Lifestyles and Life-chances Interventions on Clients' Employment Outcomes

Table 66 shows the multinomial logistic equation used to fit the regression model.

TABLE 66: EMPLOYMENT REGRESSION EQUATIONS	
1.	$\ln \frac{\Pr(\text{Employment}=1)}{\Pr(\text{Employment}=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{lifestyles intensity} + \beta_3 * \text{life-chances intensity} + \beta_4 * \text{black} + \beta_5 * \text{male} + \beta_6 * \text{education} + \varepsilon_1$ $\ln \frac{\Pr(\text{Employment}=2)}{\Pr(\text{Employment}=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{lifestyles intensity} + \beta_3 * \text{life-chances intensity} + \beta_4 * \text{black} + \beta_5 * \text{male} + \beta_6 * \text{education} + \varepsilon_1$ $\ln \frac{\Pr(\text{Employment}=3)}{\Pr(\text{Employment}=K)} = \beta_0 + \beta_1 * \text{Employment Status}_1 + \beta_2 * \text{lifestyles intensity} + \beta_3 * \text{life-chances intensity} + \beta_4 * \text{black} + \beta_5 * \text{male} + \beta_6 * \text{education} + \varepsilon_1$
2.	$\ln \frac{\Pr(\text{Employment}=1)}{\Pr(\text{Employment}=K)} = \beta_0 + \beta_1 * \text{baseline alcohol use}_1 + \beta_2 * \text{intensive outpatient} + \beta_3 * \text{screening} + \beta_4 * \text{brief treatment} + \beta_5 * \text{relapse prevention} + \beta_6 * \text{substance abuse education} + \beta_7 * \text{alcohol-drug free activities} + \beta_8 * \text{treatment referral} + \beta_9 * \text{treatment/recovery planning} + \beta_{10} * \text{continuing care} + \beta_{11} * \text{peer to peer coaching} + \beta_{12} * \text{self-help and support group} + \beta_{13} * \text{black} + \beta_{14} * \text{male} + \beta_{15} * \text{education} + \beta_{16} * \text{black} + \beta_{17} * \text{male} + \beta_{18} * \text{education}_1 + \varepsilon_1$ $\ln \frac{\Pr(\text{Employment}=2)}{\Pr(\text{Employment}=K)} = \beta_0 + \beta_1 * \text{baseline alcohol use}_1 + \beta_2 * \text{intensive outpatient} + \beta_3 * \text{screening} + \beta_4 * \text{brief treatment} + \beta_5 * \text{relapse prevention} + \beta_6 * \text{substance abuse education}_6 + \beta_7 * \text{alcohol-drug free activities} + \beta_8 * \text{treatment referral} + \beta_9 * \text{treatment/recovery planning} + \beta_{10} * \text{continuing care} + \beta_{11} * \text{peer to peer coaching} + \beta_{12} * \text{self-help and support group} + \beta_{13} * \text{black} + \beta_{14} * \text{male} + \beta_{15} * \text{education}_{15} + \varepsilon_1$ $\ln \frac{\Pr(\text{Employment}=3)}{\Pr(\text{Employment}=K)} = \beta_0 + \beta_1 * \text{baseline alcohol use}_1 + \beta_2 * \text{intensive outpatient} + \beta_3 * \text{screening}_3 + \beta_4 * \text{brief treatment}_4 + \beta_5 * \text{relapse prevention} + \beta_6 * \text{substance abuse education} + \beta_7 * \text{alcohol-drug free activities} + \beta_8 * \text{treatment referral} + \beta_9 * \text{treatment/recovery planning} + \beta_{10} * \text{continuing care} + \beta_{11} * \text{peer to peer coaching} + \beta_{12} * \text{self-help and support group} + \beta_{13} * \text{black} + \beta_{14} * \text{male} + \beta_{15} * \text{education} + \varepsilon_1$

Tables 67a – 67b show clients' employment outcomes as a function of employment status at intake, lifestyles and life-chances service interventions, and demographic control variables. The coefficients and the relative risk ration (RRR) are reported in the Tables. Unemployed and looking for work remains the reference category for this analysis.

Table 67a examined clients' employment status at follow-up as function of lifestyle and life-chances service intensity and demographic control variables. The model had a log likelihood value of -153.326 and indicated that clients who were employed at intake had a 14.106 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work. For each increase in lifestyles services clients received, they had a 2.362 times higher odds of being employed compared to being unemployed and not looking for work. For each increase in educational attainment, clients had a .842 times higher odds of being unemployed and disabled or retired compared to being unemployed and not looking for work. Relative to females, males had a 2.630 times higher odds of being unemployed and looking for work versus being unemployed and not looking for work. With each increase in lifestyles service interventions, clients had a 1.661 times higher odds of being unemployed and looking for work versus being unemployed and not looking for work.

The final life-chances employment analysis reported in Table 67b, predicted clients' employment status at follow-up as function of the full array of lifestyles and life-chances service variables, and demographic control variables. The model had a log likelihood value of -133.462. Clients who were employed at intake had a 12.278 times higher odds of being employed at their follow-up assessment compared to being

unemployed and not looking for work. The largest employment outcome was for clients who received the lifestyles intensive outpatient service. Clients receiving the lifestyles intensive outpatient service had a 53.324 times higher odds of being employed at their follow-up assessment versus to being unemployed and not looking for work. After receiving the intensive outpatient service, clients had a 54.798 times higher odds of being unemployed, disabled or retired compared to being unemployed and not looking for work. Additionally, with each increase in educational attainment, clients had a .793 times higher odds of being unemployed, disabled or retired compared to being unemployed and not looking for work. Clients receiving the lifestyles brief treatment and relapse prevention had a 6.387 and a 3.768 times higher odds, respectively, of being unemployed and looking for work versus being unemployed and not looking for work.

In summary, the analysis of lifestyles and life-chances service interventions indicates a comparative advantage of the lifestyles service intervention. For instance, while none of the life-chances service interventions led to any improvements in clients' employment status, for each increase in lifestyles services received, clients had a 2.362 times higher odds of being employed compared to being unemployed and not looking for work at their follow-up assessment. Clients receiving the lifestyles intensive outpatient service had a 53.324 times higher odds of being employed at their follow-up assessment versus to being unemployed and not looking for work.

Table 67a: Multinomial Odds Ratio for Lifestyles and Life-chances Interventions on Clients' Employment Status, Reference Category is Unemployed, Looking for Work

	Working (full or part-time) vs. Unemployed and not looking for work		Unemployed, disabled or retired vs. Unemployed and not looking for work		Unemployed and looking for Work vs. Unemployed and not looking for work	
	Coefficient	RRR	Coefficient	RRR	Coefficient	RRR
Constant	-5.765 (2.282)		-.129 (1.609)		-1.599 (1.291)	
Baseline Employed	2.646*** (.960)	14.106*** (13.552)	.825 (1.013)	2.283 (2.313)	-.029 (.976)	.970 (.947)
Intensive Outpatient						
Screening						
Brief Treatment						
Relapse Prevention						
Substance Abuse Education						
Alcohol-Drug-Free Activities						
Treatment Referral						
Treatment/Recovery Planning						
Continuing Care						
Peer to Peer coaching						
Self-help and Support Group						
Black	-.556 (.733)	.573 (.420)	.451 (.662)	1.571 (1.040)	.184 (.473)	1.202 (.569)
Male	.977 (.746)	2.658 (1.985)	.427 (.626)	1.533 (.960)	.967** (.461)	2.630** (1.213)
Education	.073 (.134)	1.076 (.144)	-.171* (.101)	.842* (.085)	-.080 (.081)	.922 (.075)
Lifestyle Service Intensity	.859** (.403)	2.362** (.954)	.272 (.340)	1.312 (.447)	.507** (.246)	1.661** (.409)
Life-chances Service Intensity	.241 (.507)	1.273 (.646)	-.274 (.412)	.759 (.313)	-.003 (.285)	.999 (.285)
Log likelihood	-153.326	-153.326	-153.326	-153.326	-153.326	-153.326
Pseudo R^2	.032	.032	.032	.032	.032	.032
No. observations	140	140	140	140	140	140

*.10 level **.05 level ***.01 level

Table 67b: Multinomial Odds Ratio for Lifestyles and Life-chances Interventions on Clients' Employment Status, Reference Category is Unemployed, Looking for Work

	Working (full or part-time) Vs. Unemployed, not looking for work		Unemployed, disabled or retired Vs. Unemployed and not looking for work		Unemployed and looking for Work Vs. Unemployed and not looking for work	
	Coefficient	RRR	Coefficient	RRR	Coefficient	RRR
Constant	-7.622 (3.315)		-17.415 (3476.488)			
Baseline Employed	2.507** (1.310)	12.278** (16.094)	.564 (1.026)	1.759 (1.805)	-.103 (.978)	.901 (.882)
Intensive Outpatient	3.976** (2.026)	53.324** (108.08)	4.003** (2.051)	54.798** (112.41)	2.442 (1.722)	11.503 (19.814)
Screening	1.268 (2.083)	3.556 (7.406)	.726 (2.495)	2.067 (5.159)	-1.024 (1.290)	.359 (.463)
Brief Treatment	.901 (1.405)	2.463 (3.409)	1.710 (1.281)	5.531 (7.085)	1.854** (.944)	6.387** (6.030)
Relapse Prevention	.402 (1.556)	1.495 (2.328)	1.507 (1.085)	4.517 (4.902)	1.326** (.636)	3.768** (2.400)
Substance Abuse Education	-.287 (.977)	.749 (.732)	-1.143 (.820)	.318 (.261)	-.034 (.522)	.965 (.504)
Alcohol-Drug-Free Activities	-14.517 (.6868)	4.950 (.003)	-.695 (2.045)	.498 (1.020)	1.728 (1.405)	5.630 (7.913)
Treatment Referral	.667 (1.734)	.577 (.948)	18.226 (3476.488)	8.230 (2.860)	-.044 (1.047)	6.031 (10.172)
Treatment/ Recovery Planning	.667 (1.734)	1.948 (3.379)	-2.037 (2.288)	.130 (.298)	-.044 (1.047)	.956 (1.002)
Continuing Care	.217 (1.857)	.703 (.753)	-1.375 (.867)	.252 (.219)	.026 (.524)	1.026 (.538)
Peer to Peer coaching	.217 (1.857)	1.242 (2.308)	1.916 (1.371)	6.800 (9.324)	.871 (1.025)	2.390 (2.452)
Self-help and Support Group	-17.685 (1698.345)	2.090 (.000)	-.062 (.943)	.939 (.886)	.300 (.606)	1.350 (.818)
Black	-.341 (.902)	.710 (.641)	.405 (.733)	1.500 (1.101)	.180 (.512)	1.197 (.613)
Male	1.036 (.917)	2.818 (2.585)	.389 (.707)	1.475 (1.043)	.939 (.519)	2.558 (1.330)
Education	.291 (.210)	1.338 (.281)	-.231** (.118)	.793** (.093)	-.084 (.083)	.919 (.077)
Lifestyle Service Intensity						
Life-chances Service Intensity						
Log likelihood	-133.462	-133.462	-133.462	-133.462	-133.462	-133.462
Pseudo R^2	.208	.208	.208	.208	.208	.208
No. observations	140	140	140	140	140	140

*.10 level **.05 level ***.01 level

Impact of Lifestyles and Life-chances Interventions on Clients' Criminal Justice Involvement

Table 68 shows the equations used to fit the regression models for the analyses of the criminal justice outcomes.

TABLE 68: CRIMINAL ACTIVITY REGRESSION EQUATIONS	
1.	New Crimes$_2$= exp(β_0+ β_1*baseline crimes + b_2*lifestyles + b_3*life-chances intensity+ b_4*black + b_5*male + b_6*education + ε_1)
2.	New Crimes$_2$= exp(β_0+ β_1*baseline crimes + β_{2*}intensive outpatient + β_3*screening + β_4*brief treatment + β_5*relapse prevention + β_6*substance abuse education + β_7*alcohol-drug free activities + β_{8*}treatment referral + β_9*treatment/recovery planning + β_{10}*continuing care + β_{11}*peer to peer coaching + β_{12}*self-help and support group + β_{13}*black + β_{14}*male + β_{15}*education + β_{16}*black+ β_{17}*male + β_{18}*education + ε_1)

Table 69 displays the negative binomial coefficient and the percentage change in the number of crimes committed by clients during the previous month as a function of crimes at intake, lifestyle and life-chances service intensity, and relevant control variables. Similar to the previous analyses, only statistically significant findings are reported, and the results reported are contingent upon holding all other variables in the model constant. Model 1 had a log likelihood value of -155.878. The statistically significant findings for model indicate that between their baseline and follow-up assessments, clients' criminal activity increased by over 19 percent per month. For each increase in lifestyles services received, there was a 46.7 percent decrease in the number of monthly crimes committed.

Model 2 predicted clients' criminal activity as a function crimes reported at intake, the full array of lifestyles and life-chances variables, and relevant control variables. Model 2 had a log likelihood value of -148.632. The statistically significant

findings for model indicate that between their baseline and follow-up assessments, clients' criminal activity increased by over 20 percent.

In summary, the negative binomial model indicated that between clients' baseline and follow-up assessments, the number of new crimes clients committed increased 19 and 20 percent across the two models, respectively. With each increase in lifestyles services received, there was a decrease in the number of new crimes committed by close to 47 percent.

Table 69: Negative Binomial Regression Results for New Crime Committed				
	Model 1		Model 2	
	Coefficient	% Change	Coefficient	% Change
Constant			-20.001 (4902.734)	
Baseline Crimes Committed	.177*** (.039	19.5*** (328.6)	.181*** .032	19.9*** (341.8)
Intensive Outpatient			.976 (1.135)	165.4 (25.1)
Screening			.865 (2.487)	137.6 (25.1)
Brief Treatment			-1.137 (1.257)	-67.9 (-41.0)
Relapse Prevention			-.822 (.888)	-56.1 (-28.1)
Substance Abuse Education			.267 (.709)	30.7 (14.4)
Alcohol-Drug-Free Activities			.517 (1.574)	67.7 (9.9)
Treatment Referral			18.891 (4902.734)	1.610 (7480.1)
Treatment/Recovery Planning			-1.142 (2.185)	-68.1 (-42.9)
Continuing Care			-.688 (.794)	-49.8 (-27.1)
Peer to Peer coaching			.260 (1.05)	29.8 (8.0)
Self-help and Support Group			1.129 (.755)	209.3 (51.3)
Black	.809 (.650)	124.6 (44.9)	.864 (.680)	137.3 (48.6)
Male	.531 (.616)	70.1 (28.5)	.427 (.665)	53.4 (22.4)
Education	-.080 (.116)	-7.7 (-18.9)	-.092 (.103)	-8.8 (-21.4)
Lifestyle Service Intensity	-.629** .316	-46.7** (-44.0)		
Life-chances Service Intensity	-.024 (.505)	-2.4 (-1.8)		
ln α	1.930	1.930	1.606	1.606
α	6.893	6.893	4.985	4.985
Log likelihood	-155.878	-155.878	-148.632	-148.632
Chi-square	.000	.000	.000	.000
No. observations	145	145	145	145

*.10 level **.05 level ***.01 level

Qualitative Analysis – Staff Interviews

In addition to the quantitative analysis, a series of qualitative measures were also used to assess the impact of the NDHHS SAMHSA program on client outcomes. The first qualitative method used was interviews with the NDHHS SAMHSA program staff. Three recurring themes emerge for the staff interviews, including: (1) the primacy of the MH/SA treatment service track over social supportive services track within the NDHHS SAMHSA program model; (2) the external barriers to clients' self-sufficiency posed by the city of Newark's challenging social and economic environment; (3) the internal limitations that impeded upon staff's ability to provide self-sufficiency services to homeless clients.

Dual Program Track, But Primary Focus to Address MH/SA Disorders

Interviews with the NDHHS SAMHSA staff revealed a general sentiment that the most pressing need by program clients, and the primary purpose of the NDHHS SAMHSA program was to provide MH/SA services. While the social supportive services track was an acknowledged component of the NDHHS SAMHSA program, it was presented as an ancillary program component. The case managers routinely cited the treatment of MH/SA disorders as the crucial element in helping clients gain the emotional stability necessary to connect to permanent housing. The perceived priority of MH/SA treatment services aligned with both the federal mandate of the US SAMHSA program to increase accessibility and quality of MH/SA services to vulnerable populations, as well as the traditional linear treatment model. For instance, according to one NDHHS SAMHSA case manager, "We want to see clients in treatment and remain

compliant with their treatment plan. We know that when clients are sober and mentally stable then they are in a better position to obtain and maintain permanent housing and employment. We can and do try to provide all of the social supports [i.e. life chance interventions] possible, but without mental stability and sobriety there is not much hope that clients will be successful." Another case manager added, "Clients with mental health issues have to be stable on their meds. For some of our clients, the road to stable employment and housing is linked to their ability to follow their treatment plan. Housing and employment are outside of their reach if they can't function properly. The challenge is getting them to understand that." The three NDHHS SAMHSA program case managers interviewed each stressed the special attention they pay to ensuring that clients maintain "a high level of compliance" in scheduled psychiatric appointments and prescribed medications. Furthermore, the NDHHS SAMHSA clinical manager added that the true key to clients' ability to reconnect to permanent housing is not just in making sure clients are taking their meds, but to monitor clients' treatment plan to ensure that the prescribed medications are not losing effectiveness and need to be adjusted. According to the clinical manager, "The stressors of living on the streets mean that clients' medications have to constantly be monitored and adjusted to ensure it is effective. The dosage prescribed at one point in time may need to be adjusted so we constantly have to assess clients and screen their treatment plan."

Although the NDHHS SAMHSA support staff expressed sentiments suggesting the primacy of MH/SA treatment —stressing both the importance and difficulty of getting clients to follow their mental health treatment plans with fidelity—the NDHHS SAMHSA program director offered a more balanced view between the importance and

ability of the NDHHS SAMHSA program to provide social supportive services. According to the director, “You can’t separate the lack of stable shelter from either mental health or substance abuse disorders, they go hand in hand. Each has a way of feeding off of each other and we have to help clients deal with both [lack of shelter and MH/SA disorders] if they are going to become self-sufficient. Along with helping clients remain sober and mentally stable, we also provided housing and other social services.”

Comparatively speaking, the interviews revealed a schism between the director and case managers’ view of the NDHHS SAMHSA program’s ability to address clients’ ecological difficulties. For instance, while the director and case managers each rated NDHHS SAMHSA MH/SA treatment services as being either “very successful” or “successful” respectively, the case managers rated the program’s ability to address clients’ ecological challenges of employment, criminal justice and housing concerns as “neutral” or “unsuccessful.” Conversely, the director rated the program’s employment, criminal justice, and housing social supportive services as “successful.” Notwithstanding recognizing the inclusion and importance of social supportive services, the program director opined that the program track could be more successful in moving clients towards self-sufficiency were it not for Newark’s challenging social environment.

The Challenging Social Environment of the Newark Community

A shortage of affordable housing, the lack of a labor market demand for low skill workers, and an inadequate citywide homeless service system were recurring themes

expressed by staff members when characterizing the major challenges faced by Newark's homeless population. According to the program director, although the housing and employment difficulties that confront Newark's homeless population are not different from those that exist in other major metropolitan areas, unlike many other large cities "Newark does not have a well-defined homeless service system that can support the size or complex needs" of the city's homeless population. Referencing homeless data from the Corporation of Supportive Housing Point in Time Survey (2010) that cited Newark's homeless population as the largest in the state; more likely to exhibit MH/SA symptoms; and more likely to have had previous contact with the criminal justice system compared to homeless individuals in other parts of the state, the NDHHS SAMHSA director remarked that, "We [Newark Department of Health and Human Services] are one of the few agencies in the city that provide the type of comprehensive assistance to the city's homeless population and it is but so much we can do given the size and needs of the population. They come here [and] they can get free medical and dental assistance. But for most of our clients, even if they overcome their mental health and substance abuse issues, long-term permanent housing would still be beyond their reach because of the lack of affordable housing for anyone, nevertheless for someone with mental health issues. It is sad to say, but they would still have to rely on the shelter system." The director went on to point out successful homeless programs in other states that provide immediate housing to the homelessness and the fact that such programs did not exist in Newark.

The NDHHS SAMHSA staff framed the labor market challenges faced by the city's homeless population as an issue related to the lack of an articulated homeless supportive system in Newark. For instance, according to a case manager, many of the

employment services available to program clients were limited to the program's linkage to the Department of Labor and other secondary support agencies. In each case, the case manager felt that the limited employment services and the modest employment preparedness of the program clients all served to adversely impact the effectiveness of the program's employment services. The staffers universally agreed that the city's homeless were in dire need of extensive job training and placement assistance; services that simply were not readily available in Newark. In the cases where employment services are available to clients, the staffers pointed to clients' MH/SA impairments and their transient lifestyles as major barriers to their ability to connect with existing services. According to a case manager, "Through our partnering agencies we refer clients to services, but for the most part few services in Newark are designed to aid homeless populations exclusively, but are for poor people in general. We try to be there for clients to guide them in this process, but I'm not sure how effective we can really be given that services in Newark are not built around tackling the city's homeless problem. Usually it is not even part of the discussion when people talk about tackling the major problems in the city. Homelessness is not a part of the conversation." The case manager went on to note that the homeless population in Newark is growing daily and is placing a tremendous burden on the limited number of services that are currently available. She concluded that there need to be more services directed at the city's homeless population, as well as efforts to prevent others from becoming homeless.

Internal Program Limitations

The staff interviews provided valuable insight into a number of limitations that impacted the NDHHS SAMHSA program's ability to successfully help clients overcome the barriers to permanent housing. Many of these barriers were external to the NDHHS SAMHSA program itself, as documented in the above section about Newark's challenging social environment; others, however, were internal. Interviews conducted in the summer of 2013 specifically attempted to solicit information from the program staff on the internal challenges that hampered program success. The NDHHS SAMHSA program director, for instance, elaborated upon two internal challenges. The first was related to the insulated manner in which the NDHHS SAMHSA program operated. While conceding that there was a scarcity of homeless related services in Newark, the director stressed that the dearth of services did not mean that they were nonexistent, or that the existing services were not innovative. The director went on to discuss an initiative by the University of Medicine and Dentistry of New Jersey (UMDNJ) that was designed to assist homeless clients with mental health issues secure long-term housing. The director stated that unfortunately she became aware of the UMDNJ project towards the end of the NDHHS SAMHSA program and could not fully collaborate with UMDNJ. Moreover, the director acknowledged the possible existence of other homeless initiatives that NDHHS SAMHSA was disconnected from and therefore represented a missed opportunity for collaboration. The director went on to add that even with the poorly developed homeless service system in Newark, the creation of a homeless services network consortium would have been beneficial to the homeless service community and would have been a worthy objective for the NDHHS SAMHSA program to have undertaken.

The second limitation cited by the NDHHS SAMHSA director was related to what she felt was an uneven programmatic focus on clinical treatment and recovery-based services over social supportive services. When asked to elaborate, the director stated that the importance of helping clients overcome their mental health and addictive disorders was an obvious part of the NDHHS SAMHSA program, but additional training could have been provided to program case managers to help them better understand the entire spectrum of environmental issues that affected clients homeless status. The director referenced the case managers' clinical educational and employment backgrounds, which, coupled with the programmatic focus on MH/SA disorders, created what she felt was a disproportionate focus on lifestyles-oriented interventions.

The final programmatic limitation referenced by the NDHHS SAMHSA program director centered on the limited funded timeframe to address the complex needs of the homeless clients. The funding period for the NDHHS SAMHSA program was for five years, but full program operations was for a little more than three years. The first year of operations of the NDHHS SAMHSA program was delayed as the necessary staff was hired. During the final year of the program, the NDHHS SAMHSA staff was reduced from three case managers to one. The remaining case manager was responsible for providing follow-up services necessary to close out the grant, rather than continuing with direct support services to program clients. According to the program director, "We had some clients who were homeless for five, ten years and we had less than five years to work with them and were expected to help them overcome problems that were, in some cases, a decade in the making." The program director went on to discuss how not only did the program constraints limit the amount of time staff was able to provide services to

clients, but they also denied clients who were able to reach a level of self-sufficiency from having extended access to future services if needed. According to the director, the program clients needed a resource center to provide long-term support. “Once clients are connected with housing and employment they are not out of the woods, we assume that a one-time inoculation will lead to long-term success. Clients have secure housing at one point in time but at a later point in time they are homeless again and need additional support.”

NDHHS SAMHSA Client Interviews

Twenty-five NDHHS SAMHSA clients were interviewed for this research, which included twelve females and thirteen males. The average age of the interviewed clients was forty-seven years, compared to forty-one years of age for the larger study population. Like the larger study population, the majority of clients were African Americans (17), followed by those of Hispanic/Latino/Spanish origin (6), and whites (2). The larger goal of the client interviews was to capture information on the challenges, needed services, and subtleties associated with helping clients overcome the numerous complex challenges the homeless population in Newark experience. For instance, in the thirty days prior to their interview, seven clients reported experiencing a depressed mood that was severe enough to interfere with their ability to maintain employment and/or complete home management tasks; six clients reported having abused illegal substances, including four who reported that they consumed alcohol everyday over the past month. Additionally, during the past twelve months, three clients reported that they were on probation and another client reported to having been paroled from prison. Consistent with their

homeless status only one client reported having a family/personal income of $20,000 or more a year, while only three clients reported to having worked at any point during the prior week.

Below is a detailed account from five of the interviewed clients. All names used are pseudonyms.

Detailed Client Profile

John was a forty-eight-year-old Latino divorced male. Despite having completed four years of college, he was unemployed due to his disability. John reported that his personal income was limited to only $2,000 to $2,999 a year. John received food stamps to supplement his limited income. His history of substance abuse included alcohol, marijuana, crack, and cocaine use, but none in the 12 months prior to his interview date. John had a history of criminal activity and was on probation during the past 12 months. Additionally, he reported that his physical health was fair, but that he had experienced bouts of depression so severe that it interfered with his ability to work, maintain close relationships, and conduct home management tasks. John reported that he had attempted to commit suicide during his life.

Sean was a fifty-two-year-old African American male who was married. He had completed eleventh grade and cited having become a teenage father as the reason he decided to leave school prior to graduating. Sean was self-employed as a laborer in the construction field and reported his personal income to be over $20,000 a year. Sean shared a household with his forty-five-year old wife. Sean's history of substance abuse included alcohol, marijuana, heroin, and cocaine use. He also reported that within the past 12 months he had used tobacco, alcohol, and heroin. Sean's criminal history

included having been arrested during his lifetime, and he had been on probation within the past 12 months. He reported that his physical health was fair, but that he had experienced bouts of depression so severe that it had interfered with his ability to work, maintain close relationships, and conduct home management tasks. Sean denied having made any suicide attempts.

Lois was a fifty-three-year-old African-American divorced female. Despite having completed four years of college, she was currently unemployed after being laid off from her previous job in the financial industry. She shared a household with her thirty-one-year-old unemployed son. Lois refused to provide more specific answers related to her personal and family income, other than to state that it is very limited and that she received cash assistance and food stamps.

Lois reported that her current use of substances was limited to cigarettes and alcohol. During the past thirty days, Lois reported that she smoked a cigarette every one of the thirty days. Likewise, Lois also acknowledged that she had consumed alcohol for approximately twenty days during the past thirty days. The only other substance use Lois reported was the use of marijuana over a year ago.

Notwithstanding her unstable housing situation, Lois assessed her overall physical and mental health states as very good. Although she admitted that she had a period of time lasting several days or longer when she was depressed for most of the day, although she stated that her mental health had not interfered with her ability to conduct home management tasks, maintain employment, or form social relationships.

Another interviewed client, Reggie, was a fifty-seven-year-old African-American male who was unemployed and had never been married. Reggie only completed seven

years of education, due to bouts of incarceration while in school. Reggie reported that his personal income is very limited to only $7,000 to $7,999 a year. Reggie received food stamps to supplement his limited income.

Although unemployed, Reggie stated that he did not make any efforts to secure employment during the past month, nor did he provide a reason for not seeking employment. When asked additional questions about his past employment status, Reggie failed to provide any information related to his previous industry of employment or any information related to his source of yearly income.

Reggie reported that over the past thirty days, his substance use had been limited to cigarettes. He stated that he smoked at least one cigarette during each of the past thirty days and had not used alcohol or marijuana in the past twelve months. Reggie added that he had never used heroin, cocaine, or crack. Although admitting to have been arrested in the past, he stated that he had not had contact with the criminal justice system in the past twelve months. Additionally, he reported that his physical health was fair and that he had not experienced any mental health issues that had interfered with his ability to conduct daily tasks or maintain social contacts.

The detailed accounts of the program clients are representative of the clients interviewed during the course of the evaluation period and their narratives provide important details about the problems faced by the homeless clients. Similar to the other interviews, and given their homeless status, it is not surprising that both Lois and Reggie reported that they had a limited income that was supplemented by public assistance. Table 70 display the characteristics for the twenty-five clients interviewed.

Table 70: Interviewed NDHHS SAMHSA Clients' Characteristics								
	Age	Race	Gender	Yearly income	Worked any in past Week	Illegal drug use in past 12 months	Suicidal thoughts in past 12 months	Arrested in past 12 months
1.	48	Latino	M	$2,000–$2,999	No	No	Yes	No
2.	52	Black	M	Over $20,000	Yes	Yes	No	No
3.	53	Black	F	NA	No	No	No	No
4.	57	Black	M	$7,000–$7,999	No	No	No	No
5.	60	Black	M	$5,000–$5,999	No	No	No	No
6.	41	Latina	F	$8,000–$8,999	Yes	Yes	No	No
7.	39	Latino	M	$2,000–$2,999	No	NA	No	No
8.	54	Black	M	Over $20,000	Yes	No	No	No
9.	56	Black	M	$2,000–$2,999	No	No	No	No
10.	38	Black	M	NA	Yes	Yes	No	No
11.	53	Black	M	$8,000–$8,999	Yes	No	No	No
12.	49	Black	M	$4,000–$4,999	Yes	Yes	Yes	No
13.	45	White	F	$2,000–$2,999	No	Yes	Yes	No
14.	47	Black	M	NA	Yes	Yes	No	No
15.	56	Black	M	$2,000–$2,999	No	NA	Yes	No
16.	51	Black	F	NA	No	No	No	No
17.	42	Black	F	$7,000–$7,999	No	No	No	No
18.	48	Black	F	$8,000–$8,999	Yes	No	No	Yes
19.	40	Black	F	NA	No	No	Yes	No
20.	51	Black	F	$10,000–	No	No	No	No
21.	47	Black	F	$2,000–$2,999	No	No	No	No
22.	50	White	F	$9,000–$9,999	No	Yes	No	No
23.	36	White	F	$5,000–$5,999	No	No	Yes	No
24.	38	Latino	M	NA	No	No	No	No
25.	23	Latina	F	Over $20,000	Yes	No	No	No

Section 4: Direct Observation

The direct observations of the NDHHS SAMHSA program took place in eight-month intervals from May to December, from 2008 to 2011. The direct observation periods consisted of three- to-five-day-a-week site visits with program staff as they conducted case management services, weekly client support group sessions, and program staff meetings. The direct observation focused mainly on the services provided by the program's direct staff, consisting of the program director, case managers, an outreach worker, and a client locator. During the observation period, the NDHHS SAMHSA program underwent a number of staffing changes, including the termination of two staff members (for poor work performance), the death of another, and (during the final year of the program) the reduction of case managers from three full-time positions to one part-time position. The reduction in the number of case managers was in accordance with grant requirements that reduced program funding and services during the final year of implementation. The remaining case manager was part of the original staff, which helped to minimize the loss of institutional knowledge but severely limited clients' access to treatment services.

Although there were some notable exceptions, the NDHHS SAMHSA program staff demonstrated a high level of empathy toward the program's clients, particularly those who regularly participated in the weekly support group sessions. Facilitated by the case managers and covering topics related to emotional and personal development, impulse control, and stress management, the weekly sessions sought to build a sense of community and to serve as a resource center for program participants. During the first two years of the program, the support group sessions regularly attracted a committed

cohort of ten to fifteen participants. The availability of a catered full-course meal and a high level of dedication and preparation from the program case managers to develop lesson plans, bolstered attendance at the support group sessions. In subsequent years, a combination of budgetary constraints prohibited the serving of meals, along with a waning in staff dedication and preparation to the support group process, contributed to a decline in client attendance. The efforts to address the poor client attendance rates, including changing the meeting from weekly to monthly and providing light refreshments during the sessions, met with limited success. The irregular client participation rates often meant that fewer than five clients attended the meetings, and it was not unusual for the sessions to fail to attract any clients. Eventually, as interest continued to wane, the support group sessions were discontinued.

Outside of weekly group sessions, the case managers' interactions with the clients were mainly confined to one-on-one counseling sessions and periodic check-in phone calls when possible. The program staff used these interactions to assess clients' level of fidelity to their treatment plans, provide talk therapy, respond to any requests for additional assistance, and to update clients on the availability of supplementary supportive services. The counseling sessions with the clients took place at the case managers' desks, in an open cubicle area where safeguards for privacy and confidentiality were greatly compromised. The relatively open office area all but guaranteed that staff employees (from NDHHS SAMHSA and other city departments), and possibly other clients, would be in close proximity to any discussions taking place between case managers and clients. It is not unreasonable to assume that given the

workspace deficiencies, clients would be hesitant to share the type of prerequisite personal information needed for case manager to develop an effective treatment plan.

All of the staff interactions with clients were documented in the clients' case management file. The case managers recorded clients' presenting problems at intake and monitored clients overall progress towards self-sufficiency. A review of the case management files revealed that the case managers did not use a uniform reporting process. Despite extensive training on proper reporting and file documentation procedures, case managers' adherence to the reporting protocols was inconsistent. For example, a review of client case management files revealed that case managers' knowledge of important supportive services was uneven, leading to case managers to wrongly informing clients that certain referral services were not available, and in other cases failing to provide potential referral services. Unfortunately, because clients often received assistance from different case managers over the length of the program, it was not possible to isolate or distinguish the quality of service provided by the individual case managers on client outcomes.

Though significant in its own right, the lack of staff familiarity with available referral services touched upon another and more problematic issue, namely the lack of community-based linkages to external homeless assistance resources and services. The direct observation revealed that the NDHHS SAMHSA program failed to adopt formal procedures to connect with homeless assistance resources and services beyond the partnerships that were previously established. Operating in this insulated fashion meant that many potential resources, including those that would directly benefit case managers in their efforts to enhance clients' self-sufficiency, were outside the purview of the

NDHHS SAMHSA program. For instance, during staff interviews the director discussed an innovative program from UMDNJ that she only became aware of near the conclusion of the NDHHS SAMHSA program. Although the staff regularly referenced the scarcity of homeless assistance programs in Newark, there was little evidence of programmatic efforts to research if additional services existed.

In conclusion, on several occasions the program outreach worker and locator were accompanied outside the office setting during their various field assignments. One such occasion included a trip with the outreach worker and client locator to two local halfway house facilities that work directly with men who have been recently released from prison. The purpose of the site visits to the prisoner reentry facilities was to educate the formerly incarcerated men about the medical services available at the Newark Homeless Health Care Clinic, a major point of entry to the NDHHS SAMHSA program, and to familiarize the men with the availability of direct homeless services. After the presentation, the NDHHS SAMHSA staff addressed questions from the attendees and later spent between twenty-five to forty minutes in one-on-one consultation with those interested in receiving additional services upon their being discharged from the halfway house. The NDHHS SAMHSA staff demonstrated extreme patience and sensitivity in helping the interested attendees complete the intake application for the Health Care Clinic, including assisting several men who were functionally illiterate.

On another occasion, the client locator was observed as he attempted to locate program clients to complete their follow-up program assessment. The client locator spent more than 30 minutes aggressively pursuing a client who was reported to inhabit an area park. The locator visited several businesses located in the vicinity of the park, made

inquiries with business owners and patrons, and based solely on a description of the client provided by his family members was able to gather enough information to track down the client to completed the follow-up assessment.

CHAPTER 6

Discussion

Revisiting the Research Questions

Question 1: To what degree did NDHHS SAMHSA program clients' lifestyle outcomes improve over the course of the program?

Similar to the national focus of the US SAMHSA, a primary point of emphasis of the NDHHS SAMHSA program was to help clients overcome existing challenges related to MH/SA disorders. This program emphasis was underscored by program staff who routinely suggested that the linear treatment philosophy (that is, first helping clients overcome MH/SA ailments) was central to enabling clients to obtain the self-control necessary to successfully connect to permanent shelter and meaningful employment. Bivariate results of the NDHHS SAMHSA program indicated that clients experienced improved MH/SA outcomes. Paired t-tests revealed that program clients' self-reported days of experiencing depression and anxiety symptoms during the month prior to their assessment was reduced by 7.47 and 7.26 days respectively. This translates into a reduction of MH symptoms by more than 85 days a year for NDHHS SAMHSA clients. Additionally, clients' use of addictive substances was lower between the initial assessment and follow-up assessment by 1.39 days for alcohol use and 1.91 days for illegal drug use. Annually, this translates into a reduction in days of substance use by 16.68 for alcohol and 22.92 for illegal drugs.

Subsequent multivariate testing also revealed a reduction in anxiety symptoms by one and a half days a month for clients who received lifestyles service intensity interventions. For clients illegal drug use, the lifestyles service intensity model led to a

decrease in substance use by close to 41 percent. The life-chances analysis revealed that the intensity of life-chances services led to a decrease in clients' anxiety symptoms by close to two days a month. Additionally, clients receiving the life-chances treatment recovery planning service intervention experienced a reduction in depression and anxiety symptoms by more than three days a month.

Question 2: To what degree did NDHHS SAMHSA program clients' life-chances outcomes improve over the course of the program?

Although generally considered a secondary program focus, the NDHHS SAMHSA program provided treatment interventions to address ecological challenges faced by program clients. For employment measures, the number of clients connected to full- or part-time employment increased from 14 individuals at intake to 19 at follow-up. Even in the case of individuals who remained unemployed, the number of clients looking for work or volunteering increased from 55 to 77 individuals, while the number of unemployed clients not looking for work decreased from 88 to 53.

Although the homeless are typically thought to be individuals who are without permanent housing and are residing in homeless shelters or on the streets, the NDHHS SAMHSA program also served clients who were precariously housed. The precariously housed includes those who live in a residence of another person on a temporary basis where occupancy was contingent upon the hospitality of the primary leaseholder or owner and can be rescinded at any time without notice. In terms of those who lacked a fixed, regular, or adequate nighttime residence, including those living in homeless shelters, on the streets or outdoors, bivariate results indicated that between intake and

follow-up assessments, the number of homeless clients decreased from 85 to 62 individuals. Moreover, the number of clients who were successfully connected to housing increased from 83 at intake to 106 by their follow-up assessment.

Finally, clients' reporting criminal involvement during the previous 30 days of their assessment revealed a reduction in number of individuals engaged in criminal activity from 56 clients during their intake assessment to 32 clients during their follow-up assessment. Furthermore, t-test results indicated that clients experienced a reduction in the number of days of criminal involvement by close to two days (-1.73 days) a month or over twenty days (20.76) a year.

The multivariate analysis of lifestyles service interventions indicated for each increase in lifestyles service interventions, clients had a 2.480 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work. Clients who received the life-chances treatment/recovery planning intervention had a 6.990 times higher odds of being employed at their follow-up assessment versus to being unemployed and not looking for work. Moreover, for clients receiving the treatment recovery planning service, there was a 69 percent decrease in the number of crimes committed by clients.

Question 3: Are individuals receiving lifestyle services experiencing better outcomes compared to clients receiving life-chances services?

MH/SA Outcomes

The increased risk of homelessness for individuals with psychological and addictive disorders is well established. For decades, it was generally accepted that an

appropriate solution to this problem was to provide targeted MH/SA services to homeless populations. In assisting the homeless to overcome MH/SA disorders, it was reasoned that they would be better positioned to establish the interpersonal relationships necessary to secure employment, and ultimately permanent housing. The primary focus of the NDHHS SAMHSA program was to address clients' MH/SA disorders. It was hypothesized, therefore, that the program's life-styles interventions would lead to better MH/SA outcomes, than the life-chances service model.

The results for MH outcomes of NDHHS SAMHSA clients were mixed. The lifestyles service interventions did not have a comparative benefit in addressing clients' depression symptoms, but did have a comparative benefit in addressing clients' anxiety symptoms. For instance, for clients' depression outcomes, the individual life-chances service model had a stronger R-square (0.201 compared to 0.197) than the individual lifestyles model. The individual life-chances model revealed that clients receiving the life-chances treatment recovery planning service intervention experienced a reduction in depression symptoms by 3.736 days a month, or 44 days a year. Across the models tested, none of the lifestyles service interventions produced a statistically significant reduction in clients' depression disorders.

The examination of anxiety symptoms also indicated that the individual life-chances service model produced better outcomes than the individual lifestyles service model. When fitted individually, the largest reduction of anxiety symptoms was for clients receiving the treatment recovery planning intervention in the life-chances model. Clients receiving treatment recovery planning experienced a reduction of anxiety symptoms by more than three days (-3.123) a month (or 37 days a year), while none of

the service interventions in the individual lifestyles model had a statistically significant reduction in clients' anxiety outcomes. However, when the lifestyles and life-chances service interventions were fitted together, the largest reduction of anxiety symptoms was for clients receiving the lifestyles alcohol-drug-free activities treatment intervention. The alcohol-drug-free activities treatment intervention led to a decrease of anxiety symptoms by more than 11 days a month, or 132 days a year.

A review of substance use of NDHHS SAMHSA clients does not indicate a comparative benefit of the lifestyles service interventions over the life-chances service interventions. For alcohol use, the log likelihood for the lifestyles model was -207.706 compared to -206.423 for the life-chances model. The full model had a log likelihood of -202.891. Across the three models tested, none of the lifestyles or the life-chances services led to a reduction in clients' use of alcohol. In fact, for clients receiving the lifestyles brief treatment service intervention, there was an increase in days of alcohol use by 698 percent per month. Similarly, clients receiving the life-chances services of continuing care and peer-to-peer coaching service interventions experienced an increase in the number of days of alcohol use by 405 percent and 402 percent, respectively. The results for each of these findings were highly unexpected.

The examination of illegal drug use indicated that the log likelihood for the lifestyles model was -145.343 for the life-chances model and -142.908 for the life-chances model. The full model for lifestyles and life-chances interventions had a log likelihood of -140.794. For each of the models, follow-up illegal drug use increased by 19 percent for each of the three models. Similar to alcohol use, none of the lifestyles or the life-chances services led to a reduction in clients' use of illegal drugs.

In conclusion, the analysis of the NDHHS SAMHSA program does not fully support the comparative benefit of the lifestyles service model over the life-chances model in improving clients' depression or substance abuse symptoms. However, the full lifestyles and life-chances service model indicated that the lifestyles service intervention of alcohol-drug-free activities led to better outcomes in addressing clients' anxiety symptoms.

Ecological Outcomes

Nationally, homelessness continues to be a persistent problem despite decades of governmental support and direct services to aid those who are without permanent shelter. Over the years, public policy and service delivery systems have evolved from an exclusive focus on providing service interventions to address MH/SA disorders to include services to address a range of ecological conditions that have shown to be highly correlated with homelessness. Although the focus on MH/SA disorders remains the central response to homelessness, social supportive services now figures prominently. The NDHHS SAMHSA program provided life-chances service interventions that were specifically designed to address client challenges related to the lack of shelter, employment, and criminal justice involvement. The rationale for the model assumed that the ecological challenges were as much a cause of psychiatric and addictive disorders as they were a consequence. Nonetheless, as a prominent service delivery model, the lifestyles service model was hypothesized to lead to better client outcomes related to (1) housing (2) employment, and (3) criminal justice involvement than the life-chances service model.

Evidence from the NDHHS SAMHSA program indicated that the lifestyles service interventions did lead to slightly better ecological outcomes related to clients' housing and employment outcomes than the life-chances service interventions. The examination of clients' criminal justice involvement was inconsistent.

Housing Outcomes

The lifestyles service model for housing outcomes had a pseudo R-square of 0.377 and a log likelihood of -54.556, while the life-chances model had a pseudo R-square of 0.357 and a log likelihood of -56.367. The full model with lifestyles and life-chances service interventions had a pseudo R-square of 0.396 and a log likelihood of -52.932. Across the life-chances service interventions model and the full lifestyles and life-chances service interventions model, none of the life-chances service interventions produced any statistically significant improvements in housing outcomes. For the individual lifestyles service intervention model, clients receiving the lifestyles brief treatment service intervention had a nearly 5 times higher odds of reporting that they were housed during their follow-up assessment versus being homeless. Likewise, for the full lifestyles and life-chances service interventions model, clients who received the lifestyles brief treatment service intervention had 6 times higher odds of reporting that they were housed during their follow-up assessment versus being homeless.

Employment Outcomes

For the individual lifestyles and life-chances service models, clients receiving the lifestyles intensive outpatient services had a 35.679 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work.

Clients receiving the life-chances treatment/recovery planning intervention had a 6.990 times higher odds of being employed at their follow-up assessment versus to being unemployed and not looking for work.

The full model of lifestyles and life-chances service model indicated a comparative advantage of the lifestyles service intervention. For instance, while none of the life-chances service interventions in the full model led to any improvements in clients' employment status, clients receiving the lifestyles intensive outpatient service had a 53.324 times higher odds of being employed at their follow-up assessment versus to being unemployed and not looking for work.

Criminal Justice Outcomes

Analysis of the NDHHS SAMHSA program did not support the comparative benefit of the lifestyles model over the life-chances' model in improving clients' criminal involvement. For the individual life-chances service model, between clients' baseline and follow-up assessments, the number of new crimes committed by clients receiving the life-chances' treatment recovery planning services decreased by 69 percent. However, none of the service interventions for the individual lifestyles model and the full lifestyles and life-chances model led to a decrease in clients' criminal involvement.

Question 4: Does intensity of lifestyle services create improved outcomes compared to the intensity of life-chances services?

MH/SA Outcomes

In addition to analyzing exposure to individual lifestyles and life-chances treatment services, this research also examined the impact that the intensity of treatment

services had on clients MH/SA outcomes. Three models were tested for this investigation. The first model examined lifestyles intensity, the next model examined life-chances intensity, and the last model examined lifestyles and life-chances service intensity together. It was hypothesized that the lifestyles service intensity would produce better comparative outcomes than the life-chances service intensity. An empirical test of the intensity of lifestyles and life-chances services does not support the comparative benefit of the lifestyles service model over the life-chances service model in improving NDHHS SAMHSA clients' MH outcomes. For instance, the life-chances service model for depression days had a slightly stronger R-square (0.169 compared to 0.167), which denotes a stronger associative strength for the life-chances model compared to the lifestyles model. When examining the lifestyles and life-chances service interventions together, the model's R-square was 0.174. In the three models tested for this analysis, the intensity of lifestyles and life-chances services did not produce any statistically significant reductions in clients' depression symptoms. For anxiety outcomes, however, the individual life-chances intensity model reduced clients' symptoms by close to two days (-1.870) a month or by a little more than twenty-two (22.44) days a year. The individual lifestyles model only reduced clients' anxiety symptoms by one and a half days (1.507) a month or just over eighteen (18.084) days a year. The full lifestyles and life-chances service model did not produce any statistically significant reductions in clients' anxiety symptoms.

The examination of service intensity for substance use outcomes for NDHHS SAMHSA clients produced mixed results. While a comparative benefit of the lifestyles service intensity did not exist for clients' alcohol use, there was a comparative benefit of

the lifestyles service intensity over life-chances service intensity for clients' illegal drug use. For the individual models, as well as the full lifestyles and life-chances model, clients' baseline alcohol increased between their intake and follow-up assessments. For the lifestyles model, alcohol use increased by 14 percent. For the life-chances model alcohol use increased by close to 16 percent. Additionally, in the life-chances model, for each increase in life-chances services provided, there was an increase of monthly alcohol use by close to 132 percent. The full model of lifestyles and life-chances service interventions, for each increase in life-chances services provided, there was an increase of monthly alcohol use by close to 152 percent. A finding that is difficult to explain.

The lifestyles service intensity did have stronger explanatory power in reducing clients' illegal drug use than the intensity of life-chances services. For the individual lifestyles intensity model, each increase in lifestyles services led to a decrease in monthly illegal drug use by 41 percent. Similarly, for the full lifestyles and life-chances model, clients' illegal drug use again decreased by 41 percent. In the models tested, the life-chances service intensity did not produce any statistically significant decline in clients' illegal drug use.

The analysis of the NDHHS SAMHSA program does not support the comparative benefit of the lifestyles service model over the life-chances model in improving clients' MH symptoms and alcohol use outcomes. However, in the case of the full lifestyles and life-chances service model, the intensity of lifestyles services led to a decrease in clients' illegal drug use by 41 percent.

Housing Outcomes

For clients' employment outcomes, across the three models tested, the intensity of lifestyles and the life-chances services did not produced any statistically significantly improvements on clients' housing outcomes. The results fail to support the comparative benefit of the intensity of lifestyles services over the intensity of life-chances services regarding clients' housing outcomes.

Employment Outcomes

For the individual lifestyles model, with each increase in lifestyles service interventions, clients had a 2.480 times higher odds of being employed at their follow-up assessment compared to being unemployed and not looking for work. However, the individual life-chances service intensity model did not produce any improvements in clients' employment status. The full lifestyles and life-chances service intensity model supported the comparative benefit of the intensity of lifestyles services over the intensity of life-chances services in improving clients' employment outcomes. The model indicated that for each increase in lifestyles services received, clients had a 2.362 times higher odds of being employed compared to being unemployed and not looking for work at their follow-up assessment. The life-chances service intensity did not improve clients' employment outcomes.

Criminal Justice Outcomes

For clients' criminal justice outcomes, the lifestyles service intensity had stronger explanatory value in reducing clients' criminal involvement than the intensity of life-

chances services. For the individual lifestyles intensity model, there was a decrease in the number of crimes individuals committed by 47 percent. Similarly, for the full lifestyles and life-chances model, the lifestyles intensity service produced a 47 percent decrease in clients' criminal activity. In the models tested, the life-chances service intensity did not produce any statistically significant decline in clients' criminal activity. The criminal justice results support the comparative benefit of the intensity of lifestyles services over the intensity of life-chances services in improving clients' criminal justice outcomes.

Summary

Within the homelessness literature, the lifestyles oriented linear continuum of care and the life-chances oriented social supportive service models have emerged as alternative approaches to help individuals overcome the barriers to permanent housing. The enduring presence of hundreds of thousands of individuals in the United States without permanent shelter draws attention to the inability of past efforts to successfully eradicate homelessness. During the 1980s, figuring prominently in the delivery of homeless services was the belief that MH/SA disorders were the central pathway to homelessness. Consequently, homeless services were closely aligned with an almost exclusive focus on helping individuals overcome lifestyles oriented MH/SA disorders. Increasingly over the past two decades, social scientists and practitioners have come to question the basic tenets of the MH/SA pathway approach. An alternative perspective, one that emphasizes the role that life-chances play in creating homelessness has gained momentum. The life-chances perspective proposes that service interventions should address the social barriers to self-sufficiency, including barriers related to unemployment, access to shelter, and contact with criminal justice system.

The NDHHS SAMHSA program provided a unique opportunity to test the efficacy of the lifestyles and life-chances service delivery interventions in addressing the complicated needs of homelessness individuals in Newark, New Jersey. This study examined the impact of the NDHHS SAMHSA program on a single population of clients. In doing so, this analysis sought to address the limitations noted by researchers Locke et al. (2007), who observed that research across different multiple sites often failed to account for nuanced differences in case management, administrative procedures, and other significant factors that vary from program to program which can impact client outcomes.

This research hypothesized that lifestyles service interventions would lead to better client outcomes compared to the life-chances service interventions. The quantitative results from this study confirmed that the lifestyles service interventions produced improved client outcomes in the form of:

- A reduction of clients' anxiety symptoms by more than 11 days a month for those receiving the alcohol-drug-free activities service intervention
- A 6 times higher odds of housing for clients receiving brief treatment service intervention
- A 53.324 times higher odds of being employed at their follow-up assessment versus to being unemployed and not looking for work for individuals receiving the intensive outpatient services

Furthermore, this study confirmed that the intensity of lifestyles service interventions produced improved client outcomes in the form of:

- A 41 percent reduction in clients' illegal drug use
- A 2.362 times higher odds of being employed compared to being unemployed and not looking for work at their follow-up assessment
- A 47 percent decrease in clients' criminal activity.

The qualitative results from this study revealed that the NDHHS SAMHSA program staff perceived the inability of clients to manage existing psychiatric and addictive disorders as the central pathway to homelessness. Accordingly, the NDHHS SAMHSA program adopted a treatment service model that focused heavily on addressing MH/SA disorders, while alternatively providing treatment services that focused on life-chances structural barriers to housing. Subsequent interviews with the NDHHS SAMHSA program staff also revealed that a confluence of city level factors—including limited employment opportunities for low skilled workers and a lack of quality affordable housing for the poor—all played a role in constraining the effectiveness of the program's life-chances oriented service track's ability to successfully connect clients to permanent housing. The herculean task to moving clients towards self-sufficiency was also hampered by the truncated operational period of the NDHHS SAMHSA program. Funded for five years, with much of the first year spent in program development and the last year dedicated to closing out the grant and only providing follow-up services to clients, the NDHHS SAMHSA program had three full years to help clients overcome challenges that were years in the making. While it is clear that government initiatives, including the NDHHS SAMHSA program, cannot operate forever, the limited length of the program meant that even for clients that achieved positive outcomes the results could have been temporary.

CHAPTER 7

Conclusions

This research analyzed two support services offered through the NDHHS SAMHSA program. The two service tracks—based on a lifestyles perspective and a life-chances perspective—were designed to connect homeless clients to permanent housing, while helping individuals overcome a series of barriers to self-reliance. The results from this study found a comparative benefit of the lifestyles service interventions over the life-chances service interventions in addressing clients' outcomes related to:

1. Anxiety disorders – reducing symptoms by more than 11 days per month
2. Housing – producing a 6 times higher odds of housing for clients receiving brief treatment service intervention
3. Employment – for each increase in lifestyles services clients received, individuals had a 2.362 times higher odds of being employed compared to being unemployed and not looking for work. Additionally, clients receiving the lifestyles intensive outpatient service had a 53.324 times higher odds of being employed at their follow-up assessment versus to being unemployed and not looking for work.
4. Illegal drug use – decreasing use by 41 percent for an increase in the intensity of services
5. Criminal activity – decreasing activity by 47 percent for an increase in the intensity of services

Although the lifestyles treatment service track of the NDHHS SAMHSA program did lead to comparatively better outcomes than the life-chances treatment service track in addressing many of the challenges faced by program clients, the results for the lifestyles model were not conclusive across all of the tested outcomes. For instance, the lifestyles model had mixed results in addressing clients' MH/SA disorders. While the lifestyles

treatment track was more effective in addressing clients' anxiety symptoms than the life-chances service interventions, the results for depression symptoms did not support the comparative benefit of the lifestyles service interventions over life-chances interventions.

For addictive disorders, the intensity of lifestyles service interventions was more effective than the intensity of life-chances services in addressing clients' illegal drug use. Comparatively, the intensity of lifestyles services was not more beneficial than the intensity of life-chances services in addressing clients' alcohol use.

Additional findings from this study support the collective benefit of the lifestyles service model over life-chances service model in helping clients improve their housing and employment outcomes. These findings are consistent with the assumption of the linear continuum of care program model that maintains that helping clients overcome MH/SA disorders is the first step along a continuum leading to permanent housing. However, this study did not support the comparative benefit of the lifestyles oriented service track over the life-chances oriented service track in addressing clients' criminal involvement. For instance, clients receiving the treatment recovery planning—a life-chances service intervention—experienced a 69 percent decrease in criminal involvement. While the aggregate of lifestyles services only led to a 46 percent decrease in clients' criminal involvement.

This research sought to build upon existing literature on the study of vulnerable populations in general and homeless populations in particular. The role that lifestyles (agency/personal pathologies) and life-chances (structural/ environmental) impediments play in creating and sustaining social stratification is rooted in classical sociological theory (Cockerham et al. 1993), and has important public policy implications (Bratt et al.

2006). The impact of agency versus structure on social stratification has become central to the debate on who constitutes the ‘deserving’ and ‘undeserving’ poor; as well as how to better use public resources to address social inequality (Cockerham 2005).

However due to a number of conceptual and methodological limitations, the findings in this study should be interpreted with some level of caution. Conceptually, the lifestyles theoretical perspective was the primary service delivery model of the NDHHS SAMHSA program. Funded by the US SAMHSA, the lifestyles programmatic focus of the NDHHS SAMHSA program was consistent with the federal agency’s mission to reduce the impact of substance abuse and mental illness on American communities by expanding access to services to vulnerable populations that have historically faced barriers to treatment (Young et al. 2012). In accordance with the US SAMHSA agency, the NDHHS SAMHSA program considered MH/SA disorders to be a central (although not the only) pathway to homelessness. The qualitative analysis of the NDHHS SAMHSA program, including staff interviews and direct observations, supported the NDHHS SAMHSA program’s lifestyles programmatic focus over the life-chances model. Because of the programmatic focus of the NDHHS SAMHSA program, the findings of this study may be the result of the conceptual design of the NDHHS program rather than the actual benefit of lifestyles service model over the life-chances model in assisting homeless individuals to become self-sufficient.

Unfortunately, there were methodological limitations to this study that hindered the ability of the researcher to conduct a more in-depth analysis of the lifestyles and life-chances service interventions by controlling for the NDHHS SAMHSA program’s primary focus on the lifestyles oriented treatment track. For instance, limitations

precluded an analysis of the quality of lifestyles and life-chances services offered to program clients. An examination of the quality of lifestyles and life-chances service interventions would have afforded the researcher the opportunity to investigate if quality of service had an impact on clients' outcomes. While assessing the quality of service delivery can be a subjective process, research by Malley and Fernández (2010) identified several indicators to inform the development of a quality social service delivery matrix. The researchers identified three important measures of the quality of social services, including: (1) Clients' accessibility to treatment services (including the frequency of treatment services provided to clients); (2) The skills, knowledge, and training of service delivery staff; and (3) The setting, tools and resources service providers have at their disposal when providing services to clients. Ideally, a matrix of lifestyles and life-chances service quality would have allowed for a more comparative analysis of the service interventions, ensuring that the lifestyles and life-chances service tracks were weighed more equally. Whereas efforts were made by the researcher to obtain data on the quality of NDHHS SAMHSA program services, the efforts were unsuccessful due to the lack of service documentation maintained by the NDHHS SAMHSA administrative staff.

Additionally, this research would have also benefited from an analysis of clients motivation for change. Research by Nidecker et al. (2009) on individuals with dual MH/SA disorders, found a positive relationship between clients' motivation to change, their increase engagement in treatment services, and their overall improvements in treatment outcomes. Equally as important as the type of treatment services provided, the authors found that the determination to change ones' life circumstances was central to understanding clients' outcomes. Again, because of the lack of documentation maintained

by the NDHHS SAMHSA administrative staff, information on clients' motivation to change was not included in this study.

Opportunities for Future Research

Over the past two decades, the linear continuum of care and the social supportive models have become popular service delivery programs to address homelessness in the United States (Wong et al. 2006, Tsemberis 2000, Mares and Rosenheck 2004). Despite the popularity of the two models, there has been a scarcity of research to examine the ability of the models to connect homeless individuals to permanent housing (Edens et al. 2011). Homeless research would benefit from a comparative analysis of the two service delivery models that can weigh the two service models equally in addressing their ability to help homeless individuals overcome barriers to self-sufficiency, a major limitation of this study.

Additional research should account for individuals' motivation to change and their homeless typology (i.e. transitional, episodic, or chronic homelessness). Jahiel and Babor (2007) found that the homeless service needs and personal challenges differ based on their typology, with the transitional homeless needing far less service support than those that are episodic or chronically homeless. The authors found that those who are transitionally homeless (or are homeless due to an expected life circumstance such as the loss of employment or medical expense) often are able to reconnect to housing with limited service support, while those whose homelessness is recurrent and/or chronic tend to have more extensive service needs. Individuals' motivation to change and their homeless typology have important implications on the type of service interventions

needed to help individuals connect with housing, and should therefore be considered in future research.

Public Policy Implications

The findings for this research have important public policy implications. As attention to the disproportionate utilization of public services and the associated costs incurred by homeless populations has increased, so too has interest in understanding the most effective types of interventions to end homelessness (Burt et al. 2004). Studies by Kushel et al. (2002), Culhane (2008), and Larimer et al. (2009) have identified the inordinate use of emergency medical, social welfare, and criminal justice resources by the homeless as especially problematic. Because of the multifaceted and complex needs of homeless individuals, the population's utilization of public services typically translates into higher than average costs. For instance, Linkins et al. (2008) reported that the average emergency room costs for homeless individuals is $3,700 per visit compared to only $2,000 for domiciled individuals. The authors contend that along with the moral imperative to end homelessness, there is also a practical cost-benefits rationale to reduce homeless individuals' expensive over-utilization of medical services. A cost-benefits analysis by Perlman and Parvenky (2006) of 19 homeless participants in a social supportive program in Denver found that over a one-year timeframe, clients experienced a 34 percent decrease in emergency room usage—the most expensive type of health care—accounting for a cost reduction of emergency room care by $34,000. Likewise, Culhane et al. (2002) reported cost reductions in health care and incarceration rates for homeless clients in a social supportive program in New York.

Although not the primary focus of this research, a review of data from the NDHHS SAMHSA program provides insight into the program's potential cost benefits. For instance, the NDHHS SAMHSA GPRA's baseline and follow-up assessments surveyed clients on the number of times they received emergency room treatment during the previous thirty days. The examination of emergency room usage of clients receiving an aggregate of lifestyles services revealed that there was an 18 percent decrease in emergency room usage between individuals' intake and follow-up assessments. Clients receiving an aggregate of life-chances services reported a 35 percent decrease in emergency room usage between their intake and follow-up assessments. Based on Linkins et al. (2008) reported average emergency room costs of $3,700 per visit for homeless individuals, the lifestyles service intensity was associated with a monthly cost reduction in emergency room care of $14,800. Conversely, the life-chances service intensity was associated with a monthly cost reduction in emergency room care of $40,700. It is important to note that the reduction of emergency room usage was not statistically significant.

Table 71: Emergency Room Usage and Estimated Costs for NDHHS SAMHSA Clients				
	Number of Reported ER Visits the Month Prior to Intake Assessment	Number of Reported ER Visits the Month Prior to Follow-up Assessment	Change in Number of ER Visits	Cost Reduction Estimate
Lifestyles Service Intensity	22	18	-4	$14,800
Life-chances Service Intensity	31	20	-11	$40,700

Although less impactful, another potential cost savings benefit of the NDHHS SAMHSA program involved the program's ability to address clients' MH/SA symptoms. Unlike emergency room usage, which has a direct cost, the number of days that clients experience MH/SA symptoms is not directly linked to a specific expenditure. Nonetheless, it is possible to calculate the daily costs of MH/SA symptoms treated in a medical setting. According to an interview with the clinical manager at Newark's St. Michael Medical Center, daily MH/SA treatment costs in New Jersey can range from $600 a day for public hospitals to $1,000 a day for private hospitals. Bivariate results reported in Table 11 showed that between their intake and follow-up assessments, there was a statistically significant reduction in clients' depression symptoms by 89.64 days per year and a statistically significant reduction in clients' anxiety symptoms by 87.12 days per year. There was also a statistically significant reduction in clients' yearly substance use by 16.68 days for alcohol consumption and by 22.92 days for illegal drug use. While admittedly an imprecise calculation, nonetheless, had clients received MH/SA treatment in a public medical setting for the days that NDHHS program reduced their

emotional and addictive symptoms, the cost would have been more than $50,000 for MH treatment and more than $10,000 for SA treatment.

Conclusions

More than a decade into the twenty-first century, homelessness in the United States remains an enduring problem. Homeless individuals face a number of complex challenges, which makes providing the appropriate array of services to promote self-sufficiency and positive social adaptation difficult. Over the past few decades, governmental policies and service interventions have evolved from a linear continuum of care model to also include social supportive interventions. This research analyzed two support services offered through the NDHHS SAMHSA program. The two service tracks—based on a lifestyles perspective and a life-chances perspective—were designed to help homeless individuals overcome a series of barriers to self-reliance.

The findings from this study partially supported the comparative benefit of the lifestyles service model over the life-chances model. However, the findings for this study should not be interpreted as a negation of the importance of the life-chances service model. Along with the previously discussed study limitations, the fact remains that the lives of homeless individuals are multifaceted, and consequently, rarely conform or neatly fit into a set of narrowly constructed service interventions. The common practice within social science and public policy is to treat agency and structure as two mutually exclusive concepts. This approach fails to recognize that social stratification is often the result of an interactive (and at times uneven) intersection of personal choices and environmental factors. Within empirical settings, “there are times when structure

outweighs but does not negate agency and other times when structure overwhelms agency" (Cockerham 2005, 64). A more appropriate service intervention may require the creation of a theoretical paradigm that combines aspects of the lifestyles and life-chances frameworks into a central framework, and consequently, moves beyond a fixed service delivery system that is based solely on a lifestyles or a life chances approach (Clapham 2003).

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A P P E N D I X 1

Newark Substance Abuse and Mental Health Services Project
Newark Homeless Healthcare Program (NHHC) Staff Interview Instrument

1. From your perspective, what are the major objectives of Newark's Substance Abuse and Mental Health Services for its homeless population?

2. Given these objectives, how would you rate each of the following with respect to adequacy in achieving program objectives?

Very Adequate Adequate Neutral Inadequate Very Inadequate

a) Financial resources
b) Personnel – NHHC
c) Personnel – SMMC
d) Personnel – NDBHC
e) Staff training
f) Coordination w/SMMC
g) Coordination w/NDBHC
h) Facilities / space
i) Client outreach efforts
j) Intervention counseling model
   Mental health
   Substance abuse
   Physical health
   Employment counseling
   Housing
k) Client transportation
l) Client incentives
m) Client follow-up
n) Tracking client housing arrangements
o) Maintenance of paper records
p) Maintenance of computer records

q) Other (please specify): _____

3. Which of the following do you see as the major barriers to the successful implementation of the program? Circle all that apply.
   a) Financial limitations
   b) Staff motivation
   c) Client motivation
   d) General economic conditions in the city
   e) Housing market in the city
   f) Integration between providers (i.e., subcontractors)
   g) Availability of staff/personnel

h) Staff training
i) Client tracking and follow-up
j) Inter-agency coordination, e.g. referrals to agencies who are not subcontractors
k) Availability of transportation
f) Any other barriers (please specify): _____

4. How successful would you say the program has been to-date in addressing these client issues?

Very Successful Successful Neutral Unsuccessful Very Unsuccessful

a) Mental health problems
b) Drug use
c) Alcohol use
d) Unemployment or underemployment
e) Physical health
f) Dental care
g) Food insecurity
h) Housing
i) Criminal activity
j) Clothing
k) Transportation

5. For those issues which you checked 'Unsuccessful' or 'Very Unsuccessful' please tell us the major reasons why this program has not been more successful.

6. How would you characterize the homeless population in Newark in terms of their problems and needs for services?

7. What specific client services would you like to see more financial and staff resources devoted to?

8. Why do you think some clients succeed in this program while others do not?

9. What do you like best about the current program?

10. If you were going to make any changes to the current program, what would they be?

A P P E N D I X 2

Newark Substance Abuse and Mental Health Services Project
Newark Homeless Healthcare Program (NHHC) Staff Follow-up Interview Instrument

1. Could you discuss the aspects of the SAMHSA program that you feel were the most effective in helping clients over come their mental health and substance abuse disorders.

2. Given that clients come into the SAMHSA program with a range of barriers to obtaining housing, what factors do you feel were the most significant? (will probe for individual to elaborate)

3. The SAMHSA program had a major focus on mental health and substance abuse disorders, do you feel that clients' environmental challenges, particularly those related to access to shelter, CJ involvement, and employment were also address? And if so how were they addressed?

4. In thinking about the Newark SAMHSA program, if you could re-design it to be more effective, what changes would you make and why?

5. In thinking about the Newark SAMHSA program, were there any major client success stories that you remember? Can you discuss the details related to the success story?

A P P E N D I X 3

Substance Abuse & Mental Health Services for the Homeless Population in Newark
Client Survey
Adapted from National Survey of Drug Use and Health (NSDUH) 2008

Demographics

age1 What is your date of birth?
ENTER MM-DD-YYYY
DOB: _____
DK/REF

QD01 The first few questions are for statistical purposes only, to help us analyze the results of the study.
INTERVIEWER: RECORD RESPONDENT'S GENDER.
5 MALE
9 FEMALE

QD03 Are you of Hispanic, Latino, or Spanish origin or descent?
1 YES
2 NO
DK/REF

QD04 [IF QD03 = 1] HAND R SHOWCARD 1. Which of these Hispanic, Latino, or Spanish groups best describes you? Just give me the number or numbers from the card.
TO SELECT MORE THAN ONE CATEGORY, PRESS THE SPACE BAR BETWEEN EACH CATEGORY YOU
SELECT.
1 MEXICAN / MEXICAN AMERICAN / MEXICANO / CHICANO
2 PUERTO RICAN
3 CENTRAL OR SOUTH AMERICAN
4 CUBAN / CUBAN AMERICAN
5 DOMINICAN (FROM DOMINICAN REPUBLIC)
6 SPANISH (FROM SPAIN)
7 OTHER (SPECIFY)
DK/REF

QD05 HAND R SHOWCARD 2. Which of these groups describes you?
RESPONDENTS WHO REPORT THEIR RACE AS NATIVE AMERICAN SHOULD BE INCLUDED IN RESPONSE CATEGORY 3.
1 WHITE
2 BLACK / AFRICAN AMERICAN

3 AMERICAN INDIAN OR ALASKA NATIVE (AMERICAN INDIAN INCLUDES NORTH AMERICAN, CENTRAL AMERICAN, AND SOUTH AMERICAN INDIANS)
4 NATIVE HAWAIIAN
5 OTHER PACIFIC ISLANDER
6 ASIAN (FOR EXAMPLE: ASIAN INDIAN, CHINESE, FILIPINO, JAPANESE, KOREAN, AND VIETNAMESE)
7 OTHER (SPECIFY)
DK/REF

QD07 [IF CURNTAGE = 15 OR OLDER] Are you now married, widowed, divorced or separated, or have you never married?
1 MARRIED
2 WIDOWED
3 DIVORCED OR SEPARATED
4 HAVE NEVER MARRIED
DK/REF
INTERVIEWER NOTE:
If the respondent is divorced but currently remarried, code as married.
By “divorce” we mean a legal cancellation or annulment of a marriage.
By “separated” we mean legally or informally separating due to marital discord.

QD08 [IF QDO7 = 1 OR 2 OR 3] How many times have you been married?
NUMBER OF TIMES: [RANGE: 1 - 9]
DK/REF

QD09 [IF CURNTAGE = 17 OR OLDER] Have you ever been in the United States’ armed forces?
1 YES
2 NO
DK/REF

QD10 [IF QD09 = 1 OR DK/REF] Are you **currently** on **active** duty in the armed forces, in a reserves component, or now separated or retired from either reserves or active duty?
1 ON ACTIVE DUTY IN THE ARMED FORCES
2 IN A RESERVES COMPONENT
3 NOW SEPARATED OR RETIRED FROM EITHER RESERVES OR ACTIVE DUTY
DK/REF

QD11 What is the highest grade or year of school you have **completed**?
Please tell me the number from the card.
INCLUDE JUNIOR OR COMMUNITY COLLEGE ATTENDANCE; DO NOT INCLUDE TECHNICAL SCHOOLS
(BEAUTICIAN, MECHANIC, ETC.).

0 NEVER ATTENDED SCHOOL
1 1ST GRADE COMPLETED
2 2ND GRADE COMPLETED
3 3RD GRADE COMPLETED
4 4TH GRADE COMPLETED
5 5TH GRADE COMPLETED
6 6TH GRADE COMPLETED
7 7TH GRADE COMPLETED
8 8TH GRADE COMPLETED
9 9TH GRADE COMPLETED
10 10TH GRADE COMPLETED
11 11TH GRADE COMPLETED
12 12TH GRADE COMPLETED
13 COLLEGE OR UNIVERSITY / 1ST YEAR COMPLETED
14 COLLEGE OR UNIVERSITY / 2ND YEAR COMPLETED
15 COLLEGE OR UNIVERSITY / 3RD YEAR COMPLETED
16 COLLEGE OR UNIVERSITY / 4TH YEAR COMPLETED
17 COLLEGE OR UNIVERSITY / 5TH OR HIGHER YEAR COMPLETED
DK/REF

QD12 This question is about your overall health. Would you say your health in general is excellent, very good, good, fair, or poor?
1 EXCELLENT
2 VERY GOOD
3 GOOD
4 FAIR
5 POOR
DK/REF

QD13 How many times in the **past 12 months** have you moved?
NUMBER OF TIMES: [RANGE: 0 - 365]
DK/REF
INTERVIEWER NOTE:
The respondent should include moves from one residence to another within the same
city/town as well as those from one city/town to another.

QD13a [IF QD13 NE 0] In what state did you live on [FILL PAST 1 YEAR DATE], that is, one year ago today?
1 ALABAMA 27 MONTANA
2 ALASKA 28 NEBRASKA
3 ARIZONA 29 NEVADA
4 ARKANSAS 30 NEW HAMPSHIRE
5 CALIFORNIA 31 NEW JERSEY
6 COLORADO 32 NEW MEXICO
7 CONNECTICUT 33 NEW YORK

8 DELAWARE 34 NORTH CAROLINA
9 THE DISTRICT OF COLUMBIA (WASHINGTON, DC) 35 NORTH DAKOTA
10 FLORIDA 36 OHIO
11 GEORGIA 37 OKLAHOMA
12 HAWAII 38 OREGON
13 IDAHO 39 PENNSYLVANIA
14 ILLINOIS 40 RHODE ISLAND
15 INDIANA 41 SOUTH CAROLINA
16 IOWA 42 SOUTH DAKOTA
17 KANSAS 43 TENNESSEE
18 KENTUCKY 44 TEXAS
19 LOUISIANA 45 UTAH
20 MAINE 46 VERMONT
21 MARYLAND 47 VIRGINIA
22 MASSACHUSETTS 48 WASHINGTON
23 MICHIGAN 49 WEST VIRGINIA
24 MINNESOTA 50 WISCONSIN
25 MISSISSIPPI 51 WYOMING
26 MISSOURI
52 OUTSIDE OF U.S.
DK/REF

QD22 [IF (QD11 = 1 - 12 OR DK/REF) AND CURNTAGE = 12 - 25 AND (QD17a = 2 OR DK/REF OR QD17b = 2)] Have you received a high school diploma?
1 YES
2 NO
DK/REF

QD23 [IF QD22 = 2 OR DK/REF] Have you received a GED certificate of high school completion?
1 YES
2 NO
DK/REF

QD24 [IF QD23 = 1 OR 2 OR DK/REF] HAND R SHOWCARD 6. Please look at this card and tell me which one of these reasons **best** describes why you left school before receiving a high school diploma. Just give me the number.
1 SCHOOL WAS BORING OR I DIDN'T WANT TO BE THERE
2 I GOT PREGNANT/I GOT SOMEONE PREGNANT
3 I GOT IN TROUBLE OR EXPELLED FOR **SELLING** DRUGS
4 I GOT IN TROUBLE OR EXPELLED FOR **USING** DRUGS
5 I GOT IN TROUBLE OR EXPELLED FOR SOME OTHER REASON
6 I OFTEN GOT INTO TROUBLE
7 I HAD TO GET A JOB (OR WORK MORE HOURS)

8 I WAS GETTING BAD GRADES
9 I WASN'T LEARNING ANYTHING
10 I GOT MARRIED OR MOVED IN WITH MY BOY/GIRLFRIEND
11 I MOVED HERE FROM ANOTHER COUNTRY AND DIDN'T ENROLL IN SCHOOL (OR DROPPED
OUT OF SCHOOL) BECAUSE OF LANGUAGE OR OTHER PROBLEMS
12 I WAS TREATED BADLY AT SCHOOL
13 I BECAME ILL OR INJURED
14 I WENT TO JAIL/PRISON
15 I HAD RESPONSIBILITIES AT HOME OR PERSONAL PROBLEMS
16 OTHER REASON
DK/REF

Work History

QD26 [IF CURNTAGE = 15 OR OLDER] The next questions are about working. Did you work at a job or business at any time **last week**? By last week, I mean the week beginning on Sunday, [STARTDATE] and ending on Saturday, [ENDDATE].
1 YES
2 NO
DK/REF

INTERVIEWER NOTE:
If the respondent asks about unpaid work, tell him/her to include unpaid work in a family
farm or business if he/she usually works more than 15 hours each week.
A student who is given a stipend is **not** considered to be working.
Someone doing volunteer work is **not** considered to be working.
A person who provides personal labor in exchange for work done for them, rather than
for pay, is considered to be working.

QD27 [IF QD26 = 2] Even though you did not work at any time last week, did you **have** a job or business?
1 YES
2 NO
DK/REF

INTERVIEWER NOTE:
If the respondent asks about unpaid work, tell him/her to include unpaid work in a family farm or business if he/she usually works more than 15 hours each week. A student who is given a stipend is **not** considered to have a job or business. Someone doing volunteer work is **not** considered to be have a job or business. A person who provides personal labor in exchange for work done for them, rather than for pay, is considered to have a job or business.

QD28 [IF QD26 =1] How many hours did you work **last week** at all jobs or businesses?
OF HOURS WORKED: [RANGE: 1 - 120]
DK/REF

QD29 [IF (QD28 = 1 - 120 OR DK/REF) OR QD27 = 1] Do you **usually** work 35 hours or more per week at **all** jobs or businesses?
1 YES
2 NO
DK/REF

INOC01 [IF QD26 = 1 OR QD27 = 1] In what kind of business or industry do you work? That is, what product is made or what service is offered?
_____ [ALLOW 100 CHARACTERS]
DK/REF

INTERVIEWER NOTE:
If the respondent has more than 1 job, he/she should tell you about only one of the jobs.
In these situations, the choice of which job to report is left to the respondent.
In order to accurately code a respondent's occupation, our coders need complete information. Examples include: Hospital, newspaper publishing, mail order house, auto engine manufacturing, breakfast cereal manufacturing. Please probe thoroughly!
You may enter up to 100 characters.

INOC02 [IF QD26 =1 OR QD27=1 AND INOC01 NE DK/REF] HAND R SHOWCARD 7. Which of these categories best describes the business or industry in which you work?
1 MANUFACTURING
2 WHOLESALE TRADE
3 RETAIL TRADE
4 AGRICULTURE
5 CONSTRUCTION
6 SERVICE
7 GOVERNMENT
8 OTHER
DK/REF

QD30 [IF QD27 = 1] HAND R SHOWCARD 9. Please look at this card and tell me which one of these reasons **best** describes why you did not work last week. Just give me the number.
INTERVIEWER NOTE:
If the respondent indicates that he/she was on maternity or family leave, enter "1".
If the respondent indicates that his/her job is seasonal and this is the off-season,

enter “7.”
1 ON VACATION/SICK/FURLOUGH/STRIKE/OTHER TEMPORARY ABSENCE
2 ON LAYOFF AND **NOT** LOOKING FOR WORK
3 ON LAYOFF AND LOOKING FOR WORK
4 WAITING TO REPORT TO A NEW JOB
5 SELF-EMPLOYED AND DID NOT HAVE ANY BUSINESS LAST WEEK
6 GOING TO SCHOOL/TRAINING
7 SOME OTHER REASON
DK/REF

QD31 [IF QD27 = 2 OR DK/REF] HAND R SHOWCARD 10. Please look at this card and tell me which one of these reasons **best** describes why you did not have a job or business last week. Just give me the number.
1 LOOKING FOR WORK
2 ON LAYOFF AND **NOT** LOOKING FOR WORK
3 KEEPING HOUSE OR CARING FOR CHILDREN FULL TIME
4 GOING TO SCHOOL/TRAINING
5 RETIRED
6 DISABLED FOR WORK
7 DIDN’T WANT A JOB
8 SOME OTHER REASON
DK/REF

QD32 [IF QD31 = 1] During the past 30 days, did you make **specific efforts** to find work? Include any contacts you made with anyone about a job, sending out resumes or applications, placing or answering ads. Do not include only reading job ads.
1 YES
2 NO
DK/REF

Household Composition

QD54 Altogether, how many people live here now, **including yourself**? Please include anyone who (has lived/will live) here for most of (**January, February, and March / April, May, and June / July, August, and September / October, November, and December**).
IN HOUSEHOLD: [RANGE: 1 - 25]
DK/REF

INTERVIEWER NOTE:
If you are interviewing in a transient shelter, enter “1".
If you are interviewing in a group quarters unit that was listed by room, enter the number of people living in the room.
IF QD54 = 1 OR DK/REF SKIP TO FIRST QUESTION FOLLOWING HH

ROSTER, OTHERWISE CONTINUE.
DEFINE GRID WITH ROWS EQUAL TO QD54. EACH COLUMN OF THE GRID IS A QUESTION AS SPEC'D BELOW.

PERAGEYR [IF QD54 = 2 - 25] Now I need some additional information about each person who lives here. Let's start with the oldest. How old was he or she on his or her **last** birthday? (WORDING FOR ADDITIONAL CYCLES: How old was the next oldest person on his or her last birthday?)
INTERVIEWER: FOR CHILDREN LESS THAN 24 MONTHS (2 YEARS), ENTER '1.' YOU WILL BE
PROMPTED FOR THE AGE IN MONTHS ON THE NEXT SCREEN.
AGE IN WHOLE YEARS: [RANGE: 1 - 110]
DK/REF

# People in Household	**Sex**		**Age**	**Relationship to Respondent**
	Male	**Female**		
You	0	1		Self
1	0	1		
2	0	1		
3	0	1		
4	0	1		
5	0	1		
6	0	1		
7	0	1		
8	0	1		
9	0	1		
10	0	1		

PERSEX [IF PERAGEYR = DK/REF] Is this person a male or a female?
0 MALE
1 FEMALE
DK/REF

MRELATON [IF CHMONSEX OR CHYRSEX OR PERYRSEX OR PERSEX = 5] HAND R SHOWCARD 13. Please look at this card and tell me which category best describes his relationship to you.

INTERVIEWER NOTE:
If it is clear to you that the respondent is talking about, you may say “Is that you?”
If the answer is Yes, enter “1" for “SELF.”
Exchange families (exchange students or people who are hosting exchange students)
should be considered “other non-relatives.”
1 SELF
2 FATHER (INCLUDES STEP, FOSTER, ADOPTIVE)
3 SON (INCLUDES STEP, FOSTER, ADOPTIVE)
4 BROTHER (INCLUDES HALF, STEP, FOSTER, ADOPTIVE)
5 HUSBAND
6 UNMARRIED PARTNER
7 HOUSEMATE OR ROOMMATE
8 SON-IN-LAW
9 GRANDSON
10 FATHER-IN-LAW
11 GRANDFATHER
12 BOARDER OR ROOMER
13 OTHER RELATIVE
14 OTHER NON-RELATIVE
DK/REF

Health Insurance

QHI01 Several government programs provide medical care or help pay medical bills.
Medi**care** is a health insurance program for persons aged 65 and older and for certain disabled persons.
[SAMPLE MEMBER A] covered by Medi**care**?
1 YES
2 NO
DK/REF

QHI02 Medic**aid** is a public assistance program that pays for medical care **for low income and disabled persons**. [IF MEDIFILL NE NONE] The Medicaid program in [STATE FILL] is also called [MEDIFILL].
[SAMPLE MEMBER A]covered by Medic**aid**?
1 YES
2 NO
DK/REF

QHI03 [SAMPLE MEMBER A] currently covered by TRICARE, or CHAMPUS, CHAMPVA, the VA, or military health care?
These programs cover active duty and retired career military personnel and their dependents and survivors and also disabled veterans and their dependents and survivors.

1 YES
2 NO
DK/REF

INTERVIEWER NOTE:
CHAMPUS stands for Comprehensive Health and Medical Plan for the Uniformed
Services. It provides health care in private facilities for dependents of military personnel on active duty or retired for reasons other than disability. In some areas, this may be known as TRICARE. CHAMPVA stands for Comprehensive Health and Medical Plan of the Veterans Administration. It provides health care for the spouse, dependents, or survivors of a veteran who has a total, permanent service-connected disability. Military health care refers to health care available to active duty personnel and their dependents; in addition, the VA provides medical assistance to veterans of the Armed Forces, particularly those with service-connected ailments.

QHI06 Private health insurance can be obtained through work, such as through an employer, union, or professional association, or by paying premiums directly to a health insurance company.
[SAMPLE MEMBER A] currently covered by private health insurance?
1 YES
2 NO
DK/REF

INTERVIEWER NOTE:
Private health insurance refers to any type of health insurance other than Medicare, Medicaid and coverage provided to military personnel and their dependents. It includes coverage by a health maintenance organization (HMO), fee for service plans, and single service plans.

QHI07 [IF QHI06 = 1] Was[SAMPLE MEMBER POSS] private health insurance obtained through work, such as through an employer, union, or professional association?
1 YES
2 NO
DK/REF

INTERVIEWER NOTE:
This health insurance could be obtained through any family member's employment, not just the respondent's employment.

Income/Public Assistance

QI01N [IF AT LEAST TWO FAMILY MEMBERS IN ROSTER] In [CURRENT YEAR - 1], did [SAMPLE MEMBER] or any of these same family

members receive Social Security or Railroad Retirement payments?
(Social Security checks are either automatically deposited in the bank or mailed to arrive on about the 3rd of every month. If mailed, they are sent in a gold envelope.)
1 YES
2 NO
DK/REF

QI05N [IF AT LEAST TWO FAMILY MEMBERS IN ROSTER] In [CURRENT YEAR - 1], did [SAMPLE MEMBER] or any of these same family members receive income from wages or pay earned while working at a job or business?
1 YES
2 NO
DK/REF

QI03N [IF NO FAMILY MEMBERS IN ROSTER] In [CURRENT YEAR - 1], did you receive Supplemental Security Income or SSI? (Federal SSI checks are either automatically deposited in the bank or mailed to arrive on the first of every month. If mailed, they are sent in a blue envelope.)
1 YES
2 NO
DK/REF

QI07N [IF NO FAMILY MEMBERS IN ROSTER] In [CURRENT YEAR - 1], did you receive food stamps?
[IF ONE FAMILY MEMBER IN ROSTER AND HASJOIN NE 1] In [CURRENT YEAR - 1], did you or your [FAMILY RELATIONSHIP FILL] receive food stamps?
[IF ONE FAMILY MEMBER IN ROSTER AND HASJOIN=1] In [CURRENT YEAR - 1], did [SAMPLE MEMBER] or you receive food stamps?
[IF AT LEAST TWO FAMILY MEMBERS IN ROSTER] In [CURRENT YEAR - 1], did [SAMPLE MEMBER] or any of these same family members receive food stamps?
1 YES
2 NO
DK/REF

INTERVIEWER NOTE:
Food stamps are government-issued coupons that can be used to purchase food. Instead of coupons, some states issue a special card that can be used like a credit card to purchase food in grocery stores. The food stamp program is a joint federal-state program which is administered by State and Local governments.
Do not include WIC or free/reduced school lunches.

QI08N [IF NO FAMILY MEMBERS IN ROSTER] At any time during

[CURRENT YEAR - 1], even for one month, did you receive any cash assistance from a state or county welfare program such as [TANFFILL]?
1 YES
2 NO
DK/REF

INTERVIEWER NOTE:
If the respondent volunteers receiving welfare payments from a program other than the one mentioned, or from another state, record a "yes" response. Do not probe for this information.

QI20N [IF NO FAMILY MEMBERS IN ROSTER] **Before taxes and other deductions**, was your **total personal** income **from all sources** during [CURRENT YEAR - 1] more or less than 20,000 dollars?
[IF AT LEAST ONE FAMILY MEMBER IN ROSTER] First I am going to ask about [SAMPLE MEMBER POSS] own **personal** income, and then I will ask about your family income. **Before taxes and other deductions**, was [SAMPLE MEMBER POSS] **total personal** income **from all sources** during [CURRENT YEAR – 1] more or less than 20,000 dollars?
(Income data are important in analyzing the health information we collect. For example, the information helps us to learn whether persons in one income group use certain types of medical care services or have conditions more or less often than those in another group.)
1 $20,000 OR MORE
2 LESS THAN $20,000
DK/REF

INTERVIEWER NOTE:
Do not include money received from loans or tax refunds.

QI21A [IF QI20=2 OR QI20N = 2] ENTER NUMBER THAT BEST REPRESENTS (**R'S/SAMPLE MEMBER'S TOTAL PERSONAL INCOME** DURING [CURRENT YEAR - 1].
1 LESS THAN $1,000 (INCLUDING LOSS)
2 $1,000 - $1,999
3 $2,000 - $2,999
4 $3,000 - $3,999
5 $4,000 - $4,999
6 $5,000 - $5,999
7 $6,000 - $6,999
8 $7,000 - $7,999
9 $8,000 - $8,999
10 $9,000 - $9,999
11 $10,000 - $10,999
12 $11,000 - $11,999
13 $12,000 - $12,999

14 $13,000 - $13,999
15 $14,000 - $14,999
16 $15,000 - $15,999
17 $16,000 - $16,999
18 $17,000 - $17,999
19 $18,000 - $18,999
20 $19,000 - $19,999
DK/REF

QI22 [IF MORE THAN ONE FAMILY MEMBER IN ROSTER AND (QI20 NE 1 OR QI20N NE 1)] **Before taxes and other deductions,** was the **total combined family** income during [CURRENT YEAR - 1] more or less than 20,000 dollars?
(Income data are important in analyzing the health information we collect. For example, the information helps us to learn whether persons in one income group use certain types of medical care services or have conditions more or less often than those in another group.)
1 $20,000 OR MORE
2 LESS THAN $20,000
DK/REF

INTERVIEWER NOTE:
Do not include money received from loans or tax refunds.

QI23A [IF QI22=2] ENTER NUMBER THAT BEST REPRESENTS **THE TOTAL COMBINED FAMILY** INCOME IN [CURRENT YEAR - 1].
1 LESS THAN $1,000 (INCLUDING LOSS)
2 $1,000 - $1,999
3 $2,000 - $2,999
4 $3,000 - $3,999
5 $4,000 - $4,999
6 $5,000 - $5,999
7 $6,000 - $6,999
8 $7,000 - $7,999
9 $8,000 - $8,999
10 $9,000 - $9,999
11 $10,000 - $10,999
12 $11,000 - $11,999
13 $12,000 - $12,999
14 $13,000 - $13,999
15 $14,000 - $14,999
16 $15,000 - $15,999
17 $16,000 - $16,999
18 $17,000 - $17,999
19 $18,000 - $18,999
20 $19,000 - $19,999

DK/REF

Tobacco

LEADCIG These questions are about your use of tobacco products. This includes cigarettes, chewing tobacco, snuff, cigars, and pipe tobacco. The first questions are about cigarettes only.
Press [ENTER] to continue.

CG01 Have you **ever** smoked part or all of a cigarette?
1 Yes
2 No
DK/REF

CG02 [IF CURNTAGE = 12 - 17 AND (CG01 = 2 OR CGREF1 = 2)] If one of your best friends offered you a cigarette, would you smoke it?
1 Definitely yes
2 Probably yes
3 Probably not
4 Definitely not
DK/REF

CG03 [IF CURNTAGE = 12 - 17 AND (CG01 = 2 OR CGREF1 = 2)] At any time during the next 12 months do you think you will smoke a cigarette?
1 Definitely yes
2 Probably yes
3 Probably not
4 Definitely not
DK/REF

CG04 [IF CG01 = 1 OR CGREF1 = 1] How old were you the **first time** you smoked part or all of a cigarette?
AGE: [(RANGE: 1 - 110]
DK/REF

CG05 [IF CG01 = 1 OR CGREF1 = 1] Now think about the past 30 days – that is, from **[DATEFILL]** up to and including today. During the past 30 days, have you smoked part or all of a cigarette?
1 Yes
2 No
DK/REF

CG06 [IF CG05 = 2] How long has it been since you **last** smoked part or all of a cigarette?
1 More than 30 days ago but within the past 12 months

2 More than 12 months ago but within the past 3 years
3 More than 3 years ago
DK/REF

CG06DK [IF CG06 = DK] What is your **best guess** of how long it has been since you **last** smoked part or all of a cigarette?
1 More than 30 days ago but within the past 12 months
2 More than 12 months ago but within the past 3 years
3 More than 3 years ago
DK/REF

CG07 [IF CG05 = 1] During the past 30 days, that is, since **[DATEFILL]**, on how many **days** did you smoke part or all of a cigarette?
OF DAYS: [RANGE: 1 - 30]
DK/REF

CG11 [IF CG05 = 1] The next questions are about the brand of cigarettes you smoke -- the brand is the name that is on the pack. During the past 30 days, what brand of cigarettes did you smoke **most often**?
1 American Spirit 14 Misty
2 Basic 15 Monarch
3 Benson & Hedges 16 More
4 Camel 17 Newport
5 Capri 18 Pall Mall
6 Carlton 19 Parliament
7 Doral 20 Salem
8 GPC 21 USA Gold
9 Kent 22 Vantage
10 Kool 23 Viceroy
11 Liggett Select 24 Virginia Slims
November 8, 2007 20
12 Marlboro 25 Winston
13 Merit 26 A brand not on this list
DK/REF

CG25 These next questions are about your use of **snuff**, sometimes called **dip**. **Snuff** is a finely ground form of tobacco that usually comes in a container called a tin. You can use snuff by placing a pinch or dip in your mouth between your lip and gum or between your cheek and gum. Snuff can also be inhaled through the nose. Snuff is sold in both loose form and in ready-to-use packets.
Have you **ever** used snuff, even once?
1 Yes
2 No
DK/REF

CG26 [IF CG25 = 1 OR CGREF3 = 1] How old were you the **first time** you used

snuff?
YEARS OLD: [RANGE: 1 - 110]
DK/REF

CG27 [IF CG25 = 1 OR CGREF3 = 1] Now think about the past 30 days, that is from **[DATEFILL]** up to and including today. During the past 30 days, have you used snuff, even once?
1 Yes
2 No
DK/REF

CG30 [IF CG27 = 1] During the past 30 days, what brand of snuff did you use **most often**?
1 Copenhagen
2 Cougar
3 Gold River
4 Grizzly
5 Happy Days
6 Hawken
7 Kodiak
8 Red Seal
9 Redwood
10 Rooster
11 Silver Creek
12 Skoal
13 Timber Wolf
14 A brand not on this list
DK/REF
Alcohol

ALCINTR1 The next questions are about alcoholic beverages, such as beer, wine, brandy, and mixed drinks. Listed on the next screen are examples of the types of beverages we are interested in.

AL01 Have you **ever**, even once, had a drink of any type of alcoholic beverage? Please do not include times when you only had a sip or two from a drink.
1 Yes
2 No
DK/REF

AL02 [IF AL01 = 1 OR ALREF = 1] Think about the **first time** you had a drink of an alcoholic beverage. How old were you the **first time** you had a drink of an alcoholic beverage? Please do not include any time when you only had a sip or two from a drink.
AGE: [RANGE: 1 - 110]
DK/REF

ALLAST3 [IF AL01 = 1 OR ALREF = 1] How long has it been since you **last** drank an alcoholic beverage?
1 Within the past 30 days — that is, since **[DATEFILL]**
2 More than 30 days ago but within the past 12 months
3 More than 12 months ago
DK/REF

ALRECDK [IF ALLAST3 = DK] What is your **best guess** of how long it has been since you **last** drank an alcoholic beverage?
1 Within the past 30 days — that is, since **[DATEFILL]**
2 More than 30 days ago but within the past 12 months
3 More than 12 months ago
DK/REF

AL06 [IF ALLAST3 = 1 OR ALRECDK = 1 OR ALRECRE = 1] Think specifically about the past 30 days, from **[DATEFILL]**, up to and including today. During the past 30 days, on how many days did you drink one or more drinks of an alcoholic beverage?
OF DAYS: [RANGE: 0 - 30]
DK/REF

AL06DKRE [IF AL06 = DK/REF] What is your **best estimate** of the number of days you drank alcohol during the past 30 days?
1 1 or 2 days
2 3 to 5 days
3 6 to 9 days
4 10 to 19 days
5 20 to 29 days
6 All 30 days
DK/REF

AL07 [IF ALC30DAY = 2 - 30 OR ALCEST30 = 1 - 6] On the **[ALC30DAY / ALCESTFL] days** that you drank during the past 30 days, how many **drinks** did you **usually** have each day? Count as a drink a can or bottle of beer; a wine cooler or a glass of wine, champagne, or sherry; a shot of liquor or a mixed drink or cocktail.
[IF ALC30DAY = 1] On the 1 day that you drank during the past 30 days, how many **drinks** did you have? Count as a drink a can or bottle of beer; a wine cooler or a glass of wine, champagne, or sherry; a shot of liquor or a mixed drink or cocktail.
[IF ALCEST30 = DK/REF] On the days that you drank during the past 30 days, how many **drinks** did you **usually** have each day? Count as a drink a can or bottle of beer; a wine cooler or a glass of wine, champagne, or sherry; a shot of liquor or a mixed drink or cocktail.
OF DRINKS: [RANGE: 1 - 90]

DK/REF

Marijuana

MRJINTRO The next questions are about marijuana and hashish. Marijuana is also called pot or grass. Marijuana is usually smoked, either in cigarettes, called joints, or in a pipe. It is sometimes cooked in food. Hashish is a form of marijuana that is also called "hash." It is usually smoked in a pipe. Another form of hashish is hash oil.

MJ01 Have you **ever**, even once, used marijuana or hashish?
1 Yes
2 No
DK/REF

MJ02 [IF MJ01 =1 OR MJREF = 1] How old were you the **first time** you used marijuana or hashish?
AGE: [RANGE: 1 - 110]
DK/REF

MJLAST3 [IF MJ01 = 1 OR MJREF = 1] How long has it been since you **last** used marijuana or hashish?
1 Within the past 30 days — that is, since **[DATEFILL]**
2 More than 30 days ago but within the past 12 months
3 More than 12 months ago
DK/REF

MJRECDK [IF MJLAST3 = DK] What is your **best guess** of how long it has been since you **last** used marijuana or hashish?
1 Within the past 30 days — that is, since **[DATEFILL]**
2 More than 30 days ago but within the past 12 months
3 More than 12 months ago
DK/REF

MJ06DKRE [IF MJ06 = DK/REF] What is your **best estimate** of the number of days you used marijuana or hashish during the past 30 days?
1 1 or 2 days
2 3 to 5 days
3 6 to 9 days
4 10 to 19 days
5 20 to 29 days
6 All 30 days
DK/REF

Cocaine

COCINTRO These questions are about cocaine, including all the different forms of cocaine such as powder, 'crack,' free base, and coca paste.
Press [ENTER] to continue.

CC01 Have you **ever**, even once, used any form of cocaine?
1 Yes
2 No
DK/REF

CC02 [IF CC01 =1 OR CCREF = 1] How old were you the **first time** you used cocaine, in any form?
AGE: [RANGE: 1 - 110]
DK/REF

CCLAST3 [IF CC01 = 1 OR CCREF = 1] How long has it been since you **last** used any form of cocaine?
1 Within the past 30 days -- that is, since **[DATEFILL]**
2 More than 30 days ago but within the past 12 months
3 More than 12 months ago
DK/REF

CCRECDK [IF CCLAST3 = DK] What is your **best guess** of how long it has been since you **last** used cocaine?
1 Within the past 30 days — that is, since **[DATEFILL]**
2 More than 30 days ago but within the past 12 months
3 More than 12 months ago
DK/REF

CC06 [IF CCLAST3 =1 OR CCRECDK = 1 OR CCRECRE = 1] Think specifically about the past 30 days, from **[DATEFILL]** up to and including today. During the past 30 days, on how many days did you use cocaine?
OF DAYS: [RANGE: 0 - 30]
DK/REF

CC06DKRE [IF CC06 = DK/REF] What is your **best estimate** of the number of days you used cocaine during the past 30 days?
1 1 or 2 days
2 3 to 5 days
3 6 to 9 days
4 10 to 19 days
5 20 to 29 days
6 All 30 days
DK/REF

Crack

CKINTRO [IF CC01 = 1 OR CCREF = 1] The next questions are about ‘crack’, that is cocaine in rock or chunk form, and **not** the other forms of cocaine.
Press [ENTER] to continue.

CK01 [IF CC01 = 1 OR CCREF = 1] Have you **ever**, even once, used ‘crack’?
1 Yes
2 No
DK/REF

CK02 [IF CK01 = 1 OR CKREF = 1] How old were you the **first time** you used ‘crack’?
AGE: [RANGE: 1 - 110]
DK/REF

CKLAST3 [IF CK01 = 1 OR CKREF = 1] How long has it been since you **last** used ‘crack’?
1 Within the past 30 days -- that is, since **[DATEFILL]**
2 More than 30 days ago but within the past 12 months
3 More than 12 months ago
DK/REF

CKRECDK [IF CKLAST3 = DK] What is your **best guess** of how long it has been since you **last** used ‘crack’?
1 Within the past 30 days — that is, since **[DATEFILL]**
2 More than 30 days ago but within the past 12 months
3 More than 12 months ago
DK/REF

CK06 [IF CKLAST3=1 OR CKRECDK =1 OR CKRECRE = 1] Think specifically about the past 30 days, from **[DATEFILL]** up to and including today. During the past 30 days, on how many days did you use ‘crack’?
OF DAYS: [RANGE: 0 - 30]
DK/REF

CK06DKRE [IF CK06 = DK/REF] What is your **best estimate** of the number of days you used ‘crack’ during the past 30 days?
1 1 or 2 days
2 3 to 5 days
3 6 to 9 days
4 10 to 19 days
5 20 to 29 days
6 All 30 days
DK/REF

Heroin

HEINTRO These next questions are about heroin.
Press [ENTER] to continue.

HE01 Have you **ever**, even once, used heroin?
1 Yes
2 No
DK/REF

HE02 [IF HE01 = 1 OR HEREF = 1] How old were you the **first time** you used heroin?
AGE: [RANGE: 1 - 110]
DK/REF

HELAST3 [IF HE01 = 1 OR HEREF = 1] How long has it been since you **last** used heroin?
1 Within the past 30 days -- that is, since **[DATEFILL]**
2 More than 30 days ago but within the past 12 months
3 More than 12 months ago
DK/REF

HERECDK [IF HELAST3 = DK] What is your **best guess** of how long it has been since you **last** used heroin?
1 Within the past 30 days — that is, since **[DATEFILL]**
2 More than 30 days ago but within the past 12 months
3 More than 12 months ago
DK/REF

HE06 [IF HELAST3=1 OR HERECDK = 1 OR HERECRE = 1] Think specifically about the past 30 days, from **[DATEFILL]** up to and including today. During the past 30 days, on how many days did you use heroin?
OF DAYS: [RANGE: 0 - 30]
DK/REF

HE06DKRE [IF HE06 = DK/REF] What is your **best estimate** of the number of days you used heroin during the past 30 days?
1 1 or 2 days
2 3 to 5 days
3 6 to 9 days
4 10 to 19 days
5 20 to 29 days
6 All 30 days
DK/REF

Special Drugs

INTROSD These next questions are about the different ways that certain drugs can be used.
Press [ENTER] to continue.

SD01 [IF HE01 = 1 OR HEREF = 1] Have you **ever**, even once, **smoked** heroin?
1 Yes
2 No
DK/REF

SD03 [IF HE01 = 1 OR HEREF = 1] Have you **ever**, even once, **sniffed or 'snorted'** heroin powder through your nose?
1 Yes
2 No
DK/REF

SD08 [IF HE01 = 1 OR HEREF = 1] Have you **ever**, even once, used a needle to inject **heroin**?
1 Yes
2 No
DK/REF

SD10a [IF ST01 = 1 OR STREF1 = 1] Have you **ever**, even once, used a needle to inject **Methamphetamine, Desoxyn, or Methedrine** when it was not prescribed for you or that you took only for the experience or feeling it caused?
1 Yes
2 No
DK/REF

Crime

INTROSP The next questions are about encounters with the police or the court system.
Press [ENTER] to continue.

SP01 Not counting minor traffic violations, have you **ever** been arrested and booked for breaking the law? Being 'booked' means that you were taken into custody and processed by the police or by someone connected with the courts, even if you were then released.
1 Yes
2 No
DK/REF

SP02 [IF SP01 = 1] Not counting minor traffic violations, how many times during the **past 12 months** have you been arrested and booked for breaking a law?
_____ [RANGE: 0 - 99]

DK/REF

SP03a [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **motor vehicle theft**?
1 Yes
2 No
DK/REF

SP03b [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **larceny or theft**? [IF SP03a = 1 OR DK/REF] Do not include motor vehicle theft.
1 Yes
2 No
DK/REF

SP03c [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **burglary or breaking and entering**?
1 Yes
2 No
DK/REF

SP03d [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **aggravated assault**?
1 Yes
2 No
DK/REF

SP03e [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **other assault, such as simple assault or battery**?
1 Yes
2 No
DK/REF

SP03f [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **robbery**?
1 Yes
2 No
DK/REF

SP03g [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **forcible rape**?
1 Yes
2 No
DK/REF

SP03h [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested

and booked for **murder, homicide, or nonnegligent manslaughter**?
1 Yes
2 No
DK/REF

SP03i [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **arson**?
1 Yes
2 No
DK/REF

SP03j [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **driving under the influence of alcohol or drugs**?
1 Yes
2 No
DK/REF

SP03k [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **drunkenness or other liquor law violations**?
1 Yes
2 No
DK/REF

SP03l [IF SP02 = 1 - 99 OR DK/REF AND CURNTAGE = 12 - 17] In the **past 12 months**, were you arrested and booked **for possession of tobacco**?
1 Yes
2 No
DK/REF

SP03m [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **possession, manufacture, or sale of drugs**?
1 Yes
2 No
DK/REF

SP03n [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **prostitution or commercialized sex**?
1 Yes
2 No
DK/REF

SP03o [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **any other sexual offense, not including rape or prostitution**?
1 Yes
2 No
DK/REF

SP03p [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **fraud, possessing stolen goods, or vandalism**?
1 Yes
2 No
DK/REF

SP03q [IF SP02 = 1 - 99 OR DK/REF] In the **past 12 months**, were you arrested and booked for **some other offense** besides these that have been named? Please do not include minor traffic violations.
1 Yes
2 No
DK/REF

SP04 Were you on **probation** at any time **during the past 12 months**?
1 Yes
2 No
DK/REF

SP05 Were you on **parole, supervised release, or other conditional release from prison** at any time **during the past 12 months**?
1 Yes
2 No
DK/REF

Social Environment
(Section Administered to 18 + Year Olds Only)

leadsen [IF CURNTAGE = 18 OR OLDER] The next questions are about things you might or might not have done recently.
Press [ENTER] to continue.

sen04 [IF CURNTAGE = 18 OR OLDER] How many times have you moved in the past 5 years?
TIMES MOVED: [RANGE: 0 - 90]
DK/REF

SEN12a [IF CURNTAGE = 18 OR OLDER] **During the past 12 months**, how many times have you sold illegal drugs?
1 0 times
2 1 or 2 times
3 3 to 5 times
4 6 to 9 times
5 10 or more times
DK/REF

sen12b [IF CURNTAGE = 18 OR OLDER] **During the past 12 months**, how many times have you stolen or tried to steal anything worth more than $50?
1 0 times
2 1 or 2 times
3 3 to 5 times
4 6 to 9 times
5 10 or more times
DK/REF

sen12c [IF CURNTAGE = 18 OR OLDER] **During the past 12 months**, how many times have you attacked someone with the intent to seriously hurt them?
1 0 times
2 1 or 2 times
3 3 to 5 times
4 6 to 9 times
5 10 or more times
DK/REF

sen13b [IF CURNTAGE = 18 OR OLDER] How do you feel about **adults** trying marijuana or hashish once or twice?
1 Neither approve nor disapprove
2 Somewhat disapprove
3 Strongly disapprove
DK/REF

senrelat [IF CURNTAGE = 18 OR OLDER] **During the past 12 months**, how many times did you attend religious services? Please do **not** include special occasions such as weddings, funerals, or other special events in your answer.
1 0 times
2 1 to 2 times
3 3 to 5 times
4 6 to 24 times
5 25 to 52 times
6 More than 52 times
DK/REF

Adult Depression
[Questions administered only to respondents 18 years of age and older]

ASC21 [IF CURNTAGE = 18 OR OLDER] Have you ever in your life had a period of time lasting several days or longer when **most of the day** you felt **sad**, **empty or depressed**?
1 Yes
2 No
DK/REF

ASC22 [IF ASC21 = 2 OR DK/REF] Have you ever had a period of time lasting several days or longer when **most of the day** you were very **discouraged** about how things were going in your life?
1 Yes
2 No
DK/REF

ASC23 [IF ASC22 = 2 or DK/REF] Have you ever had a period of time lasting several days or longer when you **lost interest** in most things you usually enjoy like work, hobbies, and personal relationships?
1 Yes
2 No
DK/REF

AD01 [IF ASC21 =1] During times when you felt **sad**, **empty**, **or depressed** most of the day, did you ever feel **discouraged** about how things were going in your life?
1 Yes
2 No
DK/REF

AD01a [IF AD01 = 1] During the times when you felt sad, empty, or depressed, did you ever **lose interest** in most things like work, hobbies, and other things you usually enjoy?
1 Yes
2 No
DK/REF

AD01b [IF AD01 = 2 OR DK/REF] During the times when you felt sad, empty, or depressed, did you ever **lose interest** in most things like work, hobbies, and other things you usually enjoy?
1 Yes
2 No
DK/REF

AD02 [IF ASC22 = 1] During times when you felt discouraged about how things were going in your life, did you ever **lose interest** in most things like work, hobbies, and other things you usually enjoy?
1 Yes
2 No
DK/REF

AD09 [IF ASC23= 1] Did you ever have a period of time like this that lasted **most of the day nearly every day** for **two weeks or longer**?
1 Yes
2 No

DK/REF

AD26aa [IF AD26a NE BLANK] The next questions are about thoughts of death or suicide.
[IF AD22a NE BLANK] Again, in answering these questions, think about the period of time when your [FEELNOUN] and other problems were the **worst.**
[IF AD22c NE BLANK] Again, in answering these questions, think about the **most recent** period of time when you [FEELFILL] and had other problems at the same time.
Did you often think a lot about death, either your own, someone else's, or death in general?
1 Yes
2 No
DK/REF

AD26bb [IF AD26a NE BLANK] During that period, did you ever think that it would be better if you were dead?
1 Yes
2 No
DK/REF

AD26cc [IF AD26a NE BLANK] Did you think about committing suicide?
1 Yes
2 No
DK/REF

AD26dd [IF AD26cc = 1] Did you make a suicide plan?
1 Yes
2 No
DK/REF

AD26ee [IF AD26cc = 1] Did you make a suicide attempt?
1 Yes
2 No
DK/REF

AD66a [IF AD38 = 1] Think about the time in the past 12 months when [NUMPROBS] with your mood [WASWERE] **most severe**.
Using the 0 to 10 scale shown below, where 0 means **no** interference and 10 means very **severe** interference, select the number that describes how much [NUMPROBS] interfered with your **ability to do** each of the following activities
during that period. You can use any number between 0 and 10 to answer. If this activity doesn't apply to you, type in 95.
How much did your [FEELNOUN] interfere with your **ability to do home management tasks**, like cleaning, shopping, and working around the house, apartment, or yard?

No Very

Severe

Mild Moderate Severe Interference

Interference

| | | | | |

10

0 1 2 3 4 5 6 7 8 9

DK/REF, 95

AD66b [IF AD38 = 1] During that time in the past 12 months when your [FEELNOUN] was most severe, how much did this interfere with your **ability to work**?
You can use any number between 0 and 10 to answer. If this activity doesn't apply to you, type in 95.

No

Very Severe

Mild Moderate Severe Interference

Interference

| | | | | |

10

0 1 2 3 4 5 6 7 8 9

DK/REF, 95

AD66c [IF AD38 = 1]How much did your [FEELNOUN] interfere with your **ability to form and maintain close relationships** with other people during that period of time?
You can use any number between 0 and 10 to answer. If this activity doesn't apply to you, type in 95.

No

Very Severe

Mild Moderate Severe Interference

Interference

| | | | | |

10

0 1 2 3 4 5 6 7 8 9

DK/REF, 95

AD66d [IF AD38 = 1] How much did [NUMPROBS] interfere with your **ability to have a social life** during that period of time?
You can use any number between 0 and 10 to answer. If this activity doesn't apply to you, type in 95.

No

Very Severe

Mild Moderate Severe Interference

Interference

| | | | | |

10

0 1 2 3 4 5 6 7 8 9