A Novel Approach to Understanding Recovering Persons' Relationship Dynamics: Injection Heroin Users

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Abstract

Approximately 22.5 million Americans or 9.4% of the U.S. population struggle with a substance abuse disorder, and 7 million are opiate abusers. Opiate overdoses have now surpassed automobile fatalities and is the leading cause of accidental death in the US [1]. One way to better understand this significant social problem is through social networks. These networks are a key provider of social, emotional, and human capital. It is possible that heroin users have difficulties developing ties with non-using friends which creates barriers to identifying and mobilizing the capital needed for successful reentry outcomes. Yet, there is a limited body of social network research with people reentering the community after substance abuse. This leaves the question about how to best understand and even change personal social networks of heroin users during recovery. Our study reviews social resource attainment in recovering heroin users in mutual help settings, and shows how network analysis can help better understand heroin use and recovery.

Keywords: Heroin; HIV behavior; Drug-use; Addiction

Introduction

Given the rising number of heroin users, and related deaths each year [2], it is important to focus on the socioeconomic characteristics of these users and their environments. Focusing on these factors will develop subcultural-specific strategies to prevent heroin use, and help reintegrate current users into mainstream society. For example, Levy and Anderson used a life-course model to explore the gradual embedding of heroin users within a drug lifestyle, leading to increased marginalization and decreased possibility of abstinence [3]. This study illustrates how social routines, like illegal income-generating activities and drug-use behavior (i.e., cooking, injecting, and smoking rituals), are a key route to social marginality, as well as a means of enduring it. The researchers viewed addiction along a continuum of the use of the drug itself, and the lifestyle that accompanies and sustains the drug use. The results from this study imply that social resources and differential opportunity facilitate the use of illegitimate means to reach income-generating goals. Heroin users indicated they receive their primary source of income illegally.

Koo et al. recruited 488 heroin users to determine their employment characteristics. Among their sample, 122 had low-level occupations or unskilled jobs and 366 participants were unemployed [4]. The study also found participant age, gender, or ethnicity did not affect the individual's likelihood of employment. Roddy, Steinmiller, and Greenwald examined the average income from 109 people who were heroin dependent [5]. Nearly half (43.8%) of the participants reported their income was obtained through illegal means. Further, heroin users continued to generate income illegally, even when they had income coming from legal sources. Differentiating heroin users as a sub-populace of substance abusers is critical so we can address the needs of these individuals appropriately rather than overgeneralizing the drug using population. Without such awareness, we will have difficulty developing policy and institutional initiatives specific to the issues that heroin users face.

Social Resource Theory (SRT) stems from economic sociology, and focuses on the resources embedded within a social network. Lin argued from an SRT perspective that different ties will enable an ego to reach alters with the type of resource required for an ego to fulfill her objectives [6]. Social relationships normally carry with them mutual expectations for reliable support and other resources such as social capital. Access to, and use of this capital has been found to aid individuals in employment attainment and economic mobility [7].

SRT consists of three propositions: 1) Social resources (e.g., resources accessed in social networks) affect the outcomes of an instrumental action (e.g., employment); 2) Social resources, in turn, are affected by the original position of an ego (demographic factors); and (3) Social resources are affected by the use of weaker rather than stronger ties.

Research on SRT examines the access to resources embedded in social networks. In this process, human capital (e.g.,

education), initial positions (e.g., demographics), and a person's social ties (e.g. relationships with others) are hypothesized to determine the extent of resources an ego can access through such connections (network resources). Furthermore, it is expected network resources, education, and initial positions will affect attained statuses such as an employee's position or earnings. SRT also encompasses the mobilization of social capital and the use of social contacts and the resources they provide in the job-search process. In SRT analyses, other factors to the basic model, including age, gender, race/ethnicity, and employment history, serve either as control variables or as opportunity/constraint factors. Recovering people with substance use disorders, including those addicted to heroin, face many obstacles to maintaining abstinence.

As an example, dropout is common from detoxification and acute treatment programs, and many people who finish treatment relapse over time. This cycle is repeated frequently with high personal and social costs, making it increasingly clear detoxification and treatment programs are insufficient to ensure abstinence from drugs and alcohol. For most people with substance use disorder, continued longer-term support following treatment is necessary. These factors include the amount and type of support one receives for abstinence. Compared to individuals that did not participate in aftercares services, individuals who participate in aftercare services sustain abstinence for longer.

As an example, there are over 2,000 self-run recovery homes called Oxford Houses in the U.S. [8]. They have provided housing for over 25,000 people in recovery over the past year. Recovery homes can be thought of as social networks evolving based on both structural tendencies and network members' characteristics. Our exploratory study, focusing on those with heroin addiction, will show how these methods enable us to consider how structure and composition of social networks impact behaviors and ties over time for those provided a supportive recovery experience.

Method

From 2008 to 2011, 270 adults were recruited through inpatient substance abuse treatment facilities from the Chicago metropolitan area [9]. Individuals were assigned to one of three conditions, either an Oxford House, a therapeutic community, or usual aftercare. Those in the Oxford House condition received self-help peer support, whereas those in the therapeutic community had professional staff implementing programming. Those in the Usual Aftercare condition were just provided the usual services following discharge from a substance use treatment facility, and usual aftercare might have involved going to their family or friends to stay, or other types of recovery homes. Follow-up interviews were conducted every six months over a 2-year period, and about 80% of the sample was maintained over time. Participants were paid for their participation. Institutional Review approval was obtained for the study.

Sub-Sample of Oxford House female heroin users

This study involved ego network data of 5 women who reported high risk HIV behavior, i.e. needle sharing from heroin use, and prostitution, all of whom were in the Oxford House condition. A set of demographic questions were used to elicit information regarding race/ethnicity, gender, age, and date of birth. The average age was 38, all were African American, with a mean of 7 convictions, and 2 years recently spent in the justice system.

Ego networks consist of a node which is called an ego and people to whom ego is connected to are called alters. Respondents indicated the nature of their relationship with that person and this was followed by asking the respondent to indicate their relationships among the alters.

Results

Our study provides descriptive statistics of the sub-sample, including degree distributions, density, and transivity. We used Force Atlas layout for visualizations on Wave 1 (baseline} and Wave 5 (two year follow-up), and all analysis were done in R and Gephi. **Table 1** provides mean network characteristics of the sample. As the number of alters increased from Wave 1 to Wave 5, the number of heroin users in their networks decreased.
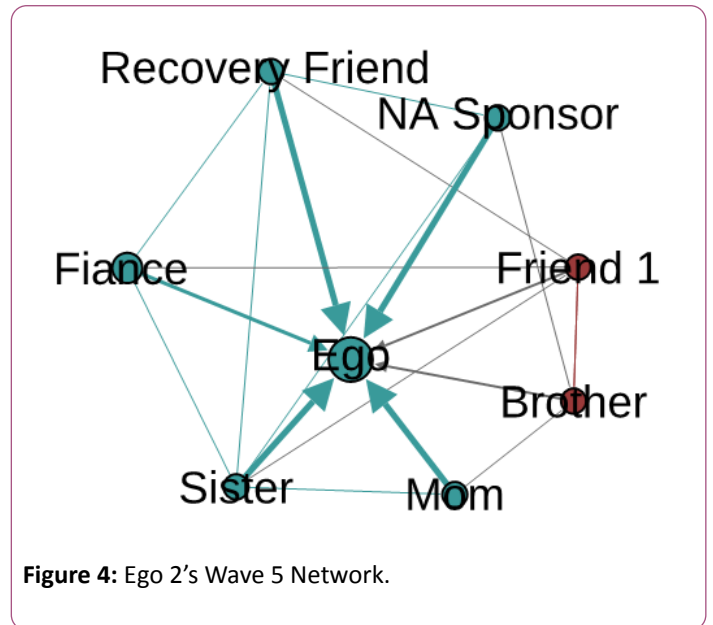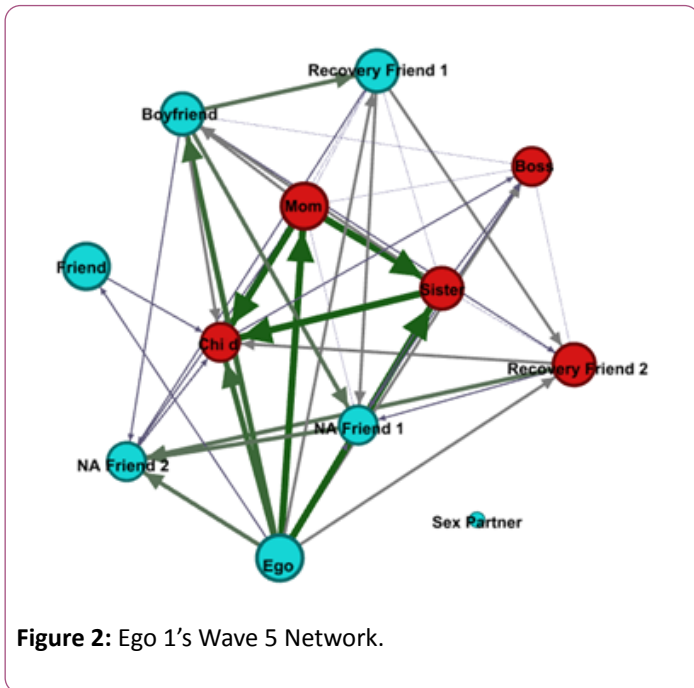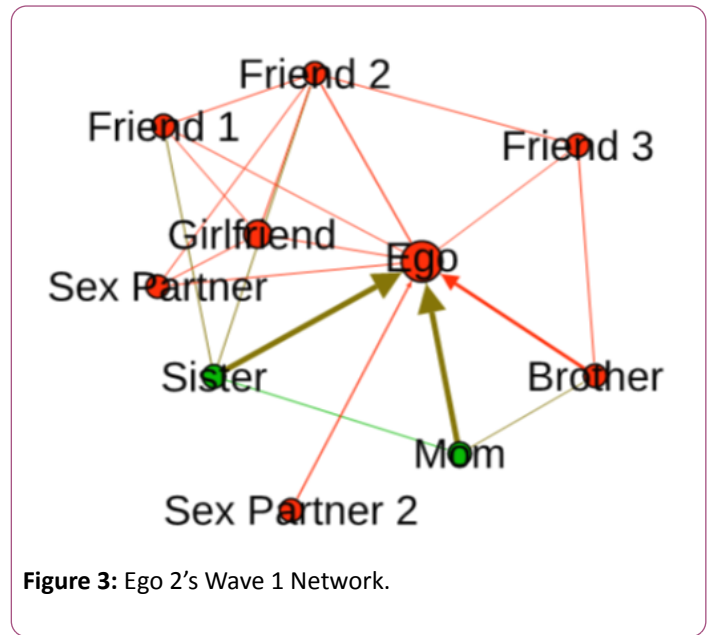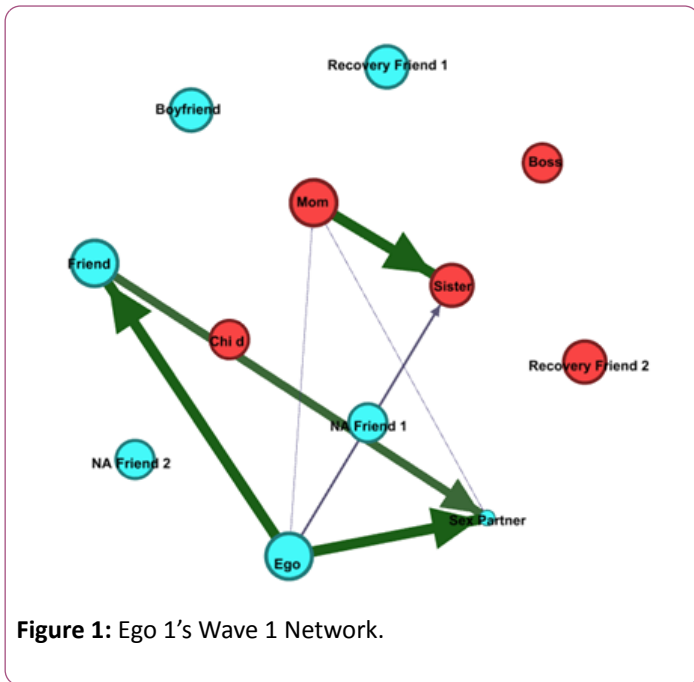
Table 1: Mean network characteristics.

Network Characteristics	Wave 1	Wave 5
Num of Alters	5.33 (2.31)	7 (3)
Heroin Users	4.33 (2.31)	1.67 (0.58)
Criminal History	15.2% (24.4%)	16.5% (23.6%)
Family	33% (13%)	47.6% (34.7%)

We also found the number with criminal histories increased slightly and the percent of the network of family members increased as the number of alters increased. Most of these changes are positive, and even the increases in the number of network members with criminal histories by Wave 5 are due to friends with past rather than current criminal involvement.

Figures 1-4 provide visual analysis of the changes that occurred in two of these women's networks from Wave 1 baseline to the two year follow-up at Wave 5. Red circles indicate the person is using drugs, whereas blue circles indicate the person is not using drugs. For Ego 1, it is clear that there were few connections between this ego and members of her network at Wave 1 (See **Figure 1**). However, by Wave 5, there were many more connections for this ego and members of this person's network (See **Figure 2**).

For Ego 2, at Wave 1, we see this person has several sex partners and had been actively using heroin (See **Figure 3**). By Wave 5, the ego is no longer using and is now more connected to family members, a fiancé and friends in recovery (See **Figure 4**).

Figure 1: Ego 1's Wave 1 Network.

Figure 2: Ego 1's Wave 5 Network.

Figure 3: Ego 2's Wave 1 Network.

Figure 4: Ego 2's Wave 5 Network.

Discussion

Our results suggest that egos report stronger bonds with non-using alters when they are not using. This suggests that relationships that are damaged or waning due to substance abuse can be repaired and strengthened, and this change is related to abstinence of the ego.

Our structural analysis show relatively stable degree distributions and transivity across waves. Networks did have increases in density over Wave 1 and Wave 5. This indicates that density could be a positive network development during the recovery process.

Thus, mutual help systems like Oxford House can facilitate the increase of network density by affording individuals access to large supportive networks where people make new friends who all know each other and interact regularly and intimately. The findings suggest that social resources embedded in social networks affect outcomes and are affected by the demographics of ego.

Although the application of SRT has been demonstrated in the general population, our study provides information about these associations in mutual-help settings. Our study also provides some insights about the retention of family members, which is indicative of the salience of family relationships during the recovery process. Families provide social, emotional and financial capital for people in recovery as they struggle to reenter the community. Thus, future interventions should be inclusive of family members and work to strengthen and repair these relationships. Social Network Theory posits that the beliefs and behaviors of an individual or organization are

determined, in part, by the nature and structure of their social relationships.

We do need, as suggested by this article, a multidisciplinary investigation of heroin addiction and recovery. For example, we need to appreciate the influence of economic inequality and stigma in the opioid epidemic [10]. Also of importance, heroin users have specific and sometimes exclusive social activities, routines and use patterns, and this means that heroin use occurs within a cultural context. Clearly, we need to better understand this cultural context, and social network methods help us identify important understudied topics for further research.

There is a limited body of social network research with people reentering the community after treatment for substance use disorders. Clearly, it is difficult to reestablish ties upon release, which creates barriers to successful reentry outcomes. Our study helps understand the process of how personal networks of formerly incarcerated people with substance use disorders can be altered by provision of supportive housing settings.

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