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Pathways to Care: Narratives of American Indian Adolescents Entering Substance Abuse Treatment

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Abstract

Using data from 89 American Indian adolescents and guided by the Network Episode Model, this paper analyses pathways to residential substance abuse treatment and their correlates. These adolescents were recruited at admission to a tribally-operated substance abuse treatment program in the southern United States from October 1998 to May 2001. Results from the qualitative analyses of these adolescent's pathways to care narratives indicated that 35% ultimately agreed with the decision for their entry into treatment; 41% were compelled to enter treatment by others, usually by their parents, parole officers, and judges; and 24% did not describe a clear pathway to care. In the multinomial logistic regression model examining correlates of these pathways to care classifications, adolescents who described pathways indicative of agreement also reported greater readiness for treatment than the adolescents who described compelled or no clear pathways to care. Adolescents who described a compelled pathway were less likely to meet diagnostic criteria for Conduct Disorder and described fewer social network ties. We were unable to find a relationship between pathways classifications and referral source, suggesting these narratives were subjective constructions of pathways to care rather than a factual representation of this process. In the final logistic regression model examining correlates of treatment completion, articulating a pathway to care, whether it was one of agreement or of being compelled into treatment, predicted a greater likelihood of completing treatment. Overall, these narratives and their correlates are highly consistent with the Network-Episode Model's emphasis on the interaction of self, situation, and social network in shaping the treatment seeking process, demonstrating the applicability of this model to understanding the treatment seeking process in this special population and suggests important considerations for understanding the dynamics of service utilization across diverse communities.

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Keywords

USA; American Indians; North American; adolescence; substance abuse treatment; Network-Episode Model; mixed methods

INTRODUCTION

How American Indian (AI) adolescents conceptualize and describe their pathways to substance abuse treatment may have important implications for their ability to take advantage of such services and for the ability of treatment providers to create an effective treatment plan. For example, in Motivational Interviewing, which focuses specifically on the awareness of substance use problems and desire to change, perceptions of pathways to care can provide important clues regarding an adolescent's state of mind that are critical for assessing (and addressing) their readiness for substance abuse treatment (Miller & Rollnick, 2002). In Cognitive Behavioral Therapy, which utilizes an analysis of an individual's substance use patterns to develop a relapse prevention plan, perceptions of pathways to care provides information regarding an adolescent's thinking and behavior around their substance use which must be addressed in this plan (Waldron & Kaminer, 2004). Finally, twelve-step programs directly utilize an adolescent's perception of their pathway to care as a tool for healing. Indeed, it is the telling and retelling of this "story" to peers, the changes in its meaning as one progresses through the twelve steps, and the specific actions that are suggested by analyses of this story from the different perspectives suggested by each of these steps (e.g., emphasizing one's powerlessness to address addiction in Step 1 and developing an exhaustive list of all persons one has harmed in Step 8), that becomes the main vehicle for achieving recovery (White, 1998).

The focus on pathways to care is highly consistent with the traditions of many AI cultures, in which narratives and storytelling are integral parts of family and community gatherings as well as an important avenue used to pass tribal knowledge and traditions from generation to generation (Hodge et al., 2002; Rehyner, 1997). Indeed, these narrative traditions have been used by some researchers and clinical programs to address substance abuse problems among AI adolescents and adults (La Marr & Marlatt, 2007; Naquin et al., 2006).

One approach to conceptualizing and analyzing pathways to care is the Network-Episode Model (NEM) (Pescosolido, 2006; Pescosolido et al., 1998), in which pathways to care result from an interactive process between "episodes" of illness-related problems (e.g., an adolescent being suspended from school for drug possession) and critical social interactions that shape the response (e.g., the school counselor supporting a parental decision to pursue substance use treatment for the adolescent despite her ongoing resistance to do so). An important assumption of the NEM is that the treatment seeking process does not occur through individually-based rational decision making, but is instead a complex social process in which illness-related problems, personal preferences, and the forces of one's personal ties interact with one another in a dynamic fashion over time (Pescosolido, 2006; Pescosolido et al., 1998).

This model may be particularly useful for understanding adolescents' pathways to care, as their status (both culturally and legally) likely limits their ability to make independent decisions to pursue treatment (Boydell et al., 2006; Costello et al., 1998; Millstein et al., 1993; Scott, 2000–2001; Stiffman et al., 2000). In this paper, we examine the pathway to care narratives provided by male and female AI adolescents who were admitted to a residential substance abuse treatment program (RSATP). Using these data, we attempt to answer the following research questions: How do AI adolescents entering/receiving

treatment at an RSATP describe their pathways to care, and are these descriptions consistent with the NEM? What are the correlates of different pathways to care? And, are specific pathways associated with completing residential substance abuse treatment?

METHODS

Setting and Participants

Participants were recruited from a 24-bed RSATP for male and female AI adolescents. In working with AI communities, protection of the confidentiality of tribes and tribal clinical programs can be as important as protecting the confidentiality of the individual participants (Norton & Manson, 1996). The program, operated by a Southern AI tribe and funded by the Indian Health Service (IHS), was designed to provide specialized treatment of patients with substance use disorders, including those with comorbid psychiatric disorders. Most of the professional and technical staff were themselves AI. The clinical program consisted of three major components: (1) a therapy and counseling component (described further below); (2) an educational (school) component, which included a course in AI cultures and history; and (3) a nursing component, which provides linkages to the local IHS hospital for pediatric and psychiatric services. The therapy and counseling component utilized several treatment modalities: (1) substance abuse counseling, including individual and group treatment based on a 12-step treatment philosophy; (2) mental health counseling, including traditional counseling and art therapy, which draws on both cognitive behavioral and psychodynamic treatment philosophies; (3) family therapy, though most sessions were conducted telephonically as the majority of families lived too distant from the RSATP to make regular visits (4) recreation therapy, using an “Outward Bound” model to build trust, teamwork, and self-esteem; and (5) the Sweat Lodge (a traditional Indian healing ritual involving prayer and song that takes place inside a dark structure in which water is poured onto hot stones to make the occupants sweat for religious or medicinal purposes) (Colmant & Merta, 1999). Outreach staff provide local AI communities with information about the treatment program and facilitate the referral process. Aftercare staff coordinate ongoing treatment and develop an aftercare plan with the patient’s family, community, and related agencies (e.g., social services agencies, juvenile justice system).

At the time of admission, each patient was assigned a primary therapist, who worked with the patient throughout treatment. The program used a point system in which patients earned and lost points on the basis of their performance within the treatment program (e.g., completing therapeutic assignments, participating in groups, compliance with the RSATP’s rules regarding proper conduct during treatment). Earning points to specified levels resulted in an increasing number of privileges and advancement within the treatment program. The program was completed when the necessary number of points had been earned and the patient had made significant progress in addressing the goals outlined in their individualized treatment plan, which were often tied to 12-step (e.g., writing an autobiography with full acknowledgement of the seriousness their substance use problems) and cognitive behavioral (e.g., learning specific relapse prevention skills and demonstrating the use of these skills on therapeutic passes) concepts. The treatment completion rate was 39.4%

As the goal of treatment completion was individualized for each participant, so too were the projected lengths of stay necessary for treatment completion. The program’s suggested length of time for treatment completion is 30–120 days. In this study, length of stay for participants who successfully completed treatment ranged from 71 to 148 days (mean of 106.5 days) compared to a range of 7 to 140 days for those who did not complete (mean of 61.65 days, significantly shorter than those who completed; $t=-6.964$, $p<0.001$).

At the time of discharge, the program provides therapeutic recommendations for followup treatment, but the nature of this treatment, and its length, was ultimately determined by the adolescent, their family, and the aftercare provider.

Data from this study has been analyzed previously to describe diagnostic patterns (e.g., prevalence and of substance use and mental health disorders, their correlates, and comorbidities), detailed analyses of specific diagnostic constructs (e.g., the application of the DSM-IV criteria for substance use disorders and Posttraumatic Stress Disorder in this unique sample), peyote abuse and dependence (particularly important given the cultural significance of this hallucinogen in some American Indian cultures), and the relationship of measures of motivations towards treatment and treatment completion (Deters et al., 2006; Fickenscher & Novins, 2003; Fickenscher et al., 2004, 2005a, 2005b, 2006; Novins, 2006).

Clients admitted to this RSATP from October 1998 to May 2001 were approached, and 93 (77.5%) of youth and their parents agreed to participate in the study. Those who agreed did not differ in age or gender from those who refused. Four youth (4.3%) who consented to participate left the RSATP within their first week of treatment and were thus ineligible for inclusion in the study. Of the remaining 89 youth, 20 (22.5%) did not complete the pathways to care interview, which was administered one week a month when our research staff visited the RSATP. These 69 participants provided data for our initial qualitative analyses. Those who did not complete the qualitative interview differed from those who did on 4 of 21 measures: They were more likely to report prior use of substance use services (100.0% vs. 65.7%), scored lower on a scale measuring treatment readiness (3.19 vs. 3.64), had a lower number of substance use disorders (1.89 vs. 2.56), and were less likely to complete treatment (5.3% vs. 48.6%). These four variables explained 46.7% variance of the missing data variable (procedures for addressing these differences described below). Sample characteristics (by treatment pathway) are displayed in Table 1.

Study Procedures

Research procedures, including procedures for obtaining informed consent from parents and assent from adolescent participants, were approved by the Colorado Multiple Institutional Review Board (IRB), the Tribal IRB, and the Area Indian Health Service IRB. Data collection was divided into three phases: 1) a self-report survey, 2) diagnostic and service utilization interviews (76 and 30 minutes, respectively); and 3) treatment record review. The self-report survey was conducted 3–7 days after admission and took approximately 60 minutes to complete. The diagnostic and services interviews were conducted on consecutive days following the completion of the self report survey and took approximately 75 and 30 minutes to complete, respectively. As our research staff traveled to the RSATP once a month to conduct these interviews, the specific time for their completion varied considerably. The average length of time from admission to interview was 25 days; 85% of interviews were conducted between 7 and 45 days after admission. Treatment records were reviewed after participants were discharged from the program.

Pathways to Care

A single question asked participants how they ended up in treatment. To elicit participants' views, lay interviewers did not probe on substantive issues. Participant responses were either audiotaped and subsequently transcribed (with appropriate consent, n=63) or transcribed during the interview in those cases where participants refused audiotaping (n=6). No significant differences in the coding of pathways by method of transcription were in evidence.

Pathways to care were established by qualitative analysis of narratives collected as a part of the services utilization interview and were initially based on Pescosolido et al.'s (1998) categorization. This coding scheme grouped narratives into 3 major categories: *Choice*, *Coercion*, and *Muddling Through*. Narratives were coded as representing *Choice* if participants explicitly stated, at least once in their narratives, that they made a decision to enter treatment. Narratives were coded as representing *Coercion* when participants described active resistance to participating in treatment consistently throughout their narratives. Finally, narratives were coded as *Muddling Through* when participants indicated neither active choice nor resistance to entering treatment.

The first and third authors independently categorized the narratives according to this coding scheme, and agreed on 57 (82.6%) cases. Narratives in which the authors disagreed were reviewed and discussed, and a final consensus coding was agreed upon. Most cases of disagreement involved differences in assessing whether narratives included a key statement of choice (9 narratives). The remaining 3 cases of disagreement involved differences in assessing whether narratives described consistent resistance to entering treatment. After strictly applying the Pescosolido et al. (1998) classification scheme, the authors discussed the narratives and the appropriateness of the classification scheme for these AI adolescent participants and arrived at a revised, final scheme based on these discussions, which was used in the subsequent quantitative analyses. This final coding scheme is described in the Results, below. Further details regarding the coding process may be found in the accompanying online supplementary materials.

Potential Correlates of Pathways to Care

Using the NEM as a guide, we selected measures of potential correlates of pathways to care from our self-report, interview, and treatment record review data described previously. Measures selected for the following categories: 1) sociodemographic characteristics, 2) prior service use, 3) motivation towards treatment, 4) ethnic identity, and 5) substance and mental health disorders.

Information regarding *age*, *gender*, *referral source* (whether the participant self-referred to treatment or was referred by a human services agency), whether the participant was *courtordered into treatment*, and whether the participant completed treatment (as described above) were abstracted from treatment records.

Lifetime history of *prior behavioral health treatment* was abstracted from the service utilization interview, which was based on questions utilized in previous studies of AI adolescents and adults (Gurley et al., 2001; Novins et al., 1999b).

We utilized measures of *motivation towards treatment* from the Drug Abuse Treatment Outcomes Study for Adolescents (DATOS-A) (Knight et al., 1994). The *desire for help* scale consisted of seven items and was used to measure the participant's awareness of a need for change and search for help. Scale scores ranged from 1.0 to 5.0, with higher scores representing a greater desire for help (Cronbach's alpha [α]=0.85). The *treatment readiness* scale consisted of eight items and was used to measure the participant's degree of commitment to active change through participation in a treatment program (scores ranged from 1.25–5.0, α =0.81), with higher scores indicating a greater treatment readiness. In addition, we utilized a single question asking the participant if they were *concerned about legal problems* (scores ranged from 1.0–5.0) with higher scores indicating a greater concern about these problems.

We utilized one measure of connections to AI culture developed for the Voices of Indian Teens Survey (Mitchell et al., 1995; Moran et al., 1999; Novins et al., 1999a; Novins &

Mitchell, 1998). The *Indian identity scale* consisted of 5 questions that asked the participant to rate his/her identification with AI culture (scores ranged from 1.0 to 4.0; $\alpha = 0.72$), with higher scores indicating greater Indian identification.

Social Networks were measured using a structured network battery developed by Pescosolido et al. (1998) modified for use with AI adolescents with substance abuse problems. For these analyses, we focused on the social networks listed by the participant in response to the following stem question: "Looking back over the last year, who are the people with whom you discussed matters important to you?" Follow-up questions regarding each person identified by this initial question were used to determine the role of these persons in the participant's life and their personal characteristics (age, ethnicity, substance use history). The *number of important matters ties* measured the size of participants' social networks by counting the number of individuals identified through the stem question. As suggested by Pescosolido et al. (1998), we conducted a natural log transformation of this count, since the difference between having 0 or 1 tie should be more important than the difference between 1 to 2 ties. The stability of participants' social networks was calculated by the *average length of relationships* with individuals in their social networks from the following question: ("How long have you known {person's name}?""; 1=Less than 6 months, 2=more than 6 months but less than a year, 3=1 to 2 years, 4=3 to 6 years, 5=more than 6 years). To measure the perceived supportiveness of participants' social networks, we calculated the *average supportiveness* of individuals in their social networks ("How supportive is {person's name}?""; 1=very supportive, 2=sort of supportive, 3=not very supportive). Finally, the average substance use involvement of individuals in each participant's social network was measured ("What best describes {person's name}?""; 1= never drank alcohol or used drugs, 2= drank alcohol and/or used drugs in the past, but stopped, 3= has an alcohol and/or drug problem).

Substance Use Disorders—Past-year DSM-IV abuse and dependence of 10 different substance classes (alcohol, marijuana, sedatives, tranquilizers, stimulants, analgesics, inhalants, cocaine, hallucinogens, and heroin) was generated from Composite International Diagnostic Interview, Substance Abuse Module (CIDI-SAM). The version of CIDI-SAM used in this study included modifications to make it more culturally appropriate for AIs and has been used previously in studies of AI adults (Mitchell et al., 2003; Spicer et al., 2003) and adolescents (Duclos et al., 1998). The following measures of substance use disorders from the CIDI-SAM were constructed: 1) *alcohol abuse/dependence*; 2) *marijuana abuse/dependence*; and 3) *other abuse/dependence* (sedatives, tranquilizers, stimulants, analgesics, inhalants, cocaine, hallucinogens, heroin).

Mental Health (Non-Substance Use) Disorders—Past-year diagnostic status was generated from the Generalized Anxiety Disorder, Posttraumatic Stress Disorder, Major Depressive Disorder, Attention Deficit/Hyperactivity Disorder, Oppositional Defiant Disorder, and Conduct Disorder modules of the Diagnostic Interview Schedule for Children, Youth Version (DISC-IV-Y). The cultural appropriateness of the DISC-IV-Y was assessed through intensive reviews by focus groups of AI clinicians, parents, and youth, concluding that the DISC-IV-Y was acceptable for use with AI adolescents. We constructed the following measures of non-substance use disorders from the DISC-IV-Y: 1) *mood/anxiety disorder* (Generalized Anxiety Disorder, Posttraumatic Stress Disorder, Major Depression); 2) *Conduct Disorder*; and 3) *other disruptive behavior disorders* (Oppositional Defiant Disorder, Attention Deficit/Hyperactivity Disorder).

Quantitative Data Analyses

Factors Associated with Treatment Pathways and Treatment Completion—

Analyses were conducted using SPSS 13.0, using our final classification scheme. Missing data were imputed in order to make full use of the available data and reduce the apparent biases noted under Setting and Participants (Croy & Novins, 2005; Pigott, 2001; Schafer & Graham, 2002). Data were imputed with the Expectation Maximization (EM) Method (Little & Rubin, 1987). We report only results from the analyses of the imputed data as recommended by Shafer and Graham (2002) and Pigott (2001) as omitting observations with missing data can leave a biased set of data for analysis.

First, we calculated crude (univariate) and adjusted (multivariate) odds ratios to examine the factors associated with the final pathway to care classifications (Agreed, Compelled, No Clear Pathway) using multinomial logistic regression. Second, we tested whether our final pathway to care classification contributed significantly to predicting treatment completion when added to a logistic regression model we had published previously (Fickenscher et al., 2005a) focused on the relationship between sociodemographic (e.g., age, gender), legal status (being court-ordered into treatment), diagnoses (mental health and substance use disorders), and measures of motivation towards treatment (e.g., problem recognition, treatment readiness) with treatment completion in this same dataset. In calculating the adjusted odds ratios in both regression models, we followed the guidelines described by Hosmer and Lemeshow (2000) for the selection of variables for inclusion in the final regression model and testing for potential interactions.

To balance the reduction of risk of type I error resulting from multiple analyses with the risk of increasing the type II error in a study with such a small sample size, the Holm simultaneous testing procedure (Chandler, 1995; Holm, 1979; Neter et al., 1996) was used to adjust the criteria for statistical tests for multiple comparisons. The Holm procedure is comparable to the Bonferroni procedure (Holland & Copenhaver, 1988) in that they are both used for simultaneous tests. However, the Holm procedure adjusts for each level of the test (specifically, the level against which each p-value is compared) as the investigator conducts a series of analyses, whereas the Bonferroni procedure does not. This difference results in the increased power of the Holm procedure. All p values reported reflect these adjustments.

Results

Pathways Classifications

Our final classification resulted in three different types of pathways: No Clear Pathway, Agreed, and Compelled.

The first clear division in the narratives was whether a pathway to care was articulated by the participant. In 11 narratives, the participant did not answer the question regarding how they came to the treatment facility, as illustrated in these examples:

I came to {this treatment program}... for drug and alcohol abuse and behavioral problems and today the 20th I have my first month clean. And what I've done about it is just basically not go into places where I can find it and quit talking and hanging around friends where I find them using and that's about it. [Case 41, female]

Why I am here is because, I was starting to get back into drugs again, smoking pot. I just started thinking that me and my mom's relationship was not going good at all. I didn't want to face the relationship, I just thought of just giving up. When my difficulties started is when I got back from treatment, this was this year. What I

want to work on is work on my relationship with my mom and stop hiding things from her and sharing my feelings with her. [Case 87, female]

In the first example, this adolescent first described her reasons for entering residential substance abuse treatment and concluded with an action plan for avoiding substance use problems. In doing so her narrative fails to provide a description of how she entered treatment. In the second example, this adolescent indicates he had been in treatment previously, started using drugs again, and needs to work on her relationship with her mother, but also fails to describe how he entered treatment. As these 11 participants did not articulate a pathway to care, we classified these narratives as describing “No Clear Pathway” to services because their responses did not permit us to determine their pathway.

A clear pathway to care was articulated in the remaining 58 narratives. Twenty-seven narratives contained a definite statement of choosing treatment (an original classification in the Pescosolido et al. (1998) framework). However, these choice statements were often in the context of being guided into treatment by outside forces (usually by parents, probation officers, or because of a court order). We felt the expression of agency in entering formal treatment was a distinguishing characteristic of these narratives, as illustrated in the following examples:

I started using drugs and alcohol, abused drugs and alcohol. And my difficulties are working with my anger and acting out on my anger. I came here, I was court ordered here, **but I also wanted to come here on my own** because of my anger, to work on my anger. I know that I do have a bad, well when I get angry, I get real angry and I act out on it and I’m working on that {emphasis added}. [Case #2, female]

Violated parole. Here so I can learn to stay away from the so called hood or ghetto and just get rehabilitated. Just basically here to change my ways. Difficulties started in ‘97 and for awhile didn’t do anything about them. Just kept doing what I was doing, got arrested, sentenced to 5 days in Sanctuary and 200 hours of community service. Chose to come here {from interviewer notes}. [Case #78, male]

We labeled this category of narratives as “Agreed” to acknowledge both the statements of agency as well as the important role of outsiders in guiding these adolescents to treatment,

Our analysis of the remaining 31 narratives suggested their pathways to care were shaped to a large extent by outside agents – parents, parole officers, and judges – without any indication that they chose to enter treatment. Thus these adolescents were “compelled” by outside agents to enter treatment, as illustrated in the following examples:

Well I’m here because I am an alcoholic and when it started... Well I didn’t have no difficulties until I started like drinking and I went to school and my grades started getting lower and lower started making F’s, stopped doing my school work, started skipping school, and they started like probably last year and probably November, yeah, November or December, started drinking heavy and started getting in trouble with the police and then and then they... my dad suggested to the judge that, that I come here... and um... so that’s all I have, to straighten up. [Case #89, female]

What do you mean by why I’m here, I was court ordered? What’s happened to me, I don’t understand it, I really don’t... I vandalized a building... and I didn’t go to court and I kept running, they picked me up about... and got put on probation and got that over with. I got a bunch of UA’s I was going to come here... but I skipped out on the court date and they were going to send me here with sanctions, now I’m here. [Case #83, male]

After we completed the imputation process to prepare for our quantitative analyses, the imputed prevalence of these three treatment pathways were as follows: 23.6% for No Clear Pathway, 35.0% for Agreed, and 41.6% for Compelled.

Factors Associated with Treatment Pathways

Seven of the 19 variables showed univariate associations with specific pathways to care (as indicated by the superscripts in Table 1): two of the three measures of motivation towards treatment, two measures of social networks, abuse/dependence of substances other than alcohol or marijuana, and Conduct Disorder. In our final multinomial regression model (Table 2), four of these variables were independently associated with treatment pathway after controlling for the other variables in the multinomial logistic regression model. Specifically, participants who described an Agreed pathway had higher scores on the treatment readiness scale than participants who described a Compelled or No Clear Pathway (odds ratio {OR}=6.61 and 5.38, respectively). Compared to participants who described a Compelled pathway, participants who described an Agreed pathway reported larger social networks (OR=4.53) and were more likely to meet criteria for Conduct Disorder (OR=7.15). Finally, compared to participants who described a Compelled pathway, participants who described No Clear Pathway reported larger social networks (OR=3.89). No significant interactions were identified.

We added a design measure to our final multinomial logistic regression model – *length of time from admission to interview* – as our preliminary analyses suggested that those classified as describing a Compelled pathway to attend services had a shorter length of time from admission to interview completion when compared with those classified as describing an Agreed pathway (means of 18.93 and 27.94 days, respectively). We concluded that it was important to control for these design effects. We found a statistically significant relationship between this design variable – length of time to interview – and pathways to care, which is displayed graphically in Figure 1. Participants who completed the pathway to care interview between days 7 and 21 were more likely to report a Compelled pathway to care than those who were interviewed 22 days or later. In contrast, participants who were interviewed 22 days or later were more likely to report an Agreed pathway to care than those who were interviewed between days 7 and 21. The rate of reporting No Clear Pathway did not vary by time of interview in these analyses.

Factors Associated with Treatment Completion

In our final regression model, we examined the potential relationships of pathways to care with treatment completion after controlling for other variables in a regression model we had developed previously to describe the relationship of our motivation towards treatment measures with treatment completion in this sample (Fickenscher et al., 2005a). Because there were minimal differences in the rates of treatment completion for participants who described Agreed and Compelled pathways (48.4% and 43.2%, respectively), but both of these articulated pathways had treatment completion rates significantly higher than those with unarticulated (i.e., no clear) pathways (19.0%), we used a binary version of the pathways to care variable (articulated/unarticulated pathways) in this regression model. In the previous model reported by (Fickenscher et al., 2005a), older age, treatment readiness, and concern about legal problems were independently associated with treatment completion. When the pathways to care variable was added to this model, all of these variables continued to demonstrate significant independent associations with treatment completion (age OR=1.68, treatment readiness OR=2.12, concern about legal problems OR=1.55), as did providing an articulated pathway to care (OR=4.17). The addition of this variable to the previous equation significantly improved the regression model ($\chi^2=5.04$, 1 df, $p=0.02$).

Discussion

The Network-Episode Model (Pescosolido et al., 1998) places considerable emphasis on the interaction of self, situation, and social network in shaping the treatment seeking process and the results of these analyses – both the classifications of these treatment seeking narratives and their key correlates – are highly consistent with this model.

The most prevalent pathway in this sample of AI adolescents was Compelled (41.6%) is indicative of the prominent role that others (e.g., parents, law enforcement, other adults) played in the treatment seeking process for these adolescents, and is consistent with a recent analysis of treatment seeking in narratives of adolescents experiencing their first episode of psychosis (Boydell et al., 2006). It is also consistent with the broad societal limitations (including legal limitations) on adolescent autonomy (Boydell et al., 2006; Millstein et al., 1993; Scott, 2000–2001) and the tight-knit social structure of many AI communities in which parents, elders, and other adult community members play a particularly important roles in the lives of adolescents (Stiffman et al., 2007).

While the Compelled pathway classification was the most common, pathways indicative of adolescent agreement to enter services was still fairly prevalent (34.8%) – perhaps more common than we would have expected given that chart-recorded self-referrals were uncommon (9%). Furthermore, we found no associations between the characteristics of these adolescents' treatment paths that were recorded in their treatment records (i.e., their referral source and whether they were court-ordered into treatment) and their narrative classifications. Thus, it may be more appropriate to consider these narratives to be subjective constructions of adolescents' pathways to care rather than a factual representation of what actually led them to treatment. Such an interpretation is further supported by the significant variation in pathways to care by length of time from admission to the treatment program until they were interviewed, suggesting that the treatment process itself may have influenced the way adolescents described their entry into treatment. More specifically, it is possible that the clinical focus on adolescents' need for, and motivation towards treatment, results in a greater prevalence of Agreed pathways and decreased prevalence of Compelled pathways among those adolescents interviewed later in their residential treatment).

Longitudinal analyses will be necessary to determine whether pathways narratives do change with treatment. The following interpretations of our findings are built upon both of the above premises: that these narratives are psychological constructs and may change over the course of treatment.

That adolescents who described an Agreed pathway reported greater treatment readiness than adolescents who described Compelled or No Clear Pathways (with ORs of 6.6 and 5.4) suggest a particularly strong relationship between these two psychological constructs. It is possible that as adolescents become more committed to treatment, they become more likely to view their entry into treatment as something they agreed to rather than being solely the result of outside influences. The fact that any mention of choosing treatment, even if the majority of the narrative was indicative of outside pressures largely influencing the adolescent, resulted in a Agreed pathway classification was likely much more sensitive to such a process than it would have been if we had required more consistent indications of choosing treatment in these narratives.

That adolescents who described a Compelled pathway to care reported significantly fewer social network ties than adolescents who described Agreed or No Clear Pathway suggests the sense of being forced into treatment is associated with the perception of a less supportive social network. These adolescents may also be more dependent on formal institutions (such as the juvenile justice system) to recognize and respond to substance abuse problems than

the other adolescents in this study. As treatment progresses and adolescents have the opportunity to work on critical issues in their social environment (and particularly within their family), they may begin perceiving their social network as more supportive and their entry into treatment as a one that they agreed to.

While Conduct Disorder was highly prevalent (74%), it did not distribute evenly across the sample with it being most common among those adolescents who described No Clear (100%) and Agreed (83.9%) pathways to care than adolescents who described a Compelled pathway (51.4%). This finding raises the possibility that the psychological and cognitive characteristics of adolescents with Conduct Disorder mean they are more likely to state they chose treatment rather than admit being compelled by others to enter treatment, obfuscate (dodge the question), or be unable to describe their pathways because of co-occurring cognitive difficulties (Narhi et al., 2010) that were unmeasured in this study. Indeed, that all of those adolescents who described No Clear pathway to care met criteria for Conduct Disorder warrants additional scrutiny regarding the underlying determinants of providing such a description in future research.

The ability to articulate a pathway was in and of itself an independent predictor of treatment completion in this sample. This finding – the first report of such an association using the NEM – is particularly important at a treatment program such as the one at our study site that works from a strong 12-step foundation. However, as we noted earlier, the ability to reflect upon and analyze one's entry into treatment is also important for motivational interviewing (Miller & Rollnick, 2002) and cognitive behavioral therapy (Waldron & Kaminer, 2004).

Given the strong relationship between peer influences and adolescent substance use (AI adolescents included; Spicer et al., 2003), it is interesting that peers did not have a major presence in these pathways to care. In the few instances in which peers are mentioned, they are generally described as contributing to their substance use problems rather than contributing to their entry into treatment (see for example the narrative from Case 41, above), suggesting that peers are not a major factor in facilitating entry into treatment. Whether interventions can facilitate the development of such skills and roles for adolescents in the treatment-seeking process is worthy of investigation.

Limitations

Key limitations should be noted in considering the implications of these findings. First, while research with non-AI treatment samples suggests that patients who complete residential treatment are less likely to be using substances in aftercare (Hser et al., 2004), we were unable to examine the relationship between treatment pathways and long-term treatment outcomes; the longer-term impacts of treatment pathway narratives will require studies that address follow adolescents beyond their residential treatment stays. Second, although we utilized the Holm rather than the more conservative Bonferroni Procedure to reduce the risk of type II statistical errors, this procedure does not completely eliminate this risk, and our failure to find significant associations between a number of theoretically important variables and treatment pathways (e.g., being court ordered into treatment) may be the result of the small sample size rather than the lack of underlying relationships. Third, the time window for completing these interviews following admission to this RSATP was wide. While this allowed us to identify an intriguing relationship between time since admission and pathway classification (and control for it in these analyses), it may have reduced our ability to identify key factors associated with pathways to care. Fourth, in order to assure the reliable application of study methods by lay interviews, our pathways to care interview did not permit the use of probes. While this reduced concerns about the reliable application of the study protocol, it also likely resulted in a higher number of adolescents who did not describe a clear pathway to care than would have been the case if probing had been

employed. Similarly, this study was conducted in a single RSATP serving AI adolescents with a small sample size and these findings should be applied to other settings serving both AI and non-Indian adolescents with considerable caution. Finally, the lack of repeated, prospective measures of treatment pathway means that the interpretation regarding the impacts of treatment on these narratives should be thought of as testable hypotheses that requires additional study.

Conclusions

Overall, narratives of these AI adolescents' pathways to care appear to be social and psychological constructions that, while having no clear associations with the circumstances that led to their admission to this RSATP, were associated with key social, psychological and diagnostic characteristics as well as the likelihood of completing a demanding treatment program. Monitoring an AI adolescent's ability to describe a pathway to care may provide important information on how they are internalizing their treatment experience and therapeutic techniques aimed at facilitating this process may be particularly important in supporting their ability to remain engaged in treatment. Indeed, our finding that the ability to articulate a pathway to care predicts treatment completion independent of treatment readiness or concerns about legal problems suggests that a clinical focus on pathways to care may have additional, therapeutic benefits beyond standard motivational techniques. For example, it is possible that a coherent explanation of one's pathway to care may make it easier for adolescent patients and their clinicians to identify specifically the skills they need to abstain from ongoing substance misuse. Clinicians and intervention researchers should consider paying more careful attention to pathways narratives as they design services for AI youths. Extending this exploratory work to non-AI adolescents is also worthy of serious consideration.

We are only at the beginning of developing a body of empirical findings on self-reported pathways to care. This study has provided some intriguing suggestions on how pathways may differ for special groups. It is up to future research to determine, for example, how common Compelled pathways are, whether the perceptions of pathways to care do evolve over the course of treatment, and whether this evolution can be facilitated to support therapeutic goals (much as motivational interviewing improves treatment engagement and outcomes; Monti et al., 1999). More importantly, we have provided some of the first evidence that pathways to care shape latter stages of the illness career (i.e., treatment completion). As we continue to mark the way that individuals get into services, we will be able to understand both the general and specific factors that change trajectories and health care outcomes.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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- Mixed methods study of pathways to care narratives described by American Indian adolescents in substance abuse treatment.
- How adolescents understand their entry into treatment has important implications for their experiences in treatment.
- When adolescents describe their pathway to care as one that they agreed to, they report a greater readiness for treatment.
- The inability of adolescents to articulate their pathway to care reduced the likelihood of completing treatment.
- A focus on encouraging adolescents to reflect on and understand how they got to treatment may have therapeutic benefits.

Figure 1.
Relationships of Length of Time to Interview and Pathways Classification for American Indian Adolescents in Substance Abuse Treatment (n=89)

Table 1

Sample characteristics by treatment pathway (n=89), American Indian adolescent study (1998–2001).

	Agreed (n=31)		Compelled (n=37)		No Clear Pathway (n=21)	
	n/m	%/sd	n/m	%/sd	n/m	%/sd
Gender (female)	16	51.6%	13	35.1%	6	28.6%
Age (16–18 years)	19	61.3%	19	51.4%	12	57.1%
Prior behavioral health treatment	26	83.9%	30	81.1%	20	87.0%
Referral source (0=human services agency referral; 1=self-referred)	4	12.9%	3	8.1%	1	4.8%
Court ordered into treatment	11	35.5%	14	37.8%	3	14.3%
Motivation towards treatment						
Desire for help (higher=greater desire for help)	4.11	0.83 <i>ab</i>	3.51	0.85 <i>a</i>	3.51	1.04 <i>b</i>
Treatment readiness (higher=greater treatment readiness)	4.08	0.64 <i>ab</i>	3.29	0.77 <i>a</i>	3.21	1.00 <i>b</i>
Concern about legal problems (higher=greater concern)	3.58	1.61	3.38	1.40	3.43	1.40
Indian ethnic identity scale (higher=greater Indian identity)	2.65	0.83	2.51	0.81	2.24	0.74
Social networks						
Number of social network ties (ln)	1.37	0.56 <i>a</i>	1.05	0.55 <i>ab</i>	1.43	0.49 <i>b</i>
Average length of social network relationships	4.26	0.51	4.35	0.80	4.02	0.61
Average supportiveness of social network relationships (higher=greater supportiveness)	1.16	0.25	1.13	0.25	1.27	0.27
Average substance use involvement by individuals in social network (higher=greater involvement)	2.04	0.46	1.82	0.53 <i>a</i>	2.13	0.25 <i>a</i>
Substance Use Disorders						
Alcohol abuse/dependence	23	74.2%	23	62.2%	14	66.7%
Marijuana abuse/dependence	27	87.1%	29	78.4%	19	90.5%
Other abuse/dependence	16	51.6% <i>a</i>	14	37.8%	5	23.8% <i>a</i>
Mental Disorders (non-substance use)						
Mood/Anxiety	7	22.6%	8	21.6%	2	9.5%
Conduct	26	83.9% <i>a</i>	19	51.4% <i>a</i>	21	100.0% €
Other disruptive	5	16.1%	11	29.7%	3	14.3%
Completed Treatment Program	15	48.4%	16	43.2%	4	19.0%

Notes.

n/m = number of participants for categorical variables, mean for scaled/continuous variables.

%/sd = percentage of participants for categorical variables, standard deviation for scaled/continuous variables.

OR = odds ratio.

^{a, b} indicates significantly different contrast in each row, $p < 0.05$, adjusted for multiple comparisons using the Holm procedure.

^c Because all youth whose narratives were classified as No Clear Pathway met criteria for Conduct Disorder, no contrasts are provided.

Table 2

Factors associated with treatment pathway (adjusted odds ratios; n=89), American Indian adolescent study (1998–2001).

	<u>Agreed vs. Compelled</u>		<u>Agreed vs. No Clear Pathway</u>		<u>No Clear Pathway vs. Compelled</u>	
	OR	95% CI	OR	95% CI	OR	95% CI
Treatment readiness (higher=greater treatment readiness)	6.61	2.49, 17.50 *	5.38	2.02, 14.36 *	1.23	0.58, 2.60
Number of social network ties (ln)	4.53	1.44, 14.25 *	1.16	0.37, 3.69	3.89	1.19, 12.77 *
Conduct Disorder	7.15	1.53, 33.50 *	€	-	€	-
Length of time to interview (days)	1.05	1.01, 1.11 *	1.00	0.96, 1.04	1.05	1.00, 1.11 *

Notes.

OR = Adjusted odds ratio.

95% CI = 95th percentile confidence interval.

* p<0.05.

€ Because all youth whose narratives were classified as No Clear Pathway met criteria for Conduct Disorder, no odds ratio is provided for these contrasts.

Table 3

Factors associated with treatment completion (adjusted odds ratios; n=89), American Indian adolescent study (1998–2001).

	Authors, 2005		Expanded Model	
	OR	95% CI	OR	95% CI
Age	1.56	1.03, 2.37 *	1.68	1.07, 2.62 *
Motivation towards treatment				
Treatment readiness	2.30	1.14, 4.64 *	2.12	1.03, 4.34 *
Concern about legal problems	1.45	1.01, 2.10 *	1.55	1.06, 2.26 *
Pathway to treatment (articulated)	-		4.17	1.10, 15.78 *
Model Statistics				
-2 log likelihood	100.70			95.67
-2 log likelihood change over original model	-			5.04 *

Notes.

OR = Adjusted odds ratio.

95% CI = 95th percentile confidence interval.

* p<0.05.