

Predicting Improvement of Transitioning Young People in the Partnerships for Youth Transition Initiative: Findings from a Multisite Demonstration

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Abstract

Prior research has indicated that young people with serious mental health conditions show poorer progress and greater challenges in the transition to adulthood, as reflected by lower rates of employment and postsecondary education, higher rates of criminal justice involvement, and greater interference in daily activities from mental health and substance use disorders. Little knowledge exists, however, regarding improvement on these indicators among young people enrolled in community-based transition support programs and individual characteristics that might moderate this improvement. This study describes rates of improvement on indicators of transition progress and challenges among young people enrolled in a multisite demonstration of transition support programs. Young people in the study showed increased rates of progress and decreased rates of challenges over four quarters of enrollment. Moderation of these changes by individual characteristics including demographic, historical, and diagnostic variables suggested ways of improving transition support programs and avenues for future research.

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Introduction

The transition from adolescence to adulthood is marked by a number of critical social achievements, including obtaining rewarding employment, completing necessary postsecondary academic or vocational training, and developing independent living skills and resources.¹⁻⁴ The pace at which such responsibilities are assumed during this period is unparalleled by any other phase of the life cycle, and the complexity and difficulty of negotiating the tasks involved has only increased in recent decades.^{5,6} Greater opportunities in the transition to adulthood to engage in risky behaviors such as substance abuse, unprotected sex, or criminal activities further complicate the challenges youth face in transitioning successfully. Consequences related to these behaviors such as school expulsion, loss of employment, incarceration, and unplanned pregnancy act as “developmental snares” by placing social achievements related to transition at risk and otherwise endangering health and well-being.^{7,8} Because they are more likely to face difficulties completing transition-related tasks and avoiding developmental snares, vulnerable populations such as transition-aged youth with serious mental health conditions are at high risk for experiencing poor outcomes in the transition to adulthood.

The designation of “serious mental health conditions” (SMC; alternatively referred to as emotional and behavioral difficulties or serious emotional disturbance) encompasses a range of psychologically based problems that significantly impair functioning over a long period of time. In the US, the number of children and adolescents with these conditions has been estimated at between two and three million, or around half of the total number of children and adolescents with disabling conditions overall (i.e., physical and intellectual as well as emotional and behavioral disabilities).^{9,10} Studies of transition-aged youth and young adults with serious mental health conditions (TAY w/SMC) in educational, mental health, or general community settings have shown that these individuals tend to have histories of assignment to restrictive settings, have a high prevalence of developmental snares, and often have very poor employment, education, housing, and other functional outcomes.¹¹⁻¹⁴ For example, the National Longitudinal Transition Study-II (NLTS-II) estimated that less than 50% of young adults with SMC out of secondary school for a year or more were employed and that less than a third had any exposure to postsecondary education over a 2-year period.¹⁵ However, some studies have suggested that if early progress is achieved in areas where TAY w/SMC are at risk of poor outcomes such as employment, these young people show substantial gains in community functioning and fewer symptoms. For example, TAY w/SMC have shown relatively better short and long-term outcomes if they complete high school or if they obtain employment experience early in the transition period.¹⁶ These findings are consistent with those of prospective studies on similar types of youth and young adult populations. For example, among TAY with histories of serious criminal offending (many of whom would also be classified as having SMC), research has suggested that early achievement of stable, rewarding employment is one of the best predictors of long-term successful adjustment.¹⁷

Prior research on services to support transition

TAY w/SMC receive few formal services to meet the formidable challenges faced in the transition to adulthood. For example, a number of studies have shown that the relatively small proportion of TAY w/SMC receiving mental health services during childhood and adolescence declines at the onset of adulthood despite increases in both objective and self-identified needs for these services during this period.^{18,19} Although mental health services are often available for TAY that are diagnosed with mental health or substance use disorders, these services are seldom designed with their specific developmental needs in mind and are widely recognized as inadequate in other ways as well.²⁰ For example, many services are offered in a stigmatizing, deficit-oriented manner, and there is a continuing tendency in many programs to focus on short-term needs and crisis management,^{13,20} despite indications that transition-related improvements (e.g., in employment, education, housing, and independent living skills) best predict the long-term behavioral

health of TAY w/SMC.^{16,21} Beyond addressing these problems related to specific programs or services, there appears to be a consensus among experts that better service coordination is needed to meet the complex needs of TAY w/SMC. Necessary types of coordination include coordination across different formal service providers (e.g., mental health, substance abuse, educational, vocational rehabilitation) and between formal providers and “informal” sources of support in the community such as competitive employment and recreational opportunities.^{22,23}

A number of pioneering programs to support transition of TAY w/SMC and other vulnerabilities have been developed over the last two decades.^{24–29} Despite variety across these programs in terms of site of service delivery (e.g., school vs. mental health agencies), training of service providers, and targeted outcomes (e.g., the extent to which programs focus on employment vs. educational outcomes), programs described in the available literature have tended to follow the principles outlined above such as emphasizing progress in employment and education and optimizing coordination of care across sectors and across formal and informal providers. Evaluations of these programs have generally yielded promising results, showing pre-post improvements of young adults on relevant outcome indicators including decreased involvement with juvenile justice and increased rates of positive outcomes such as high school completion and current employment.^{24–26,29}

Building upon several reviews of such programs for facilitating transition of TAY w/SMC,^{22,25,27} Clark³⁰ designed the Transition to Independence Process (TIP) model to guide the development of community-based services to support transition. As described in the TIP System Development and Operations Manual,³⁰ the TIP model summarizes principles and operational characteristics thought to be associated with effective transition support services. The model particularly emphasizes processes for coordinating efforts of different specialty agencies and other community institutions and maximizing young person and family input in services on multiple levels (i.e., the level of the individual young person, the level of the program, and community/macro system level,^{22,30}). The model includes a set of seven guidelines and associated practice elements and a variety of specific techniques or “core competencies” designed to assist provider personnel at TIP programs (“transition facilitators”) in working with TAY w/SMC to support their achievement of transition-related goals in the community. An essential ingredient in TIP programs is the one-on-one relationship between the transition facilitator and the young person receiving transition support, which resembles relationships between intensive case managers and consumers in models used with other types of vulnerable young person populations, such as homeless youth and young adults.³¹

Using Florida Department of Education and National Student Clearinghouse administrative databases, Karpur et al.¹⁶ compared TAY w/SMC after their exit from a TIP program to a comparison sample of TAY w/SMC identified from the same geographic area through gender and ethnicity-matched random selection. Relative to the comparison sample, individuals with at least 1 year of experience in the program showed higher rates of enrollment in postsecondary education and lower rates of incarceration and probation. Although TAY w/SMC failed to show higher rates of employment, “productive engagement” (i.e., either level of involvement in employment or enrollment in secondary education) was higher, suggesting the possibility that these TAY w/SMC may have been deferring employment to focus on postsecondary education or training. Karpur et al.¹⁶ also showed that TAY w/SMC in this program who had prior employment experience and those who had never before been in the child welfare or criminal justice systems tended to fare better after their exit from this program, as shown by their higher levels of postsecondary education participation and employment and lower levels of incarceration in the postprogram period in comparison to other enrollees.¹⁶

A serious limitation of prior research on transition programs for TAY w/SMC is the lack of research regarding individual-level predictors of young-person engagement in programs or improvement. Although Karpur et al. included moderator variables in their analyses, these predictors were examined only in a relatively successful subsample of the TAY w/SMC (i.e., those with at least 1 year of participation in services), and only after their exit from the TIP program.¹⁶

Predictors that might affect the likelihood of TAY w/SMC success during transition support program enrollment include those linked to the likelihood of success among TAY generally reviewed previously (e.g., prior employment experience, involvement in the juvenile justice system, homelessness). Factors linked to outcomes among specific populations of TAY such as juvenile justice or youth who are homeless including ethnicity, age, and gender, severity of mental health history or co-occurring substance abuse disorder should also be explored.³²⁻³⁶

The Partnerships for Youth Transition (PYT) initiative

In 2002, the Substance Abuse and Mental Health Services Administration (SAMHSA) and the U.S. Department of Education, Office of Special Education and Rehabilitative Services (OSERS) initiated the Partnerships for Youth Transition (PYT) initiative, a 4-year, multisite demonstration to support five comprehensive, community-based transition support programs for TAY w/SMC in locations across the country.³⁷ In addition to helping to meet pressing needs for transition support of TAY w/SMC in the communities served, PYT was funded to help develop models for transition support services in community settings. PYT sites were required to use a locally driven, collaborative planning process involving stakeholder groups including TAY w/SMC, their families and other members of their natural support networks, direct care providers, administrators, community leaders, and other community representatives. Year 1 of the project was set aside for program planning and development and the remaining 3 years for program implementation and planning for post-demonstration sustainability.

Because PYT programs were to be developed by community stakeholders themselves, each program was allowed a great measure of latitude regarding the specific types of interventions to be used and methods for their implementation and evaluation. However, all sites were required to develop strategic plans, logic models, and program manuals in collaboration with their respective community stakeholders to describe and guide their services. In addition, all sites had access to training and technical assistance services of the National Center on Youth Transition for Behavioral Health (NCYT) to support the development of their programs using TIP guidelines and other available literature to guide best practices in transition support or similar types of services (e.g., literature on Systems of Care³⁸). All sites were also required to compile data on young persons' historical background, initial characteristics, and quarterly improvement indicators in a common database, the "Efforts to Outcomes" (ETO) system.³⁹

Current Study

The current study used the ETO data on TAY w/SMC in PYT programs to describe their change on indicators of improvement, including indicators of progress in education and employment, and indicators of challenges including criminal justice involvement and interference with daily activities because of mental health and substance abuse problems. Controlling for background characteristics and initial status on indicators, the study examined whether TAY w/SMC receiving services showed initial and maintained improvements, specifically, increased rates of progress indicators, and decreased rates of challenges. Although PYT sites varied in important respects, all were informed by best practice guidelines for supporting transition of TAY w/SMC similar to those detailed in the TIP model. Thus, results describe improvement in programs that either have adopted the TIP model and/or share highly similar methods and objectives to the model. In addition to evaluating young person outcomes in the community-based transition programs, the current study also examines whether individual demographic or background characteristics of TAY w/SMC predicted either disengagement from services (i.e., rapid exit from transition programs after an initial referral) or the amount of improvement shown on indicators of transition progress and challenges while engaged in services.

Method

Design and procedures

PYT sites PYT sites varied across a number of important structural and programmatic dimensions, such as their catchment areas (e.g., multicounty vs. single community, urban vs. suburban vs. rural) and the types of locations where personnel were based (e.g., a career center, a storefront mental health center, a single family home converted into a “Youth House”). The mixture of programs’ referral sources also varied, resulting in differences by site in the demographic, historical, and diagnostic characteristics of young persons served. Table 1 depicts characteristics of youth at each site on the study variables and shows significant differences by site on these variables. All sites served individuals with SMC in the 14–21 age range at referral, although sites could continue to provide services as long as needed beyond the age of enrollment.

Training and technical assistance National Center on Youth Transition for Behavioral Health (NCYT) technical assistance included holding biannual cross-site forums where trainings in the TIP model and associated practice competencies (e.g., Strength Discovery, the SODAS social problem solving model, and Rationales^{40–42}) as well as other aspects of TIP implementation were provided. Each site also arranged for further training and consultation in the TIP model and practice competencies based on its particular needs. In addition to providing training related to the TIP model, the NCYT also provided training and consultation on other issues related to transition support program development and services.

Implementation of the TIP model Four of five of the PYT sites adopted the TIP model as the primary basis for their plan and logic model, although specifics of TIP implementation were tailored in collaboration with site stakeholders to better address the needs of each site’s target community. The remaining site, Odyssey, utilized an Assertive Community Team (ACT) model⁴³ to guide planning and implementation of services. Despite this, Odyssey personnel received trainings in the TIP model similar to those received by other sites as described above, and the site incorporated many elements of the TIP model into their design of services. Congruence of Odyssey site practices with the TIP model was demonstrated by the results of a TIP fidelity evaluation using the Comprehensive Program for Transition-Age Youth Program Fidelity Assessment Protocol (PFAP),⁴⁴ an instrument designed to measure fidelity to the TIP guidelines as well as other best practices in the area of comprehensive transition support services. These results indicated that Odyssey achieved similar high ratings to the two other demonstration sites where TIP model fidelity was evaluated. In addition to this evaluation at a subset of PYT sites, a process evaluation of all five PYT sites after the first 2 years of the demonstration⁴⁵ showed that sites shared similar programmatic emphases in areas such as employment, education, and other domains related to adjustment of TAY w/SMC in the community and that efforts to support TAY w/SMC in these areas were largely consistent with TIP guidelines.

Initial and follow-up samples Over the 3-year implementation phase of the demonstration, 562 TAY w/SMC were enrolled in the five PYT programs. Data were collected from TAY w/SMC at intake into the program and then at approximately every 90 days post intake for the duration of these individuals’ participation in the program and/or the end of the demonstration period. Of the 562 TAY w/SMC admitted to the programs, 193 TAY w/SMC who had data available over four or more quarters served as the sample for the principal analyses of the study, although attrition analyses were used to increase confidence in the generalizability of their results to those of TAY w/SMC whose data were only available over shorter periods of time. Because of sharply decreased numbers of participants at each quarterly assessment beyond the 1-year follow-up point (i.e., $N=$

136 at Quarter 5, $N=83$ at Quarter 6, $N=43$ at Quarter 7, and $N=27$ at Quarter 8), principal analyses of longitudinal progress were based only on the first four quarters of data available for the 193 participants with data available for at least one year.

Instrumentation and measures

Transition to Adulthood Assessment Protocol (TAAP) The Transition to Adulthood Assessment Protocol⁴⁶ was developed by the NCYT team to collect information used in the study. The TAAP was composed of two instruments: (1) A demographic and historical assessment designed to gather information on TAY w/SMC's histories before their initial entry into PYT programs, (2) quarterly assessments tracking changes on indicators of transition-related progress and challenges. These assessments were completed by direct service providers (e.g., transition facilitators) in PYT programs using all types of data at their disposal (e.g., interviews with TAY w/SMC and their support networks, case files, other records). Most items on the TAAP instrument required raters to indicate the presence or absence of specific types of objectively verifiable events (e.g., arrests) in the TAY w/SMC's lifetimes and recent (i.e., last 90 days) histories. In addition, two sets of three Likert-scaled items requested the raters' subjective assessments of the functional impact of mental health problems and substance use problems. These items included: (a) "In the last 90 days or since the last interview, to what extent have mental health conditions/alcohol or drug use interfered with going to school or working"; (b) "In the last 90 days or since the last interview, to what extent have mental health conditions/alcohol or drug use interfered with relationships with family, friends, and loved ones"; and (c) "In the last 90 days or since the last interview, to what extent have mental health conditions/alcohol and drug use interfered with the ability to live in a home-type setting". Items were rated on a 4-point scale ranging from 0="not at all", 1= "some", 2= "a lot", 3= "completely". The TAAP also requested information on diagnoses based on the most current objective assessments available for each PYT young person. Diagnoses based on reports of family and other informal support network members were explicitly excluded.

Demographic and historical indicators Demographic indicators used for the study included age, gender (0=Male, 1=Female), and ethnicity (0=Non African American, 1=African American). Although data were available regarding membership in groups of color other than African Americans, the numbers of TAY w/SMC in these other groups were too small to merit establishing separate ethnic categories for these individuals. Consequently, these TAY w/SMC were combined with Caucasian TAY w/SMC into the "Non-African American" category to provide information on distinctions between African American and all other TAY w/SMC. Indicators of historical events (0=No, 1=Yes) included prior work experience, prior homelessness, prior criminal system involvement (including juvenile justice or adult community arrest, court appearances, probation, and incarceration), prior psychiatric hospitalization or residential treatment, prior substance abuse hospitalization or residential treatment, and age of onset of mental health symptoms. The latter variable was defined as a dichotomous variable distinguishing between individuals whose symptoms began before the transition period as defined by the PYT initiative and individuals whose symptoms began after the onset of the transition period (0= less than 14 years of age, 1= 14 years of age or older).

Initial and follow-up indicators of transition progress and challenges Several dichotomous variables (0= indicator absent, 1=indicator present) of transition progress and challenges were constructed using data from the TAAP. All indicators were derived identically across TAAP administrations (i.e., the initial and quarterly follow-up assessments). Indicators included the following, all of which pertained to TAY w/SMC's status currently and/or in the last 90 days: (a)

employment (i.e., currently or at any point during the prior 90 days); (b) “educational advancement” (i.e., graduated from high school or attended a postsecondary educational or vocational/technical institution); (c) “criminal justice involvement” (i.e., events indicative of juvenile or adult criminal justice system involvement including arrest, court appearance, probation, or incarceration); (d) “mental health interference”, a measure of functional limitations related to mental health problems, as indicated by ratings of “a lot” or “completely” on any of the three TAAP items related to functional impact of mental health problems; (e) similarly, “substance use interference”, a measure of alcohol or substance use-related functional limitations, as indicated by ratings of “a lot” or “completely” on any of the three TAAP items related the functional impact of alcohol or drug use. In addition to these variables, a final variable, (f) “productivity” (i.e., a “1” on either the employment or educational advancement indicators) was constructed.

Other variables Variables representing program site and diagnostic classification were also included in the analyses. Program site was entered as a categorical variable ranging from 0 to 4. Objectively based diagnoses provided on the TAAP were coded by a research assistant, and these codes were checked by a clinical psychologist (i.e., the first author) to ensure accuracy and to ensure that, in cases in which multiple diagnoses were entered, the combination of diagnoses entered was consistent with Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) rules regarding differential diagnosis. In most cases (87%), diagnostic information clearly indicated one or more compatible DSM-IV Axis I disorders. Data were marked as missing in the remaining cases where diagnostic information was either unclear, was not provided, or was limited to information relevant to other axes of the multiaxial DSM-IV system (e.g., Axis II diagnoses). The remaining participants were assigned a rating of 0 (“absent”) or 1 (“present”), on each of the following categories: (a) alcohol and other substance use disorders; (b) disruptive disorders (i.e., attention-deficit hyperactivity spectrum disorders, oppositional defiant disorder, and conduct disorder); (c) mood disorders (both bipolar and unipolar); (d) psychotic disorders; (e) anxiety disorders; and (f) learning disorders.

Analyses

Imputation of missing data Although sites were required to complete quarterly assessments of PYT enrollees and enter these data into the ETO system, this requirement was not consistently met across sites and across time, resulting in missing data on many of the study variables. On almost all background and historical variables, rates of missing data were relatively low, ranging from a low of 0% (on age and diagnostic variables) to a high of 17.6% (on history of incarceration). The one exception was the age of onset of mental health symptoms variable, for which the rate of missing data was 46.1%. On three of the five outcome indicators—employment, criminal justice involvement, and mental health interference—rates of missing data were similarly low at all time points, ranging from 0.5% on employment at the initial time point to 25.4% on mental health interference at Q4. Rates of missing data on the remaining two indicators were considerably higher, with rates on substance use interference ranging from a low of 47.7% at the initial interview to a high of 58.8% at Q1, and rates on educational advancement ranging from a low of 62.4% at Q4 to a high of 76.2% at Q1. Exploration of missing data patterns in the principal analysis group suggested that missingness was unrelated to participant characteristics, but rather, was driven by features of the data collection such as the placement of the item in the data collection protocol. Missing data points on initial and outcome variables for the 193 TAY w/SMC included in the principal outcome analyses were imputed using the Markov Chain Monte Carlo Simulation Method.⁴⁷ To facilitate use of logistic regression procedures to analyze trajectories of the dichotomous outcome variables, imputed data points were rounded to 0 if their value was <0.5 and 1.0 if their value was ≥.5.

Attrition analyses As noted above, the majority of individuals receiving services in PYT programs over the demonstration implementation period were excluded from analyses because of lacking follow-up data at one or more time points after their initial assessment. In most cases, this was caused by exit from the program before receiving one year of services, although for a few individuals, data were incomplete because of the conclusion of the demonstration implementation period before their completion of services. To help describe characteristics of TAY w/SMC associated with probable early exit from PYT programs (i.e., no follow-up data) as well as possible confounding effects resulting from exclusion of TAY w/SMC with less than 1 year of follow-up in PYT programs, attrition analyses were performed comparing: (a) values on background variables and outcome indicators at program entry for the sample of 193 participants (*principal analysis* [PA] group) to the sample of participants ($N=115$) with no follow-up outcome data (*no follow-up* [NFU] group); (b) at each follow-up time point, the likelihood (i.e., odds ratio [OR]) of indicators in the PA group to the likelihood of indicators in *incomplete follow-up* [IFU] group (i.e., those TAY w/SMC with at least one but less than four quarters of data). Comparisons between the PA and NFU subsamples on individual characteristics and program entry point outcome indicators were conducted using chi-square tests. Comparisons between the PA and later exiter group ORs at each follow-up time point were conducted using independent samples T tests. For both of these types of analyses, alpha was set at $p<0.05$ for each comparison.

Analyses of outcome trajectories Analyses of outcome trajectories for the 193 members of the PA group were carried out using logistic regression models, with one model developed per outcome. Change across time in outcome indicators was modeled by entering time as a categorical variable (i.e., 0=Initial Assessment, 1=Quarter 1, 2=Quarter 2, 3=Quarter 3, 4=Quarter 4). Tukey post hoc tests were performed to ascertain which specific differences between probabilities of consecutive quarters might be contributing to each of the overall effects of time detected in main effects models. In addition to time, other covariates included in main effects models were demographic and historical variables, variables representing current diagnoses, and the PYT site where services were received. After development and finalization of main effects models, models including both main effects and all possible two-way interactions of time and covariates were developed to determine whether individual characteristics and the specific PYT programs where young adults were served impacted change in progress and challenge indicators over time.

Both main effects and main effects and interactions models included a large number of interaction terms (e.g., a total of 43 main effect and interaction terms in models containing both main effects and interactions). Simultaneous inclusion of all of these terms would have resulted in an unacceptable reduction of power. To balance the objectives of detecting specific effects with sufficient power and maximizing the explanatory value of overall models, we opted to identify variables for inclusion in final models by choosing the best model from sets of forward selected models for each outcome using the Akaike Information Criterion (AIC).⁴⁸ AIC takes into account the number of parameters being estimated, by imposing a penalty for increasing the number of parameters in evaluating goodness of fit. Lower values of the index indicate the preferred model, that is, the one with the fewest parameters that still provides an adequate fit to the data. Variables were selected for forward stepwise entry based on their negative log likelihood in predicting outcomes, such that in each step, the variable with the highest absolute negative log likelihood value in predicting the outcome was selected first. Variables were added until the lowest possible AIC value was achieved. Final models for each outcome were selected in two steps: first, models composed exclusively of main effects were considered and the best main effect models based on AIC values were determined; second, models composed of both main effects and interactions were considered and the best interaction effect models based on AIC values were determined. For final models of main effects and of main effects and interactions, alpha level was set at 0.05 for testing significance of each term.

Results

Sample characteristics

Table 1 shows descriptive characteristics for the overall sample and at each site as well as cross-site differences in sample characteristics. The distribution of diagnoses among enrollees resembles those found in other studies of TAY w/SMC, although the prevalence of substance use disorders (11%) was somewhat lower than expected. With the exception of the Comprehensive Youth Transition program, which served a more diverse population, most of the PYT sites were located in areas with predominantly Caucasian residents, resulting in a large majority of Caucasian TAY w/SMC in the sample as a whole. Examination of descriptive statistics for background variables for the overall sample suggested that levels of adverse events related to mental health or other problems of PYT enrollees were as expected for this type of population, although the specific types of events commonly found among PYT TAY w/SMC varied by site because of variations in referral and selection criteria. For example, more than half (57%) of these TAY w/SMC had been admitted previously for short-term, emergency psychiatric treatment, and 19% had previously been housed in long-term psychiatric residential facilities. Although pre-program data on substance use history were limited, 9% of TAY w/SMC had already received inpatient substance abuse treatment. Fully 17% had prior histories of homelessness. Most (78%) were unemployed at the outset of their program participation.

Comparison of NFU, IFU, and PA subsamples

Table 2 shows differences between the NFU subsample (i.e., the 115 individuals lacking follow-up data) and the 193 TAY w/SMC in the PA sample. Chi-square comparisons between these two groups showed differences on a number of background variables. TAY w/SMC in the NFU group were more likely to be male and were more likely to have histories of juvenile/adult criminal justice involvement. In addition, individuals in the NFU group were less likely to suffer from mood disorders. No differences were found between the NFU and PA groups on outcome indicators at initial assessment. Since follow-up data were available for the IFU group, we decided to ascertain the generalizability of findings to this group by comparing their ORs based on their available data at initial through Q3 time points to those of the PA group. *T* tests comparing ORs of TAY w/SMC in the IFU group to those in the PA group showed no significant differences. Based on these data, it appears that TAY w/SMC in the IFU had similar trajectories to those of the PA group across time points for which their data was available.

Analyses of outcome trajectories—final main effects models

Main effects models explained 72.3%, 73.8%, 80.4%, 69.0%, 74.2%, & 75.0% of the variance in employment, educational advancement, criminal justice involvement, mental health interference, substance abuse interference, and productivity indicators, respectively. Of primary interest among the results for specific effects in main effects models were effects by time, as these effects described change in indicators of progress and challenges over the course of TAY enrollment in PYT programs. Time effects controlled for the influence of selected covariates were represented by mean predicted probabilities for each outcome indicator. A similar pattern of change was demonstrated across the three indicators of progress, with employment, educational advancement, and productivity indicators showing an overall increase from the initial time point to Q4, $\chi^2=134.597, p<0.001$; $\chi^2=40.136, p<0.001$; and $\chi^2=96.710, p<0.001$; respectively. A similar pattern of change was also shown across the three indicators of challenges, juvenile/adult criminal justice involvement, mental health interference, or substance abuse interference. Specifically, participants

Table 1

Characteristics of Principal Analysis group of TAY w/SMC (N=193) at demonstration sites

Demographic and Background Characteristics	CYT ^a (n=12)	Odyssey ^b (n=75)	PRIDE-4 ^c (n=26)	Reconnect ^d (n=42)	Options ^e (n=38)	Total (n=193)	χ^2 / F^f
Gender							
Female %	80.0	50.8	39.1	53.5	42.3	50.3	5.52
Ethnicity							
African American ^g %	50.0	4.0	3.7	4.4	0.0	6.2	43.42***
Mean Age %	17.6	16.9	18.7	17.6	16.6	17.2	4.63***
Mental Health Symptom Onset							
Prior to 14 Years of Age %	44.4	48.5	64.7	73.0	80.0	62.3	7.07
Pre-Program History							
Employment %	60.0	64.6	82.6	61.9	42.3	62.7	8.66
Psychiatric Inpatient Treatment %	50.0	64.6	52.2	73.8	20.0	57.6	20.81***
Substance Abuse Inpatient Treatment %	0.0	3.1	13.0	7.1	26.9	9.1	14.55***
Incarceration %	10.0	3.3	4.6	2.3	34.6	8.7	26.87***
Homelessness %	10.0	9.5	8.7	19.1	40.0	16.6	13.72***
Mental Health Diagnosis							
Substance Use Disorders %	16.7	17.3	0.0	2.2	19.4	11.8	12.08*
Disruptive Behavior Disorders %	25.0	17.3	11.1	26.7	47.2	24.6	14.81**
Mood Disorders %	66.7	81.3	55.6	44.4	72.2	66.7	19.26***
Psychotic Disorders %	0.0	6.7	3.7	24.4	0.0	8.7	19.82***
Anxiety Disorders %	16.7	20.0	11.1	24.4	47.2	24.6	13.84**
Learning Disorders %	16.7	1.3	7.4	6.7	11.1	6.2	6.94
Initial Transition Indicator Status ^b							
Employment %	16.7	24.3	29.6	22.2	11.1	21.7	3.87
Educational Advancement %	0.0	21.1	88.9	25.0	50.0	36.7	15.45**
Productivity %	50.0	66.7	94.1	60.0	77.8	69.7	6.96
Criminal Justice Involvement %	0.0	5.6	11.5	8.8	32.3	11.6	17.11**
Mental Health Interference %	58.3	76.4	44.4	64.4	26.5	59.0	26.78***
Substance Abuse Interference %	14.3	40.4	0.0	28.6	47.4	30.4	15.30**

For significant cross-site comparisons, lowest and highest site on each characteristic are in bold italic font; significant statistical tests (i.e., $p < 0.05$) in the Chi-square/F-test column are also in bold.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

^aComprehensive Youth Transition, Allegheny County, PA

^bOdyssey, Portland, ME

^cPRIDE-4, Willmar, MN

^dProject Reconnect, UT (Project spanned several counties)

^eOptions, Clark County, WA

^fF test used for cross-site comparison on age; Chi-square tests used for all other comparisons

^gAfrican American participants constituted the sole minority ethnic group present in significant numbers in the study; almost all remaining participants were Caucasian

^hPresent in the 90 days before initial entry into the program based on initial assessment data

Table 2
Comparison of “no follow up” and “principal analysis” groups

Demographic and Background Characteristics	Early Exiter Group (n=115)	Principal Analysis Group (n=193)	χ^2/ t^a
Gender			
Female %	26.5	50.9	6.77**
Ethnicity			
African American ^b %	2.6	6.2	0.23
Mean Age %	17.1	17.0	1.67
Mental Health Symptom			
Onset Prior to			
14 years of Age %	65.2	62.3	0.07
Historical Experience			
Employment %	58.1	62.6	0.23
Psychiatric Inpatient Treatment %	48.5	57.0	0.80
Substance Abuse Inpatient Treatment %	18.8	9.6	2.26
Incarceration %	23.3	9.3	4.87**
Homelessness %	28.1	16.6	2.37
Mental Health Diagnosis			
Substance Use Disorders %	7.8	11.8	1.23
Disruptive Behavior Disorders %	23.5	24.6	0.05
Mood Disorders %	39.1	67.2	23.19***
Psychotic Disorders %	7.8	8.7	0.07
Anxiety disorders %	16.5	24.6	2.80
Learning disorders %	2.6	6.2	1.97
Initial Transition Indicator Status ^c			
Employment %	22.5	21.7	0.02
Educational Advancement %	57.1	36.7	3.43
Productivity %	71.1	77.1	0.46
Criminal Justice Involvement %	8.9	11.6	0.47
Mental Health Interference %	52.4	58.7	1.08
Substance Abuse Interference %	23.6	30.7	0.88

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

^aIndependent sample t test was used to confirm differences across Early Exiter and Principal Analysis groups; Chi-square tests used for all other comparisons

^bAfrican American participants constituted the sole minority ethnic group present in significant numbers in the study; almost all remaining participants were Caucasian

^cPresent in the 90 days before initial entry into the program based on initial assessment data

showed decreased likelihood of indicators of challenges from the initial time point to Q4, $\chi^2 = 37.203$, $p < 0.001$; $\chi^2 = 122.066$, $p < 0.001$; and $\chi^2 = 50.322$, $p < 0.001$; respectively.

Table 3 shows Tukey post hoc tests comparing probabilities for consecutive time points on all five outcomes. These findings provide support for the above-described interpretation of overall time effects and provided additional information regarding the shape of change trajectories on indicators of progress and challenges. Consistent with the overall pattern across the six indicators, increases in probabilities occurred for indicators of progress and decreases in probabilities occurred

Table 3
Summary of Tukey post hoc test findings

Indicator	Predicted Probability Differences from Prior Assessment (\pm)			
	Q1 – Initial	Q2 – Q1	Q3 – Q2	Q4 – Q3
Employment	+0.185***	+0.021	– 0.0166	+0.041**
Educational Advancement	+0.092***	– 0.002	+0.009	+0.034**
Productivity	+0.130***	+0.025	+0.008	+0.020
Criminal Justice Involvement	– 0.057***	– 0.015*	+0.027***	– 0.001
Mental Health Interference	– 0.166***	– 0.068***	+0.033***	+0.021
Substance Abuse Interference	– 0.089***	– 0.032***	+0.036***	+0.005

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

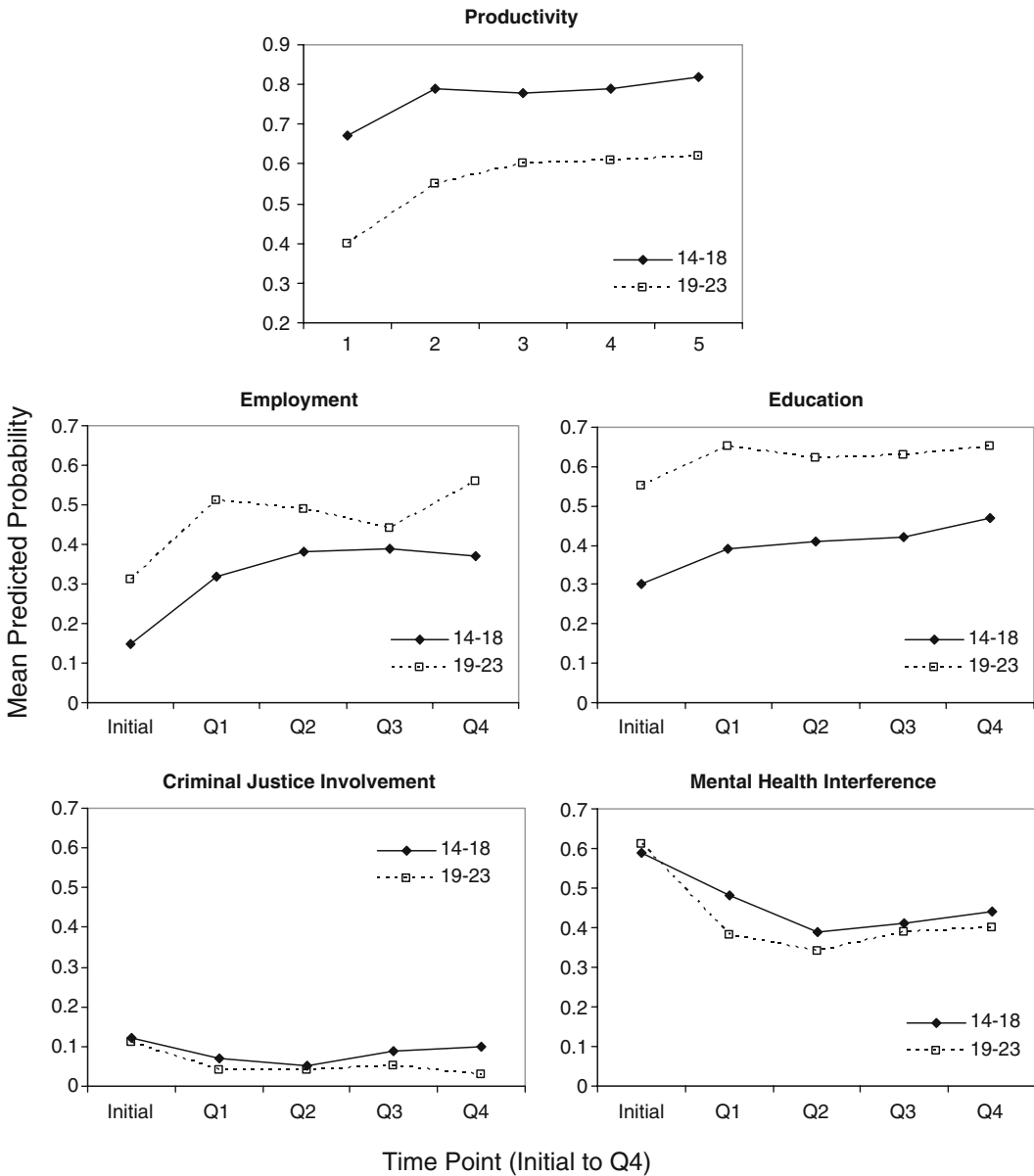
for indicators of challenges from program entry to Q1. For the employment and educational advancement indicators, change from Q1 to Q2 and from Q2 to Q3 was nonsignificant, but significant change from Q3 to Q4 indicated that additional improvement was shown by participants on these indicators of progress during this quarter. For the productivity indicator, only the period from the initial assessment to Q1 showed significant change at the $p < .05$ level. Indicators of challenges showed a pattern for the PA group whereby probability decreases were shown in the first two quarters of data collection, followed by a significant probability increase in the next quarter (i.e., from the Q2 assessment to the Q3 assessment), with nonsignificant changes thereafter indicating stabilization of trajectories after the assessment at Q3. Note that the significant probability increase shown from the Q2 to the Q3 assessment was relatively slight, such that the probability of challenges was lower among participants at Q3 relative to the initial assessment.

Analyses of outcome trajectories—final models with interaction terms

Final models including both main effects and significant interaction terms explained 75.8%, 74.4%, 84.7%, 74.8%, 77.9%, and 76.3% of the variance in employment, educational advancement, criminal justice involvement, mental health interference, substance abuse interference, and productivity indicators, respectively. Interactions by age, which were thought to be of particular importance given the nature of the programs being studied, are presented graphically in Figure 1. To simplify handling of the numerous other interaction terms, these (with the exception of the interactions by site, described in the next section) were handled in the following manner. First, ordinary least squares (OLS) trajectories were plotted representing overall linear trends of improvement (i.e., increased likelihood of indicators of progress or decreased likelihood of indicators of challenge) or deterioration for each group that were associated with each interaction term. In cases where differences in linear trajectories were not apparent (e.g., if a particular group showed similar but delayed improvement across the four assessment quarters) rate changes between each quarter were depicted and compared across groups to facilitate characterization of more complex interaction patterns. These interactions are depicted in Figures 2, 3, 4, and 5. However, for the majority of interactions, linear trend discrepancies appeared to be adequately descriptive. For each of these, one of the following codes was assigned to describe linear trajectory discrepancies based on whether TAY belonged to

Figure 1

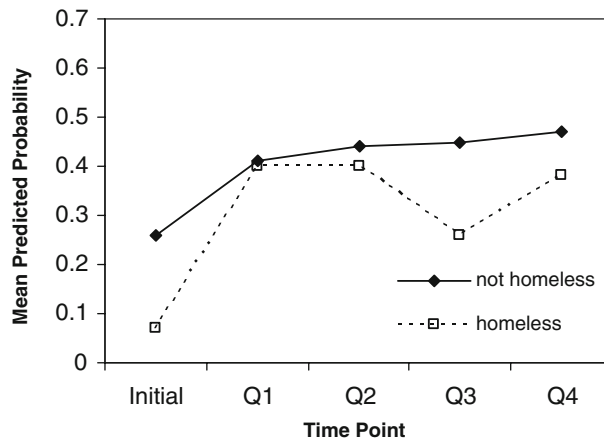
Time by age group prediction of progress and challenge indicators



a specified group: “mi”, meaning that TAY in the group showed more improvement, “li” meaning that TAY in the group showed less improvement, “ri” meaning that TAY in the group showed more rapid improvement, and “w” meaning that TAY in the group worsened. These codes are presented in Table 4.

Figure 2

Time by homelessness history prediction of employment



*Interactions by site*¹ Improvements on all or most outcomes were shown by TAY w/SMC at all sites. However, significant by site variation was shown by trajectories on four of the outcome variables, employment, productivity, mental health interference, and substance abuse interference, $\chi^2=44.383$, $p<0.001$; $\chi^2=39.895$, $p<0.001$; $\chi^2=82.313$, $p<0.001$; and $\chi^2=39.608$, $p<0.001$; respectively. On both the employment and productivity indicators, increased likelihood across time was shown by TAY w/SMC at all sites, although the amount of the increase varied by site. The interactions on mental health and substance abuse indicator trajectories were caused by lack of improvement shown by TAY w/SMC at one of the five sites for each of these variables (i.e., interference did not decrease for substance abuse at one of the five sites and did not decrease for mental health at one of the five sites).

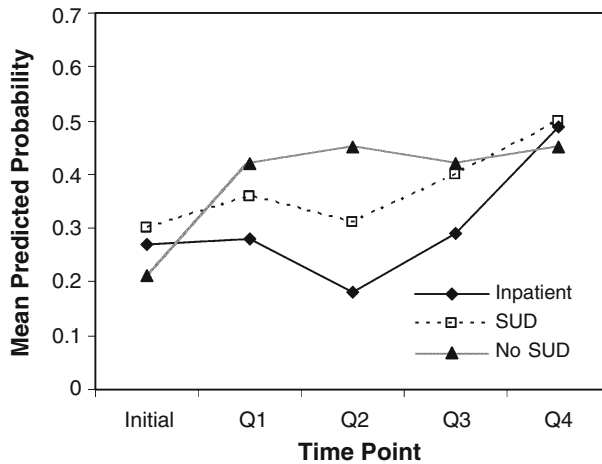
*Interactions by age*² Age interacted with time for all three progress indicators, with $\chi^2=23.101$, $p<.001$; $\chi^2=11.680$, $p<.05$; and $\chi^2=23.537$, $p<.05$ for interactions with time for employment, educational advancement, and productivity, respectively and with time for two of the three indicators of challenges, including criminal justice involvement and mental health interference, $\chi^2=13.566$, $p<.01$; and $\chi^2=16.143$, $p<.01$, respectively. For ease of interpretation, trajectories by age are presented for younger (i.e., through the age of 18) versus older (19 and over) TAY w/SMC in Figure 1. On indicators of progress, including employment, educational advancement, and productivity indicators, younger individuals showed more sustained change over the first two quarters of service, with both age groups improving on these variables from the initial time point to

¹To discourage direct comparisons of individual programs, by site outcome data were not included in this paper.

²Moderation by age was tested with age entered as a 10 category variable, such that each age (i.e., 14, 15, 16, etc.) served as its own category. Due to the low numbers of 24- to 25-year-old TAY w/SMC, these individuals were grouped in the 23-year-old category. Aggregate groups are depicted for clarity of presentation.

Figure 3

Employment trajectories of TAY w/SMC with substance abuse inpatient treatment histories, with co-occurring substance use diagnoses, and lacking co-occurring substance use diagnoses



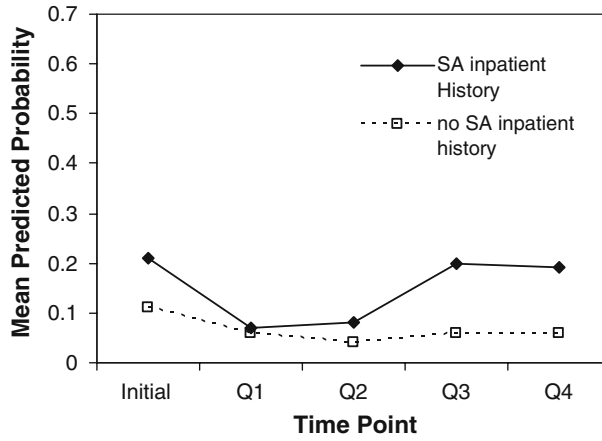
Q1, but only younger individuals improving from Q1 to Q2. Differences by age were also shown on the employment and educational advancement progress indicators from Q3 to Q4. On employment, only older individuals showed improvement over this period. By contrast, on educational advancement, younger individuals showed a greater rate of improvement than older individuals. On indicators of challenges, shown in the plots on the right in Figure 1, reductions in criminal justice involvement were largely limited to older TAY w/SMC, whereas younger TAY w/SMC, despite an initial decrease in level of criminal justice involvement, showed increases in the level of this variable to nearly its initial level by Q4. Mental health interference appeared to decrease primarily among older TAY w/SMC, whereas the degree of decrease (i.e., mental health improvement) was more limited among younger individuals.

Interactions by other demographic variables As shown by Table 4, females showed more improvement on three of five outcomes, including employment and educational advancement indicators of progress, $\chi^2=12.540, p<0.05$; and $\chi^2=13.297, p<0.01$, respectively, and the criminal justice involvement indicator of challenges, $\chi^2=24.815, p<0.001$. A more complex pattern of moderation by gender was shown on mental health interference, $\chi^2=25.784, p<0.001$, whereby females showed improvement more quickly than males, although the overall level of improvement was similar. African Americans showed more improvement relative to other TAY w/SMC on three of five outcomes, including educational advancement, mental health interference, and substance abuse interference, $\chi^2=13.550, p<0.01$; $\chi^2=12.500, p<0.05$; $\chi^2=25.579, p<0.001$, respectively. On the employment indicator, however, African Americans showed less improvement, $17.5206, p<0.01$.

Interactions by "other" historical variables Interactions were shown involving all three of the "other" historical variables examined, including history of employment, incarceration, and homelessness. Most of the interactions involving the history of employment and history of

Figure 4

Time by substance abuse inpatient treatment history prediction of criminal justice involvement



incarceration variables suggested that individuals with such histories tended to show greater improvements on outcomes over time than those lacking such histories. Specifically, TAY w/SMC with histories of employment showed more improvement than other TAY on educational advancement, criminal justice involvement, and mental health interference outcomes, $\chi^2=20.603$, $p<0.001$; $\chi^2=10.110$, $p<0.05$; $\chi^2=14.110$, $p<0.01$, respectively. Similarly, TAY w/SMC with

Figure 5

Mental health interference trajectories of TAY with psychotic disorders, TAY with anxiety disorders, and TAY with other mental disorders

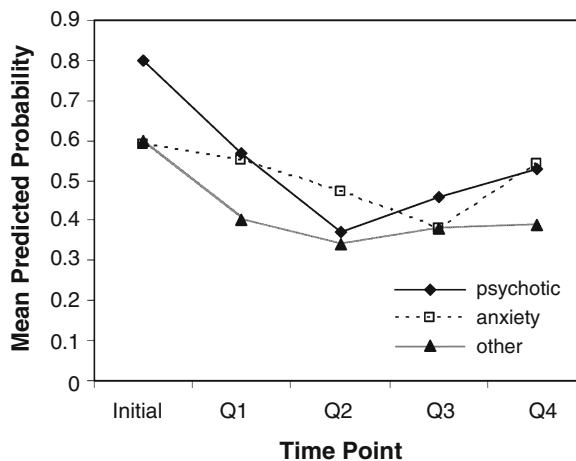


Table 4

Summary of ordinary least squares linear plots for interactions with time

Variable (0=No, 1=Yes)	Employment	Education	Productivity	Criminal Justice Involvement	Mental Health Interference	Substance Abuse Interference
Demographics						
Over 18	– ^{a***}	– ^{a*}	– ^{a*}	– ^{a**}	– ^{a**}	–
Female gender	mi*	mi**	–	mi**	ri***	–
African American	li**	mi**	–	–	mi*	mi***
General Historical Variables						
Work experience history	li***	mi***	–	mi*	mi**	–
Incarceration history	mi*	–	mi*	mi***	li***	mi**
Homelessness history	– ^{b***}	–	–	–	–	–
Mental Health History						
Began before 14	–	–	–	li*	li*	–
Psychiatric inpatient	–	–	–	li**	mi***	–
Substance abuse inpatient	– ^{c***}	–	–	– ^{d***}	–	–
Diagnoses						
Mood disorders	–	–	–	mi**	–	mi***
Learning Disorders	–	–	–	–	mi***	–
Substance Use Disorders	– ^{c**}	–	–	mi***	mi*	–
Anxiety Disorders	mi*	–	–	mi***	– ^{c***}	–
Psychotic Disorders	–	–	–	–	– ^{c*}	–
Disruptive Disorders	li***	–	–	li***	li***	w*

Trend level interactions not displayed as these were not included in final models
mi more improvement, *li* less improvement, *ri* more rapid improvement, *w* worsened
^{*}*p*<0.05; ^{**}*p*<0.01; ^{***}*p*<0.001

^aSee Figure 1

^bSee Figure 2

^cSee Figure 3

^dSee Figure 4

^eSee Figure 5

histories of incarceration showed more improvement than other participants on employment, productivity, criminal justice involvement, and substance abuse interference, $\chi^2=11.582$, $p<0.05$; $\chi^2=10.485$, $p<0.05$; $\chi^2=24.815$, $p<0.001$, $\chi^2=14.573$, $p<0.001$, respectively. Additional interactions showed that history of employment and history of incarceration were each also associated with lesser improvements for one of the six outcome indicators, with history of employment linked to lesser improvement over time on the employment outcome, $\chi^2=21.468$, $p<0.001$, and history of incarceration linked to lesser improvement on the mental health interference outcome, $\chi^2=18.977$, $p<0.001$. However, these patterns occurred in the context of a higher rate of employment at the initial assessment among those with employment histories, and a lower rate of mental health interference among those with incarceration histories, such that the interactions represented a pattern of “catching up” among those lacking these histories. The third “other” historical variable examined, history of homelessness, interacted with time in predicting employment only, $\chi^2=28.184$, $p<0.001$. As shown in Figure 2, TAY w/SMC having pre-program histories of homelessness showed greater improvement on the employment outcome indicator initially (i.e., from program outset to Q1), but appeared less likely to maintain this progress at subsequent quarters.

Interactions by mental health history An interaction of time by history of substance abuse inpatient or residential treatment was found, $\chi^2=23.514$, $p<0.001$, such that this history conferred risk for slower improvement on the employment indicator, as shown in Figure 3. Figure 3 additionally shows that a similar interaction indicative of slower improvement on employment was also found among individuals with histories of substance use disorder, $\chi^2=13.618$, $p<0.01$.³ Figure 4 depicts a by time interaction with substance abuse inpatient treatment histories predicting criminal justice involvement, $\chi^2=24.285$, $p<0.001$, indicating a “relapse” pattern among individuals with such histories. Specifically, in this group, initial improvements were shown at Q1 and Q2 on criminal justice involvement, followed by a return to the higher levels of criminal justice involvement shown by the subpopulation at entry into treatment. Thus, interactions involving the substance abuse inpatient or residential treatment variable suggested negative prognostic implications of this variable for the pace or sustainability of improvements on the two associated outcome indicators. By contrast, findings on indicators of mental health history severity appeared inconsistent, indicating a more positive prognosis in one case and a less positive prognosis in the other. Earlier age of onset of mental health problems predicted less improvement on two of the three indicators of challenges, criminal justice involvement and mental health interference, $\chi^2=13.566$, $p<0.01$, and $\chi^2=16.143$, $p<0.01$, respectively. Prior psychiatric inpatient or residential treatment, however, predicted more improvement on mental health interference, $\chi^2=27.475$, $p<0.001$. Another interaction predicting criminal justice involvement indicated that individuals with psychiatric or residential histories showed less improvement, $\chi^2=16.613$, $p<0.01$; however, the lower criminal justice involvement rates of these individuals at outset of enrollment suggested that this was because of a floor effect.

Interactions involving diagnoses Interactions by diagnosis suggested some diagnoses tended to predict greater improvement for TAY w/SMC in transition support programs, whereas others had mixed or relatively negative implications. Diagnoses with the best implications for improvement in transition support programs appeared to be mood disorder diagnoses and diagnoses of learning disorders. Specifically, TAY with mood disorders showed better improvement on criminal justice involvement and substance abuse interference outcomes, $\chi^2=13.880$, $p<0.01$, and $\chi^2=27.121$, $p<0.001$, respectively, and TAY w/SMC with learning disorders showed better improvement on mental health interference, $\chi^2=35.219$, $p<0.001$. Interaction patterns suggested mixed implications for diagnoses of substance abuse, anxiety, and psychotic disorders. Individuals diagnosed with substance use disorders showed greater improvement than other TAY w/SMC on the criminal justice involvement and mental health interference outcomes, $\chi^2=31.275$, $p<0.001$, and $\chi^2=11.240$, $p<0.05$, respectively, but as indicated in the previous section, relatively slower improvement than other TAY w/SMC on employment. TAY w/SMC with anxiety disorders showed greater improvement on employment and criminal justice involvement outcomes, $\chi^2=10.259$, $p<0.05$, and $\chi^2=18.792$, $p<0.001$, respectively, but less improvement on mental health interference, $\chi^2=19.432$, $p<0.001$. Figure 5 shows trajectories of mental health interference by anxiety and psychotic disorders. As shown in the figure, the more limited improvement by individuals with anxiety disorders on this variable was largely caused by an increase in mental health interference from Q3 to Q4, suggesting possible tendencies among individuals in this group for relapse of problems after initial improvement. A similar relapse pattern was shown by the relative mental health interference trajectory of individuals of psychotic diagnoses, also associated with a time by diagnostic status interaction, $\chi^2=10.492$, $p<0.05$. In addition, TAY with psychotic

³Note that in Figure 3, the predicted probability trajectory for individuals with substance abuse inpatient treatment histories derives from the contrast between those with and without substance abuse inpatient treatment history. Similarly, the predicted probability trajectories for individuals with co-occurring substance use disorder diagnoses derived from the contrast between these individuals and those lacking co-occurring diagnoses.

disorders showed less improvement than others on substance abuse interference, $\chi^2=18.323$, $p<0.01$. Of all of the disorder categories, disruptive disorder diagnosis appeared to have the worst implications for improvement in transition support programs. Interactions involving time and disruptive behavior diagnosis predicting employment, criminal justice involvement, and mental health interference, $\chi^2=34.732$, $p<0.001$; $\chi^2=19.757$, $p<0.001$; and $\chi^2=25.385$, $p<0.001$; respectively, showed that TAY with this diagnosis improved less on these outcomes relative to others in the sample. A final time by disruptive behavior diagnosis interaction, $\chi^2=11.160$, $p<0.05$, showed that individuals with disruptive behavior diagnoses worsened on substance abuse interference during their enrollment.

Discussion

The present study is the first to examine progress of TAY w/SMC during their enrollment in community-based programs to support their transition to adulthood. An additional unique contribution of the study was to examine this progress in a multisite demonstration. Although the programs included in the demonstration differed in important respects, all were informed by best practices guidelines for supporting transition of TAY w/SMC represented by the TIP model. Implementation of these guidelines was supported through the development of logic models and strategic plans, through provision of training and technical assistance in the TIP model and competencies, and through development of community coalitions involving relevant human service agencies and their stakeholders. Results indicated that TAY w/SMC showed transition progress on all or most of the domains examined in all five demonstration sites. Across these sites, the most consistent improvement was shown on the indicators of educational advancement and employment progress and the composite of these variables, the productivity indicator. TAY w/SMC generally showed improvement on indicators of criminal justice involvement, mental health interference, and substance abuse interference; however, these indicators tended to improve less or show less maintenance of improvement in certain populations (e.g., younger TAY w/SMC and those with disruptive behavior disorders), or, in the case of the latter two indicators, did not show improvement in all five of the demonstration programs.

Post hoc testing to investigate the chronological pattern of progress across the four quarters of data collection indicated that much of the improvement on transition indicators occurred relatively quickly. On indicators of employment and educational advancement, initial improvement was limited to the first period of data collection, from program entry to the Q1 assessment. Initial improvement on criminal justice involvement, mental health interference, and substance abuse interference occurred over a somewhat longer period of time (i.e., two consecutive quarters of significant improvement rather than one). Post hoc testing on the employment and educational advancement indicators showed a pattern whereby a delayed, additional increment of improvement occurred from Q3 to Q4. On the three challenge indicators, post hoc tests also showed that a slight deterioration occurred during the Q2–Q3 period. These two findings, that program enrollees showed additional improvement on progress indicators from Q3 to Q4 but slight worsening on challenge indicators in preceding Q2 to Q3 time period, are somewhat difficult to reconcile. One possible explanation of the seemingly inconsistent findings is that their discrepant patterns were driven by different subgroups of TAY w/SMC within the overall sample. Some support for this explanation is derived from results of moderation analyses. Among TAY w/SMC with inpatient or residential substance abuse treatment histories, probability of attaining employment did not rise to similar levels as those of other TAY w/SMC until the Q4 assessment, after a period of rapid improvement in employment rates from Q3 to Q4 that corresponded to improvement in the enrolled population overall. Thus, the Q3–Q4 improvement shown by this subgroup may have driven improvements seen in the overall population over the same period.

In addition to shedding light on patterns of improvement and deterioration in overall trajectories, moderation analyses also suggested additional ways in which individual characteristics may be useful in predicting progress of TAY w/SMC in transition support programs. Given that the population of interest in the study was identified in part by age, based on the assumption that individuals in the identified “transition” age group would have similar issues and service needs, the time by age interactions are particularly important to consider. On indicators of challenges, the pattern of interactions observed suggested that younger individuals (i.e., those up to the age of 19) were less likely to show improvement than older individuals (i.e., those 19 and older). This pattern would suggest that further efforts to address challenges may be necessary in serving younger TAY in transition support programs. The pattern of interactions by age on indicators of progress was more complex. First, although older individuals showed higher rates on progress indicators at initial assessment and similar improvement overall, younger individuals (i.e., those younger than 19) showed more sustained change over the first two quarters of service. A possible implication of these findings may be that for younger individuals, a longer period of support for employment and education-related goals may be appropriate. A caveat to this interpretation, however, is that a delayed improvement, occurring from Q3 to Q4, was seen in both younger and older groups, although the type of improvement that was shown differed by age. Specifically, from Q3 to Q4, only older individuals improved on employment, whereas younger individuals improved more on educational advancement over the same period. A possible explanation of this phenomenon may be that among younger TAY w/SMC showing a delayed response to program support, programs placed a higher priority or had better strategies available for supporting educational achievement, whereas among older TAY, these same programs may have more vigorously or effectively supported employment achievement. Differences between typical educational goals of younger versus older TAY—e.g., completion of high school versus postsecondary educational advancement—might underlie this age-based pattern. Another possible basis for this pattern might be greater reluctance among older TAY to focus on high school completion because of a longer period of absence from school and consequent increased discomfort about returning to school (e.g., because of increased stigma).

Among other moderation findings related to demographic variables, findings related to gender suggested that females tend to show better outcomes than males. This finding accords with findings from the attrition analyses that males were more likely to lack follow-up beyond the initial time point, suggesting that they were more likely than females to drop out of services. Programs may need to consider additional methods for engaging and promoting better rates of success among male TAY w/SMC. Another interesting result of moderation analyses involving demographic variables was the relatively better progress of African American TAY w/SMC on most outcomes, suggesting that transition support programs may be a particularly useful means of addressing mental health treatment disparities involving this population. The one exception to the overall trend of better improvement among African American TAY w/SMC was the more limited improvement of African Americans relative to other TAY w/SMC on employment. Prior research suggests that enrollment in transition support programs is more likely to promote educational advancement than increased employment, at least insofar as high school completion is concerned.¹⁶ Given their progress on other indicators, it is possible that lesser employment progress among the African American TAY w/SMC might be caused by preference given to education over employment achievement, either by the African American youth and young adults themselves or by supportive adults in their lives sharing their cultural background (e.g., family members).

Findings of moderation of trajectories by “other” (i.e., non-mental health) historical predictors were consistent with prior research in some cases but not in others. The interaction of time with employment experience, such that employment experience predicted improved trajectories, was consistent with prior research. However, contrary to prior studies that have shown history of homelessness and incarceration to be risk factors for poorer outcomes in general populations of TAY w/SMC, interactions indicated that history of homelessness generally did not impact rates

of improvement in the study, with the exception of one finding suggesting that initial employment gains may be somewhat less sustained among previously homeless individuals. Although caution should be used in interpreting null findings, the unexpectedly similar trajectories shown by previously homeless TAY on most indicators are encouraging regarding their prognosis during enrollment in transition support programs.

A second counterintuitive set of interactions involving an “other” historical variable was the interactions with incarceration history, such that history of incarceration predicted greater improvement on four of the six indicators of improvement examined. Two artefactual influences may partly explain these findings. First, the inclusion of disruptive behavior diagnosis as a covariate in the analyses may have controlled for a relationship between prior incarceration episodes and behavioral dysregulation. Thus, residual variance linked to incarceration histories may have been caused by types of offending less likely to result in poor outcomes (e.g., “time-limited” rather than “life-course persistent” offending).⁸ The interactions of incarceration history with time may also have been caused by a higher likelihood of previously incarcerated individuals to belong to the NFU or IFU groups, as membership in these groups in many cases was because of voluntary dropping out of treatment. To the extent that this was the case, the subset of formerly incarcerated individuals in the PA group may have been easier to engage and/or more responsive to treatment than all PYT-enrolled TAY with incarceration histories. Another possible reason for the higher rate of exit among formerly incarcerated individuals might be a higher likelihood for re-incarceration among these individuals. The viability of this explanation is suggested by prior research indicating that TAY w/SMC with prior arrests are at very high risk of re-arrest, even while enrolled in services.⁴⁹ Regardless of the reason, results of this research suggest transition support providers should attend closely to formerly incarcerated young adults, as these individuals appear to be more likely to exit programs because of voluntary drop-out, re-incarceration, or other reasons. Clearly, research following formerly incarcerated TAY w/SMC who have exited from transition support programs as well as those who are continuing would help to better ascertain the responsiveness of these individuals to transition support.

Findings on the mental health problem history variables—age of onset of mental health problems and history of mental health inpatient treatment—yielded somewhat inconsistent findings. It is possible that the apparent inconsistency between implications of the different indicators of mental health history severity may be a methodological artifact related to the different implications of these variables for regression to the mean (i.e., in this case, the mean of the overall population of TAY w/SMC, or normative functioning). Specifically, TAY w/SMC with lengthier histories of mental health problems may be more likely to show stability of mental health interference, suggesting less potential for regression to the mean. By contrast, psychiatric hospitalization or residential treatment in many cases is an acute event, suggestive of more severe but also potentially short-lived problems.

Findings of interactions involving diagnostic variables at program entry indicated that transition supports may be more strongly linked to improvement for TAY w/SMC with certain types of diagnoses. Specifically, participants with mood disorders and learning disorders showed better improvements than other TAY w/SMC. Of note, the effect for learning disorders was limited to the mental health interference outcome. Thus, although their relative disadvantages related to employment and education appeared to persist in these programs, transition support received by TAY w/SMC diagnosed with learning disorders may have been successful in ameliorating mental health effects associated with their learning disadvantages or accompanying mental health problems. Trajectories of TAY w/SMC with psychotic disorders and anxiety disorder suggested possible tendencies for relapse of mental health problems after initial improvement. Trajectories of TAY w/SMC with disruptive disorders showed the weakest progress, suggesting the need for additional efforts to address behavioral dysregulation associated with these disorders in transition support programs.

Among the interactions related to behavioral health problems, those involving background variables related to substance abuse were perhaps the most complex to interpret. Interaction effects of substance abuse inpatient treatment history and substance abuse diagnosis variable were consistent in predicting delayed employment. The consistent link across the two indicators of substance abuse problems with more delayed employment improvement appears to support the inference described in the earlier discussion of the pattern of overall time effects. Specifically, for some individuals, improvement on employment may not take place until substance abuse challenges are effectively addressed. On the criminal justice involvement and mental health interference indicators, however, the substance abuse inpatient treatment history and substance abuse diagnosis showed contrasting patterns of interactions with time. Specifically, substance abuse inpatient or residential treatment history predicted less improvement on these indicators, whereas substance abuse disorder predicted more improvement. The inconsistency in interactions involving these indicators of prior substance abuse problems may be related to the fact that history of substance abuse treatment was used in the design as an indicator of severity. Thus, the interaction involving substance abuse diagnoses may reflect change among TAY w/SMC with relatively mild or time-limited substance abuse problems.

Limitations

The present study has several significant limitations. First, although sites were required to complete quarterly assessments of PYT enrollees and enter these data into the ETO system, enforcement of this requirement varied across sites and across time, leading to problems with missing data. The rates of missingness for some variables were quite high, and despite the use of rigorous methods for handling data missingness, it is possible that this feature of the data may limit the generalizability of findings. As described in the “[Discussion](#)” section, problems with missing data particularly complicated interpretation of moderation effects associated with history of incarceration. A second limitation of the study was that there were variables that were important to consider in examining the progress trajectories of TAY w/SMC in the transition support programs that were not included in the ETO system. The primary function of the ETO system was to support the evaluation of the multisite demonstration rather than provide data for the present research. The consequent lack of certain types of data limited our capacity to examine certain issues and weakened our inferences regarding others. For example, the ETO system did not include data on the types of program exits of TAY w/SMC. The consequent lack of specificity regarding the meaning of missing follow-up time points in the dataset threatens the validity of interpretations regarding program attrition. As previously discussed, programs included in the study were heterogeneous in important respects, including their methods for identifying and recruiting TAY w/SMC. However, because of the lack of uniform data across sites on program characteristics, examination of links between variation in improvement on indicators of progress and challenges was impossible. In addition, ETO measures of mental health and substance abuse outcomes were based on global, subjective ratings of transition support providers. Whereas such indicators were more efficient means for gathering information than standardized measures of symptoms or diagnostic status, less confidence can be placed in associated findings than if more rigorous, standardized, and validated measures of mental health and substance abuse problems had been employed.

A final major limitation of the study was the absence of a control group in the design. The rapidity and maintenance of gains across outcomes suggest that PYT programs contributed to improvement of TAY w/SMC receiving services, but these data should not be interpreted as providing the same rigor of support as data from a controlled study. Specific threats to the validity of inferring program effects based on these data include the differential rates of follow-up data by gender and incarceration status, regression to the mean, and maturation effects. Because patterns of

improvement were relatively consistent across age groups in the sample, the threat to validity because of maturation is tempered somewhat, and regression to the mean is unlikely to account for all of the effects detected (e.g., effects from Q3 to Q4). Thus, of the three, the most significant threat in the current study was likely the differences in follow-up rates based on male gender and incarceration history, particularly given the latter is typically considered to be a poor prognostic indicator, and the former was a poor prognostic indicator in the current study. Controlled trials are a clear priority for future research on this service model.

Implications for Behavioral Health

The diverse nature of programs participating in the PYT demonstration limits the capacity to evaluate the influence of specific programmatic influences on TAY w/SMC. However, this heterogeneity also increases the validity of inferences regarding improvement among TAY w/SMC enrolled in programs that have the features that demonstration site programs shared. Thus, findings of the study provided highly generalizable evidence that, while enrolled in community-based transition programs having the essential characteristics common across demonstration sites, TAY w/SMC will show improvements across a variety of indicators related to transition progress and transition challenges. Description of these shared features, in turn, provides a resource for sites seeking to plan and develop programs that enhance the likelihood of improvements among TAY w/SMC. In linking program elements shared across PYT sites to TAY w/SMC improvement, results of the evaluation also serve to identify program elements that should be tested in future rigorous research designs—in particular, quasi-experimental or randomized controlled trials—to provide a stronger evidentiary basis for transition support programs. During the PYT demonstration, a fidelity instrument (the PFAP) was developed to assess adherence of programs to the TIP guidelines, and as discussed earlier, this instrument was actually used at three of the five sites, although in a non-uniform manner as its application was intended as a means of refining the instrument rather than assessing fidelity of PYT programs per se. In future research on programs applying TIP guidelines, use of the PFAP would provide a means for describing program characteristics, thus permitting analysis of links between adherence to guidelines and improvements among TAY.

Moderation of improvement of PYT TAY by a range of individual characteristics, including demographic characteristics, background characteristics, and mental health history and diagnosis, suggests that research on transition support programs should continue to describe links between these characteristics and rates of improvement among TAY w/SMC to better inform which transition support interventions work best for whom. Such evidence would build upon the general finding from the present study that TAY w/SMC showed improvements in programs with individualized services, by providing a scientific basis for such service individualization. Specific findings related to moderation from the present study suggested that certain groups may require services beyond those that were consistently offered in demonstration site programs. For example, less optimal improvement (or even deterioration) was shown by adolescent (i.e., pre-18) program participants and participants with disruptive behavior disorders in programs on certain outcomes, including criminal justice involvement, mental health interference, and substance abuse interference. This pattern suggests that evidence-based practices that have been demonstrated to be effective with younger adolescent TAY w/SMC with disruptive behavior disorders (e.g., Multi-Systemic Therapy and Multidimensional Treatment Foster Care^{50,51}) may need to be incorporated by transition support programs to fully address the problems of TAY w/SMC in these categories. The age-moderated pattern of Q3–Q4 improvement on the employment and educational advancement indicators, whereby late improvements among older individuals appeared to be confined primarily to employment, suggests the possibility that programs may need to develop additional strategies to support educational advancements among older TAY. Such strategies could include supports for postsecondary educational achievement, for achievement of a high school

diploma or GED among older TAY whose secondary school educations are incomplete, or both. Findings indicative of a high rate of early program exits among formerly incarcerated TAY suggest that programs should more closely attend to the needs of this population, possibly through additional efforts to increase their engagement in services or to prevent their repeat incarceration through reducing re-offending or through legal assistance.

Finally, findings suggesting moderation of progress trajectories by age and findings suggesting interrelationships between different progress and challenge trajectories over time suggest the possible utility of advanced statistical methods in future research on community-based transition support programs. For example, links between patterns of change on indicators of educational advancement and employment and challenge indicators such as indicators of substance abuse interference could be more definitely explored in such designs. Approaches such as latent growth mixture modeling and developmental trajectory modeling have already begun to be used to better understand developmental trajectories of criminal justice involvement and risk behavior among TAY w/SMC who have received behavioral health services.^{14,52} Findings from the present study suggest that these methods could be highly useful in better understanding trajectories of employment progress, education progress, and mental health symptoms as well or links between these trajectories and criminal justice involvement and substance abuse problems.

References

1. Rindfuss RR. The young adult years: diversity, structural change, and fertility. *Demography*. 1991;28:493–512.
2. Arnett JJ, Tanner JL. *Emerging Adults in America: Coming of Age in the 21st Century*. Washington, DC: American Psychological Association; 2006.
3. Clark HB, Belkin MT, Obradovich LD, et al. Transition from school to community: navigating rough waters. In: Gresham FM, Lane KL, O’Shaughnessy T, eds. *Interventions for Children With or at Risk for Emotional and Behavioral Disorders*. Boston, MA: Allyn & Bacon; 2002:219–316.
4. Cote JE. Emerging adulthood as institutionalized moratorium: risks and benefits to identity formation. In: Arnett JJ, Tanner JL, eds. *Emerging Adults in America: Coming of Age in the 21st Century*. Washington, DC: American Psychological Association; 2006.
5. Corcoran M, Matsudaira J. Is it getting harder to get ahead? Economic attainment in early adulthood for two cohorts. In: Settersten RA, Furstenburg FF, Rumbaut RG, eds. *On the Frontier of Adulthood: Theory, Research, and Policy*. Chicago, IL: University of Chicago; 2005:356–395.
6. Draut T. *Strapped: Why America’s 20- and 30- Somethings Can’t Get Ahead*. New York, NY: Doubleday; 2005.
7. Brucculeri M, Gogol-Ostrowski T, Stewart D, et al. Clinical and substance abuse treatment: Applications in the trenches. In: Clark HB, Davis M, eds. *Transition to adulthood: a resource for assisting young people with emotional or behavioral difficulties*. Baltimore, MD: Paul H. Brookes Publishing Co.; 2000:133–154.
8. Moffitt TE. Adolescence-limited and life-course persistent antisocial behavior: a developmental taxonomy. *Psychological Review*. 1993;100:674–701.
9. Costello EJ, Messer SC, Bird HR, et al. The prevalence of serious emotional disturbance: re-analysis of community studies. *Journal of Child and Family Studies*. 1998;7:411–432 doi:10.1023/A:1022901909205.
10. Friedman RM, Katz-Levy JW, Manderscheid RW, et al. Prevalence of serious emotional disturbance in children and adolescents. In: Manderscheid RW, Sonnenschein MA, eds. *Mental Health United States, 1996*. Rockville, MD: U.S. Department of Health and Human Services; 1996:71–89.
11. Blackorby J, Wagner M. Longitudinal post-school outcomes for youth with disabilities: Findings from the national longitudinal transition study. *Exceptional Children*. 1996;62:399–413.
12. Vander Stoep A, Bersford S, Weiss NS, et al. Community-based transition to adulthood for adolescents with psychiatric disorder. *American Journal of Epidemiology*. 2000;152:352–362.
13. Vander Stoep A, Davis M, Collins D. Transition: a time of developmental and institutional clashes. In: Clark HB, Davis M, eds. *Transition of Youth and Young Adults with Emotional or Behavioral Difficulties into Adulthood: Handbook for Practitioners, Educators, Parents, and Administrators*. Baltimore, MD: Paul H. Brookes Publishing Co.; 2000.
14. Davis M, Banks S, Fisher W, Grudzinkas A. Longitudinal patterns of offending during the transition to adulthood of youth in the mental health system. *Journal of Behavioral Health Services & Research*. 2004;31:351–366.
15. *National Longitudinal Transition Study (NLTS2) Wave 3 2005 Parent/Youth Survey* [Data tables published on-line]. Retrieved April 22nd, 2008 from http://www.nlts2.org/data_tables/tables/12/np3D6Lfrm.html.
16. Karpur A, Clark HB, Caproni P, et al. Transition to adult roles for students with emotional/behavioral disturbances: a follow-up study of student exiters from Steps-to-Success. *Career Development for Exceptional Individuals*. 2005;28:36–46.
17. Sampson RJ, Laub JH. Life-course desisters? Trajectories of crime among delinquent boys followed to age 70. *Criminology*. 2003;41:555–592.
18. Cohen P, Hesselbart C. Demographic factors in the use of children’s mental health services. *American Journal of Public Health*. 1993;83:49–52.
19. Pottick KJ, Bilder S, Vander Stoep A, et al. US patterns of mental health service utilization for transition-age youth and young adults. *Journal of Behavioral Health Services & Research*, doi:10.1007/s11414-007-9080-4.

20. Davis M, Sondheimer DL. State child mental health efforts to support youth in the transition to adulthood. *Journal of Behavioral Health Services & Research*. 2005;32:27–42.
21. Armstrong KH, Dedrick RF, Greenbaum PE. Factors associated with community adjustment of young adults with serious emotional disturbance: a longitudinal analysis. *Journal of Emotional and Behavioral Disorders*. 2003;11:74.
22. Clark HB, Deschenes N, Jones J. A framework for the development and operation of a transition system. In: Clark HB, Davis M, eds. *Transition to Adulthood: A Resource for Assisting Young People With Emotional or Behavioral Difficulties*. Baltimore, MD: Paul H. Brookes Publishing Co.; 2000:29–51.
23. National Alliance for Secondary Education and Transition. *National Standards and Quality Indicators: Transition Toolkit for Systems Improvement*. Minneapolis, MN: National Center on Secondary Education and Transition, University of Minnesota; 2005.
24. Bullis M, Moran T, Benz MR, et al. Description and evaluation of the ARIES project: Achieving rehabilitation, individualized education, and employment success for adolescents with emotional disturbance. *Career Development for Exceptional Individuals*. 2002;25:41–58 doi:10.1177/088572880202500104.
25. Clark H, Foster-Johnson L. Serving youth in transition into adulthood. In: Stroul BA, ed. *Children's Mental Health: Creating Systems of Care in a Changing Society*. New York, NY: Brookes Publishing Co; 1996:533–551.
26. Clark H, Pschorr O, Wells P, et al. Transition into community roles for TAY w/SMC with emotional/behavioral difficulties: collaborative systems and program outcomes. In: Cheney D, ed. *Transition Issues and Strategies for Youth and Young Adults With Emotional and/or Behavioral Difficulties to Facilitate Movement in to Community Life*. Arlington, VA: The Council for Children with Behavioral Disorders and the Council for Exceptional Children Division of Career Development and Transition; 2004:201–226.
27. Clark HB, Unger KV, Stewart ES. Transition of youth and young adults with emotional/behavioral disorders into employment, education, and independent living. *Community Alternatives*. 1993;5:19–46.
28. Katz-Leavy J. Transitioning youth with mental health need to meaningful employment and independent living. In: Newman C, Liberton CJ, Kutash K, Friedman RM, eds. *The 21st Annual Research Conference Proceedings— a System of Care for Children's Mental Health: Expanding the Research Base*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute; 2008:163–164.
29. Hagner D, Cheney D, Malloy J. Career-related outcomes of a model transition demonstration for young adults with emotional disturbance. *Rehabilitation Counseling Bulletin*. 1999;42:228–242.
30. Clark HB. *TIP System Development and Operations Manual*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute; 2004.
31. Cauce AM, Paradise M, Embry L, et al. Homeless youth in Seattle: youth characteristics, mental health needs, and intensive case management. In: Epstein M, Kutash K, Duchnowski A, eds. *Outcomes for Children and Youth With Emotional and Behavioral Disorders and Their Families: Program and Evaluation Best Practices*. Austin, TX: PRO-ED; 1998.
32. Franko DL, Striegel-Moore RH, Bean J, et al. Psychosocial and health consequences of adolescent depression in Black and White young adult women. *Health Psychology*. 2005;24:586–593.
33. Gralinski-Bakker JH, Hauser ST, Billings RL, et al. Risks along the road to adulthood: Challenges faced by youth with serious mental disorders. In: Osgood DW, Foster EM, Flanagan C, Ruth GR, eds. *On Your Own Without a Net: The Transition to Adulthood for Vulnerable Populations*. Chicago, IL: University of Chicago; 2005:272–303.
34. Lyons PM, Melton GB. Coping with mental health problems in young adulthood: Diversity of need and uniformity of programs. In: Osgood DW, Foster EM, Flanagan C, Ruth GR, eds. *On Your Own Without a Net: The Transition to Adulthood for Vulnerable Populations*. Chicago, IL: University of Chicago; 2005:304–322.
35. Marsenich L. *A Roadmap to Mental Health Services for Transition Age Young Women: a Research Review*. Sacramento, CA: California Institute for Mental Health; 2005.
36. Rabiner DL, Coie JD, Miller-Johnson S, et al. Predicting the persistence of aggressive offending of African American males from adolescence into young adulthood: the importance of peer relations, aggressive behavior, and ADHD symptoms. *Journal of Emotional and Behavioral Disorders*. 2005;13:131–140.
37. Clark HB, Deschenes N, Seiler D, et al. Services for youth in transition to adulthood in systems of care. In: Stroul BA, Blau GM, eds. *The System of Care Handbook: Transforming Mental Health Services for Children, Youth, & Families*. Baltimore, MD: Paul H. Brookes; in press.
38. Friedman RM. A conceptual framework for developing and implementing effective policy in children's mental health. *Journal of Emotional and Behavioral Disorders*. 2002;11(1):11–18.
39. Social Solutions I. Efforts to Outcomes (ETO); 2001–2007.
40. Blase K, Wagner R, Clark HB. *Strength Discovery and Assessment Process for Working with Transition-Age Youth and Young Adults*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute; 2007.
41. Blase K, Wagner R, Clark HB. *The SODAS Framework: Problem Solving and Decision Making Processes for Working With Transition Age Youth and Young Adults*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute; 2007.
42. Blase K, Wagner R, Clark HB. *Developing and Using Rationales for Working With Transition-Aged Youth and Young Adults*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute; 2007.
43. Phillips SD, Burns BJ, Edgar ER, et al. Moving assertive community treatment into standard practice. *Psychiatric Services*. 2001;52:771–779, 2001.
44. Deschenes N, Herrygers J, Clark H. *Program Fidelity Assessment Protocol: Guiding Quality Improvement for a Comprehensive Transition to Adulthood Systems*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute; 2006.
45. Clark HB, Deschenes N, Karpur A, et al. An analysis of Partnerships for Youth Transition (PYT): Cross-site findings. In: Newman C, Liberton CJ, Kutash K, Friedman RM, eds. *Annual Research Conference Proceedings, a System of Care for Children's Mental Health: Expanding the Research Base*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute; 2007.
46. Davis M, Deschenes N, Gamache P, et al. *Transition to Adulthood Assessment Protocol (TAAP)*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute; 2004.
47. Allison P. Imputation of categorical variables with Proc MI. SAS User's Group International Proceedings: 2005.
48. Akaike H. Information measures and model selection. *Bulletin of the International Statistical Institute*. 1983;50:277–290.

49. Davis M, Banks SM, Fisher WH, et al. Arrests of adolescent clients of a public mental health system during adolescence and young adulthood. *Psychiatric Services*. 2007;58:1454–1460.
50. Eddy JM, Whaley RB, Chamberlain P. The prevention violent behavior by chronic and serious male juvenile offenders: a two-year follow-up of a randomized controlled trial. *Journal of Emotional and Behavioral Disorders*. 2004;12:2–8.
51. Henggeler SW, Schoenwald SK, Borduin CM, et al. *Multisystemic Treatment of Antisocial Behavior in Children and Adolescents*. New York, NY: Guilford Press; 1998.
52. Ellickson PL, Martino SC, Collins RL. Marijuana use from adolescence to young adulthood: Multiple developmental trajectories and their associated outcomes. *Health Psychology*. 2004;23:299–307.

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