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US Patterns of Mental Health Service Utilization for Transition-Age Youth and Young Adults

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Abstract

This study examines rates of admission and patterns of mental health service use by persons of transition age (16–25 years) in the USA based on the nationally representative 1997 Client/Patient Sample Survey and population data from the US Census Bureau. A precipitous decline in utilization was observed at the age of emancipation: the yearly admission rate for inpatient, outpatient, and residential services was 34 per 1,000 for 16- and 17-year-olds and 18 per 1,000 for 18- and 19-year-olds. Among 20- and 21-year-olds, more were referred from criminal justice and fewer from family or friends and social services, and proportionately more were Medicaid

recipients. Targeting resources to enhance shared planning between child and adult systems may facilitate continuity of care for young adult clients who are aging out of child mental health systems, as well as for those who experience their first episodes of mental disorder in early adulthood.

Introduction

Weak institutional and financial linkages between child-serving and adult-serving systems jeopardize the life chances of transition-age youth (ages 16–25 years) with emotional disorders who need support to successfully adopt adult roles and responsibilities.[1–3] Researchers consistently have found that young people with psychiatric problems, including those receiving mental health services, fare poorly in comparison to their peers in completing school and adopting adult occupational and social roles.[3–5] Epidemiological studies have reported the prevalence of psychiatric disorders and service utilization in children and adolescents[6–8] or in adults,[9–11] but there is a paucity of research focusing on the mental health status of the transition-age population. Yet, there are indications that this is probably the age period when adolescents with disorders have their greatest challenges[3,5] and when most adult disorders have their peak rates of incidence.[12] Without a clear understanding of service needs, policy makers are limited in their ability to plan and distribute resources to support this important population group.

This study used a large national probability sample of 1,720 persons of transition age using specialty mental health services to extend the knowledge base about young people with psychiatric problems who are completing their adolescent years and entering adulthood. Across this period of development, transition-age youth become ineligible for children's services and must meet new eligibility criteria to access adult mental health services, potentially threatening continuity of care.[13] Although not previously estimated, the rate of utilization and access to specific treatment settings are likely to differ for transition-age youth compared to the children and adults who bracket them in age. Thus, to provide a context regarding the unique needs of transition-age youth, this study compares rates and patterns of utilization by persons aged 6–15 (pre-transition group), 16–25 (transition group), and 26–35 (post-transition group). Additionally, this study focuses on transition-age clients in 2-year increments to highlight the heterogeneity of service use across this developmental period and identify specific areas of need for policy, programmatic, or clinical attention.

Results will provide information that can be used to plan service systems to meet the developmental needs of adolescents and young adults and to more equitably and strategically allocate scarce resources. They also will give state-level policy makers guidance to make informed decisions about how to support young people involved in the mental health service system who are reaching the critical age of emancipation and their families to yield optimal clinical and social outcomes. Finally, identifying gaps in service continuity across the adolescent and young adult years will give a focus to policy makers, program planners, and clinicians as they work to prevent the persistence of disabling disorders and comorbidities that can adversely affect adult functioning.

Prevalence of Emotional Disorders and Mental Health Service Use

The small literature base on prevalence of emotional disorders among transition-age youth includes findings from two epidemiological studies on the 12-month prevalence of 15 psychiatric disorders in a Dunedin (New Zealand) cohort study; the prevalence of any psychiatric diagnosis was 22, 40, and 48% in 15-, 21-, and 26-year-olds, respectively.[14,15] Findings from the 2004 National Household Survey on Drug Use and Health showed the 1-year prevalence of illicit drug or alcohol disorders changed from 9% among 12- to 17-year-olds to 21% for 18- to 25-year-olds, and

then declined to 7% for adults 26 years of age and older.[16] Recently published nationally representative epidemiological data from the National Comorbidity Survey replication[11] indicate that nearly half of the population (46.4%) aged 18 years and older will experience either a psychiatric or substance use disorder in their lifetime and that half of all lifetime cases start by the age of 14 years and three-fourths by age 24. The researchers found that the median age of onset is earlier for anxiety and impulse control disorders (11 years) than for substance use (20 years) and mood disorders (30 years). Other researchers have found the age of onset of schizophrenia is also about 30 years.[17,18] Taken together, it appears that young adulthood is a period of heightened risk for the onset of new disorders, as well as for the development of co-occurring disorders among those with pre-existing mental health problems.

The above studies provide a basic portrayal of the mental health status of transition-age youth, but less information is available on patterns of illness among transition-age persons who are treated for emotional disorders. One of the few available sketches comes from the National Adolescent and Child Treatment Study that selected a sample of 812 adolescents with serious emotional disturbance who were being treated in residential treatment facilities or were enrolled in special education classrooms; young adult interviews were conducted 6 years after study enrollment.[19] Over the 6-year period, the prevalence of anxiety disorders in the sample declined slightly from 41.0 to 35.9%, and the prevalence of depressive disorder stayed constant (18.5 to 18.2%). However, the prevalence of alcohol use disorder doubled from 21.1 to 43.2% (Greenbaum, personal communication, 1997).[3,20]

The current study fills in some of the gaps in our knowledge base about the receipt of mental health services across the period of transition from adolescence to young adulthood. Three questions guide analysis and interpretation of findings:

1. How many clients of pre-transition age (6–15 years), transition age (16–25 years), and post-transition age (26–35 years) are admitted to inpatient, outpatient, and residential care in the US specialty mental health system, and what are their population-based rates of admission to services?
2. How many transition-age clients are admitted to inpatient, outpatient, and residential care before, at, and after the age of emancipation, and what are their population-based rates of admission to services?
3. What are the clinical, service, and sociodemographic characteristics of clients across the transition-age period?

Method

Data sources and sample

The US Department of Health and Human Services, Center for Mental Health Services (CMHS) conducted the 1997 Client/Patient Sample Survey (CPSS) to collect information on persons receiving specialty mental health care throughout the USA.[21] The target population included two groups: persons admitted to services over the course of a year and those under care on any given day. The admissions sample included persons newly admitted, readmitted, or transferred into a program during a specified survey month but who were not already on the rolls on the first day of the survey month. The CMHS provides weights to calculate nationally representative estimates for yearly admissions. The admissions sample was used in this study to maintain consistency with sampling methods used in studies of other age groups receiving mental health services.

The sample was based on a two-stage cluster design that randomly sampled patients within 1,599 randomly sampled specialty inpatient, outpatient, and residential programs in the USA that were enumerated in the 1994 Inventory of Mental Health Organizations and General Hospital

Mental Health Services (IMHO). The programs were categorized into 14 strata based on unique combinations of eight organization types (e.g., state and county mental hospitals, multiservice mental health organizations, private psychiatric hospitals, and nonfederal general hospitals) and three program types (inpatient, outpatient, and residential care). Administrative staff at each sampled facility who had been blinded to the purposes of this study completed data collection forms on the basis of medical case records for each sampled client/patient. The data used here are the most recent national data available on outpatient, inpatient, and residential care. Additional CPSS design detail is available.[21]

Population estimates from the USA by single year of age were retrieved from the US Census Bureau's Population Estimates Bureau, July 1, 1997.[22] Census data do not include US territories of Puerto Rico, Guam, and the US Virgin Islands, so CPSS cases from the US territories were excluded from analysis.

Institutional Review Board approval at Rutgers University granted this study exemption status on the grounds that specific individuals were not identifiable.

Measures

Age group

The transition-age group was defined to encompass 16- to 25-year-olds, as recommended by the CMHS (58 FR 29425). A three-level categorical variable was created to identify the younger developmental group (pre-transition age of 6–15 years, weighted $N=938,090$, sample $N=2,910$), the older developmental group (post-transition age of 26–35 years, weighted $N=1,144,500$, sample $N=1,696$), and the transition-age group (16–25 years, weighted $N=879,512$, sample $N=1,720$). In addition, the transition-age group was disaggregated into five equally spaced age intervals (ages 16–17, 18–19, 20–21, 22–23, and 24–25 years) for the examination of differences in service utilization and client characteristics along a developmental continuum. Because state policies regarding age of legal emancipation from children's mental health systems vary, emancipation age was defined to encompass the 4-year age span of 18–21 years.[2]

Program setting

A variable indicating program setting identified the type of service setting to which a client was admitted: inpatient, outpatient, or residential care facility as defined within the IMHO sampling frame.[23] An inpatient program is a licensed psychiatric hospital or a separate psychiatric service in a general hospital that provides assigned professional staff for 24-hour psychiatric care. An outpatient program is a mental health clinic or other agency that provides individual counseling, group therapy, and other mental health services, not overnight, for clients who live outside of the facility. A residential care program is one with around-the-clock staffing in which clients live and receive mental health services. Residential care programs include formal residential treatment centers that are independent or owned by a larger organization, plus supportive residential programs operated by facilities, such as general or psychiatric hospitals or other mental health organizations. These programs are not licensed as psychiatric hospitals but generally are licensed by the state and directed by mental health professionals who have at least a master's degree.[23]

Clinical characteristics

The survey contained multiple indicators of psychiatric illness and severity. Principal diagnosis, based on the Diagnostic and Statistical Manual (DSM-III, III-R, or IV) or International

Classification of Diseases-9-CM, was collapsed into 11 mutually exclusive and exhaustive categories: mood disorder (including bipolar, major depressive, and dysthymia), anxiety disorder, psychotic disorder, personality disorder, attention-deficit-hyperactivity disorder, conduct disorder, adjustment disorder, substance-use disorder, developmental and pervasive disorders, social conditions (V-codes), and others (medical condition, unknown, deferred). The presence of a dual or secondary diagnosis was captured with an indicator variable: single or dual or secondary. Another illness indicator in the survey was presenting problem of suicide: yes or no. The presence of any drug or alcohol problem was indexed by a summary variable that identified clients who had either a qualifying diagnosis (principal or secondary or dual) or a presenting problem of substance use. The survey also contained an adaptation of the Global Assessment of Functioning (GAF) scale for reporting overall functioning at the time of admission on Axis V of the DSM.[24] Because the national survey included both adults and children, the GAF, rather than the Children's Global Assessment Scale, was used to assess functioning of children, as well as adults. Scores on the GAF scale range from 0 to 100, allowing for rating individuals from severely impaired (persistent danger of severely hurting self or others) to superior functioning in all areas. A three-level measure of impairment using the most conservative standards set by the federal CMHS definition was created.[25] A GAF score of 50 or below indicates severe impairment, a score in the range of 51–60 is indicative of moderate impairment, and a score of 61 to 100 is indicative of superior functioning.

Service characteristics

Service variables included prior use of any mental health services (yes or no) and referral source (family or friend/self, social service program, juvenile or criminal justice program, outpatient provider, inpatient provider).

Sociodemographic characteristics

Sociodemographic variables included gender, race–ethnicity (non-Hispanic black, non-Hispanic white, Hispanic, other), and payment source: Medicaid, public sources (state, county, Department of Mental Health, or social service funds), private insurance (including Civilian Health and Medical Program of the Uniformed Services), personal resources, and charity care (no fee).

Analytic strategy

Analyses were conducted using the SAS-callable version of SUDAAN (release 9.0.1) to account for the complex survey design,[26] and frequency distributions were examined to provide counts and percentages of clients admitted to mental health services, with data weighted to the national population. The first stage of analysis examined the distributions across inpatient, outpatient, and residential care for the transition-age group (16–25 years), compared with the pre-transition and post-transition groups. A chi-square test revealed a significant association between age group and program setting. Subsequently, pairwise comparisons based on 95% confidence intervals (CI) were used to identify differences between age groups. Then, population-based rates of admission to mental health services keyed to the three analytically defined client age groups were conducted. Significance tests were not used to compare the rates because they were calculated per 1,000 civilian population as enumerated by the census rather than estimated.[22]

Second-stage analyses focused on differences in utilization within the transition-age range. Differences in the rates and distribution of utilization of inpatient, outpatient, and residential care between refined age categories were examined. Again, age group was associated with program setting, so pairwise comparisons, based on 95% CIs, were conducted.

Table 1

Pre-transition-, transition-, and post-transition-age persons admitted to US Mental health services: number, percent distribution and rates per 1,000 civilian population (1997 national estimates)

Program setting	Pre-transition 6–15 years old			Transition 16–25 years old			Post-transition 26–35 years old		
	National estimate of clients	% of cases in age group	Cases per 1,000 age-based population	National estimate of clients	% of cases in age group	Cases per 1,000 age-based population	National estimate of clients	% of cases in age group	Cases per 1,000 age-based population
Inpatient	201,344	21.5[a][b]	5	289,918	33.0	8	422,648	36.9	10
Outpatient	691,648	73.7[a][b]	18	549,677	62.5	15	691,562	60.4	18
Residential care	45,098	4.8	1	39,917	4.5	1	30,290	2.7	1
Total estimated clients	938,090	100.0	24	879,512	100.0	24	1,144,500	100.0	28

Population includes all clients between the ages of 6 and 35; US Territories of Puerto Rico, Guam, and the US Virgin Islands were excluded. Rates were calculated using population estimates, rounded to the nearest whole number; see Appendix. For table percentages, test of independence between program setting and age group $\chi^2(4) = 41.88$, $p < 0.01$

[a]Significantly different than transition group $p < 0.01$

[b]Significantly different than post-transition group $p < 0.01$

Third-stage analyses detailed the clinical, service, and sociodemographic characteristics of transition-age clients across program settings. Chi-square analyses, combined with pairwise comparisons, were used to examine differences in the characteristics across age groups. Using reliability criteria suggested by the CMHS,[23] no estimates are presented for groups where the number of sample cases is less than 10 or the relative standard error is greater than 50%.

Results

Pre-transition-, transition-, and post-transition-age persons admitted to inpatient, outpatient, and residential care

National estimates

Table 1 presents the estimated distributions of pre-transition (6–15 years), transition (16–25 years), and post-transition-age persons (26–35 years) admitted to inpatient, outpatient, and residential care facilities weighted to represent the US population. Overall, the 1997 data reveal that, over the course of a year, well over three-quarters of a million transition-age persons (16–25 years old) were admitted to psychiatric services in inpatient, outpatient, and residential care facilities in the USA (Table 1).

Table 1 shows that there was a significant association between age group and program setting (χ^2=41.88, df=4, $p<0.01$). Outpatient care was significantly more prevalent for the pre-transition group (73.7%; 95% CI: 69.8–77.3) than for either the transition (62.5%; CI: 58.6–66.2) or post-transition group (60.4%; CI: 56.7–64.0). By contrast, inpatient care was significantly less prevalent among the pre-transition group (21.5%; CI: 18.1–25.0) than for either the transition (33.0%; CI: 29.3–36.8) or post-transition group (36.9%; CI: 33.5–40.1). Although residential care was nearly twice as prevalent for pre-transition (4.8%) and transition clients (4.5%) than for post-transition clients (2.7%), the differences among groups in residential care were not statistically significant.

Rates of utilization

Table 1 also shows the rate of mental health service utilization per 1,000 civilian population, keyed to age-based population estimates from the US Census.[22] Over the course of a year, transition-age clients were admitted to any program setting at the overall rate of 24 per 1,000 same-aged persons in the USA. The utilization rate for pre-transition-age clients also was 24 per 1,000; the rate for post-transition-age clients was higher at 28 per 1,000 same-age individuals.

There were differences between age groups with regard to inpatient and outpatient but not residential care utilization rates. The inpatient service utilization rate was 60% higher for transition-age clients compared to the pre-transition-age clients (eight vs. five per 1,000 civilian population), and the post-transition-age clients had a 25% higher rate than the transition-age clients (10 per 1,000). On the other hand, the outpatient service use rates among both pre-transition and post-transition clients was 18 per 1,000, 20% higher than the rates among the transition-age clients (15 per 1,000). The Appendix provides the US Census population information.

Transition-age persons admitted to inpatient, outpatient, and residential care

National estimates

Table 2 presents the estimated distributions of transition-age persons (16–25 years) admitted to inpatient, outpatient, and residential care facilities, disaggregated into five equal-age intervals. The

Table 2

Transition-age persons admitted to US mental health services: number and percent distribution (1997 national estimates)

Program service setting	16–17 years old		18–19 years old		20–21 years old		22–23 years old		24–25 years old	
	# of clients	% of cases in age group	# of clients	% of cases in age group	# of clients	% of cases in age group	# of clients	% of cases in age group	# of clients	% of cases in age group
Inpatient	76,645	29.4	56,049	39.1	57,238	37.6	33,844	22.5	66,142	38.2
Outpatient	164,347	63.0	84,932	59.3	91,433	60.1	108,419	72.2	100,546	58.1
Residential care	19,678	7.5[ab]	2,310	1.6	3,561	2.3	7,991	5.3	6,377	3.7
Total estimated youth	260,670	100.0	143,291	100.0	152,232	100.0	150,254	100.0	173,065	100.0

Population includes all clients between the ages of 16 and 25, US Territories of Puerto Rico, Guam, and the US Virgin Islands were excluded. Case rates were calculated using population estimates, rounded to the nearest whole number; see Appendix. For table percentages, test of independence between program setting and age group (χ^2=25.33, df=8, p<0.01)

[a]Significantly different than 18–19-year-old group p<0.01

[b]Significantly different than 20–21-year-old group p<0.01

estimated number of 18- and 19-year-olds in US mental health services was 143,291, a 45% decline from the 260,670 who were 16–17 years old. By the end of the transition-age period (24- and 25-year-olds), there were a third fewer clients (34%) who received mental health services compared to the 16-to-17-year-old group (173,065 vs. 260,670, respectively). Within each 2-year age group within the transition period, the highest proportion of clients was admitted to outpatient care, followed by inpatient and then residential care. However, the distribution of admissions across the three mental health program settings varied significantly across age subgroups (χ^2=25.33, df=8, p<0.01), primarily because of significant differences in residential care. A significantly greater percentage of 16- to 17-year-olds (7.5%) than those aged 18–19 and 20–21 (1.6 and 2.3%, respectively) were admitted to residential care. However, the percentage of youths in older-age subgroups (22–23 and 24–25 years) in residential care did not differ significantly from any of the others. [CI for residential care estimates by age: 5.0–11.2 (16–17 years old), 0.8–3.4 (18–19 years old), 1.2–2.5 (20–21 years old), 2.3–11.7 (22–23 years old), and 2.0–6.8 (24–25 years old)].

There were no statistically significant differences in the percentage distributions across inpatient and outpatient care among the transition-age subgroups: the percentages ranged from 22.5 to 39.1% in inpatient care (95% CI range: 15.6–49.4) and from 58.1 to 72.2% in outpatient care (95% CI range: 49.4–79.8).

Rates of utilization

Figure 1 reports the population-based rates of admission to inpatient, outpatient, and residential care for the transition-age subgroups. Mental health utilization at ages 18–19 years (18 per 1,000 civilian population) is about half the rate for persons aged 16–17 years (34 per 1,000 civilian population). Rates remained low among those aged 20–21, 22–23, and 24–25. The difference in utilization between those aged 16–17 and 18–19 was due to a 48% decline in the rate of admission to outpatient services (21 to 11 per 1,000) and a 100% decline in admission to residential care (3 to 0 per 1,000).

Figure 1

Admission rates for mental health services among transition-age persons, by age group, USA 1997.
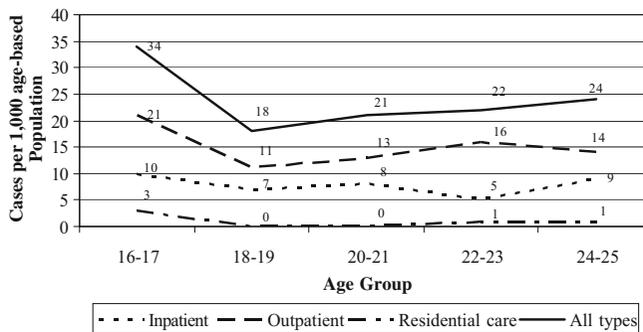
Case rates per 1,000 same-age civilian population were calculated using population estimates, rounded to the nearest whole number, from the US Bureau of the Census, Current Population Reports, Series P-25, No. 1022, Table 3, p. 33. Admission numbers are national estimates from the 1997 CPSS of the CMHS. For census population base, see Appendix; for admissions numbers, see Table 2.

After the precipitous decline in total mental health utilization between 16–17 and 18–19, there is a pattern of increasing utilization, although it does not reach earlier levels within the transition years. Extending the figure to capture admissions among the age groups that bracket the transition-age youth shows that utilization tends to increase during the pre-transition-age period (not shown). It also increases in the 10-year post-transition-age period but never reaches the level of the 16-to-17-year-old group.

Characteristics of transition-age clients

Table 3 details the clinical, service, and sociodemographic characteristics of transition-age clients across the five age subgroups. Of the characteristics evaluated, the age subgroups did not differ significantly on suicidality, the index of substance use presenting problem or diagnosis, dual psychiatric diagnosis, GAF score, gender, or race–ethnicity, but did differ on diagnosis ($\chi^2=122.0$, df=40, $p<0.0001$), referral source ($\chi^2=57.65$, df=24, $p<0.01$), and payment source ($\chi^2=81.77$, df=20, $p<0.001$).

For each age group, mood disorder was the most prevalent diagnosis (ranging from 26.5 to 39.4%). For the 18–19-, 20–21-, and 22–23-year age groups, the second and third most prevalent diagnoses were psychotic disorder and adjustment disorder. These two diagnoses combined to account for 33.0, 36.3, and 34.6%, respectively. The distribution of diagnoses was different for the ages at either end of the transition-age spectrum. Specifically, conduct disorder was the second most prevalent diagnosis for the 16–17-year-olds (13.4%), and the prevalence of psychotic disorder was relatively low (6.7%). For the 24–25-year-olds, the prevalence of conduct disorder was low (11.4%), and alcohol and drug use disorders (15.2%) were nearly as prevalent as psychotic disorder (16.1%).

Referral sources differed for emancipation-age clients who were 20–21 years old compared to younger and older transition-age clients: 20- and 21-year-olds had the highest rates of referral (43%) from within the mental health service system (18.4% from outpatient providers and 24.7% from inpatient or residential settings) and were more likely to be referred from the criminal justice system (21.5%). For this age group, proportionately fewer referrals were made by families, friends, or themselves (24.8%) or social services (5.8%), compared to every other transition-age group.

After legal adulthood, there was a shift in sources of payment with a reduction in private insurance (36.7% for 16- and 17-year-olds vs. 12.2 to 25.1% for all other age groups) and increased coverage by personal resources (9.9% for 16–17-year-olds vs. 15.3 to 21.1% for all other age groups) and charity care/no fee (6.3% for 16–17-year-olds vs. 10.7 to 13.7% for all other age groups).

Discussion

This nationally representative survey of admissions to mental health services shows that patterns of utilization among transition-age youth differ from the patterns of those who bracket them in age and that transition-age youths differ by age subgroup in terms of diagnosis and referral and payment sources. Results suggest a realignment of services for young people of transition age compared to children and adolescents. Specifically, population-based rates of overall service utilization decreased substantially across pre-transition through post-transition groups. These findings correspond to those of the National Comorbidity Study Replication,[27] a nationally representative community-based survey, in which 18- to 24-year-olds with mental disorders were significantly less likely to receive mental health services than adults in older age groups.

In the main, service use patterns (i.e., payment sources and referral routes) among the young legally emancipated adults (ages 18–25 years) in this study appear similar to patterns seen among adults in the US population.[28] By contrast, the patterns among the 16- and 17-year-olds correspond with national service patterns for children ages 0–17 years old.[29]

Table 3

Clinical, sociodemographic, and service characteristics of transition-age persons admitted to US mental health services (1997 national estimates)

	Age group (years)					
	16–17 (%)	18–19 (%)	20–21 (%)	22–23 (%)	24–25 (%)	Total (%)
Principal psychiatric disorder*						
Mood	34.5	34.0	33.5	26.5	39.4	33.8
Adjustment	9.6	20.2	16.3	18.6	11.4	14.4
Psychotic	7.2	12.8	20	15.7	16.1	13.5
Alcohol and drug	8.4	8.1	7.7	12.5	15.2	10.2
Anxiety	6.7	8.3	5.2	11.4	2.3	6.6
Conduct	13.4	2.5	0.0	0.0	0.1	4.4
Personality	2.9	3.7	7.3	5.2	3.3	4.3
Social conditions	1.9	1.8	1.6	2.9	3.8	2.4
Pervasive/developmental	2.6	0.9	2.9	0.8	0.3	1.6
Attention deficit	3.4	1.2	0.0	1.0	0.7	1.5
Other[a]	9.4	6.6	5.5	5.6	7.5	7.3
Co-occurring psychiatric disorder	38.5	31.9	28.4	26.8	31.7	32.3
GAF score[b]						
<=50	49.0	38.0	49.1	42.5	39.6	44.4
51–60	26.5	28.3	30.3	27.6	25.9	27.5
>=61	24.6	33.7	20.6	30.0	34.6	28.1
Suicide attempt/threat presenting problem	34.2	26.4	29.9	27.7	33.2	30.9
Substance abuse presenting problem/diagnosis	37.1	33.4	31.2	37.4	41.6	36.4
Gender: male	46.6	42.9	43.6	47.7	47.2	45.8
Race/ethnicity						
White, non-Hispanic	67.4	72.2	73.9	66.2	62.0	68.0
Black, non-Hispanic	16.7	16.5	12.9	18.8	20.7	17.2
Hispanic	13.4	9.4	7.4	10.0	13.7	11.2
Other[c]	2.4	2.0	5.9	5.0	3.6	3.6
Referral source*						
Family/friend; self[d]	32.0	43.0	24.8	40.1	37.6	35.0
Inpatient/residential	15.1	16.6	24.7	11.4	17.2	16.8
Justice system	13.4	9.7	21.5	17.2	18.1	15.8
Outpatient provider	12.7	12.9	18.4	14.9	16.9	14.9
Social service	14.8	9.0	5.8	11.7	7.6	10.3
Educational system	8.1	4.4	–	–	–	3.2
Missing cases	3.9	4.4	4.8	4.7	2.4	4.0
Payment source*						
Medicaid	29.5	27.8	34.1	21.3	29.1	28.5
Private insurance[e]	36.7	24	12.2	25.1	10.1	23.2
Personal resources	9.9	15.3	21.1	19.2	18.6	16.0

	Age group (years)					
	16–17 (%)	18–19 (%)	20–21 (%)	22–23 (%)	24–25 (%)	Total (%)
Public source[f]	12.7	11.7	12.9	12.6	13.6	12.8
Charity care/no fee	6.3	13.7	10.8	10.7	13.2	10.4
Missing cases	4.8	7.5	8.9	11.1	15.4	9.1
Weighted N	260,670	143,291	152,232	150,254	173,065	879,512
Unweighted N	(784)	(222)	(218)	(237)	(259)	(1,720)

Percentages are weighted. Data represent 879,512 individuals between the ages of 16 and 25 admitted to US inpatient, outpatient, and residential care mental health programs (unweighted N=1,720). Dashes represent unreliable estimates as the cell size is less than 10 or the relative standard error is greater than 50%

*$p<0.01$ for χ^2 test of independence between row variable (e.g., principal psychiatric disorder) and age group

[a]Includes a medical, deferred, or unknown diagnosis

[b]The GAF score is adapted from Axis V from the DSM-IV;[24] lower scores indicate more serious impairment

[c]Includes Asian, Pacific Islander, Native American, and Alaskan Native

[d]Family or friend was combined with self due to small sample size (N=125, 0–17-year-olds) for self-referral

[e]Includes commercial insurance and the Civilian Health and Medical Program of the Uniformed Services

[f]Includes state department of mental health funds, social service funds, and funds from other public sources

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For transition-age persons, the population-based rate of admissions to outpatient services declined at the same time that inpatient services increased, suggesting that inpatient, rather than outpatient, services may be more accessible to young adults with emotional disorders. A number of factors might be driving these differential patterns in care. One explanation may be that the pattern reflects organizational responsiveness to client need. In an earlier study of psychotropic medication use based on the CPSS, researchers found that the transition-age clients under care on a given day were more likely to have psychotic disorder diagnoses than pre-transition-age clients, but that they were similar in all other diagnostic dimensions (dual diagnosis, GAF, alcohol problems).[30] Thus, increased proportions admitted to inpatient treatment settings might represent an appropriate response to greater illness need.

Alternatively, as organizations struggle to compete to survive in a managed care environment, market forces, such as an organization's need to fill appointment slots or beds, may affect the distribution of clients within program types. Aggressive expansion of managed care has put substantial pressure on organizations to limit mental health care. For outpatient providers, this has meant limited coverage for treatment sessions, and for inpatient care it has meant increasing numbers of admissions, coupled with increasingly shorter lengths of stay.[30,31] Thus, another explanation for the increased proportion of hospital admissions for young adults is that it may reflect service availability, as organizations respond to an increasingly constrained fiscal environment. Research is needed to sort out these possible explanations to clarify the dynamics of access.

Increased utilization of inpatient care over outpatient care for transition-age persons with emotional disorders is likely to lead to disruption and instability. In the McGraw Center study, a longitudinal study of a cohort of 90 transition-age youth aging out of a residential treatment program in Washington State in the 1980s and 1990s, an episode of severe psychiatric illness requiring hospitalization drastically interrupted the life of young adults with emotional disorders who had struggled to enroll in school, sustain employment, rent apartments, and establish social

networks and romantic relationships.[32] Policies that encourage investments in the development of intensive outpatient interventions could divert young adults from hospitalization. In the meantime, and at a minimum, hospitals should assiduously employ known effective strategies that improve linkage between inpatient and outpatient settings, such as introducing inpatient clients to outpatient providers in advance of hospital discharge.[32–34]

Our study shows an "aging out" process, indicated also by the substantial decline in residential care use (in proportions and rates) by all transition clients greater than 17 years of age. Whereas hospitals and community-based mental health agencies may typically offer services to children, as well as adults, eligibility for admission to residential programs does not typically span across the legal age of emancipation. Thus, residential program settings may offer the lowest potential for "seamless" transition from child to adult services. In many states, it is illegal for children and adults to co-inhabit residential programs. The adult congregate care facilities and other residential settings that serve adults with mental illness (1) typically serve an older clientele with more chronic problems and (2) inconsistently offer appropriate programming to support the developmental transition to adulthood for young adults with emotional disorders.[35]

In the general population, substance use skyrockets after legal emancipation, such that even college dormitories are not welcomed additions to community neighborhoods. Thus, low utilization of residential care may be explained by a combination of legal realities, developmentally inappropriate programming, community reluctance, or parental or client choice. In a recent survey of parents of transition-age youth, half reported that the services did not address issues relevant to their children.[36] Residential care will likely remain a scarce resource for transition-age individuals until these policy, programmatic, and clinical issues are addressed.

That the national numbers in, and rate of, outpatient service use declined substantially among 18- to 19-year-olds, in comparison to the 16- to 17-year-olds, suggests that there may be significant barriers to access for this emancipating subgroup at a time in the development of these young adults when a strong network of social and residential support may be most necessary. On the other hand, there is a slow but steady increase in the rates of outpatient service use among youths and young adults 20–21 years of age and older that may represent increasing personal initiative in the face of developmental independence. This possibility is little-studied, and it is a potentially important explanation of the observed outpatient mental health service utilization patterns and help-seeking behaviors. Programs and legislation targeted exclusively to 18- and 19-year-olds may be challenging, but they may ensure appropriate continuity of care for adolescents already in treatment and provide necessary outreach for those at risk.

The change in referral patterns in clients over the age of 18 seems to represent an ecological shift, especially for persons in the study's emancipation age groups of 18–19 and 20–21 years. In particular, there are increasing referrals from mental health (outpatient and residential/inpatient combined) and the justice system in persons in the emancipation age groups, compared to the 16- to 17-year-olds. This result corresponds with other research. For example, in a small sample of public adolescent mental health and criminal justice system users, researchers found that the emancipation period is associated with peak arrests, and it was associated with long-term consequences for continued criminal involvement.[4] In the McGraw Center study,[37] results showed that the age of emancipation, and specifically the 19th year of life, was a period of increased turmoil, as reflected in high hospitalization and arrest rates and low rates of employment or enrollment in educational or vocational programs. In addition to increases in criminal justice referrals, the current study showed that the 20- and 21-year-olds had the highest rates of referral from within the mental health service system compared to other subgroups and lowest rates of referrals from family members or friends or by themselves. When clients are shuffled between or within service systems, clinicians and program planners are faced with considerable challenges to continuity of care. At the same time, clients are required to adapt to demands of multiple and changing services, frequently without close support from families.

Continuity of mental health care may be substantially jeopardized for legally emancipated persons, according to our study. The drop in private insurance coverage among all transition subgroups 18 years of age or older – but especially the 20- to 21-year-olds – compared to the 16- to 17-year-olds, may be explained by several factors, including the common practice for private insurers to cover children on parents' plans only as long as they are enrolled in college. According to US Census figures, over 30% of young adults (18–24 years) in the USA are uninsured, making them the age group least likely to have health insurance.[38] Young adults with mental health issues are less likely than young adults in the general population to be enrolled in college[39] and are more likely to have difficulty securing private insurance on their own, either because of exclusions for pre-existing conditions or because of difficulty finding employment that includes mental health benefits. Given that care for one-third of the 20- and 21-year-olds was paid by Medicaid, lapses in medical coverage are an important target for public policy attention. Future research on transition-age youth and young adults should center on the potential influence of states' Medicaid eligibility requirements on variations in service use.

Subgroups of transition-age clients did not differ in most clinical and sociodemographic ways that were evaluated, although they did differ in assigned diagnoses. Diagnoses of psychotic disorders replaced conduct disorders as one of the three most prevalent for the 18- to 19-year-olds, compared to the 16- and 17-year-olds. Given the dynamics of mental health service utilization, it is likely that age differences seen in diagnoses in cross-sectional surveys reflect several different phenomena. Some individuals who are aging out of children's systems are being assigned new diagnoses in young adulthood, whereas others who are aging out may not continue to carry psychiatric diagnoses as adults. Meanwhile, a third group of young adults were never enrolled in children's mental health services and are experiencing first episodes of mental disorder, with their first treatment occurring in the adult system. Other differences in diagnostic patterns between age groups can be attributed to idiosyncracies of the diagnostic nomenclature, whereby some diagnoses (e.g., conduct disorder) are infrequently assigned to adults and others (e.g., personality disorders) are infrequently assigned to children. Finally, some age differences in diagnostic patterns are due to eligibility criteria for child and adult systems. For example, a recent national survey showed that, while attention deficit/disruptive behavior disorders were qualifying diagnoses to access children's mental health services in 97% of states, they were among the qualifying diagnoses for adult mental health services in only 39% of state systems.[13]

Results from our study of clients in services conform to community-based research on diagnostic continuity and change. Our data show a nearly three-fold rise in psychotic disorder diagnoses from the 16- to 17-year-olds to the 20- and 21-year-olds. Epidemiological researchers have found that the onset of disorders of schizophrenia generally occurs in early adulthood.[16,17] In our study, adjustment disorder diagnoses also increase, doubling from the 16-to-17-year-old group to the 18-to-19-year-old group. This rise in the proportion diagnosed with adjustment disorder in young adulthood may suggest that clinicians are recognizing the critical "adjustments" with which emancipation age persons are struggling. Alternatively, clinicians may use the diagnosis of adjustment disorder as a placeholder, as they await additional information with which to assign more conclusive diagnoses.

Results from our study sample also conform to community-based research findings on trajectories of substance use, which show a striking increase in the prevalence of substance use disorders among young adults in the general population, compared to younger counterparts.[15] Substance use disorders rose in prominence to the third most prevalent diagnosis among the 22- to 23-year-olds in our study. Findings from longitudinal studies support the hypothesis that adolescent conduct problems significantly increase risk for later alcohol and illicit substance use disorders.[40,41] In our study, the upward shift in substance use disorder diagnoses together with a corresponding downward shift in conduct disorder diagnoses across transition-age groups may reflect these diagnostic dynamics.

Longitudinal studies have reported high continuity of major depressive disorder from adolescence into young adulthood,[42] which is consistent with the high proportion of treated

adolescents and young adults with mood disorders across transition-age groups in the current study. Future longitudinal research is needed to track changes and consistencies in diagnoses for individuals who use mental health services as they traverse the developmental span from adolescence to adulthood. To our knowledge, such studies have not been conducted, so the dynamics of diagnostic changes remain speculative. Program planners should focus efforts towards developing dual diagnosis programs and coordinate mental health and substance abuse programs to systematically prevent the onset of secondary disorders.[43]

The continuities and discontinuities in the most prevalent diagnoses at sequential stages of development into adulthood are consistent with previously documented developmental patterns in population-based studies. However, our findings showing marked *decrease* in mental health service utilization at the age of emancipation do not align with the fact that young adulthood heralds an increase in the prevalence of psychiatric disorders, reflected in a marked rise in the occurrence of substance use disorders and a peak in the onset of mood disorders and schizophrenia. The findings of this study support aggressive efforts to design developmentally appropriate, effective services and to increase their availability to young adults with mental disorders.

Limitations

Four limitations of this study should be acknowledged. Although the CPSS sample is large, it underestimates the numbers of clients in mental health care in the USA because the sampling frame of facility-based mental health settings does not include clients whose mental health care was provided exclusively by solo practitioners or in primary care settings. It also does not include mental health delivery in non-mental health settings, such as justice systems or schools. Second, this study was based on information abstracted from medical records that are of unknown reliability. Third, these data were collected in 1997, and there may have been social trends or policy changes since that time that may influence the portrait of transitional clients and the services landscape. The next CPSS will be fielded in 2007 when the analyses in this study can be replicated. Fourth, the data are cross-sectional, limiting the ability to understand developmental trajectories in service utilization or mental health status.

Implications for Behavioral Health

Despite these limitations, the study provides results that contribute to our understanding of mental health service delivery to transition-age persons. In particular, the nationally representative data allow comparisons of utilization across age groups that suggest age-based disparities in access to mental health services. The results have yielded several implications for service improvement, as well as raised questions about the dynamics of service utilization across age groups. To our knowledge, there has been no longitudinal outcome study tracking the program service use of pre-transition-age clients (ages 6–15) through the transitional period (16–25). Because these results are nationally representative, they establish a foundation for hypothesis-testing using study designs that would allow examination of individual service utilization trajectories.

Although the current study identified differences in patterns and rates of utilization among different age groups, it cannot provide good information about developmental sequences of service use. For planning and delivery of services, it would be important to know if the lower rate of outpatient mental health services in the transition-age group is offset by an increase in outpatient substance abuse service utilization and/or incarceration. Future research should focus on identifying service and utilization patterns for individuals over time and across settings.

State-level policies that set differential eligibility criteria for access to child and adult services; that set age requirements and ignore developmental readiness indicators; that discourage shared planning between the child and adult systems; and that fail to incorporate a broad array of health,

vocational, educational, residential, financial, and legal service systems as collaborative partners[2,44] may prolong mental health problems and delay successful transition into adult roles.[27,39] Substantial shifts in referral sources indicate that strategies are needed to maintain contact with clients who are aging out of child mental health systems and who are at risk of entering adult criminal justice systems. Policy makers are encouraged to promote shared planning and coordination between multiple child and adult service systems.

Appendix

Table 4
Census population base by age group 1997

Age group (years)	# of persons
6–15	38,714,484
16–25	36,368,988
16–17	7,765,647
18–19	7,491,806
20–21	7,251,687
22–23	6,773,077
24–25	7,086,771
26–35	40,509,706

US Census, Population Estimates Bureau, Population Division. Population estimates for the USA by single year of age and sex, July 1, 1997. http://www.census. gov/popest/archives/1990s/stas/st-99-12.txt

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