

Effect of PACT on Inpatient Psychiatric Treatment for Adolescents With Severe Mental Illness: A Preliminary Analysis

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Objective: This study examined whether inpatient psychiatric treatment and forensic treatment and incarceration were reduced among adolescents and young adults with severe and persistent mental illness after they received services in the Program of Assertive Community Treatment (PACT). **Methods:** The pre-post evaluation compared length of inpatient treatment and forensic treatment or incarceration for the year before and after PACT enrollment. Participants (N=15) were their own controls. **Results:** Annual psychiatric hospitalization fell from 66.2 days before enrollment to 8.7 days in the first year of PACT ($p=.025$, Cohen's $d=.54$). Similarly, combined days of inpatient psychiatric treatment and forensic treatment or incarceration fell from 104.1 in the year before enrollment to 24.1 days in the year after ($p=.015$, Cohen's $d=.61$). **Conclusions:** PACT services significantly reduced time in inpatient psychiatric treatment. These preliminary results may have implications for long-term treatment, service delivery, and cost of care for adolescents and young adults with severe and persistent mental illness. (*Psychiatric Services* 58:1486–1488, 2007)

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Early onset of severe and persistent mental illnesses has received more attention in recent years. Despite this growing awareness, schizophrenia and bipolar disorder are often not identified during adolescence. If diagnosed as having these disorders, adolescents commonly receive services designed to treat a broad group of children and adolescents with severe emotional disturbances (1).

State-of-the-art treatment for adolescents with severe emotional disturbances is provided in the form of wraparound services in many U.S. states. Wraparound services differ from conventional outpatient mental health services to adolescents by providing more intensive, coordinated services. Wraparound programs usually have flexible funding, allowing case managers to purchase individually selected service components for children and their families. However, the most severely ill adolescents often continue to spend a large amount of time in restrictive institutional care, away from their family and community, and consume a majority of the available service dollars (2).

Controlled studies conducted nationally and internationally over the past decades have demonstrated that services in the Program of Assertive Community Treatment (PACT) assist in recovery and reduce hospitalization rates for adults with schizophrenia and other severe and persistent mental illnesses by providing ongoing, comprehensive services in

the community (3). Such long-term services are currently not generally available for adolescents with severe and persistent mental illnesses in their transition to adulthood. Thus it appears highly relevant to explore the usefulness of this model in the provision of services to adolescents with high service needs with the goal of reducing time spent in hospitals or other institutions.

This study provides preliminary data on days of psychiatric hospitalization and forensic treatment and incarceration for adolescents and young adults treated in PACT with admission dates between April 1998 and May 2000. Starting in 1998, PACT implemented targeted services for adolescents and young adults with severe and persistent mental illnesses, with the goals of providing early intervention and providing a seamless transition from adolescent to adult services for young people with long-term, intensive mental health treatment needs. To meet the second goal, the admission age for participants in PACT ranged from 15 to 21 years, which straddles the typical age of discharge from adolescent services (age 18) and coinciding with the maximum age for receipt of special education services (age 21).

The objective of this study was to determine whether the reduction in hospitalization days demonstrated in the treatment of adults with severe and persistent mental illness in PACT could be replicated among adolescents and young adults.

Methods

PACT is the outpatient treatment program of Mendota Mental Health Institute in Madison, Wisconsin. Funding is provided through the state, county, and third-party billing. PACT provides a highly individualized and comprehensive array of services, with integrated medical and rehabilitation services delivered by an interdisciplinary team in the community (3). Long-term services include comprehensive assessment; medication prescription, delivery, and monitoring; monitoring of symptoms and medication side effects; illness management and recovery skills; intensive clinical case management; health monitoring; and 24-hour crisis intervention. On the basis of individual need, rehabilitation services include supportive psychotherapy and psychoeducation for clients and their families, vocational rehabilitation services, substance abuse counseling, and assistance with independent living skills. Adolescents and young adults included in the study received conventional PACT services in conjunction with supported education services, increased coordination with and involvement of families and foster care providers, and an increased emphasis on group therapy and recreation. No additional, specialized adaptations were made to the program—that is, compared with conventional PACT services, no changes were made in staffing or team composition or in service provision.

Study participants were the first 15 consecutive adolescents admitted to PACT who met the study inclusion criteria: aged between 15 and 21 years; received PACT services for one or more years; had a primary axis I diagnosis of a psychotic disorder (for example, schizophrenia), bipolar disorder, or obsessive-compulsive disorder; and had four or more functional limitations upon initial screening, indicating need for intensive community support services. Examples of qualifying functional limitations included history of frequent hospitalizations, history of stays in other institutions as a juvenile, truancy, homelessness, and history of foster placement. The 15 adolescents were admitted to PACT between April 1998 and May 2000.

All participants provided informed consent and were admitted voluntarily. The study was designed as a pre-post evaluation, with individual participants serving as their own controls. The study received institutional review board approval through Mendota Mental Health Institute.

Data on demographic characteristics as well as hospitalization and forensic treatment and incarceration days were obtained initially through report of referring providers, the participants, and the participants' families. Records of identified agencies were sought and reviewed. Wisconsin Medicaid payment records were used to confirm inpatient dates of service for psychiatric treatment. The Wisconsin Circuit Courts public access database was used to confirm arrests and incarcerations.

Days of psychiatric hospitalization and incarceration are reported separately as well as combined because the vast majority of incarceration days for this group were for forensic treatment—that is, confinement in psychiatric hospitals. Statistical analyses comparing hospitalization and forensic treatment and incarceration data before and after PACT admission were conducted using paired, one-tailed Student's *t* tests. Effect size was determined with Cohen's *d*.

Results

The 15 study participants (12 males and three females) had a mean $\pm$ SD age of 16.8 ± 1.4 years upon enrollment into PACT (range of 15–20 years). The group consisted of three African Americans (20%), and 12 Caucasians (80%), one of whom was Hispanic. Thirteen participants were diagnosed as having psychotic disorders: three persons as having schizophrenia (20%) and ten persons as having schizoaffective disorder (67%). Two participants were diagnosed as having bipolar disorder (13%). The first recorded hospitalization or incarceration occurred at a mean age of 14.6 ± 3.4 years (range of eight to 20 years). For 13 participants (87%), the initial admission was for inpatient psychiatric treatment. The remaining two participants (13%) were first admitted to juvenile detention.

In the year before PACT enrollment, the mean number of days of psychiatric hospitalization for the group was 66.20 ± 106.76 days. In the year after enrollment, the mean number of psychiatric hospitalization days dropped significantly to 8.73 ± 14.17 days ($p = .025$, Cohen's $d = .54$). This 7.6-fold reduction in hospitalization days was not associated with adverse outcomes, such as suicides, other deaths, or program dropout. The average frequency of hospital admissions for psychiatric treatment did not differ significantly between the years pre- and post-PACT enrollment (1.13 ± 1.30 versus $.80 \pm 1.47$; $p = .263$).

Two participants accounted for all of the days incarcerated or receiving inpatient forensic treatment in the year before PACT enrollment (569 of 569 days) and for most days in the year after PACT enrollment (211 of 230 days). Combined time in institutions—either for psychiatric hospitalization or for forensic treatment and incarceration—dropped significantly from a mean of 104.1 ± 130.2 days in the year before PACT enrollment to 24.1 ± 37.9 days in the year after enrollment ($p = .015$, Cohen's $d = .61$). This represents a 4.3-fold reduction in the combined days of psychiatric hospitalization and forensic treatment or incarceration for this group.

Discussion

Despite the small sample ($N = 15$), these preliminary data demonstrate a statistically significant reduction in time spent in psychiatric hospitals during the first year of PACT adolescent services. The reduction in combined psychiatric hospitalization and forensic treatment or incarceration was also significant for this group. These observations are consistent with findings for adults with severe and persistent mental illness who received PACT services (3). The generalizability of these findings may be limited because of the small sample.

The reduction in hospital days after PACT enrollment resulted primarily from a reduction in length of inpatient psychiatric treatment. The frequency of hospital admissions, however, was not statistically different before and after PACT enrollment, sug-

gesting a similar level of acuity over the study period. In this context, a reduction in total days of psychiatric hospitalization with PACT services suggests that the PACT team can proactively reduce the length of hospital stays and effectively coordinate the return of adolescents from the hospital to the community.

Since the conclusion of this pilot study, PACT has secured state and county funding to provide ongoing mental health services to an additional 30 adolescents and young adults who qualified under the study criteria. With less time spent in institutional settings and more time spent in the community, we hope to see functional gains among these adolescents over time. Studies designed to evaluate long-term outcomes of PACT services for a larger group of adoles-

cents and young adults—including effects on vocational and educational status, family stability, residential status, and independent living skills—are under way.

Conclusions

As previously demonstrated with adults, PACT services significantly reduced time spent in inpatient psychiatric treatment for this small sample of adolescents and young adults with severe and persistent mental illness. If confirmed through further studies, reduced inpatient time may represent an important component of early intervention by preventing problems associated with separation from family, interruptions in education or career development, and residential instability. Thus the reduction in inpatient psychiatric treatment observed

in the first year of adolescent PACT services could have implications for the long-term treatment, service delivery, and cost of care for this challenging population, warranting further investigation.

Acknowledgments and disclosures

The authors report no competing interests.

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