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Original article

## Trajectories of Mental Health–Related Service Use Among Adolescents With Histories of Early Externalizing Problems

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 A B S T R A C T

**Purpose:** To inform efforts to reduce costly service utilization, the present study examined longitudinal trajectories of mental health–related outpatient and residential service use among at-risk youth with a history of early externalizing problems.

**Methods:** A cohort of 809 children in the Fast Track Project, a multisite longitudinal study of children at risk for conduct disorder, were followed prospectively from kindergarten through 12th grade. They resided in high-risk areas with high rates of poverty, crime, and violence. Their outpatient and residential service use was assessed annually between sixth and 12th grades through parent report. Growth mixture modeling was applied to model individual differences in trajectories of service use during this period. Teacher, parent, and observer-reported childhood predictors of those trajectories were also examined.

**Results:** Most youths had minimal service use during preadolescence into adolescence. However, approximately 31% had moderate probability of using outpatient counseling services, and approximately 8% had elevated probability of seeing a family doctor for mental health needs. For residential services, approximately 6% had moderate to high probability of service use that peaked during transition to high school, whereas close to 5% had service use that dramatically increased during high school. Childhood predictors of these trajectories included earlier externalizing, internalizing, and emotion regulation problems.

**Conclusions:** This study is the first to use person-centered analytic methods to examine longitudinal trajectories in mental health–related service use among at-risk adolescents. Timely treatment for severe externalizing problems, comorbid internalizing problems, and emotion dysregulation during childhood may be crucial for preventing chronic service use.

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 IMPLICATIONS AND  
 CONTRIBUTION

Present study found individual differences in mental health–related outpatient and residential service use among high-risk adolescents with a history of early externalizing problems. To reduce costly, preventable service use, early intervention is indicated for chronic externalizing problems, comorbid internalizing problems during childhood, and distress necessitating residential treatment during preadolescence.

Children with early externalizing problems are at high risk for a number of maladaptive and costly outcomes by young adulthood, including antisocial activity, risky health behaviors, poor educational and employment attainment, and increased mental health service use [1–3]. They are also at higher risk for sequelae

requiring medical care, including injury [4] and engagement in or exposure to violence [5]. If their externalizing problems are unmitigated, they may suffer from continued psychopathology [6] and poorer physical health [7] into adulthood. Prevention of these difficult and costly outcomes requires timely intervention. To determine who would benefit from intervention and when intervention needs to be timed, it is important to first understand individual differences in their utilization of mental health services and predictors of chronic or high levels of service use. Toward this goal, the present study used person-centered longitudinal

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**Conflicts of Interest:** The authors have no conflicts of interest to disclose.

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analysis to identify patterns of mental health service use among adolescents with a history of early externalizing problems.

Children with externalizing problems, which include oppositional, aggressive, and disruptive behaviors, comprise a particularly vulnerable population. They pose increased costs of mental health services and childcare at home based on their increased need for behavior management and supervision [8]. Moreover, past research has suggested a higher rate of mental health–related service use in children or adolescents with externalizing disorders than those with internalizing disorders [3]. Even among youth with internalizing problems such as depressive disorder, comorbid externalizing problems have been associated with increased functional impairment, obesity, and a trend toward increased suicidal ideation [9]. Consistent with this research, costs of mental health–related services for adolescents and young adults with histories of externalizing problems are quite significant, averaging \$2,636 annually [10]. In contrast, the estimated cost for the average individual is \$1,591 [11].

Furthermore, they may require increased levels of general medical care and pediatric services. For example, a large community-based study in the United States [12] has found that many parents of children with mental health needs seek out care from a general medical care provider rather than a mental health professional. Children with externalizing problems are also at high risk for injury [4] and exposure to violence [5], further increasing their potential need for medical services. Among young children in low-income households, externalizing problems was one of the top 10 reasons for pediatric hospitalization [13], suggesting that unmet mental health needs in this population may result in general medical care use. Thus, the present study also examined the use of general medical or pediatric care services for mental health needs.

There are additional questions related to long-term service use in children with externalizing problems that are not yet fully addressed in the existing literature. For one, it is unclear to what extent at-risk adolescents in disadvantaged communities access services. They are less likely to receive necessary mental health services compared with those in more privileged communities [14], possibly due to service-related costs, lack of insurance, and an overall deficit in accessible services [15]. Moreover, families may have difficulty accessing available services because of geographical barriers, although having a child with externalizing problems is a strong predictor of mental health service use [14]. More research is needed to clarify the extent to which high-risk adolescents residing in low-income, high-risk regions access mental health–related services.

In addition, there is limited longitudinal research on service utilization. Existing studies have shown that, when service use begins in early childhood, it continues to increase throughout adolescence [16]. Moreover, children who experience increased functional impairment due to psychopathology are more likely to continue utilizing services over time [17,18]. However, most existing research has been conducted with epidemiological data that are summarized at the population level. More research is needed to examine whether there are individual differences in the trajectories of service use (e.g., chronic, minimal use, and decreasing or increasing across adolescence) and the types of services used among at-risk youth.

In addition to addressing these gaps in the literature by examining individual differences in service use over time, the present study also examined childhood predictors of service use, to help identify children at risk for chronic and/or high service use.

They are important to identify in order to optimize the utilization of effective and timely services and to maximize the clinical, public health, and economic value of services that are sought and received. Childhood predictors examined include earlier internalizing and externalizing psychopathology, poor emotion regulation skills, and lack of positive attention in parenting, as they are known risk factors for later psychopathology [19–21] and may also predict increased long-term service use.

In summary, although children with externalizing problems are known to use mental health services at an increased rate, to our knowledge, individual differences in trajectories of their service use during adolescence have not yet been explored. Examining potential heterogeneity in service use can inform intervention efforts, for instance by identifying adolescents with elevated risk for prolonged or high rates of service use. Furthermore, this line of research may provide insight into which types of mental health or health services are most likely to be used. Based on existing literature, the present study took an exploratory approach to study trajectories of mental health–related service use among adolescents with histories of externalizing problems in low-income, high-crime neighborhoods. We hypothesized that heterogeneity in trajectories of service use would be found among these adolescents and that earlier psychopathology, emotion regulation problems, and low positive parental attention would be associated with elevated service use over time.

## Method

### Participants

Participants were 809 children (69.6% male) followed prospectively and annually from kindergarten to late adolescence by the Fast Track Project, a multisite, longitudinal study of children at risk for conduct disorder (<http://www.fasttrackproject.org>). These children had adequate data for analysis and comprised 90.8% of the sample originally recruited for the project ( $N = 891$ ). They were recruited for exhibiting the highest levels of externalizing behaviors at kindergarten on teacher and parent report screens (for detailed information, see [22]). Approximately half of the sample ( $n = 415$ ; 51.3%) received the Fast Track services for prevention of future conduct disorder, whereas the rest ( $n = 394$ ; 48.7%) did not receive any Fast Track prevention services. They attended 27 schools in areas selected for elevated levels of poverty and neighborhood crime, at four study sites (Durham, North Carolina; Nashville, Tennessee; Seattle, Washington; and rural central Pennsylvania). These schools were randomized to intervention or control conditions. All procedures were approved by the Institutional Review Board of the Fast Track Project's principal investigators' home institutions.

### Measures

**Service use.** The child's use of mental health services was measured using the parent report on the Service Assessment for Children and Adolescents [23]. Two types of mental health–related service use were assessed: (1) outpatient services (mental health center, day treatment, substance abuse clinic, school counselor, counselor/therapist, and family doctor for mental health reasons) and (2) residential services (psychiatric hospital, residential treatment center, group home, foster home, general hospital, emergency shelter, and other residential facility). Annually between sixth and 12th grades, parents indicated

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