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Multisystemic therapy: A treatment for violent substance-abusing and substance-dependent juvenile offenders

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Abstract

Adolescent violence and substance abuse result in substantial personal and societal cost. Many treatments fail to produce favorable outcome in terms of both violence and substance abuse with adolescents because they fail to comprehensively address etiological and maintaining factors. This article describes multisystemic therapy (MST), a family- and community-based treatment that has produced favorable outcomes with violent substance-abusing or -dependent adolescents in both realms. The clinical basis for the success of MST and studies supporting its effectiveness with violent and substance-abusing adolescents are presented.

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1. Introduction

Adolescent violence and drug use represent two widespread and related problems. According to the Office of Juvenile Justice and Delinquency Prevention, substance abuse is “the Nation’s number one health problem” (Ericson, 2001) and recent school violence has raised the nation’s interest in causes and prevention of adolescent aggression (Tarter et al., 2002).

Although only 3% of adolescents in the general population meet diagnostic criteria for substance abuse and dependence disorders (Weinberg, Rahdert, Collier, & Glantz, 1998), the

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prevalence rate is substantially higher in clinical samples. For example, [Teplin, Abram, McClelland, Dulcan, and Mericle \(2002\)](#) have found that approximately 50% of a large sample of juvenile detainees met diagnostic criteria for substance use disorders. However, in our recent work, screening of 2123 youths in the juvenile justice system for substance abuse, only 10% actually met diagnostic criteria. Nonetheless, substance-abusing or -dependent adolescents present with problems that require interventions at a high rate.

The Federal Bureau of Investigation's Uniform Crime Reports (UCR; [Howell, 2003](#)) defines violent crimes as murder and nonnegligent, manslaughter, rape, robbery, and assault. The Federal Bureau of Investigation's UCR indicates that juvenile arrests for violent crimes, such as robbery, have decreased by more than 50% from 1994 to 1999 ([Howell, 2003](#)), but it is unclear whether this represents a reduction in violence per se.

Despite the lower prevalence of violence, violence in adolescence results in substantial personal cost in adulthood ([Howell, 2003](#); [Loeber & Farrington, 1998](#)), such as increased unemployment, incarceration, and unstable relationships. Substance-abusing adolescents are also at risk for more immediate negative outcomes, such as suicide, automobile accidents, potentially dangerous sexual behavior, and school dropout ([Newcomb & Bentler, 1988](#)).

Societal cost for violence and substance abuse is quite dramatic. For instance, victim cost, victim quality of life cost, and system costs for a single aggravated assault are estimated at US\$66,273 ([Aos, Phipps, Barnoski, & Lieb, 2001](#)). The cost for annual health care for illegal drug users was 5.2 billion in 1985, and the cost of drug treatment was estimated at US\$1.73 billion in 1989 ([Miller, Cohen, & Wiersema, 1996](#)). Although economic costs of adolescent substance abuse have not been delineated fully ([Office of Technology Assessment, 1991](#)), existing data indicate that it is substantial. In 1986 alone, the approximate cost of related cost was US\$5.5 billion, related law enforcement cost was US\$12.8 billion, and the direct cost for treating adolescent substance abusers in 1985 was approximately US\$2 billion ([Institute of Medicine, 1990](#)). Because substance abuse and violence are related, effective treatment will likely reduce these costs.

2. Determinants of adolescent violence and substance use

The theory of social ecology ([Bronfenbrenner, 1979](#)) provides a helpful framework for conceptualizing risk and protective factors for violence and substance use. Bronfenbrenner asserts that youth are embedded in multiple systems, and the behavior of the youth is a function of his or her interactions within and between these systems. The systems influence a youth's behavior, and a youth's behavior influences the systems. Fortunately, significant research detailing risk and protective factors for adolescent violence and substance use exists, and informs treatment strategies for violent substance-abusing or -dependent adolescents who consume substantial service system dollars.

Converging viewpoints ([Elliot, 1994, 1998](#); [Hawkins, Catalano, & Miller, 1992](#); [Howell, 2003](#); [Schinke, Brounstein, & Gardner, 2002](#)) indicate that consistent risk factors for adolescent substance use and violence relate to multiple environmental contexts in which adolescents are embedded, including individual, family, peer, school, and neighborhood

systems. Specifically: *individual*: other antisocial behaviors, low self-esteem, low social conformity, psychiatric symptomatology, positive expectancies for substance effects, and genetic loadings; *family*: ineffective management and discipline, low warmth and high conflict, weak social support network, parental drug abuse and mental health problems that interfere with effective parenting; *peers*: association with violent substance using peers, which is the single most powerful predictor of antisocial behavior in adolescents; *school*: low intelligence, achievement, and commitment to achievement; and *neighborhood*: disorganized and high crime, availability of drugs, and availability of guns.

Protective factors, to a large extent, are the opposite of corresponding risk factors. For example, an intelligent adolescent residing in a stable, loving, and caring household with competent caregivers, engaging in prosocial activities with prosocial peers, and attending a safe and effective school is embedded in numerous protective factors. Research on protective factors is much less extensive than research on risk factors.

Previous treatments for violent substance-abusing adolescents were less than dramatically successful for a variety of reasons, foremost among these is that many treatments failed to comprehensively address the aforementioned systems affecting both adolescent violence and substance abuse. For example, an effective treatment must have the capacity to (a) address an adolescent's favorable attitude toward drug use and violence, (b) enhance adolescent's caregiver's capacity to monitor and discipline, (c) minimize the adolescent's involvement with deviant peers while enhancing involvement in prosocial peer activities (e.g., church, football, dance, after school clubs), and (d) improve the adolescent's school attendance, behavior, and academic performance. Thus, the individual's parents, peer groups, and school environments must be interfaced. Second, treatments failed because they were not sufficiently individualized to address the needs of the adolescent and his or her family. That is, one size does not fit all. Treatment must be tailored to the specific protective and risk factors of the adolescent and his or her environment context. For each adolescent, specific risk and protective factors (i.e., individual, family, peer, school, and community) related to substance use and violence must be emphasized to an appropriate degree. One adolescent may require extensive peer interventions to break the adolescent away from violent drug-using peers, whereas another adolescent may require treatment for his or her depression which may be a factor related to the adolescent's drug use and violence. Finally, treatments are not typically delivered in ecologies (e.g., home, school, community) where problem behaviors occur (i.e., are not ecologically valid). If the adolescent is influenced by peers, family, school, and neighborhood factors, then sending him or her to a residential treatment program will likely only provide a temporary reduction in violence and drug use because the adolescent will be returning to the same environmental contexts that support drug use and violence.

3. Clinical basis of the effectiveness of multisystemic therapy

One treatment that addresses the multiple determinants of adolescent violence as well as substance abuse is multisystemic therapy (MST). MST (Henggeler & Borduin, 1990;

Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998), a family- and community-based treatment approach, has produced favorable outcomes with violent and substance-abusing or -dependent adolescents. MST is based on Bronfenbrenner's social ecological model of behavior, which is highly consistent with findings on the correlates of adolescent violence and substance use. The success of MST is likely due to unique features, which are consistent with current research but contrast with current mental health practices. (1) In a comprehensive yet individualized fashion, MST addresses known determinants of clinical problems (i.e., individual, family, peer, school, community); (2) MST services have high ecological validity because they are delivered in the environments where problems occur; (3) MST uses ongoing extensive quality assurance mechanisms as opposed to the prevailing 'train and hope' approach typical of usual mental health services; and (4) MST integrates the best empirically based treatment models within a social ecological framework.

Importantly, MST has been extensively validated and cited as both an effective treatment for youth with violent behavior [Elliot, 1998; Surgeon General's report on youth violence (U.S. Department of Health and Human Services, 2001)] and as a promising adolescent substance abuse treatment (Bukstein, 2000; Liddle & Dakof, 1995; McBride, VanderWaal, VanBuren, & Terry, 1999; National Institute on Drug Abuse [NIDA], 1999; Stanton & Shadish, 1997; Waldron, 1997; Winters, 1999).

4. Clinical trials of MST with violent and substance-abusing juvenile offenders

Several clinical trials demonstrate the effectiveness of MST with violent and substance-abusing juvenile offenders. For example, 84 chronic juvenile offenders participated in a project conducted in Simpsonville, SC (Henggeler, Melton, & Smith, 1992). Fifty-four percent of the participants had been arrested for violent crimes and half of the remaining participants reported that they had committed no less than one violent crime during the previous 6 months prior to enrollment into the study (Henggeler, Melton, Smith, Foster, et al., 1993). Youth were randomly assigned to receive MST or usual services provided by the Department of Juvenile Justice (DJJ). Results indicated that MST was effective in reducing incarceration, violence, and crime activity. MST youth had significantly fewer rearrests (means 0.87 vs. 1.52) and weeks of incarceration (means 5.8 vs. 16.2) than youth who received usual services at 59-week post-referral. At 2.4-year follow-up (Henggeler, Melton, Smith, Schoenwald, & Hanley, 1993), the MST group had twice the percentage of youth who did not recidivate than the usual services group. The MST group reported less adolescent aggression with peers than the usual services group. The MST group also reported significantly less criminal activity and more family cohesion than the usual services group. This study demonstrated that MST could reduce the criminal activity of violent chronic juvenile offenders, while concurrently maintaining them in the community.

In a Columbia, Missouri project (Borduin et al., 1995), 200 chronic and violent juvenile offenders were randomly assigned to receive MST or individual therapy. These juvenile offenders had an extensive history of criminal activities. On average, they had 4.2 previous

arrests ($S.D. = 1.3$), and 63% of the participants had been previously arrested. At 4-year post referral follow-up, youth who completed MST had a significantly lower recidivism rate (22.1%) than youth who had completed individual therapy (71.4%). The arrest data were further examined with an analysis of arrest for violent crimes (i.e., rape, attempted rape, sexual assault, aggravated assault, assault and battery) at follow-up. Adolescents who participated in MST were significantly less likely to be arrested for violent crimes following treatment than adolescents who received individual therapy.

In another clinical trial, the role of treatment fidelity in the successful dissemination of MST with violent and chronic juvenile offenders was examined (Henggeler, Melton, Borduin, Scherer, & Hanley, 1997). One hundred and fifty-five adolescents were randomly assigned to receive MST or usual services provided by DJJ. Participants were at imminent risk of incarceration. At 1.7-year follow-up, high adherence to MST predicated favorable outcomes (i.e., fewer rearrests, less seriousness of rearrests, fewer days of incarceration) are consistent with findings of previous MST trials with violent and chronic offenders. Overall, it is clear that MST reduces adolescent violence.

Substance-related outcomes were also examined for participants in the Henggeler et al. (1992) and Borduin et al. (1995) studies and published in a single report (Henggeler et al., 1991). In the Henggeler et al. study, MST significantly reduced adolescent reports of alcohol and marijuana use at posttreatment. In the Borduin et al. study, substance-related arrests at a 4-year follow-up were 4% in the MST condition versus 16% in the comparison condition. These studies demonstrated that MST could reduce violence and substance use of chronic juvenile offenders. MST effect sizes were among the highest of those reviewed in a meta-analysis of family-based treatments of drug abuse (Stanton & Shadish, 1997).

The effectiveness of MST was further examined in a study with 118 juvenile offenders meeting DSM-III-R criteria for substance abuse or dependence and their families (Henggeler, Pickrel, & Brondino, 1999). Participants were randomly assigned to receive MST or services provided by the DJJ. MST reduced self-reported alcohol and marijuana use at posttreatment (Henggeler, Rowland, et al., 1999). However, urine screen results did not confirm youth self-reports of drug use and self-report results of alcohol and marijuana use were not maintained at 6-month posttreatment follow-up.

MST decreased incarceration by 46% and decreased total days in out-of-home placement by 50% at 6-month posttreatment follow-up (Schoenwald, Ward, Henggeler, Pickrel, & Patel, 1996). MST also increased youth attendance in regular school settings (Brown, Henggeler, Schoenwald, Brondino, & Pickrel, 1999). Additionally, 58 out of 58 families (100%) in the MST condition were retained in treatment for at least 2 months of services, and 57 out of 58 families (98%) received a full course of treatment of approximately 4 months with an average of 40 h of direct clinical contact with an MST therapist (Henggeler, Pickrel, Brondino, & Crouch, 1996). Effective strategies for engaging families in treatment are described in Cunningham and Henggeler (1999). Moreover, at 4 years posttreatment, MST participants (now young adults) demonstrated significant reductions in aggressive criminal behavior and had fewer positive tests for drug use based on urine screens than participants in the usual services condition (Henggeler, Clingempeel, Brondino, & Pickrel, 2002).

Because the Henggeler, Rowland, et al. (1999) study failed (i.e., urine screen results did not confirm youth self-reports of drug use, self-report results were not maintained at 6-month posttreatment follow-up) to garner outcomes typical of MST studies, several enhancements were made to the MST treatment protocol to more effectively address adolescent substance abuse. These enhancements were based on the work of Higgins and Budney et al. (Budney & Higgins, 1998; Budney, Higgins, Radonovich, & Novy, 2000; Higgins & Budney, 1993; Higgins, Wong, Badger, Ogden, & Dantona, 2000) who developed an effective empirically based treatment for adult cocaine abuse entitled “Community Reinforcement Approach” (CRA). CRA has strong empirical support, and it is theoretically compatible with MST. Key components of CRA are the following: (a) consistent tracking of substance use through frequent urine screens, with vouchers used as rewards for clean drug screens; (b) functional analyses of drug use to identify triggers for drug use; (c) self management plans consisting of cognitive behavioral interventions that focus on addressing the emotional, behavioral, and environmental triggers to drug use for the individual; and (d) development of drug avoidance skills. In contrast to MST, which focuses primarily on broader environmental risk and protective factors, CRA focuses very specifically on substance use. Pilot testing of an integration of MST and CRA was conducted in a randomized MST trial that evaluated the MST as an alternative to emergency psychiatric hospitalization (Henggeler, Rowland, et al., 1997, 1999; Henggeler et al., 2003) and in a quasi-experimental neighborhood-level intervention project (Randall, Swenson, & Henggeler, 1999).

Lessons learned from the pilot testing were incorporated into a currently ongoing National Institute of Drug Abuse and National Institute of Alcohol Abuse and Alcoholism funded randomized clinical trial to determine whether the integration of an intensive evidenced-based treatment model (i.e., MST) enhances the outcomes for juvenile drug court. Adolescents who meet DSM-IV criteria for substance abuse or dependency are randomly assigned to one of four conditions in the drug court study. One of the treatment conditions uses the integration of MST and CRA. Although formal analyses of this study have not been conducted, preliminary findings are among the strongest achieved in MST clinical trials. Significant treatment effects favoring MST conditions over usual services conditions (i.e., drug court and DJJ) have been observed for biological and self-report measures of substance use, incarceration, and externalizing symptoms.

5. Conclusion

This article illustrates the effectiveness of MST as a treatment for violent substance-abusing or -dependent juvenile offenders. Emerging data are exciting in that this interaction appears effective in reducing both problems. MST is a comprehensive yet individualized approach that addresses problem behaviors within ecologies in which they occur. MST has been extensively validated, and has been cited as both an effective treatment for youth with violent behavior and as a promising adolescent substance abuse treatment. Studies presented in the article demonstrate that MST can reduce violence and substance use of chronic juvenile offenders.

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