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Changes in maternal depression are associated with MST outcomes for adolescents with co-occurring externalizing and internalizing problems

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A B S T R A C T

The efficacy of Multisystemic therapy (MST) in treating adolescent aggression has been established, however, not all youth and their families benefit from MST. One reason for this treatment variability could be the failure to distinguish between different aggressive subtypes with different risk factors, developmental prognoses and treatment needs. We investigated whether changes in maternal depression over MST would lead to different outcomes for two aggressive subtypes: pure externalizers (EXT) and mixed externalizers/internalizers (MIXED). Forty-two EXT and 27 MIXED youth and their families underwent MST for six months. Maternal depression, youth externalizing and internalizing behaviour were assessed before and after MST. Results showed a marginally greater change in externalizing for EXT youth. In addition, reductions in maternal depression were related to successful treatment outcomes for MIXED youth only. Our findings have implications for MST clinicians, namely the importance of reducing depressive symptoms in mothers of MIXED youth to improve their outcomes.

Multisystemic therapy (MST) was developed to treat aggressive behaviour in adolescents by targeting some key predictors of serious violent behaviour that are found within the youth's family and ecological context. Randomized control trials have demonstrated the efficacy of MST (Borduin et al., 1995; Henggeler, Melton, & Smith, 1992; Leschied & Cunningham, 2002; Ogden & Halliday-Boykins, 2004), however, not all youth and their families benefit from this treatment (Littel, 2006). One reason for the variability in treatment outcome could be the failure to distinguish between subtypes of aggressive youth who undergo MST. At least two aggressive subtypes have been identified: children and youth who exhibit externalizing behaviour only (EXT) and children and youth who exhibit both internalizing and externalizing symptoms (MIXED). Epidemiological research has found that a large proportion of aggressive children and youth also exhibit co-occurring symptoms of internalizing behaviour (Gould, Bird, & Jaramillo, 1993). In addition, symptoms of conduct disorder and depression/anxiety co-occur at higher rates than would be expected by chance (Zoccolillo, 1992), and rates of co-occurrence between these two disorders increase in adolescence (Angold & Costello, 2001).

The distinction between these two subtypes is supported by research demonstrating that EXT and MIXED children and youth have distinct etiologies, long term outcomes and treatment responses (Capaldi, 1991, 1992; Capaldi & Stoolmiller, 1999; Cole & Carpentieri, 1990; Kovacs, Paulauskas, Gatsonis, & Richards, 1988). Studies have found that, compared to EXT children, MIXED children exhibited poorer academic performance, more substance abuse problems (Capaldi, 1991) and were more socially rejected or "controversial" with their peers (Cole & Carpentieri, 1990). Regarding outcomes, it has been found that

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MIXED youth tended to have more maladaptive developmental outcomes than EXT youth (Capaldi, 1992; Capaldi & Stoolmiller, 1999; Kovacs et al., 1988; Oland & Shaw, 2005). For example, MIXED children were more likely to have suicidal ideations, be arrested (Capaldi, 1992) and to affiliate with deviant peers and engage in delinquent behaviours (Talbott & Fleming, 2003) in adolescence. Regarding adult outcomes, Capaldi and Stoolmiller (1999) found that MIXED youth were more poorly adjusted than EXT youth as young adults. Finally, studies comparing treatment responses in the two subtypes have found that MIXED tended to fare better in Parent Management Treatment (PMT) than EXT children and youth (Beauchaine, Gartner, & Hagen, 2000; Beauchaine, Webster-Stratton, & Reid, 2005; Costin & Chambers, 2007; Kazdin & Whitley, 2006).

Taken together, there is some convincing evidence suggesting that MIXED and EXT youth represent two different subgroups. The risk factors leading to the distinctions between MIXED and EXT children and youth are less clear. In the current study, we explored whether maternal depression was a key factor that distinguished subtypes of aggressive adolescents. In addition, we examined whether changes in maternal depression following MST were related to aggressive outcome differently in the two subtypes.

Two studies have examined the possibility that maternal depression differentiates MIXED and EXT youth (Ge, Best, Conger, & Simmons, 1996; Kopp & Beauchaine, 2003). Kopp and Beauchaine (2003) reported higher levels of maternal depression in youth with co-occurring conduct disorder and depression (MIXED), compared to youth with conduct disorder only (EXT). Further, they found that as the severity of mothers' depression increased, so did the risk of children developing their own depressive symptoms. In another study, Ge et al. (1996) found that lower levels of maternal warmth and higher levels of hostility (affective parenting dimensions) increased the risk for co-occurrence of conduct disorder and depression in children, as compared with the risk for developing conduct disorder only or depression only.

One reason why maternal depression might be a risk factor for MIXED, but not EXT, youth could be the higher rates of internalizing problems among children of depressed mothers. Various mechanisms of transmission, including parenting style, discipline practices and genetics, have been identified to explain how a child with a depressed mother can become depressed themselves (for a review, see Goodman & Gotlib, 1999).

If maternal depression is a risk factor for the development of adolescents' MIXED symptomatology, it may be that a reduction in maternal depression following treatment is related to positive outcomes in MIXED youth. Several studies have examined the impact of reducing mother's depression on children's externalizing behaviour (Forman et al., 2007; Lee & Gotlib, 1991; Modell et al., 2001). However, results have been mixed: some studies have demonstrated that reducing maternal depression had a positive impact on children's externalizing problems (Modell et al., 2001), and others have failed to find an association (Forman et al., 2007; Lee & Gotlib, 1991). The mixed findings may be attributable to the fact that these studies did not distinguish between aggressive subtypes. Further, these studies investigated programs where the sole focus was to treat mother's depression (e.g., anti-depressant medication), and not the child's aggressive behaviour.

In MST, the goal is to treat adolescent aggression by intervening directly in the key social systems in which youth are embedded (i.e., family, peer group, neighbourhood). Processes and risk factors within these contexts are targeted and altered using empirically-based therapeutic interventions, for example, marital therapy, cognitive-behavioural therapy (CBT) and PMT. MST clinicians work closely with the youth's family to support and empower family members to change the factors that promote and maintain adolescent aggression. These factors can be found outside of the family context (e.g., deviant peers), however, often times they are found within the family context (e.g., negative parenting practices, poor family relations). A major strength of MST is that each youth and their family receive a unique treatment plan depending on their specific needs. For example, if a youth's mother is depressed, the MST clinician is trained to identify the depression as well as whether it is contributing to the child's problems (e.g., risk factor). If the mother's depression is indeed a risk factor, the clinician would then execute an empirically-validated treatment approach (e.g., CBT) to target the depression. The success of MST has been attributed to the highly individualized, comprehensive and intense nature of the treatment. In addition, MST therapists carry low caseloads, are available around-the-clock, are supervised weekly and strictly adhere to the nine treatment principles that operationalize MST (Rowland et al., 2000).

To date, there are no studies that have examined the impact of reductions in maternal depression on child behavioural outcomes in MST. However, some studies that have explored PMT as a prevention program for problems in at-risk children have examined the impact of improvements in maternal depression on child impairment (DeGarmo, Patterson, & Forgatch, 2004; Patterson, DeGarmo, & Forgatch, 2004; Shaw, Dishion, Connell, Wilson, & Gardner, 2009). Patterson et al. (2004) found that improvements in maternal depression were associated with positive externalizing outcomes, however, this association was mediated by improvements in child internalizing problems. DeGarmo et al. (2004) found that improvements in child antisocial behaviour preceded reductions in maternal depressive symptoms and, like the results in Patterson et al. (2004), this association was mediated by improvements in child internalizing behaviour. The authors also found that the association between changes in maternal depression and child externalizing behaviour was mediated by improvements in parenting skills. Finally, Shaw et al. (2009) found that reductions in maternal depression mediated improvements in child externalizing behaviour, however, this mediation effect was small in magnitude. Results of the PMT studies suggest a weak link between improvements in maternal depression and externalizing outcomes. The weak or mixed findings linking improvements in maternal depression and children's externalizing problems may be attributed, at least in part, to the lack of attention that has been paid to the heterogeneity of these children. Our aim was to address this gap by examining differences between subtypes.

The main objective of the present study was to explore maternal depression as a factor related to externalizing improvements over the course of MST in MIXED and EXT youth. Two hypotheses were tested: (1) it was expected that there would be higher rates of depression among mothers of MIXED compared to mothers of EXT youth at the beginning of