Variations in parental monitoring and predictions of adolescent prescription opioid and stimulant misuse

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HIGHLIGHTS

- Monitoring and warmth predicted youths' social ties and attitudes toward drug use.
- Social ties and attitudes predicted prescription opioid and stimulant misuse.
- Warmth and monitoring interacted on stimulant misuse for younger users.
- High monitoring with low warmth led to more misuse for younger users.
- Results from the 2012 NSDUH were cross-validated with data from the 2011 NSDUH.

ARTICLE INFO

ABSTRACT

Objective: This study examined relations between adolescents' family structures, social ties, and drug-related attitudes, and their misuse of prescription opioids and stimulants. Different relationships were anticipated for the substances based on prior research highlighting varying motivations for their use.
Method: Based on an earlier model of adolescent substance misuse, two path analytic models were tested using data from 12 to 17 year olds in the 2012 U.S. National Survey on Drug Use and Health (NSDUH: $N = 17{,}399$).
Results: Female respondents reported higher levels of parental warmth, as did youth from wealthier families. Greater parental monitoring was reported by adolescents from wealthier and intact families. Parental monitoring and warmth predicted adolescents' social ties and individual differences associated with drug use, and both variables predicted prescription opioid and stimulant misuse. Contrary to previous research, for adolescents aged 12 to 14, high levels of parental monitoring, while positively associated with attitudes and social ties, also predicted higher rates of prescription stimulant misuse when combined with low levels of parental warmth. Results were cross-validated with data from the 2011 NSDUH.
Conclusions: Analyses highlighted the importance of understanding and differentiating the underlying factors associated with adolescent prescription stimulant and opioid misuse, and the role of parental behaviors in prevention.

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1. Introduction

Adolescents' nonmedical use of prescription medications (NUPM) has become an escalating public health concern in the United States. Prescription opioids (e.g., Vicodin, Oxycontin) and stimulants (e.g., Ritalin, Adderall) are among the most commonly used types of prescription medications (NIDA, 2012), and millions of 12–18 year olds misuse them recreationally each year (SAMHSA, 2013). Although legal, prescription medications' high potential for abuse combined with their easy access has captured the attention of many prevention scientists (e.g., Cranford, McCabe, & Boyd, 2013; McCabe & Boyd,

2012; McCabe & Cranford, 2012; McCabe, Teter, & Boyd, 2004, 2006; Nakawaki & Crano, 2012), as their misuse is not only detrimental to health, but can lead to death (Gould et al., 2009).

Problem behavior theory (PBT; Jessor, 1992; Jessor & Jessor, 1977) provides a framework to research adolescent NUPM. The theory holds that problem behavior emerges as a function of three integrated psychosocial systems: the personality, perceived environment, and behavior systems. PBT has been used to investigate youths' susceptibilities to many problem behaviors, including substance use (Donovan, 1996; Jessor, 1987). Hemovich, Lac, and Crano (2011) used PBT to model the association of individual and environmental factors with adolescents' alcohol, cigarette, and marijuana use. Their analyses revealed that adolescents' perceived levels of parental monitoring and warmth predicted the conventionality of their friendship groups and their drug-relevant attitudes, which anticipated substance use or abstinence one year later.

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In the perceived environment system, adolescent drug use is theoretically affected by family structure (i.e., dual-, single-, or neither-parent household) and family income (Rankin & Wells, 1994). Youth living with only one parent tend to be more resource deprived (Snyder, McLaughlin, & Findeis, 2006), more vulnerable to peer influence (Hoffman, 1995), experience less parental supervision (Astone & McLanahan, 1991), and to have weaker emotional connection with parents (Amato, 2005) than adolescents from dual parent families.

Average family income is significantly lower in single-parent households, and also predicts adolescent substance misuse (Bachman, Coley, & Carrano, 2012). Hemovich et al. (2011) suggested that the financial stress associated with single-parent family arrangements often required custodial parents to work, rendering them less available to monitor children. In addition, they identified sex as an indirect predictor of drug use, as boys experienced lower levels of monitoring and supervision. Income also may be associated with parental warmth, as distressed parents have been shown to be less engaged and affectionate during parent–child interactions (Mistry, Vandewater, Huston, & McLoyd, 2002).

Problem behaviors may result from these factors, as parental monitoring and warmth mitigate youths' engagement in many delinquent behaviors (Crano, Gilbert, Alvaro, & Siegel, 2008; Lac, Alvaro, Crano, & Siegel, 2009; Lac & Crano, 2009). Poor parental monitoring is predictive of many negative youth outcomes, including maladjustment (Kerr & Stattin, 2000), association with deviant peers (Snyder, Dishion, & Patterson, 1986), and poor performance in school (Crouter, MacDermid, McHale, & Perry-Jenkins, 1990). Low parental warmth is linked to adolescents' inability to express positive emotions effectively (Davidov & Grusec, 2006), psychological instability (Suchman, Rounsaville, DeCoste, & Luthar, 2007), and emotional distress (Operario, Tschann, Flores, & Bridges, 2006).

Adolescents' social environments also play crucial roles in the perceived environment system. Peer influence typically increases during adolescence, but some circumstances may encourage youth to become especially reliant on peers to determine normatively appropriate behavior (Andrews, Tildesley, Hops, & Li, 2002). Poorly monitored youth may be more likely to acquire tolerant beliefs toward peer substance use (Martino, Collins, Ellickson, Schell, & McCaffrey, 2006), to have close friends who use drugs (Prinstein, Boergers, & Spirito, 2001), and to initiate or increase substance use when associating with substance using peers (Kandel, Kessler, & Margulies, 1978).

Sensation seeking, characterized as a need for experiences that are varied, novel, complex, and intense (Zuckerman, 2007, p. 49), falls under PBT's personality system. It has been linked to many dangerous behaviors, including hazardous driving (Dahlen, Martin, Ragan, & Kuhlman, 2005), binge drinking (Johnson & Cropsey, 2000), illicit substance use (Donohew et al., 1999), and NUPM (Weyandt et al., 2009). Other risk factors from PBT's personality system include unfavorable school attitudes, poor academic motivation and achievement, and low perceptions of behavioral risk, all of which have been related to substance use (e.g., Hallfors et al., 2002; Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2014; Siegel et al., 2014). A related risk factor from the behavioral system is adolescent delinquency, which has been identified as a strong predictor of substance use (D'Amico, Edelen, Miles, & Morral, 2008). Presumably, adolescents engaged with school are less likely to be distracted by delinquent behavior and substance use (Brophy, 1996).

The current study was designed to test whether the PBT-based model Hemovich et al. (2011) used with cigarettes, alcohol, and marijuana might also fit nonmedical use of prescription opioids and stimulants. Research suggests marked differences in motivation for nonmedical use of prescription opioids versus prescription stimulants. Prior studies suggest that prescription opioid misuse may be motivated predominantly by pain relief, coping with stress, aiding sleep, reducing depression and anxiety, and getting high (Boyd, McCabe, Cranford, & Young, 2006; Boyd, Young, Grey, & McCabe, 2009; McCabe, Boyd,

Cranford, & Teter, 2009; McCabe & Cranford, 2012), many of which are substantially similar to motivations for cigarette, alcohol, and marijuana use (Comeau, Stewart, & Loba, 2001). As such, Hemovich et al. (2011) model is expected to fit for prescription opioid misuse.

In contrast, prescription stimulant misuse typically is motivated by a desire to increase concentration, alertness, and energy, and to stay awake (Boyd et al., 2006, 2009; McCabe & Cranford, 2012). Moreover, although parental involvement can attenuate illicit drug use, research suggests that parental pressures, expectancies, and behaviors sometimes may exacerbate problematic substance use (Lamb & Crano, 2014; Miller, Siegel, Hohman, & Crano, 2013). Achievement-oriented psychological control (APC; Soenens, Vansteenkiste, & Luyten, 2010) refers to parenting behavior that negatively affects healthy adolescent development. Parents high in APC view poor performance as a threat to their self-worth and pressure their children to excel academically. They communicate unrealistic demands for achievement and manipulate youth when they fail to achieve academic success (Soenens et al., 2010). APC is related to several problems in adolescence, including anxiety (Duchesne & Ratelle, 2010), self-criticism (Soenens et al., 2010), depression (Barber, 1996), low self-esteem (Barber & Harmon, 2002), and delinquency (Pettit, Laird, Bates, Dodge, & Criss, 2001). Parents who monitor their children closely and continually pressure them to attain unrealistic academic standards may unintentionally increase the likelihood of their child's misusing prescription stimulants to improve academic performance. As such, much of Hemovich et al. (2011) model would remain intact, but high parental monitoring also may directly increase the odds of adolescent stimulant misuse, whereas it would not for opioids. Teter, McCabe, Boyd, and Guthrie (2003) indirectly supported this hypothesis; their study showed that students with higher family incomes reported higher rates of nonmedical stimulant use. Since high family income is associated with higher levels of parental monitoring (Hemovich et al., 2011), Teter et al. (2003) results indirectly support the possibility that strong parental monitoring may foster adolescents' predispositions to misuse prescription stimulants.

2. Method

A series of path analyses were fitted using the 2012 National Survey of Drug Use and Health (NSDUH), each a representative cross-sectional sample of noninstitutionalized, community-dwelling civilians aged 12 and older in the United States. The NSDUH uses a multistage area probability design with demographic stratification. Sampling weights allow post-stratification adjustments for nonresponse and coverage. More information about the study's design and data collection procedures may be found elsewhere (SAMHSA, 2013).

The NSDUH measures encompass variables related to risk and protective factors for substance use (Hawkins, Catalano, & Miller, 1992) drawn from multiple sources, including the Monitoring the Future survey (e.g., Johnston, O'Malley, Schulenberg, & Bachman, 2006), the Connecticut Substance Abuse Prevention Student Survey (e.g., Delaronde, Cook, Ungemack, & Stanger, 1997), and instruments developed by the Social Development Research Group (e. g. Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002). Measures used in NSDUH have been used broadly in previous studies and have demonstrated reliability and validity (SAMHSA, 2010). In this study, mean composites were created for parental monitoring, parental warmth, social ties, and interpersonal factors. Summary information for all measures and their use in prior studies is outlined in Table 2.

Since adolescents undergo considerable developmental change across this age range that may differentially affect risk and protective factors, the sample was split into smaller age groups. To avoid reducing sample sizes too dramatically, the sample was split into a younger group aged 12–14 and an older group aged 15–17, for which models were fitted separately. Owing to the complex sampling scheme, probit path analyses were weighted and conducted using the WLSMV estimator in Mplus 7.2. To test the model used by Hemovich et al. (2011), separate