Addictive Behaviors 37 (2012) 605–612

Contents lists available at SciVerse ScienceDirect

Addictive Behaviors

Parent–adolescent conflict interactions and adolescent alcohol use

Tara M. Chaplin [a,*], Rajita Sinha [a], Jessica A. Simmons [a], Stephen M. Healy [a], Linda C. Mayes [b], Rebecca E. Hommer [b], Michael J. Crowley [b]

[a] Department of Psychiatry, Yale University School of Medicine, 2 Church St. South, Suite 209, New Haven, CT 06519, USA
[b] Yale Child Study Center, Yale University School of Medicine, 230 S. Frontage Rd., New Haven, CT 06519, USA

ARTICLE INFO

Keywords:
Alcohol use
Adolescence
Emotion
HPA axis
Parent–child interaction
Parenting

ABSTRACT

Objective: One important factor in adolescents' development of problem alcohol use is their family environment. Yet, the mechanisms that relate parenting to youth alcohol use are not well characterized. This study employed a naturalistic laboratory-based approach to observe parenting behaviors (support, structure, criticism) and adolescents' physiological and emotional responses to parent–adolescent interactions to examine associations with adolescent alcohol use.

Method: Fifty eight 10–16 year olds and their parents completed a 10 minute Parent Adolescent Interaction Task (PAIT) in which they discussed a mutually highly-rated conflict topic. Parental support, structure, and criticism were coded from the interaction. Adolescents' heart rate (HR), blood pressure (BP), reported emotions, and salivary cortisol were assessed before, during, and after the interaction.

Results: Findings indicated that lower parental structure and support were associated with youth's greater diastolic BP and anger arousal in response to the PAIT. Furthermore, higher HR, systolic BP, and cortisol responses to the interaction were associated with youth's alcohol use.

Conclusions: Findings suggest that heightened emotional and physiological responses to parent–adolescent conflict interactions in youth may be one pathway by which parenting is associated with adolescent alcohol use and risk for abuse.

1. Introduction

Adolescence is a period of risk for the development of alcohol and substance use disorders (Chambers, Taylor, & Potenza, 2003). National survey data indicate that one month rates of alcohol use increase from 15.9% in 8th grade to 28.8% in 10th grade to 43.1% in 12th grade (NIDA, 2009). Binge drinking (>=5 drinks per occasion) and heavy drinking also increase sharply across middle adolescence (see Masten, Faden, Zucker, & Spear, 2008).

One important factor in adolescents' development of problem alcohol use is their family environment. Several questionnaire studies have found that a family history of alcohol abuse and poor self-reported parenting are linked with youth alcohol use/problem use (e.g., Chassin, Flora, & King, 2004; Tildesley & Andrews, 2008). Specifically, lower levels of parental monitoring, structure/appropriate discipline, and warmth/support have been associated with increases in alcohol use and problem use over time in adolescence (Barnes, Reifman, Farrell, & Dintcheff, 2000; Clark, Thatcher, & Maisto, 2005; Dodge et al., 2009; Johnson & Pandina, 1991; Tildesley & Andrews, 2008; van der Vorst, Engels, Meeus, & Dekovic, 2006).

Despite the established link between parenting and adolescent alcohol use, the mechanisms by which poor parenting relate to youth's alcohol use are not well characterized. We theorize that adolescents' emotional and physiological arousal responses to family interactions may help explain links between negative parenting and youth alcohol use. We propose that negative, critical, and unsupportive parenting may lead adolescents to feel uncomfortable and emotionally and physiologically aroused in family interactions. In turn, this discomfort may create risk for behaviors that diminish discomfort, such as use of alcohol. In addition, youth who feel overly aroused by family discussions may avoid these discussions, leading to less close family relations, decreased parental monitoring, and risk for alcohol use. There may also be reciprocal child effects, in which adolescents who use alcohol elicit more negative parenting, which then leads to greater negative arousal. The present study examines cross-sectional associations between parenting behaviors, youth arousal responses, and adolescent alcohol use to begin to characterize the parenting behaviors and youth arousal responses that are linked to adolescent alcohol use.

Studies in early and middle childhood find that children's altered physiological responses (e.g., cortisol, heart rate variability) to family conflict interactions are linked to externalizing and internalizing behavior problems (e.g., Erath, El-Sheikh, & Cummings, 2009; Granger,

* Corresponding author. Tel.: +1 203 737 5201; fax: +1 203 737 1272.
E-mail addresses: tara.chaplin@yale.edu (T.M. Chaplin), Rajita.sinha@yale.edu (R. Sinha), Jessica.simmons@yale.edu (J.A. Simmons), Stephen.healy@yale.edu (S.M. Healy), Linda.mayes@yale.edu (L.C. Mayes), Rebecca.hommer@yale.edu (R.E. Hommer), michael.crowley@yale.edu (M.J. Crowley).

0306-4603/$ – see front matter © 2012 Elsevier Ltd. All rights reserved.
doi:10.1016/j.addbeh.2012.01.004

Weisz, McCracken, Ikeda, & Douglas, 1996). These behavior problems and associated personality traits such as hopelessness, anxiety sensitivity, and impulsivity in childhood are predictive of alcohol use in adolescence, (Krank et al., 2010; Mayzer, Fitzgerald, & Zucker, 2009). However, although altered physiological responses to family interactions are found in young children with behavior problems, and behavior problems are associated with alcohol use, few studies have explicitly examined associations between physiological arousal responses to family conflict interactions and alcohol or substance use in adolescence. The only study of observed parent–adolescent interactions and substance use to our knowledge found that substance-using adolescents showed greater aversive affect (such as aggressive and irritable affect) when discussing conflict and substance use topics with parents, suggesting that these youth are emotionally aroused by the interactions (Hops, Tildesley, Lightensten, Ary, & Sherman, 1990).

Here we report on a laboratory-based study examining observed parenting behaviors (support, structure, criticism) in parent–adolescent conflict interactions, adolescents' emotional, cardiovascular (heart rate, blood pressure), and hypothalamic pituitary adrenal (HPA) axis response to these interactions and current alcohol use in adolescents. First, we predicted that the parent–adolescent conflict task would produce an increase in emotional, cardiovascular, and HPA axis arousal in the youth as a whole. Second, we hypothesized that lower support, lower structure, and greater criticism/negative parenting behaviors in the task would be associated with greater emotional, cardiovascular, and HPA axis arousal responses to the task in the adolescents. Third, we proposed that greater emotional, cardiovascular, and HPA axis arousal responses would be positively associated with adolescent alcohol use.

2. Material and methods

2.1. Participants

Participants were 58 primarily Caucasian 10–16 year olds (31 boys, 27 girls) and their parents. Demographic information on the participants is shown in Table 1. Parents were mostly biological mothers (51, 87.9%), with 1 adoptive mother, 5 biological fathers, and 1 maternal grandmother. Families were recruited through newspaper ads, flyers, and mailings to families with adolescents in a metropolitan area in the Northeastern United States.

Table 1
Demographic and alcohol use information.

Race: Number (%) in each group	
Caucasian	41 (70.7%)
Hispanic	5 (8.6%)
Asian	2 (3.4%)
Native-American/Alaska Native	3 (5.2%)
Biracial	1 (1.7%)
Other race	2 (3.4%)
Not reported	4 (6.9%)
Family Income: Number (%) in each level	
< $15,000/year	2 (3.4%)
$15,000–24,000/year	2 (3.4%)
$25,000–34,000/year	2 (3.4%)
$35,000–44,000/year	1 (1.7%)
$45,000–59,000/year	3 (5.2%)
$60,000–74,000/year	11 (19.0%)
> $75,000/year	28 (48.0%)
Don't know	2 (3.4%)
Not reported	7 (12.0%)
Sex: Number (%) male	31 (53.4%)
Child's Age: Mean (SD) years	13.02 (1.92)
Lifetime alcohol use: Number (%) used	12 (20.7%)
Number of days used in lifetime: Number and% of users	
1–2 days	3 (25.0%)
3–9 days	3 (25.0%)
10–19 days	4 (33.3%)
20–39 days	1 (8.3%)
40–99 days	1 (8.3%)
Past 30 day alcohol use: Number (%) used	5 (8.6%)

2.2. Procedures

Adolescents attended three sessions, each spaced about one week apart. In the first session, youth completed questionnaires, computer tasks, and interviews assessing cognitive and emotional functioning, psychological symptoms, and alcohol and substance use. During the second session, adolescents completed alcohol breathalyzer screens and urine screens to confirm alcohol and substance use reports and then completed an EEG study of neural correlates of stress-induced reward behavior and decision-making. In the third session, the focus of this report, adolescents and primary caregivers completed the Parent–Adolescent Interaction Task (PAIT) as well as alcohol breathalyzer and urine drug screens. Informed parental consent and adolescent assent were obtained, and the study protocol was approved by the university's Institutional Review Board.

2.2.1. PAIT session

The Parent Adolescent Interaction Task (PAIT) sessions were scheduled in the late afternoon (4:00 p.m.). Adolescents were asked to have a snack 30 min to 1 h prior to the start of the session and were not allowed to eat during the session. Youth were asked to refrain from alcohol or drug use prior to the session to control for acute drug effects on physiology and HPA axis functioning. Youth completed alcohol breathalyzer and urine drug screens on the day of the session and all were negative. Girls who were menstruating regularly (N = 10) were scheduled for the PAIT laboratory visit during days 5–10 of their cycle to minimize hormone effects.

Adolescents and parents arrived at the session 1/2 hour early (3:30 p.m.). Upon arriving, adolescents and parents went to two separate laboratory rooms and met with separate trained research assistants (referred to as “parent RA” and “child RA” throughout). Adolescents and parents were seated in comfortable chairs. They completed breath and urine tests and then completed the Issues Checklist (IC; Prinz, Foster, Kent, & O'Leary, 1979), a checklist of common family conflict topics (e.g., cleaning bedroom). Participants endorsed topics discussed in the past month and the anger level they felt during the discussion (on a scale from 1 to 5). This checklist has been used in previous research on parent–adolescent conflict interactions (Sheeber, Hops, Alpert, Davis, & Andrews, 1997).

At 4 p.m., there was a 25-minute adaptation/relaxation period. A blood pressure cuff was placed on each participant's preferred arm and a pulse sensor on a finger. Participants listened to two 5-minute relaxation tapes which led them through progressive muscle relaxation and relaxing imagery. At 4:25 p.m., baseline (“pre-task”) heart rate (HR), blood pressure (BP), reported emotion, and salivary cortisol measurements were collected from the parent and adolescent. HR was measured every 10 s for 1 min (and then averaged) to calculate a stable baseline.

At 4:30 p.m., the parent was brought into the adolescent's room and seated next to him/her. The PAIT was performed, as described below. The PAIT procedure lasted 10 min. During the PAIT, the child RA recorded parent and adolescent HR every 30 s. After the PAIT, parents returned to their rooms. Measures of HR, BP, reported emotion, and salivary cortisol were taken immediately post-task and then every 15 min through a recovery period of 60 min.

2.2.2. PAIT procedure

The PAIT task was based on family conflict tasks used in previous research on adolescent emotion regulation and depression (e.g., Sheeber et al., 1997). For the task, the parent and adolescent had a 10-minute discussion about a conflict topic. The dyad was asked to discuss their mutual highest-rated conflict issue from the Issues Checklist. If the parent and adolescent chose different top-rated