

# Research In Brief

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## Maternal Cocaine Use and Caregiving Status: Group Differences in Caregiver and Infant Risk Variables

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**T**his study examined potential differences in maternal and infant characteristics between cocaine and non-cocaine-using mothers, and between cocaine-exposed infants in parental care and those in non-parental care (e.g., family member's or foster care). Maternal and infant characteristics examined were demographics, infant growth outcomes, maternal substance use, and caregiver childhood trauma and psychiatric symptoms.

Participants consisted of 220 mother-infant dyads (115 cocaine-exposed and 105 non-cocaine-exposed) who were recruited into an ongoing longitudinal study of maternal substance use and child development. By eight weeks of age, 22 cocaine-exposed infants (19 percent) had been removed from parental care. Approximately 72 percent of these infants were placed in foster care with the remainder being cared for by a grandmother or maternal aunt.

### Findings

There were findings in three areas: demographics and infant growth outcomes, maternal substance use, and caregiver childhood trauma and psychiatric symptoms.

- Demographics and Infant Growth Outcomes
  - Biological mothers in the non-cocaine-using group were younger and had fewer children compared to biological mothers in the cocaine-using group who did not retain custody of their children.
  - Biological mothers in the non-cocaine-using group and foster mothers of cocaine-exposed children were more

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## Evaluation of a Single-session Expectancy Challenge Intervention to Reduce Alcohol Use among College Students

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**A**lcohol expectancies -- beliefs individuals have about the effects of alcohol -- influence people's drinking behaviors. Positive expectancies predict when young people initiate drinking as well as whether they develop drinking problems. These expectancies and beliefs about the positive effects of alcohol may be modified in an attempt to change drinking behavior. The goal of this study was to develop and evaluate a single-session Expectancy Challenge intervention. The intervention was geared to reducing alcohol use by changing key positive expectancies among moderate to heavy drinking male and female college students.

College students were assigned to one of three conditions: the Expectancy Challenge intervention, Alcohol Education or Assessment-only. Participants completed assessments prior to and following the intervention and one month later.

### Findings

- Changes in Alcohol Expectancies
  - Participants in the Expectancy Challenge intervention showed a reduction in their belief in alcohol's ability to enhance social interaction and assertiveness, as well as in their belief that alcohol is a global, positive transforming agent.
  - Changes in beliefs about the effects of alcohol were associated with significant decreases in alcohol involvement.
- Changes in Alcohol Consumption
  - There was a significant reduction in typical weekly alcohol use from pretest to one-month follow-up for both men

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educated and had higher levels of occupation than biological mothers in the cocaine-using group who retained custody of their children.

- There was a significant effect of group status on infant risk: Cocaine-exposed infants in foster care had lower gestational age and birth length than those in the control group. Cocaine-exposed infants in both groups had lower birth weight compared to those in the control group. Among cocaine-exposed infants, those in foster care had lower birth weight compared to those in the care of their biological parents.
- Maternal Substance Use
  - Mothers with children in foster care were heavier users of cocaine during pregnancy compared to cocaine-using mothers who retained custody of their children, but they did not differ from other caregivers in terms of alcohol use or cigarette smoking.
  - Mothers of cocaine-exposed infants who retained custody of their children were heavier users of cigarettes and alcohol compared to the other caregivers. There were no group differences in marijuana use during pregnancy.
  - A small number (15 percent) of mothers who used cocaine during pregnancy and retained custody of their children smoked more cigarettes in the postnatal period compared to foster mothers or biological mothers who had not used cocaine.
- Caregiver childhood trauma and psychiatric symptoms
  - Cocaine-using mothers who retained custody of their children reported higher levels of childhood emotional abuse, sexual abuse and emotional neglect compared to foster mothers.
  - Cocaine-using mothers who retained custody of their children had higher Post Traumatic Stress Disorder symptoms, higher antisocial behavior and higher levels of anger/hostility compared to foster mothers or non-cocaine-using biological mothers.
  - Foster mothers had the lowest levels of psychological symptoms compared to all biological mothers and the lowest levels of anger/hostility.

### Participants and Procedure

The study consisted of 220 women and their infants. Biological mothers ranged in age from 18 to 42; 30 was the average age. The majority of the mothers were African American (72 percent), were receiving Temporary Assistance for Needy Families (70 percent) and were single (60 percent). Forty-seven percent of the infants were male. Eighty-six percent of the cocaine-exposed infants and 97 percent of the non-cocaine-exposed infants were full term (>37 weeks).

All mothers were approached by study staff at two Buffalo, N.Y.-area hospitals and invited to participate in a study of maternal health and infant development. The adult who had legal guardianship of the child and accompanied the infant to the first visit to RIA was considered the primary caregiver. Maternal interviews and infant assessments were conducted when the infant was four-to-eight weeks old (at age corrected for premature birth).

Three measures of growth were used in the study: birth weight in grams, birth length in centimeters and head circumference in centimeters. The measurements were taken by an obstetrics nurse in the delivery room and recorded in the infant's medical chart which research staff later had permission to read.

Cocaine use was determined by a combination of maternal report, urine toxicology, chart review and maternal hair analysis. Approximately 55 percent of the mothers in the cocaine-using group had positive urine toxicologies at delivery and 79 percent had hair samples that tested positive for cocaine during pregnancy. Mothers were recruited into the non-cocaine-using group if they reported not having used any illicit substances other than marijuana and did not test positive on toxicology screens for other illicit substances. Continuous measures of substance use were made before, during and after pregnancy using the Timeline Follow-Back Interview (TLFB; Sobell et al., 1986). This is a well-established self-report measure using a calendar method to aid recall. The TLFB yielded data about the number of days of cocaine use, number of cigarettes smoked, number of marijuana joints smoked, number of standard drinks and alcohol binges (five or more drinks) for each trimester and in the postnatal period.

Women reported on their childhood experiences of emotional, physical and sexual abuse, as well as emotional and physical neglect. Psychiatric symptoms were measured by a self-report instrument that yielded information about symptoms of anxiety, hostility, obsessive-compulsiveness, depression, etc. Other questionnaires measured maternal anger and hostility, subjective distress for specific life events and antisocial behavior.

### Discussion

The major purpose of this study was to examine potential differences in maternal and infant characteristics between cocaine-using and non-cocaine-using mothers, and within the cocaine-using group, between infants in parental and non-parental care and caregivers of these infants.

Within the cocaine-exposed groups, cocaine-using mothers who retained custody of their children were less educated and at a lower occupational level than foster mothers. Cocaine-exposed infants in foster care were more biologically vulnerable compared

## Evaluation of a Single-session Expectancy Challenge Intervention (cont'd)

and women in the Expectancy Challenge intervention. Specifically, men reduced drinking by five standard drinks (34 percent reduction) and women reduced drinking an average of two standard drinks (24 percent reduction) per week.

- There was a significant reduction in the frequency of heavy episodic drinking with the Expectancy Challenge intervention. Follow-up tests showed that both men and women exhibited a decrease, with an average reduction from an average of about 1.25 days of heavy episodic drinking per week to less than one day (.8) per week at follow-up (35 percent reduction).
- The Alcohol Education and Assessment-only participants did not show any significant reductions in alcohol consumption.

### The Interventions

The Expectancy Challenge intervention session, based on the procedure by Darkes and Goldman (1993, 1998), was abbreviated into a single session and adapted to accommodate differences in expectancies between men and women. With prior consent, an experience was provided in which two alcoholic or placebo drinks were served to each participant without informing them as to which they had received. To simulate typical drinking situations, a social party game was introduced while drinks were served. Then, participants were asked to indicate whether they or anyone else in the group had been drinking alcohol, and if affirmative, why they believed this. Participants were often inaccurate in their assessments of others' behaviors. When the bartender (a researcher) subsequently revealed who in the group had received alcohol, participants found it had not been easy to determine. This experience then transitioned into an interactive discussion of the expected and pharmacological effects of alcohol. The session ended with a breath analysis and no participants left with a blood alcohol concentration greater than .02.

Alcohol Education participants completed a session of the interactive psycho-educational CD-ROM program, Alcohol 101. The program, developed by The Century Council and the University of Illinois, Urbana-Champaign, is designed to educate students about the effects of alcohol misuse and what constitutes "normal" drinking among their peers.

The Assessment-only session consisted of individuals with similar drinking practices to the other two conditions, and they engaged in neutral group tasks during the activity period.

### Participants and Procedure

Participants were recruited for a study on "college student drinking" from undergraduate psychology courses at a large state university. Students were selected for the study if they reported a history of two or more heavy episodic drinking occasions in

the previous 30 days, consumed five or more (but fewer than 40) standard drinks weekly and had no history of treatment for alcohol problems. Heavy episodic drinking was defined as consuming five or more standard drinks for men, four or more for women, in one sitting (Wechsler et al, 1994). Of the 914 students initially screened for the study, 239 met the criteria and attended the first meeting; the final number of participants who completed all follow-ups was 217. The average age was 20 years. Forty-one percent were freshmen, 22 percent were sophomores, 28 percent were juniors and nine percent were seniors. They were primarily white (76 percent) and Hispanic (13 percent).

Measurement tools used in the study included the Timeline Follow-Back procedure developed by Sobell and Sobell (1992) to establish typical drinking. The Alcohol Expectancy Questionnaire developed by Brown and colleagues (1980) is a 69-item instrument used to assess the positive effects of alcohol with subscales including Global Positive Changes and Social Assertiveness.

Pre-test measures on drinking and expectancies were administered immediately prior to the first session. Expectancies were assessed again immediately following the session and at one-month follow-up. One month of follow-up drinking data was obtained using weekly telephone interviews.

### Discussion

Drinking reduction was greatest among the Expectancy Challenge intervention participants. Significant reductions in typical weekly drinking and frequency of heavy episodic drinking were observed in both men and women. Changes in expectancies were also evident. In the Expectancy Challenge condition, both genders showed a reduction in their perception of alcohol's ability to enhance social interaction and assertiveness, as well as in their belief that alcohol is a global, positive agent of transformation. This suggests that the intervention was successful in challenging participant beliefs that the increased sociability and general positive effects they had experienced while drinking were not necessarily due to the pharmacological properties of alcohol, but were also the result of their anticipation of these outcomes. Overall, the single-session Expectancy Challenge intervention successfully modified participant beliefs or expectancies of the positive effects of alcohol and subsequently produced decreases in alcohol involvement for both genders.

This study represents an important step in the process of translating an innovative, theory-based intervention into a more practical format, making it more accessible to those seeking effective drinking-reduction strategies for college campuses. Future efforts might explore the relative effectiveness of Expectancy Challenge in different settings and with other high-risk groups.

## Maternal Cocaine Use and Caregiving Status (cont'd)

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to the other groups as indicated by lower birth weight and heavier exposure to cocaine in utero. However, these infants experienced the lowest levels of exposure to cigarette use by caregivers in the postnatal period and did not have caregivers who used cocaine postnatally.

Results suggest that non-parental caregivers of cocaine-exposed infants have significantly fewer psychiatric symptoms in a number of domains compared to cocaine-using mothers who retain custody of their children. Also, cocaine-using mothers who retained custody of their children reported significantly higher levels of childhood abuse and emotional neglect compared to foster mothers.

### Implications

- The finding that cocaine-using mothers who retain custody of their children have significantly higher childhood trauma and psychiatric symptoms has significant implications for treatment or clinical intervention. These women would benefit from treatment plans that combine substance abuse and psychiatric symptom treatment. Decreases in maternal psychiatric symptoms would be associated with better caregiving experiences for the infant, leading to more positive developmental outcomes.
- Cocaine-using mothers who retained custody of their children smoked more cigarettes after delivery. Treatment for smoking cessation would both improve maternal health and alleviate the significant effects of environmental tobacco exposure on infant health and development.

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### References

- Sobell, M. B., Sobell, L. C., Klajner, F., Pavan, F., & Basian, E. (1986). The reliability of a timeline method for assessing normal drinker college students' recent drinking history. *Addictive Behaviors, 11*, 149-162.

## Evaluation of a Single-session Expectancy Challenge Intervention (cont'd)

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### Implications

- The study demonstrated the utility of the Expectancy Challenge intervention in reducing drinking among women college drinkers, as has been shown in several past studies with men.
- Beliefs about sociability and global positive effects of alcohol may be critical in modifying drinking behaviors among men and women college student drinkers.
- The present one-session intervention is more pragmatic than is the original multiple-session format. It requires fewer resources, is easier for prevention personnel to disseminate and may help facilitate participant recruitment and retention.
- The current findings should be interpreted with caution. The brief follow-up period only permits conclusions about the intervention's impact on short-term changes in drinking behavior. Future studies should extend the follow-up period. Also, this study excluded individuals with a history of substance abuse treatment or extreme drinking practices and so generalization to these individuals may be limited.

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### References

- Brown, S. A., Goldman, M. S., Inn, A., & Anderson, L. (1980). Expectancies of reinforcement from alcohol: Their domain and relation to drinking patterns. *Journal of Consulting and Clinical Psychology, 48*, 419-426.
- Darkes, J., & Goldman, M. S. (1993). Expectancy challenge and drinking reduction: Experimental evidence for a mediational process. *Journal of Consulting and Clinical Psychology, 61*, 344-353.
- Darkes, J., & Goldman, M. S. (1998). Expectancy challenge and drinking reduction: Process and structure in the alcohol expectancy network. *Experimental and Clinical Psychopharmacology, 6*, 64-76.
- Sobell, L. C., & Sobell, M. B. (1992). Timeline follow-back: A technique for assessing self-report alcohol consumption. In R. Z. Litten & J. P. Allen (Eds.), *Measuring alcohol consumption: Psychology and biochemical methods*. Totowa, NJ: Humana Press.
- Wechsler, H., Davenport, A., Dowdall, G., Moeykens, B., & Castillo, S. (1994). Health and behavioral consequences of binge drinking in college: A national survey of students at 140 campuses. *Journal of the American Medical Association, 272*, 1672-1677.