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Smoking as an early risk factor for problematic parenting practices

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Abstract

Parenting among those who use non-illicit and more common drugs such as cigarettes remains an understudied area for investigation. Secondary data analyses were performed in 2015 on a prospective study with parent and twin data available on $n=3,009$ individual members of female twin pairs born between July 1975 and June 1985 identified from Missouri-state birth records. Maternal smoking when the twins were 3+ years of age remained a significant predictor of offspring report of childhood sexual abuse (OR, 1.40; 95% CI, 1.02-1.92) after controlling for key covariates. Given limited public health resources, mothers who smoke during child's preschool years may be targeted for tailored parenting intervention.

Keywords: Early childhood; parenting; maltreatment; smoking; maternal

Introduction

A number of studies have reviewed parenting of young children by mothers with alcohol and illicit substance dependence (1). However, parenting among those who use non-illicit and more common drugs such as cigarettes is less well investigated (2,3). A key challenge in studying parenting practices among substance-abusing parents is that their families are often also at risk for a host of additional psychosocial risks including poverty, single parenting, low maternal education, and parent and child psychopathology, which also contribute to parenting risks (4). Nonetheless, after controlling for such variables, the need to explicate what, if any, parenting risks are predicted by mothers who smoke is critical for the development of early childhood and family interventions. As such, smoking in mothers could then be utilized as a risk factor for at-risk parenting and targeted intervention needs, given limited public health resources. If smoking in mothers with young children predicts parenting problems, these families could be referred for targeted, early preventive interventions that focus on parenting practices – in addition to the obvious needs for smoking cessation. In the present study, the authors utilized a sample of female twins and hypothesized that smoking in mothers during their child's preschool years would predict harsh,

ineffective parenting practices such as increased risk for corporal punishment.

Methods

Secondary data analyses were performed in 2015 on a prospective study with parent and twin data available on $n=3009$ individual members of female twin pairs ($n=1418$ complete pairs and $n=164$ with only one member of the twin pair) born between July 1975 and June 1985, identified from Missouri-state birth records (from the Missouri Adolescent Female Twin Study) from 1995 to 1997, and included in the present analysis (Table 1) (5). At the time of the original study, females were understudied and therefore the focus. A cohort-sequential sampling design was used, with initial cohorts of 13-, 15-, 17-, and 19-year-old twins and their families recruited during the first two years of data collection and continued recruitment of 13-year-olds in years 3 and 4. In addition to baseline telephone interviews conducted with parents, all twin pairs were targeted for three waves of telephone interviews (waves 1, 4, and 5). The Semi-Structured Assessment for the Genetics of Alcoholism, a reliable, valid, and highly structured comprehensive interview for drug use and psychiatric assessment was used (6). Data from wave 1 [mean age=15.4 (2.3) years for twins and 41.5 (5.2) years for mothers] and wave 4 [mean age=21.7 (2.7)

years for twins] were included in the present analyses. For each wave, participants gave verbal consent (or assent, if minors) following procedures approved by the Institutional Review Board at Washington University School of Medicine. Logistic regression analysis was used to examine study questions hypothesizing whether maternal retrospective report of maternal smoking history, extrapolated for the period during the twin's preschool years (child age ≥ 3 years), would predict parenting variables including hitting, arguing, closeness, reduced interest in the twin, and/or child physical or sexual abuse.

Results

More than 80% of mothers who smoked during child's preschool years were also pregnancy smokers. Maternal smoking when the twins were 3+ years of age remained a significant predictor of offspring report of childhood sexual abuse [odds ratio (OR), 1.40; 95% confidence interval (CI), 1.02–1.92], after controlling for ethnicity, parental marital status, family income, maternal education, maternal report of her own inattention and hyperactivity symptoms, maternal depression, more than three alcohol-use disorder symptoms, maternal report of paternal history of alcohol problems, and maternal reports of the twin's DSM-IV inattention and hyperactivity and Oppositional Defiant Disorder diagnosis.

After controlling for covariates, maternal smoking during child's early years also predicted reduced maternal-reported closeness with the child (OR, 0.62; 95% CI, 0.43–0.89); however, it did not predict child-reported physical abuse or maternal-reported hitting, strictness, interest, or maternal report of coparent's hitting of the child (OR range, 0.68–1.36; all $p > .05$).

Discussion

In this analysis, hypotheses for maternal smoking as a risk factor for problematic parenting were supported insofar as maternal closeness and risk for sexual abuse, but not other domains of harshness or abuse, examined. Findings in this study were limited by a sample of only females and must be understood in this context. It is of interest that a majority of smokers who smoked during child's preschool years, also smoked during pregnancy. As such, these findings are in line with prior studies suggesting a risk profile of maternal smoking during pregnancy increased prediction of maltreatment by the age of 1 by a relative risk of 2.8 (7). However, findings of this study were limited to later sexual and not physical abuse. Given limited public health resources, mothers who smoke during pregnancy and child's preschool years may be targeted for early preventive interventions that focus on parenting practices such as decreasing conflict, increased closeness/warmth, and increased parental monitoring along with

smoking cessation efforts. Estimates suggest only 50% of parents of young children are queried and educated by physicians on the risks of smoking, despite established health risks (8).

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Conflicts of interest

No conflicts of interest were reported by the authors of this paper.

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TABLE 1. Maternal- and twin-reported characteristics¹

	Mothers who did not smoke when twins were 3+ years (n=922) (%)	Mothers who smoked when twins were 3+ years (n=661) (%)
<i>Demographic characteristics (maternal report)</i>		
African American	10.4	14.1*
Mother married to biological father at interview	70.1	48.0***
Mother's education		
Less than high school degree	4.4	15.8***
High school degree, no college	35.4	45.2***
Some college	29.6	29.6
College degree or higher	30.7	9.6***
Household income <\$50,000	49.3	71.7***
<i>Maternal smoking history</i>		
Lifetime		
Never	35.5	---
<100 lifetime	49.0	---
100+ but quit before twins were born	11.0	---
100+ but quit when twins were <3 years	4.6	---
100+ and smoked when twins were 3+ years ²	—	100
Smoking during pregnancy (of 100+ lifetime smokers; n=127 who did not smoke and n=637 who smoked when the twins were 3+ years)		
None	71.7	18.5***
Smoked during part of pregnancy (1 week to 8 months)	22.8	34.2*
Smoked for >8 months of pregnancy	5.5	47.3***
<i>Maternal report of psychopathology</i>		
Mother self-reported childhood inattention	4.9	9.7***
Mother self-reported childhood hyperactivity	2.8	4.7*
Mother self-reported lifetime depression	26.8	40.0***
Mother self-reported 3+ alcohol-dependence symptoms lifetime	3.0	7.6***
Mother reported biological father was a problem drinker (lifetime)	23.2	41.5***
Mother reported twin DSM-IV inattention (in 3000 twins) ³	4.5	6.6
Mother reported twin DSM-IV hyperactivity (in 2998 twins) ⁴	1.0	4.0***
Mother reported twin DSM-IV ODD (in 2988 twins) ⁵	8.5	16.8***
<i>Maternal report of parenting (when twins were 6 to 13 years old)</i>		
Mother reported hitting twin with a "belt or stick or something like that", "sometimes" or "often"	5.2	7.6
Mother reported being more strict than most parents	51.0	49.0
Mother reported "often" being interested in the twins' friends and activities	94.3	87.0***
Mother reported being "very close" to the twins	92.6	84.7***
Mother reported arguing "often" with the twins	7.4	12.9***
Mother reported the coparent hitting twin with a "belt or stick or something like that", "sometimes" or "often" ⁶	3.0	4.5
Twin report of childhood physical and sexual abuse		
	Twins whose mother did not smoke when they were 3+ years of age (n=1762)	Twins whose mother smoked when they were 3+ years of age (n=1239)
Twin-reported childhood physical abuse	16.1	23.6***
Twin-reported childhood sexual abuse	7.7	14.7***

Note. DSM-IV, *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition; ODD, Oppositional Defiant Disorder.

¹N=1583 biological interviewed mothers had data on smoking during the twins' childhood; there was minimal missing data on individual measures; all mother-reported measures had >1580 mother responses, except for household income (N=1538), her smoking during pregnancy (N=1542), her own childhood inattention and hyperactivity (N=1542), her own alcohol-dependence history (N=1572), her report of biological father's alcohol history (N=1563), her own history hitting the twins (N=1551), and her own strictness (N=1549).

²Includes N=49 mothers who quit when twins were 3–6 years, N=86 who quit when twins were 7+ years, and N=526 who never quit.

³A total of 1418 mothers reporting on complete pairs and 164 reporting on only one member of a twin pair; 6+ of 9 DSM-IV inattention symptoms, for 6+ months, before the age of 7, with impairment (causing problems at home or school, or consulted a health professional about problems).

⁴A total of 1417 mothers reporting on pairs and 164 reporting on only one member of a twin pair; 6+ of 9 DSM-IV hyperactive symptoms, for 6+ months, before age 7, with impairment (causing problems at home or school, or consulted a health professional about problems).

⁵As reported by 1580 mothers, with 1408 mothers reporting on pairs and 172 reporting on only one member of a twin pair; 4+ of 8 DSM-IV ODD, for 6+ months, at any age, with impairment (causing problems at home or school, or consulted a health professional about problems).

⁶N=1264 mothers with a coparent.

*Significant at $p < .05$

**Significant at $p < .01$

***Significant at $p < .001$