

Assessing the Impact of Social Support on
Child Maltreatment Prevention among At-risk Mothers
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The data used in this manuscript is from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN).

Abstract

This paper was designed to examine the effect of social support on child maltreatment among at-risk mothers. We also explored whether the association between the social support and child maltreatment was affected by the mother's substance abuse history. This cross-sectional study utilized secondary data from LONGSCAN. The study sample (n = 335) was comprised primarily of impoverished African American mothers. Logistic regression analysis results showed social support reduced the likelihood of child maltreatment for both mothers who had histories of substance use and those who did not. Implications of the findings are further discussed.

Keywords: child maltreatment, social support, mothers, substance use, stress

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Research suggests that there is a correlation between maternal stress and child maltreatment (Howard & Brooks-Gunn, 2009; Paul, Perez-Albeniz, Guibert, Asla, & Ormaechea, 2008; Stith, Lui, Cavies, & Boykin, 2009). Studies have found social support helps to reduce maternal stress (Ceballo & McLoyd, 2002; Taylor, Seaton, & Dominiguez, 2008). The importance of social support has been studied looking at different populations (Bishop & Leadbeater, 1999; Martin, Gardner, & Brooks-Gunn, 2011; Shin & Lee, 2011) but not with at-risk mothers who have substance use histories and rarely in the context of preventing child maltreatment. Additional study of social support theory is important to gain greater insight into how social support might prevent or reduce incidences of child maltreatment. Gaining more knowledge about the nature of these relationships may have implications for future child maltreatment prevention efforts in child welfare.

This paper builds upon what is generally known about social support theory by exploring it in relation to impoverished mothers with substance use histories. The intention here is to discern how social support impacts incidences of child maltreatment. Mothers involved with the child welfare system often have limited access to economic resources and support services. Lacking these resources makes social support all the more important for daily functioning and parenting. In an effort to enhance the knowledge base regarding potential protective factors for this population, social support is further investigated in this study.

The main goal of this investigation was to explore the relationship between social support and child maltreatment for at-risk mothers with a history of substance use. An added goal was to discover whether social support positively moderated the relationship between maternal

substance use and child maltreatment. Based on previous scholarship it was hypothesized that maternal substance use will likely predict child maltreatment reports (Gregoire & Schultz, 2001; & Taylor & Kroll, 2003). There was no definitive evidence however, to demonstrate either way if social support would moderate the child maltreatment-substance use relationship in this high-risk population.

Literature Review

This literature review will cover the role poverty, substance use, stress, and social support play in the lives of at-risk mothers. Mothers at risk for child maltreatment encounter many stressors in their lives that impact their ability to fulfill some or all of their responsibilities as mothers (Anderson, 2006; Alpert, 2005; & Kapp & Vela, 2004). The challenges they confront are complex; both internal and external to them. They are a marginalized population, with low socio-economic status, and limited resources or support. As noted in a qualitative study (Anderson, 2006) mothers involved in the child welfare attributed many of their problems to outside factors, such as poverty.

Stressors

A stressor refers to any environmental, social, or internal demand which requires the individual to readjust his or her usual behavior patterns (Thoits, 1995, & Holmes & Rahe, 1967). Three major forms of stressors have been investigated in the literature: life events, chronic strains, and daily hassles. Everyday stressors profoundly affect the lives of impoverished mothers (Cutrona & Gardner, 2004). As these harmful stressors accumulate, they overextend the mothers' ability to adapt to their circumstances (Taylor, Doswell, & Tull, 2011). Being a mother in poverty is challenging and is further exacerbated by substance use. The ability to cope with these stressors and parent is challenging when social, emotional, and financial support is not

readily available (Libby et al., 2006). Social support in some cases helps mothers cope with environmental stressors (Warren, Stein, & Grella, 2007; Cohen, 1983).

Poverty. Poverty has been shown to predict the likelihood a parent will maltreat their children and ultimately be involved in the child welfare system (Kemp & Marcenko, 2009; Pecora, et al., 2008). For mothers, not having access to adequate financial and social support places them in a disadvantaged position. According to the National Incidence Study of Child Abuse and Neglect (NIS-4), children from families with annual incomes below \$15,000 as compared to children from families with annual incomes above \$30,000 per year were over 22 times more likely to experience some form of maltreatment and over 25 times more likely to suffer some form of maltreatment (U.S.DHHS, 2009). Poverty and substance use have been established as the top predictors of child maltreatment, primarily, neglect (Pecora et al, 2008). Stressors are exacerbated for mothers living in poverty.

Substance Use

Parenting in poverty with limited support is a uniquely stressful situation and contributes to some mothers' substance use (Lam, 2004; Leshner, 1997). Estimates regarding the prevalence of substance use in cases of child maltreatment vary greatly. According to studies conducted by the National Institute of Drug Addiction (2005) and the Department of Health and Human Services (2009) between 40-80% of mothers with children served by the child welfare system use substances (Barbell & Freundlich, 2001; Libby, Orton, Barth, & Wood, 2006; Pecora et al., 2008). In urban areas of Illinois and California substance use played a significant role in the abuse and neglect in approximately 78% of cases (SAMHSA, 2002; Young & Gardner, 2002). Mothers who used substances were found to be more likely to have their children placed in out-

of-home care than mothers who did not use substances (Marcenko & Kemp, 2000; & Taylor & Kroll, 2003).

Substance use is prevalent in cases of child maltreatment. Substance use affects the mothers' lives in many ways, including "how they live, function, interact with others and parent their children" (U.S.DHHS, 2009, p. 7). Their problems, however, are not limited to substance use; they are multifaceted. These complex problems are further exacerbated by being under an extreme amount of poverty induced stress which makes having social support and resources all the more important.

Social Support

Social support is considered a coping resource. Social support refers to the availability of interpersonal resources (Taylor et al., 2004). Because their economic resources are scarce, the value of social support and interpersonal bonds are important. According to Thoits (1995), "social support generally refers to the functions performed for the individual by significant others, such as family members, friends and coworkers. Significant others can provide informational, instrumental and emotional assistance" (p.63). The value of social support theory is the acknowledgment that mothers need a continuous network of support to assist them.

Past studies of social support have demonstrated buffering qualities against many types of health problems including mental, physical, social health, and environmental stress (Cohen et al., 2000, Cohen & McKay, 1984; Gottlieb & Bergen 2009). Perceived emotional support has been directly associated with better physical, mental health as well as moderates the potential damaging effects of major life events and constant strains (Thoits, 1995). Social support also has been shown to assist with coping in regards to parental stress, substance use, and poverty (Balaji, Claussen, & Smith, 2007; Raikes & Thompson, 2005; Warren, Stein, & Grella, 2007).

Additionally, having an intimate partner and or confidante considerably reduces the effects of stress on physical and psychological outcomes (Gregoire & Schultz, 2001).

Previous scholarship has also shown mothers are under an inordinate amount of stress and in need of monetary resources and social support. For example, Zinn and Courtney's (2008) discovered that over 40% of child welfare involved mothers were in need of social support. In a qualitative study featuring thirteen birth mothers, the most prevalent theme reported by those interviewed was how much social support assisted them in their daily functioning (Veistilä & Minna, 2008).

Research conducted concerning the impact of social support on impoverished mothers involved in the child welfare system is sparse; as are studies which demonstrate social support mitigates child maltreatment. There are conflicting views about the importance of social support. In some instances, social support has been demonstrated to reduce the adverse affects of stress for mothers who face persistent life challenges (Balaji, Claussen, & Smith; Kotchik, Dorsey, & Heller, 2005; Raikes & Thompson, 2005). In other instances, social support was an important component in the coping process, however, it was not perceived as a substitute for social services and effective drug treatment (Marsh, 2005). Lam and Rosenheck (2001), differed slightly in opinion, noting that for mothers who used substances, social services were not a substitute for social support; their findings suggest mothers need both instrumental services and social support. Because differing views exist about the utility of social support, studying the relationship might offer some clarity about the role social support plays in the relationship between maternal substance use and child welfare maltreatment.

Social support has its limitations. In reference to mothers involved in the child welfare system, social support may offer some assistance but it might not be the deciding factor when the

mothers are dealing with numerous structural and institutional challenges (Seagull, 1987). Most notably, social support is often exhausted in strained communities. The negative aspects of social support which come from friends or family members who encourage harmful behaviors are also problematic (Halpern, 2005). This idea of strained communities was expressed in a study by Coulton et al. (2007) which showed, a high proportion of mothers involved in the child welfare system came from specific neighborhoods. This begs the question, how much social support is necessary for mothers with histories of substance use and very limited monetary resources?

This study examined the relationship between social support, substance using mothers, and child maltreatment. In this context, the mothers are in highly stressful situations and do not have substantial support. Given their limited financial resources, social support is a tangible resource they may gain access to that may help them cope. Whether or not social support reduces likelihood of child maltreatment reports will be further explored.

Method

Data

The Longitudinal Studies Consortium on Child Abuse and Neglect (LONGSCAN) is a 20-year longitudinal study, comprised of a consortium of five studies of child maltreatment (Dubowitz et al., 2005). Although each site is conducting a separate research project on the etiology and impact of child maltreatment, they share the same procedures for data collection, entry, and management (Dubowitz et al., 2005; & Runyan et al., 2010). This means, data collected from different sites can be utilized as a coordinated dataset.

LONGSCAN data includes five pooled cohort samples, each with different selection criteria representing varying levels of risk or exposure to child maltreatment. After local institutional review board approval and consent of study participants, data was collected from

children and their primary caregivers separately (Dubowitz, 2005). The coordinated LONGSCAN data permit a comprehensive exploration of many critical issues in child abuse and neglect. Data was collected through the use of computer-assisted face-to-face interviews with the mothers and phone interviews.

Sample

The entire LONGSCAN sample included 1,354 child-primary caregiver pairs of which 335 couples qualified as participants of interest for this study. Inclusion criteria for participants were they had to be the biological mother at the time of data collection when the target child was eight years of age. In other words, this study sample included mothers who were involved with the child welfare system or at-risk for involvement at the time of data collection.

Variables and Measures

This section provides information on how variables were measured in this study. A series of questions were asked to gather information about the mothers' basic demographic and background information. Both categorical and continuous variables were used in the analysis.

Social support. As a main independent variable in this study, social support was measured using the Duke-UNC Functional Social Support Questionnaire (FSSQ). The FSSQ was designed to measure an individual's perception of the amount and type of personal social support. The original instrument included 14 items, grouped into four subscales: quantity of support, confidant support, affective support, and instrumental support (Broadhead, Gehlbach, DeGruy, & Kaplan, 1988). LONGSCAN, however, revised the measure, retaining seven of the original items that showed good reliability and validity. Three project developed items were later added. Some sample questions from this scale used to assess the person's perception of social support include "help when I need transportation", "help with cooking and housework", and

“help taking care of my children”. Responses to each question were scored on a one to five scale with five being high and one being low perceived support. “As much as I would like” receives a score of five and “much less than I would like” receives a score of one. Scale scores were generated by summing the scores of all items from 10 to 50, the higher the score, the greater the perceived social support. Cronbach’s alpha coefficients across the LONGSCAN study sites ranged from .81 to .92. Scale scores test-retest reliability over a two week evaluation period was reported as $r = .66$ (Hunter et al., 2003). Reliability and validity of the FSSQ were supported by multiple studies (Bellon, Delgado, Luna del Castillo, & Lardilli, 1996; & Broadhead, 1988).

Child maltreatment. Child maltreatment was an outcome variable in this study. It was measured by reviewing local agency child maltreatment reports which was done every two years using a LONGSCAN project developed coding chart. The coding system was used to classify maltreatment across all LONGSCAN sites is the Modified Maltreatment Classification Scheme (MMCS). The MMCS provided the definitions of neglect, physical abuse, sexual abuse, and emotional maltreatment. LONGSCAN trained coder’s abstracted case records until they achieved greater than 90% continuity between trainers (Fusco, & Rauktis, in press). As a result, all maltreatment reports were re-coded by using a single coding system with adequate reliability.

In this study, any CPS child maltreatment report from birth to age eight was considered an indicator of maltreatment. Any maltreatment report was used because the risks present within the home were the primary concern. As found in studies conducted by Leiter (1994) and Kohl & Jonson-Reid (2009), there is strong evidence which suggests there is no difference between substantiated versus unsubstantiated child maltreatment cases, in terms of child welfare placement recidivism over 36 months. Child maltreatment reports were used as a dichotomous

variable in this study: no child maltreatment reports were coded as 0 and reported child abuse was coded as 1.

Due to the potential effects on the outcome variable in this study, several of the mothers' demographic and economic characteristics were included in the analysis as control variables. These variables include the mothers': (a) history of substance use, (b) age at time of child birth, (c) race, (d) marital status, (e) working status, (f) educational attainment, and (g) income-to-needs ratio. Child's gender was also added as a control variable.

Mother's substance use. Substance use was measured as part of a broader assessment of health-related behavior (Hunter, et al., 2003). Substance use was conceptualized broadly to include drugs such as marijuana, cocaine, hallucinogens, heroin, stimulants, and tranquilizers. Mothers were asked whether they used substances. For the purposes of this study, the screening question "have you used drugs in the past" was chosen as it is a more accurate depiction of substance use, because disclosing present substance use may have been self-incriminating or stigmatizing for the mothers. As a dichotomous variable, substance users were coded as 1 and non- substance user were coded as 0. Maternal substance use was used as a moderator variable.

Income-to-needs ratio. Poverty level was measured by the income-to-needs ratio, a standard measure of a family's economic situation (U.S.DHHS, 2007). This was computed by taking the family income, excluding any federal aid received, and dividing this by the federal poverty threshold for that family (e.g., the federal poverty line for a family of four in the continental United States in 2009 was \$ 22,050).The income-to-needs-ratio was a continuous variable with scores ranging from zero to four, zero being extremely impoverished and four being wealthy.

Mother's age at time of child birth was a continuous variable. **Working status** was re-coded as a dichotomous variable: employed (1) or unemployed (0). **Marital status** was also re-coded as a categorical variable with three groups: married (0), single (1), and no longer married (2). The last group included mothers who divorced, separated, or lost their husbands. In terms of **mother's educational level**, a categorical variable was also used, dividing mothers into three groups: those who had less than a high school diploma (0); those who had a high school diploma (1); and those who had some college or more (2). For the regression analysis, two dummy variables for marital status and educational level variables were used. Since the majority of the study samples were African American and Caucasian, **race** was re-coded into three level categorical variables: Caucasian (1), African-American (2), and others (0). Caucasian was the reference group. Lastly, **child's gender** was coded as male (0) and female (1).

Data Analysis

The analysis proceeds as follows. Initially, univariate analysis was conducted to gain an improved understanding of the sample characteristics. Prior to running logistic regression models, bivariate analyses were performed using Chi Square and Student's t-test. Multivariate analyses were applied to examine how well the independent variables of social support predicted child maltreatment, after controlling for other factors. Since the outcome variable was dichotomous, logistic regression analysis was employed to test the probability of child maltreatment for mothers. Finally, we tested whether maternal substance use moderated the effect of social support on child maltreatment protection by adding an interaction term into the basic model. Analyses in this study were conducted using the Statistical Package for the Social Sciences (SPSS) version 18.0.

Results

Descriptive Statistics

To gain an improved understanding of the sample characteristics, we reported basic descriptive statistics (see table 1). At the time of their child's birth the mother's average age was 25 years of age ($SD= 5.7$). In terms of the scores of social support ranged 10 to 50, the average perceived social support score was 38 ($SD= 9.1$). Among this sample of biological mothers, 68% were African-American, 18% of the mothers were Caucasian and 14% were either of mixed or other race. In regards to the poverty levels, the average income-to-needs ratio for this sample was .92 ($SD= .67$). In addition to the income-to-needs ratio household, total income was examined. The results showed that 74% of the mothers were deeply impoverished with incomes of less than \$20,000 per year. Only 2% of them had incomes greater than \$50,000 per year. In this sample, 76% of mothers had a high school diploma or less and 21% had between a high school diploma and some college.

As far as marital status is concerned, 58% of the mothers were single, 22% were married, and 20% were no longer married. Less than 40% of the mothers had full-time or part-time jobs. Roughly half (51%) of the mothers' children were female. Child maltreatment reports were present in 45% of the sample case files. Lastly, 58% of the mothers reported having a history of substance use.

Columns two and three in Table 1 provide the sample characteristics by substance use history, which shows the similarities and differences across the subgroups. In terms of the mother's average age at child birth, mothers who had ever used substances on average were older (27 years old) than mothers who never used substances (23 years old). Mothers with substance use histories had lower levels of education, 45% of mothers with substance use histories had less

than a high school diploma compared to 36% of mothers with no reported substance use histories. Among the sample of mother with a reported substance use history, 23% were African-American, and 65% were Caucasian. Lastly, the results showed 56% of mothers who used substances had at least one child maltreatment report while 29% of mothers with no substance use history had one or more child maltreatment reports.

Bivariate Results

To understand the strength and direction of the relationship between key variables in this study, correlation analyses were performed (see Table 2). All independent variables (social support, mother's age at time of child birth, marital status, working status, and income-to-needs ratio) except for child's gender and mother's education, were significantly associated with child maltreatment. The first column of table 2 also shows outcomes of T-tests and chi-square that were applied to see the association between key variables and child maltreatment. According to the results, the mothers' substance use history was significantly associated with whether they maltreated their children ($t(329)=.401, p <.001$). Perceived social support was also significantly related to child maltreatment ($t(329)=.401, p=.02$). The mother's age at the time of child birth was negatively associated with child maltreatment ($t(330)=-4.391, p<.001$). Income-to-needs ratio and maltreatment were not statistically significant ($t(313)=1.54, p >.05$). Mother's race and working status were significantly related to the probability of maltreating their children ($\chi^2(2)=16.67, p=.002$; $\chi^2(1)=4.26, p=.025$). Educational attainment, marital status, and child's gender were not statistically significant.

Logistic Regression Analyses: Likelihood of Child Maltreatment

Model 1 of the table 3 showed the independent effect of perceived social support on child maltreatment, after controlling for other influential factors. Social support was shown

statistically to be a negative predictor of child maltreatment. In other words, for every one unit (score) increase in social support, the odds of child maltreatment decreased by 3% (*odd ratio* = .97, $p = .04$). Practically speaking, mothers who received more social support were less likely to maltreat their children.

Results also showed that mother's substance use, age at child birth, social support, race, and marital status were significant predictors of whether they maltreated their children. More specifically, mothers with substance use histories were two times more likely to maltreat their children than mothers with no reported substance use history (*odd ratio* = 2.33, $p = .003$). In terms of the mother's age at child birth, for every one year increase in the mother's age at time of child birth the odds of child maltreatment increased by 7% (*odd ratio* = 1.07, $p = .006$). That is, older mothers were more likely to have child maltreatment reports. Income-to-needs-ratio did not have a statistically significant association with child maltreatment. In regards to race, African-American mothers were five times less likely to maltreat their children compared with their Caucasian counterparts, after controlling for other factors like income, educational level, social support, and substance abuse (*odd ratio* = .20, $p < .001$). Compared with married mothers, single mothers were more than two times as likely to maltreat their children (*odds ratio* = 2.27, $p = .03$). However, mother's education, gender of child, and working status were not significantly associated with child maltreatment. This multivariate logistic regression model explained about 26% of the variance in child maltreatment among at-risk mothers ($R^2 = .26$).

Model 2 of the table 3 included an interaction term to investigate whether mother's substance use moderated the relationship between social support and child maltreatment among at-risk mothers. The results show that the interaction term was not statistically significant. This

means, the effect of social support on child maltreatment was not moderated by mother's substance use history.

Discussion

This study was designed to examine the impact of social support on child maltreatment reports for at-risk mothers. Additionally, we tested if maternal substance use moderated the impact of social support on child maltreatment protection. All the mothers in this sample were at risk for child maltreatment; however mothers with substance use histories were more likely to have maltreatment reports. Many mothers with children in the child welfare system have substance use histories and given their limited financial resources, testing whether social support had positive effect on this population by reducing child maltreatment reports was the premise of this research inquiry.

Social support did protect against maltreatment. When less maternal social support was reported there were more child maltreatment reports. There was no interaction effect between social support and maternal substance use to predict child maltreatment, suggesting the significantly positive effect of social support on child maltreatment prevention for at-risk mothers who either have history of substance use or never used substance. In short, perceived social support is an important contributor to child maltreatment prevention. This finding is consistent with previous studies (Bishop & Leadbeater, 1999; Martin et al., 2011; Shin & Lee, 2011).

Though poverty has been considered as the number one predictor of child maltreatment (Casey Family Programs, 2010), the results of this study suggest that poverty was not a significant predictor of child maltreatment among at-risk mothers, once we controlled for other factors, such as mother's education level, history of substance use, social support, and working

status. It may indicate that some consequences of poverty (e.g., low levels of education, unemployment, and lack of social support) mediate the association between poverty and child maltreatment.

An unexpected finding in this sample was the direct relationship between maternal age and child maltreatment reports, meaning older mothers were more likely to have child maltreatment reports. This finding differs from previous findings that reported younger mothers were more likely to maltreat their children (Black, 2001; Buchholz, Korn-Bursztyn, 1993) and that maltreatment reporting is biased toward younger mothers (Lee & Goerge, 1999). Our findings may be because older mothers had additional time to come in contact with more service systems and mandated reporters. Additionally older mothers may have more maltreatment reports because they are more self reliant, have fewer resources, less support, multiple children or began using substances.

Another noteworthy finding from this study was that African American mothers were far less likely to have child maltreatment reports than Caucasian mothers, after controlling for other background factors. Again this discovery does not align with other studies about child maltreatment in the African American community which purport, African American's are more likely to maltreat their children than other races (Bartholet, 2009; Sedlak, Mettenburg, Basena, Petta, McPherson, Greene, & Li, 2010) or that African American's are over reported to child protective services due to systemic bias (Chipungu & Bent-Goodley, 2004; Roberts, 2002). To more fully understand this finding further exploration is needed to learn more about the underlying mechanisms and implications.

Limitations

It is important to recognize the constraints of this data set. For example, because the data were a product of secondary data analysis, there were no formal measures of substance use in this dataset, only screening tools which were not best suited for this study. Another limitation has to do with temporal ordering. In this study, social support and child maltreatment were measured at the same time, thus two-way causation is possible. This means we cannot be absolutely certain that prior social support is what is affecting the present reduction in child maltreatment.

Finally, in this study we did not control for other types of supports, such as formal support and support mothers may have gotten in drug treatment. Formal support and drug treatment may have had a significant effect on child maltreatment report prevention. Despite several potential limitations, this study has several policy and practice implications.

Implications

Going forward, research should be dedicated to more fully understanding the relationship between child maltreatment, substance use, and protective factors that help reduce the incidences of child maltreatment. Interviewing mothers to get firsthand accounts of their experiences parenting under great stress could further illustrate some of the strengths and challenges within these families. This information could inform existing interventions aimed at preventing child maltreatment.

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Tables

Table 1. Descriptive Characteristics of At-Risk Mothers (N= 335)

Variables	Aggregate	Substance user	Non- substance user
	Mean (SD), %	Mean (SD), %	Mean (SD), %
Age at child birth	25 (5.7)	27 (5.6)	22.9 (5.3)
Social support ¹	37.7 (9.1)	38 (9.4)	37.26 (8.66)
Income-to-needs-ratio ²	.92 (.67)	.89 (.59)	.96 (.76)
% Income 1 (less than 10,000)	40	37	43
% Income 2 (10,001-20,000)	34	38	30
% Income 3 (20,001- 50,000)	24	24	24
% Income 4 (50,000 or more)	2	1	3
Race			
% African American	68	23	71
% Caucasian	18	65	11
% Others	14	11	18
Years of education			
% Less than HS	42	45	36
% HS graduation	34	30	40
% College attendance	24	25	24
Marital status			
% Married	22	21	22
% Never married	58	55	62
% Divorced	20	24	16
Employed	39	38	39
% Ever used substance	58	---	---
% Child maltreatment	45	56	29
% Female child	51	50	53

Source: Data from the Longitudinal Studies Consortium on Child Abuse and Neglect (LONGSCAN).

Note. ¹Scale scores of social support were ranged from 10 to 50, the higher the score, the greater the perceived social support.

²The income-to-needs-ratio was a continuous variable with scores ranging from zero to four, zero being extremely impoverished and four being wealthy.

Table 2. Bivariate Statistics

Variables	Maltreatment (<i>t</i> -test or χ^2)	1	2	3	4	5	6	7	8	9	10
1. Age	-4.39***	1	-.15**	.10*	.001	.24**	.17**	-.02**	.01	.23**	.21**
2. Social support	2.42*	-.15**	1	.12**	.02	.05	-.09*	.02	-.02	.01	-.12**
3. Income ratio	1.54	.10*	.12**	1	-.19*	.28**	.25**	.37**	.03	.01	-.13**
4. Race	16.67**	.001	.10*	.19**	1	-.01	.08	-.05	-.01	-.13**	.10*
5. Education	2.386	.24**	.05	.28**	-.01	1	.02	.20**	-.01	.04	.03
6. Marital status	4.06	.17**	-.09*	.25**	.08	.02	1	-.04	.01	.09*	.11**
7. Working status	4.26*	-.02**	.02	.37**	-.05	.20**	-.04	1	.03	-.02	-.09*
8. Child gender	.137	.01	-.02	.03	-.01	-.01	.01	.03	1	-.05	.03
9. Substance Use	24.22***	.23**	.01	.01	-.13**	.04	.09*	-.02	-.05	1	.18**
10. Maltreatment	---	.21**	-.12**	-.13**	.10*	.03	.11**	-.09*	.03	.18**	1

Source: Data from the Longitudinal Studies Consortium on Child Abuse and Neglect (LONGSCAN).

Table 3. Predictors of Child Maltreatment among At- Risk Mothers

Items	Model 1			Model 2 with interaction		
	<i>B</i>	<i>S.E.</i>	<i>O.R.</i>	<i>B</i>	<i>S.E.</i>	<i>O.R.</i>
Substance use	.85**	.28	2.33	2.42*	1.19	11.24
Age at child birth	.07**	.03	1.07	.07**	.03	1.07
Social support	-.03*	.02	.97	-.01	.03	---
Income-to-needs-ratio	-.03		---	-.33	.24	---
Race						
Caucasian (reference)						
African-American	-1.61***	.39	.20	-1.59***	.39	.20
Others	-.29	.47	---	-.24	.47	---
Education						
Less than high school (reference)						
High school completion	.22	.30	---	.23	.30	---
College attendance	.56	.36	---	.58	.36	---
Marital status						
% Married (reference)						
% Never married	.82*	.38	2.27	.76*	.38	2.14
% Divorced	.68	.42	---	.66	.42	---
Employed	-.39	.29	---	-.37	.29	---
Gender of child	.23	.26	---	.22	.26	---
Substance use * social support				-.04	.03	---
R ² /Nagelkerke R ²	.26			.27		
N	335			335		

Source: Data from the Longitudinal Studies Consortium on Child Abuse and Neglect (LONGSCAN).

Notes: S.E.= robust standard error. O.R.= odds ratio.

* p < .05; **p < .01; ***p<.001.