Journal of Child and Family Studies (2019) 28:1124–1133
https://doi.org/10.1007/s10826-019-01338-3

ORIGINAL PAPER

Parenting in Context: Associations of Parental Depression and Socioeconomic Factors with Parenting Behaviors

Allison Vreeland[1] · Meredith A. Gruhn[1] · Kelly H. Watson[1] · Alexandra H. Bettis[1] · Bruce E. Compas[1] · Rex Forehand[2] · Alexandra D. Sullivan[2]

Published online: 30 January 2019

Abstract

Objective The current study examined the unique and combined associations of parental depression and socioeconomic disadvantage with parenting behaviors in parents with a history of depression.

Method A sample of 180 parents with a history of major depressive disorder and one of their children (ages 9–15 years old) completed a videorecorded conversation task and parents completed self-report measures of depression symptoms and socioeconomic variables (parental education, income, marital status).

Results Parental depression symptoms and socioeconomic variables were related to higher levels of harsh and withdrawn parenting in univariate analyses. In multivariate analyses, socioeconomic factors were significant predictors of both types of disrupted parenting. However, while parental depression symptoms remained a significant predictor of withdrawn parenting, they no longer significantly predicted harsh parenting when socioeconomic factors were included in multivariate analyses.

Conclusions Results highlight the importance of considering the economic context of families, particularly the impact of socioeconomic disadvantage on parenting behaviors in a sample of depressed parents.

Keywords Parenting · Depression · Socioeconomic status

Major depressive disorder (MDD) is a prevalent and impairing disorder among parents of children and adolescents (National Research Council and Institute of Medicine [NRC and IOM] 2009). Youth of depressed parents face a myriad of risk factors throughout their development that increase emotional distress and lead to the development of internalizing and externalizing problems (Gunlicks and Weissman 2008; NRC and IOM 2009). Specifically, parental depression has robust pathogenic effects on sensitive-attentive parenting, which in turn has a powerful impact on the development of mental health problems in children (Hammen et al. 2004). While a significant body of research provides evidence that depression symptoms are associated with impaired parenting (Lovejoy et al. 2000), additional research suggests that a subset of depressed parents who are also experiencing socioeconomic disadvantage are at increased risk for disrupted parental behaviors (e.g., Sturge-Apple et al. 2014). The demands of raising a family when faced with socioeconomic disadvantage expose parents to additional risk factors, eroding sources of support and making it more difficult to parent (McLaughlin et al. 2012). Few studies have explicitly examined underlying factors such as socioeconomic disadvantage that may predict which depressed parents may be most at risk for impaired parenting.

The benefits of warm and supportive parenting in promoting the healthy development of children is well documented (e.g., Chen et al. 2017; Gray and Steinberg 1999). Parenting is a critical factor that is implicated in childhood physical illness, substance use, and internalizing and externalizing psychological disorders (Chen et al. 2017). Substantial evidence shows that parental depression is associated with deficits in parenting (see Lovejoy et al. 2000, for review), including decreased warm and responsive parenting behaviors and increased harsh, critical, and withdrawn behaviors (e.g., Hammen et al. 2004; Jaser et al. 2005). Both self-report and observational studies have

✉ Allison Vreeland
allison.j.vreeland@vanderbilt.edu

[1] Department of Psychology & Human Development, Vanderbilt University, 230 Appleton Place, Nashville, TN 37203, USA

[2] Department of Psychological Science, University of Vermont, Burlington, VT, USA

found that the behavior of depressed parents is characterized by impaired communication, diminished responsiveness, and higher rates of hostility in interactions with their children throughout development (e.g., Field 1998; Goodman 2007). In a meta-analytic review, Lovejoy et al. (2000) found a moderate association between negative parenting behaviors (e.g., threatening gestures, intrusiveness, expressed anger, negative affect) and maternal depression and a small to moderate association between disengaged parenting behaviors (e.g., withdrawal, ignoring, uninvolvement, gaze aversion) and maternal depression. Since this seminal review, additional studies have found an association between maternal depression and reduced parenting quality, especially in the context of other stressors (e.g., Forehand et al. 2012; Taraban et al. 2017).

Previous studies investigating the association between depression and parenting behaviors have theorized that these disruptions are directly related to parents' symptoms of depression. Specifically, it is hypothesized that the characteristics of depression (i.e., sad mood, loss of interest, low energy, poor concentration, feelings of worthlessness and guilt, altered sleep; American Psychiatric Association 2013) are important factors for understanding possible contributors to parenting problems (Goodman et al. 2011). For example, parents who experience disrupted sleep and irritability may have a decreased tolerance for typical child behavior and as a result, may display more negative affect and inconsistent discipline. Additionally, parents who experience sad mood, loss of interest, and fatigue as a result of their depression may withdraw more from their child, attending less effectively to their child's needs (e.g., Field 2010; Stein et al. 2012). The resulting disruptions in parenting contribute to a chronically stressful environment for children as their parents vacillate between withdrawn and harsh parenting (e.g., Langrock et al. 2002).

Research also suggests that socioeconomc disadvantage has a strong and potentially caustic influence on parenting by exacerbating the effect of depression on parenting behaviors (e.g., Hammen and Brennan 2002; Lorant et al. 2003; Lovejoy et al. 2000; Sturge-Apple et al. 2014). Lovejoy et al. reported that low socioeconomic status (SES), quantified in their review by living below the poverty level or having an average score of V on the Hollingshead Index (a measure of social status assessing marital status, employment, educational attainment and occupational prestige; Hollingshead 1975), moderated the association between parental depression and positive parenting behavior. Family stress models provide one perspective on processes through which socioeconomic variables influence parenting behaviors (e.g., Landers-Potts et al. 2015). A primary tenet of family stress models is that as parents are faced with socioeconomic disadvantage, they experience greater feelings of economic pressure and their sources of support erode, which leads to increased psychological distress (e.g., depression). As a result, higher levels of socioeconomic disadvantage are associated with greater deficits in parenting (Valiente et al. 2007).

Thus, it is essential to consider the broader social-ecological context of parents experiencing depression, and socioeconomic factors comprise a potentially important contextual influence on the parenting behaviors in this population. As parents are coping with depression, many are also affected by significant challenges associated with lower SES. As of 2016, 12.7% of the U.S. population was living below the poverty line and this rate of poverty increased for families of female-headed households (29.9%), demonstrating that poverty is a societal problem that affects some groups at a disproportionate rate. Specifically, single–parent families are more likely to experience socioeconomic disadvantage than two-parent families due to lower educational attainment and reduced household wages (Goodrum et al. 2012). Further, single parents, in comparison to cohabitating parents, are more likely to experience impairing psychopathology (e.g., depression, anxiety, substance use; Daryanani et al. 2016). An additonal resource that is at the heart of SES includes parental education. Parents with higher educational attainment spend more time with their children and engage in higher quality parent-child instruction (Guryan et al. 2008; Kalil et al. 2012). Given the additional stressors and the high rates of households affected by depression and socioeconomic disadvantage, caregivers with a history of depression who are also experiencing socioeconomic disadvantage might be expected to display further parenting difficulties.

The focus of the current study is to simultaneously examine the associations of parental depression and socioeconomic disadvantage (education, income, martial status) on parenting behaviors in a sample of parents with a history of MDD. As noted above, prior research has found that current parental depression symptoms and socioeconomic variables are associated with withdrawn and harsh parenting. Thus, in preliminary analyses we examine whether these associations are replicated in the current sample and whether socioeconomic risk factors have independent significant associations with parenting behaviors when accounting for parental depression. In the primary analyses, we examined the effects of parental depression symptoms and socioeconcomic factors as predictors of parenting in multivariate analyses and we examined whether socioeconomic variables moderate the effects of depression on impaired parenting behaviors. Specifically, we hypothesized both parental depression symptoms and socioeconomic disadvantage would predict higher levels of withdrawn and harsh/intrusive parenting, and that levels of harsh/withdrawn parenting would be higher in caregivers who

experienced both greater socioeconomic disadvantage and greater depression symptoms.

Method

Participants

Participants were 180 parents with 242 children (121 girls and 121 boys) between the ages of 9 and 15 years old ($M = 11.53$, $SD = 2.02$). Parents had met criteria for at least one episode of MDD during the lifetime of their children, and were assessed with the Structured Clinical Interview for DSM (SCID; First et al. 2001). To address the possible violation of independence, one child was randomly selected from each family with multiple children for parenting analyses. The final sample included 180 parents ($M = 41.96$, $SD = 7.53$) and their children (89 girls, 91 boys) between the ages of 9 and 15 years ($M = 11.46$, $SD = 2.00$). Participants included 160 mothers (M age $= 41.2$, $SD = 7.2$) and 20 fathers (M age $= 48.3$, $SD = 7.5$). For all families included in the study, 17.3% of parents were minorities, and 82.2% were racial majority. Parents' level of education included 5.6% without a high school degree, 8.9% completed high school or equivalency exam, 30.6% attended some college, 31.7% college graduates, and 23.3% with a graduate education. The marital statuses of the parents were 61.7% married or cohabitating with someone and 38.3% single, divorced, separated, or widowed. Annual family income ranged from less than $5000 to more than $180,000, and the median income was in the $40,000–59,999 range. Demographic characteristics of the samples are presented in Table 1. There was adequate range and variability on each variable to be independently included in the analyses.

Table 1 Ages and demographics of parents with a history of depression and their children

	Overall sample ($N = 180$)		
Characteristic	*M*	*SD*	Range
Age of child	11.5	2.0	9–15
Age of parent	42.0	7.5	24–69
		N	%
Gender of child			
Female		89	49.4
Male		91	50.6
Gender of parent			
Female		160	88.9
Male		20	11.1
Parent's education			
Less than high school		10	5.6
High school		16	8.9
Some college		55	30.6
College graduate		57	31.7
Graduate education		42	23.3
Parent marital status			
Married or living with someone		111	61.7
Single, divorced, separated, or widowed		69	38.3
Annual family income			
<$5000		12	6.7
$5000–$9999		7	3.9
$10,000–$14,999		4	2.2
$15,000–$24,999		18	10.0
$25,000–$39,999		35	19.4
$40,000–$59,999		30	16.7
$60,000–$89,000		35	19.4
$90,000–$179,999		26	14.4
≥$180,000		5	2.8
Parent race			
Non-minority		148	82.2
Minority		21	17.3

Procedure

Participants were recruited to participate in a larger study testing the efficacy of a family-based cognitive-behavioral intervention aimed to prevent depression and other mental health problems in children of parents with a history of MDD. All data used in the current study were collected during the baseline assessment and prior to randomization into the intervention trial. The institutional review boards (IRB) at both sites approved the study protocol. Families were recruited through a variety of sources in and around a southern metropolitan area and a small northeastern city, including mental health clinics and local media outlets. Families were eligible if the parent met criteria for MDD either currently or during the lifetime of her or his child (or children). The following parental diagnoses or characteristics were excluded from the sample: (a) bipolar I disorder, schizophrenia, or schizoaffective disorder; (b) current depression accompanied by significant impairment (quantified as Global Assessment of Function, GAF ≤ 50); and (c) acute active suicidal ideation, or drug or alcohol use disorders accompanied by significant impairment (GAF ≤ 50). Eligible families also had children who (a) had no history of bipolar I disorder, schizophrenia, autism spectrum disorders, or intellectual disability; and (b) did not currently meet for conduct disorder or alcohol/substance abuse or dependence.

After completing an initial phone interview, eligible families were invited into the laboratory to participate in a baseline assessment, including the two 15-minute

parent–child videotaped interaction tasks described above. All participants were compensated for their participation.

Measures

Socioeconomic status

Parents provided demographic data on age, race, ethnicity, education level, annual family income, and marital status. Parents reported their annual family income in one of 9 categories: (1) less than $5,000, (2) $5,000–$9,999, (3) $10,000–$14,999, (4) $15,000–$24,999, (5) $25,000–$39,000, (6) $40,000–$59,999, (7) $60,000–$89,999, (8) $90,000–$179,999, and (9) $180,000 or more. Parents reported their educational attainment in one of five categories (1) less than high school, (2) high school or equivalency exam, (3) some college or technical school, (4) college graduate-4-year degree, and (5) any graduate education. Parents reported their marital status as married, cohabitating, single, divorced, separated or widowed. Parental marital status (i.e., partnered versus single) was dichotomized in all analyses.

Parental depression symptoms

Parental current depression symptoms were assessed with the Beck Depression Inventory-II (BDI-II; Beck et al. 1996; Steer et al. 2001), a standardized and widely used self-report checklist of depression symptoms with adequate internal consistency, reliability, and validity (Beck et al. 1996). Higher scores on the BDI-II indicate greater severity of depression symptoms. Internal consistency of the BDI-II total score for the current sample was $\alpha = .93$.

Observed parenting behaviors

The Iowa Family Interaction Rating Scales (IFIRS; Melby et al. 1998), a global coding system, was used to code two 15-minute interactions between parent and child. Parent and child dyads were first instructed to discuss a pleasant family activity and then asked to discuss a recent stressful family event using separate lists of prompted questions that were written to elicit a positive versus negative affect (e.g., What other fun activities would we like to do together? When mom/dad is sad, down, irritable or grouchy what usually happens?). The IFIRS system is designed to measure behavioral and emotional characteristics of the parent and child individually as well as at a dyadic level. Each behavioral code is scored on a 9-point scale, ranging from 1 (*not at all characteristic*) to 9 (*mainly characteristic*). Coders are instructed to consider both the frequency and intensity of the behavior, as well as the contextual and affective nature of the behavior when coding the interactions. Each video was coded separately by two, independent coders who then meet to establish consensus on any discrepant codes (i.e., codes rated greater than one point apart). The mean agreement for codes assessing parental behavior was 73%.

Although the IFIRS coding system uses a wide range of emotional and behavioral codes, the current study focused on seven specific codes that were selected to asses two subtypes of negative parenting—withdrawn and harsh parenting (see Table 2). Following protocols used previously with the IFIRS codes (e.g., Compas et al. 2010; Gruhn et al. 2016), scores were aggregated across the two interaction tasks and combined to create a composite code for each parenting category. The composite codes selected were based on theory-driven and empirically supported disruptions in parenting due to depression, and were used previously to test specificity among parents' depression symptoms, parenting, and child internalizing and externalizing symptoms (Gruhn et al. 2016). Interrater reliability was calculated for each IFIRS code using the intraclass correlation coefficient (ICC); ICCs ranged from .52 to .94. The harsh parenting composite ($\alpha = .72$) included guilty coercion (mean ICC = .76), hostility (mean ICC = .78), and intrusiveness (mean ICC = .72). The withdrawn parenting composite ($\alpha = .76$) included child-monitoring (mean ICC = .58; reverse coded), quality time (mean ICC = .94; reverse coded), listener responsiveness (mean ICC = .78; reverse coded), and neglect-distancing (mean ICC = .52).

Data Analyses

All analyses were conducted using SPSS version 25. Descriptive analyses examined means and standard deviations for observed parenting behaviors, parents' depression symptoms, and socioeconomic indicators. Twenty-one parents (11.7%) did not have complete data and were excluded from the present analyses. There were no differences between those with missing data and those with complete data on all variables of interest, thus listwise deletion was used to manage missing data (MacDonald 2002). Bivariate correlations were conducted to test the hypotheses that variables measuring socioeconomic disadvantage and depression symptoms would be associated with greater levels of observed harsh and withdrawn parenting. Pearson correlations were calculated for continuous variables and Spearman correlations were calculated for ordinal variables. Independent samples t tests were used to compare single-parent to two-parent households on socioeconomic disadvantage and parenting behaviors. Power calculations indicated that there was 80% power and $p < .05$ to detect correlations of $r \geq .15$.

To examine the unique associations of parental depression symptoms and socioeconomic effects on observed parenting behaviors, multiple regression analyses were

Table 2 Composite Iowa Family Interaction Ratings Scales (IFIRS) codes for withdrawn and harsh parenting (Gruhn et al. 2016)

Parenting behaviors associated with depression symptoms and socioeconomic disadvantage	IFIRS Code	IFIRS code definition
Withdrawn parenting		
Parent-focused attention; distancing from child interaction	Neglect/Distancing (ND)	The degree to which the parent is uncaring, apathetic, uninvolved, ignoring, aloof, unresponsive, self-focused, and/or adult-oriented; the parent displays behavior that minimized the amount of time, contact or effort he/she has to expend on the child.
High disengagement and low responsiveness; tendency to answer with low effort responses	Listener Responsiveness (LR; Reverse coded)	The degree to which the focal attends to, shows interest in, acknowledges, and validates the verbalizations of the other person (the speaker) through the use of nonverbal backchannels and verbal assents. A responsive listener is oriented to the speaker and makes the speaker feel like he/she is being listened to rather than feeling like he/she is talking to a blank wall.
Disinterest and lack of knowledge of child's activities and daily life	Child Monitoring (CM; reverse coded)	Assesses the parent's knowledge and information as well as the extent to which the parent pursues information concerning the child's daily life and daily activities. It measures the degree to which the parent knows what the child is doing, where the child is, and with whom.
Low social involvement; limited parent-child involvement	Quality Time (QT; reverse coded)	Assesses the extent or quality of the parent's involvement in the child's life outside of the immediate setting; represents time well-spent versus superficial involvement
Harsh parenting		
Tendency to react in anger to child's difficult behavior; negative emotionality	Hostility (HS)	Measures the degree to which the focal displays hostile, angry, critical, disapproving, and/or rejecting behavior toward the other interactor's behavior (actions), appearance, or state.
Use of harsh control associated with thought of parental incompetence	Intrusive (NT)	Assesses intrusive and overcontrolling behaviors (e.g., overmonitoring, interfering with child's autonomy) that are parent centered rather than child centered. Does not reflect positivity or warmth. Task completion or the parent's own needs appear to be more important than promoting the child's autonomy.
High manipulative parenting (e.g., conditional loving, shaming, guilt induction)	Guilty Coercive (GC)	The degree to which the focal achieves goals or attempts to control or change the behavior or opinions of the other by means of contingent complaints, crying, whining, manipulations, or revealing needs or wants in a whiny or whiny-blaming manner. These expressions convey the sense that the focal's life is made worse by something the other interactor does.

conducted. In Step 1, parent BDI-II and socioeconomic variables were entered with both harsh and withdrawn parenting. This allowed us to determine the extent to which variables of socioeconomic disadvantage uniquely predicted each type of parenting, controlling for parental depression symptoms. Analyses also examined whether variables of socioeconomic disadvantage would moderate the association between depression and parenting behaviors. To test the interactions, parental depression and socioeconomic variables were centered by subtracting the sample mean from each individual score. Each variable and their product terms were entered into Step 2 in the multiple regression analyses.

Results

Table 1 provides descriptive statistics for the sample. Parents mean score on the BDI-II ($M = 19.2$, $SD = 12.6$) was in the mild to moderate range of depression symptom levels (scores 14–19), with 42.4% of caregivers reporting symptoms in the moderate to severe range (scores ≥ 20; Beck et al. 1996). There were no significant differences in levels of depression symptoms between fathers and mothers $t(175) = -0.02$, $p = 0.98$.

Bivariate correlations for parents' current depression symptoms, parenting behaviors, and the socioeconomic variables are presented in Table 3. As hypothesized, parents' current depression symptoms were positively correlated with withdrawn and harsh parenting and negatively correlated with parental educational attainment and family income. Both the withdrawn and harsh parenting variables were significantly negatively correlated with parents' educational attainment and family income.

Additional bivariate analyses examining associations of marital status to parents' depression symptoms, socioeconomic status, and observed parenting behaviors are presented in Table 4. Single parents reported more current depression symptoms than partnered parents. Additionally single parents displayed significantly greater observed harsh parenting than parents currently in two-parent households; however single versus partnered parents did not differ on their levels of observed withdrawn parenting. Finally, single parents were more likely to have lower income and lower educational attainment than partnered parents.

Table 3 Bivariate correlations among parental symptoms of depression, observed parenting, and socioeconomic variables

	1	2	3	4	5
1. Parent BDI-II score	–				
2. Withdrawn parenting	.26[a]	–			
3. Harsh parenting	.17[b]	.54[a]	–		
4. Parents education	−.22[a]	−.32[a]	−.25[a]	–	
5. Family income	−.27[a]	−.25[a]	−.24[a]	.37[a]	–

[a] Correlation is significant at the 0.01 level (2-tailed)

[b] Correlation is significant at the 0.05 level (2-tailed)

Table 4 Associations of marital status with parental depression, parenting behaviors, and socioeconomic factors

	Single-parent *M* (*SD*)	Two-parent *M* (*SD*)	*t* (df)	*d*
BDI-II	21.9 (12.5)	17.5 (12.4)	−2.3* (175)	.35
Withdrawn parenting	.16 (1.1)	−.10 (.94)	−1.6 (167)	.26
Harsh parenting	.22 (1.1)	−.14 (.90)	−2.3* (167)	.35
Family Income	4.2 (1.9)	6.5 (1.6)	8.4* (170)	1.29
Parent's Education	3.3 (1.2)	3.8 (1.0)	2.7* (178)	.42

Parenting behaviors reported as *z*-scores

*$p < .05$; **$p < .01$

Linear regression analyses (Table 5) were conducted to examine the association between parent's current depression symptoms, socioeconomic factors, and the two types of parenting behaviors. When parental education, family income, marital status, and parental depression symptoms were included in the model (Step 1), parents' current depression symptoms and family income were predictors of withdrawn parenting; however, neither depression symptoms nor family income was a significant predictor of harsh parenting. Parental education was a significant predictor of both types of observed parenting behaviors. Parents' marital status was not a significant predictor of either harsh or withdrawn parenting in the multivariate analyses.

With regard to the final hypothesis, we examined whether socioeconomic factors would moderate the association between parental depression and harsh and withdrawn parenting. When interaction terms were included in the regression model (Step 2), none were significant predictors of either types of observed parenting behaviors. However, all significant main effects found in Step 1 remained significant after including the interaction terms in Step 2.

Discussion

The goal of this study was to further elucidate the association between parental depression symptoms and socioeconomic disadvantage with parenting behaviors in parents with a history of MDD. This information will be important to the development and implementation of effective and supportive interventions. Parents display an increase in levels of negative parenting behaviors when depressed (Forehand et al. 2012), and socioeconomic factors may be

Table 5 Summary of linear multiple regression analyses for variables predicting parenting behaviors

Predictor	Harsh parenting behavior				Withdrawn parenting behavior			
	ß	*b*	*b* 95% CI [LL, UL]	R^2	ß	*B*	*b* 95% CI [LL, UL]	R^2
Step 1				.11				.20
Parent BDI-II	.10	.01	−.01, .02		.15*	.01	0, .02	
Parent education	−.18*	−.17	−.31, −.02		−.24**	−.22	−.35, −.08	
Family income	−.18	−.09	−.18, .01		−.27**	−.13	−.22, −.04	
Parent marital status	.03	.07	−.30, .44		−.06	−.12	−.47, .22	
Step 2				.10				.20
Parent BDI-II	.10	.01	−.01, .02		.15*	.01	0, .02	
Parent education	−.18*	−.16	−.31, −.01		−.25*	−.22	−.36, −.08	
Family income	−.17	−.09	−.18, .01		−.25*	−.12	−.21, −.03	
Parent marital status	.03	.05	−.32, .42		−.06	−.12	−.46, .23	
DepressionxEducation	−.03	.00	−.02, .01		.01	.00	−.01, .01	
DepressionxIncome	−.04	.00	−.01, .01		−.14	−.01	−.01, 0	
DepressionxMarital Status	.07	.01	−.02, .04		−.05	−.01	−.04, .02	

*$p < .05$; **$p < .01$

important in identifying a subset of these parents who may be most at risk of experiencing impaired parenting. Although it is well documented that socioeconomic and psychological factors are associated with disrupted parenting, few studies have rigorously examined the potential independent or cumulative association of current parental depression symptoms and specific socioeconomic variables with observed parenting behaviors among parents with a history of MDD. The findings from the present study provide evidence that depression symptoms and socioeconomic factors are independently and collectively associated with withdrawn and harsh parenting behaviors in a sample of parents with a history of depression.

In line with previous research on parental depression and SES, parental depression symptoms and socioeconomic disadvantage were associated with higher levels of both withdrawn and harsh parenting. Replicating findings from prior studies, current parental depression symptoms, family income, and parents' education status were all significantly associated with higher levels of observed withdrawn and harsh parenting at the bivariate level (see Tables 3 and 4). Marital status was significantly associated with increased levels of observed harsh parenting but there was no significant difference between single and two-parent households in levels of observed withdrawn parenting. It is noteworthy that in this sample, single parents reported higher levels of depressive symptoms, lower income, and lower education; yet, in spite of the additional stressors accompanying single parenthood, parents managed to sustain comparable levels of withdrawn parenting. It is possible that the heightened stress experienced by single-parents leads to increased irritability, which manifests itself as a decreased tolerance for child misbehavior and an increase in harsh interactions with their children (e.g., hostility and intrusiveness). This is consistent with previous research that found single mothers to engage in more psychologically controlling and rejecting behaviors than cohabitating mothers (Daryanani et al. 2016).

Linear regression analyses tested the relative and cumulative contribution of parental depression symptoms and socioeconomic disadvantage to withdrawn and harsh parenting as well as the hypothesis that the associations of these variables would remain significant after controlling for parental depression. In support of this hypothesis, current parental depression symptoms were associated with significantly higher levels of both withdrawn and harsh parenting. When socioeconomic factors were included in the model, parental depression, education, and income were significant predictors of withdrawn parenting. In contrast, only parental education and family income were significant predictors of harsh parenting.

These results suggest that withdrawn parenting is associated with both socioeconomic variables and depression symptoms whereas harsh parenting is uniquely associated with parental education. Broadly, these findings suggest that along with symptoms of parental depression, the underlying influence of socioeconomic disadvantage may pose a significant risk for withdrawn and harsh parenting among depressed parents. However, the effect of single-parent status on parenting behaviors seems mainly to be a result of its association with education and income. In contrast, among parents with depression symptoms, parental education presented as the most consistent independent effect across parenting behaviors.

Previous work guided by the family stress model has hypothesized that socioeconomic disadvantage leads to stress within the family which causes difficulties in

parenting (Conger et al. 2002; Landers-Potts et al. 2015). The family stress model suggests that the stress associated with economic hardship strains family relationships and disrupts parenting. It is well documented that highly educated parents spend more time with their children (Guryan et al. 2008). Similarly, previous studies have shown that individuals with lower educational achievement encounter a wide range of stressful and challenging experiences, including lower occupational status, less leisure time, and weaker social support (Lorant et al. 2003). Notably, in analyses examining the interaction between parental depression symptoms and variables of socioeconomic risk, no interaction terms were significant predictors of harsh or withdrawn parenting. In sum, contrary to our hypothesis, socioeconomic indicators did not significantly moderate the association between depression and impaired parenting behaviors. While previous research has found SES to significantly moderate the relationship between parental depression and positive parenting behaviors (Lovejoy et al. 2000), to our knowledge no study has found this effect with negative parenting behaviors. Thus, socioeconomic disadvantage may have more direct effects on withdrawn and intrusive parenting rather than an interaction.

Limitations, Strengths, and Future Research Directions

The current study had several limitations that provide direction for future research. First, the analyses of parental depression symptoms and parenting behaviors were cross-sectional; therefore future longitudinal studies should be conducted to better understand the relations between socioeconomic disadvantage, depression symptoms, and parenting behaviors over time. Second, parents with a current diagnosis of depression accompanied by severe impairment or presenting with active suicidal ideation were excluded from the study. Consequently, despite overall elevated scores on the BDI-II, the sample is not entirely representatitve of depressed parents, and the incidence of parental depression symptoms may be underestimated. Third, the socioeconomic measures used in this sample included categorical levels rather than continuous indicators of education and income, which may have restricted the variability of some variables (e.g., years of school completed). Including a full spectrum of answer choices, or open-ended answer choices, may have covered a broader range of socioeconomic endorsements.

Despite the aforementioned shortcomings, the present research had several key strengths. The most noteworthy strength is the use of observational measures of parenting behaviors along with parent-report of depression symptoms as well as socioeconomic variables, making the results of the present study unaffected by shared method variance (e.g., Rowe and Kandel 1997). Additionally, it included a relatively large sample of parents with a history of MDD and allowed for adequate statistical power to test the hypotheses. Finally, although extensive research has shown a cumulative effect of low SES on parenting behaviors, parsing out the individual risk factors allowed for a more sensitive examination of associations with harsh and withdrawn parenting.

In summary, findings from the current study underscore a need to consider the broader socioeconomic context of parents with a history of depression. Socioeconomically disadvantaged families face a constellation of stressors that, in conjunction with the additional stressors accrued by depression symptoms, may intensify the impact on parenting behaviors (Evans 2004). Importantly, stress buffering processes such as supportive relationships and psychological resources have been shown to ameliorate socioeconomic stressors (Boylan et al. 2016). This study highlights that targeting processes that serve buffering functions may be important for the development of preventive interventions aimed at improving parenting behaviors and should be considered in future research. This study has extended previous findings that parenting behaviors are significantly related to child problems by yielding data suggesting that the parents in greatest need of interventions may be those who also experience socioeconomic disadvantage. Future studies examining these relations may benefit from a more in-depth assessment of stressors impacting socioeconomically disadvantaged families. Furthermore, this study highlights the need for a more general framework for addressing socioeconomic disadvantage in the development of preventive interventions. Current evidence-based interventions are often designed as a "one treatment fits all," and often fall short in understanding the additional stress accrued by socioeconomic disadvantage. In this new age of research, it is essential that researchers incorporate economic diversity into their research and develop programs that serve people of all socioeconomic statuses.

Acknowledgements This research was supported by grants R01MH069928 and R01MH069940 from the National Institute of Mental Health.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the Vanderbilt University and University of Vermont institutional review boards and the national research committee and with the 1964 Helsinki declaration and its later amendments of comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants included in the study.

References

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders: DSM-5* (5th edn). Arlington: American Psychiatric Association.

Beck, A. T., Steer, R. A., Ball, R., & Ranieri, W. F. (1996). Comparison of Beck Depression Inventories-I and-II in psychiatric outpatients. *Journal of Personality Assessment*, *67*(3), 588–597. https://doi.org/10.1207/s15327752jpa6703_13.

Boylan, J. M., Jennings, J. R., & Matthews, K. A. (2016). Childhood socioeconomic status and cardiovascular reactivity and recovery among Black and White men: mitigating effects of psychological resources. *Health Psychology*, *35*(9), 957–966. https://doi.org/10.1037/hea0000355.

Chen, E., Brody, G. H., & Miller, G. E. (2017). Childhood close family relationships and health. *American Psychologist*, *72*(6), 555–566. https://doi.org/10.1037/amp0000067.

Compas, B. E., Champion, J. E., Forehand, R., Cole, D. A., Reeslund, K. L., Fear, J., & Roberts, L. (2010). Coping and parenting: mediators of 12-month outcomes of a family group cognitive–behavioral preventive intervention with families of depressed parents. *Journal of Consulting and Clinical Psychology*, *78*(5), 623–634. https://doi.org/10.1037/a0020459.

Conger, R. D., Wallace, L. E., Sun, Y., Simons, R. L., McLoyd, V. C., & Brody, G. H. (2002). Economic pressure in African American families: a replication and extension of the family stress model. *Developmental Psychology*, *38*(2), 179–193. https://doi.org/10.1037/0012-1649.38.2.179.

Daryanani, I., Hamilton, J. L., Abramson, L. Y., & Alloy, L. B. (2016). Single mother parenting and adolescent psychopathology. *Journal of Abnormal Child Psychology*, *44*(7), 1411–1423. https://doi.org/10.1007/s10802-016-0128-x.

Evans, G. W. (2004). The environment of childhood poverty. *American Psychologist*, *59*, 77–92. https://doi.org/10.1037/0003-066X.59.2.77.

Field, T. (1998). Maternal depression effects on infants and early interventions. *Preventive Medicine*, *27*(2), 200–203. https://doi.org/10.1006/PMED.1998.0293.

Field, T. (2010). Postpartum depression effects on early interactions, parenting, and safety practices: a review. *Infant Behavior & Development*, *33*(1), 1–6. https://doi.org/10.1016/j.infbeh.2009.10.005.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (2001). *Structured Clinical Interview forDSM-IV-TR Axis I Disorders, research version, patient ed. (SCID-I/P)*. New York: Biometrics Research, New York State Psychiatric Institute.

Forehand, R., Thigpen, J. C., Parent, J., Hardcastle, E. J., Bettis, A., & Compas, B. E. (2012). The role of parent depressive symptoms in positive and negative parenting in a preventive intervention. *Journal of Family Psychology*, *26*(4), 532–541. https://doi.org/10.1037/a0028406.

Goodman, S. H. (2007). Depression in mothers. *Annual Review of Clinical Psychology*, *3*(1), 107–135. https://doi.org/10.1146/annurev.clinpsy.3.022806.091401.

Goodman, S. H., Rouse, M. H., Connell, A. M., Broth, M. R., Hall, C. M., & Heyward, D. (2011). Maternal depression and child psychopathology: a meta-analytic review. *Clinical Child and Family Psychology Review*, *14*(1), 1–27. https://doi.org/10.1007/s10567-010-0080-1.

Goodrum, N. M., Jones, D. J., Kincaid, C. Y., Cuellar, J., & Parent, J. M. (2012). Youth externalizing problems in African American single-mother families: a culturally relevant model. *Couple and Family Psychology: Research and Practice*, *4*, 294–305. https://doi.org/10.1037/a0029421.

Gray, M. R., & Steinberg, L. (1999). Unpacking authoritative parenting: reassessing a multidimensional construct. *Journal of Marriage and the Family*, *61*(3), 574–587. https://doi.org/10.2307/353561.

Gruhn, M. A., Dunbar, J. P., Watson, K. H., Reising, M. M., McKee, L., Forehand, R., & Compas, B. E. (2016). Testing specificity among parents' depressive symptoms, parenting, and child internalizing and externalizing symptoms. *Journal of Family Psychology*, *30*(3), 309–319. https://doi.org/10.1037/fam0000183.

Gunlicks, M. L., & Weissman, M. M. (2008). Change in child psychopathology with improvement in parental depression: a systematic review. *Journal of the American Academy of Child & Adolescent Psychiatry*, *47*(4), 379–389. https://doi.org/10.1097/CHI.0B013E3181640805.

Guryan, J., Hurst, E., & Kearney, M. (2008). Parental education and parental time with children. *Journal of Economic Perspectives*, *22*(30), 23–46. https://doi.org/10.1257/jep.22.3.23.

Hammen, C., Brennan, P. A., & Shih, J. H. (2004). Family discord and stress predictors of depression and other disorders in adolescent children of depressed and nondepressed women. *Journal of the American Academy of Child & Adolescent Psychiatry*, *43*(8), 994–1002. https://doi.org/10.1097/01.CHI.0000127588.57468.F6.

Hammen, C., & Brennan, P. A. (2002). Interpersonal dysfunction in depressed women: Impairments independent of depressive symptoms. *Journal of Affective Disorders*, *72*(2), 145–156. https://doi.org/10.1016/S0165-0327(01)00455-4.

Hollingshead, A. B. (1975). *Four-factor index of social status*. New Haven: Yale University.

Jaser, S. S., Langrock, A. M., Keller, G., Merchant, M. J., Benson, M. A., Reeslund, K., & Compas, B. E. (2005). Coping with the stress of parental depression II: adolescent and parent reports of coping and adjustment. *Journal of Clinical Child & Adolescent Psychology*, *34*(1), 193–205. https://doi.org/10.1207/s15374424jccp3401_18.

Kalil, A., Ryan, R., & Corey, M. (2012). Diverging destinies: maternal education and the developmental gradient in time with children. *Demography*, *49*(4), 1361–1383. https://doi.org/10.1007/s13524-012-0129-5.

Landers-Potts, M. A., Wickrama, K. A. S., Simons, L. G., Cutrona, C., Gibbons, F. X., Simons, R. L., & Conger, R. (2015). An extension and moderational analysis of the family stress model focusing on African American adolescents. *Family Relations*, *64*(2), 233–248. https://doi.org/10.1111/fare.12117.

Langrock, A. M., Compas, B. E., Keller, G., Merchant, M. J., & Copeland, M. E. (2002). Coping with the stress of parental depression: parents' reports of children's coping, emotional, and behavioral problems. *Journal of Clinical Child & Adolescent Psychology*, *31*(3), 312–324. https://doi.org/10.1207/S15374424JCCP3103_03.

Lorant, V., Deliège, D., Eaton, W., Robert, A., Philippot, P., & Ansseau, M. (2003). Socioeconomic inequalities in depression: a meta-analysis. *American Journal of Epidemiology*, *157*(2), 98–112. https://doi.org/10.1093/aje/kwf182.

Lovejoy, M. C., Graczyk, P. A., O'Hare, E., & Neuman, G. (2000). Maternal depression and parenting behavior: a meta-analytic review. *Clinical Psychology Review*, *20*(5), 561–592. https://doi.org/10.1016/S0272-7358(98)00100-7.

MacDonald, R. R. (2002). Missing data—quantitative applications in the social sciences. *British Journal of Mathematical & Statistical Psychology*, *55*, 193–194.

McLaughlin, K. A., Costello, E. J., Leblanc, W., Sampson, N. A., & Kessler, R. C. (2012). Socioeconomic status and adolescent mental disorders. *American Journal of Public Health*, *102*(9), 1742–1750. https://doi.org/10.2105/AJPH.2011.300477.

Melby, J. N., Conger, R. D., Book, R., Rueter, M., Lucy, L., Repinski, D., & … Scaramella, L. (1998). *The Iowa Family Interaction Rating Scales (5th ed.)*. Unpublished manuscript, Institute for Social and Behavioral Research, Iowa State University, Ames, IA.

National Research Council and Institute of Medicine. (2009). *Depression in parents, parenting, and children: Opportunities to improve identification, treatment and prevention*. Washington, DC: The National Academies.

Rowe, D. C., & Kandel, D. (1997). In the eye of the beholder? Parental ratings of externalizing and internalizing symptoms. *Journal of Abnormal Child Psychology*, *25*(4), 265–275. https://doi.org/10.1023/A:1025756201689.

Steer, R. A., Brown, G. K., Beck, A. T., & Sanderson, W. C. (2001). Mean Beck Depression Inventory–II scores by severity of major depressive episode. *Psychological Reports*, *88*(3_suppl), 1075–1076. https://doi.org/10.2466/pr0.2001.88.3c.1075.

Stein, A., Craske, M. G., Lehtonen, A., Harvey, A., Savage-McGlynn, E., Davies, B., & Counsell, N. (2012). Maternal cognitions and mother-infant interaction in postnatal depression and generalized anxiety disorder. *Journal of Abnormal Psychology*, *121*(4), 795–809. https://doi.org/10.1037/a0026847.

Sturge-Apple, M. L., Davies, P. T., Cicchetti, D., & Fittoria, M. G. (2014). A typology of interpartner conflict and maternal parenting practices in high-risk families: examining spillover and compensatory models and implications for child adjustment. *Development and Psychopathology*, *26*(4, Pt. 1), 983–998. https://doi.org/10.1017/S0954579414000509.

Taraban, L., Shaw, D. S., Leve, L. D., Wilson, M. N., Dishion, T. J., Natsuaki, M. N., & Reiss, D. (2017). Maternal depression and parenting in early childhood: contextual influence of marital quality and social support in two samples. *Developmental Psychology*, *53*(3), 436–449. https://doi.org/10.1037/dev0000261.

Valiente, C., Lemery-Chalfant, K., & Reiser, M. (2007). Pathways to problem behaviors: chaotic homes, parent and child effortful control, and parenting. *Social Development*, *16*, 249–267. https://doi.org/10.1111/j.1467-9507.2007.00383.