Running head: RELATIONS BETWEEN PARENTING BEHAVIOR AND SES

Relations Between Parenting Behavior and SES in a Clinical Sample: Validity of SES Measures

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Abstract

Two common methods of measuring SES were examined in relation to observed parenting behaviors in a clinical sample of 89 mothers of 3- to 6-year-olds referred for treatment of oppositional defiant disorder. Families were 74% Caucasian, 9% African American, 5% Hispanic, 1% Asian, and 11% Biracial. Most children were male (75%). Parenting behaviors were measured with the Dyadic Parent-Child Interaction Coding System (DPICS) categories of prosocial talk and negative talk. Analyses were conducted with SES measured in two ways: (a) the Hollingshead Four Factor Index of Social Status (HI) was correlated with parenting behaviors; and (b) family income, parent education (5 categories), and parent occupation (5 categories) were used to predict parent behavior. SES was significantly positively related to maternal prosocial talk. When SES was operationalized as income, occupation, and education, the model predicted three times more variance in maternal prosocial talk than the HI alone. SES was not related to maternal negative talk by either measure of SES.

Keywords: behavioral observation, education, Hollingshead Index, income, measurement, methodology, occupation, parent-child interaction, parenting, socioeconomic status

Relations Between Parenting Behavior and SES in a Clinical Sample:

Validity of SES Measures

Family socioeconomic status (SES) has long been a focus for researchers in fields of psychology, sociology, public health, epidemiology, and economics. It has been considered a "fundamental determinant of human functioning" across the lifespan, spanning development, physical and mental health, and quality of life (APA, 2006). Low family SES has been linked to a higher prevalence of childhood disruptive behavior (Dodge, Pettit, & Bates, 1994) and a more negative parenting style (Barber, 1996; Conger, Ge, Elder, Lorenz, & Simons, 1994; Dodge et al., 1994; Grant et al., 2003).

Research emphasizing an ecological model of child development has suggested that family SES impacts child outcome not through one clear path, but through multiple processes (Bronfenbrenner, 1979). One of the most studied proximal processes between family SES and child outcome is parenting practices, with studies consistently reporting more hostile, controlling, and punitive parenting practices in socioeconomically disadvantaged families (Barber, 1996; Conger et al., 1994; Dodge et al., 1994; Grant et al., 2003). Socioeconomically disadvantaged parents are also reported to be less responsive to their children (Bradley, Corwyn, McAdoo, & Coll, 2001) and to show less warmth in parent-child interactions than more advantaged families.

Although many studies have demonstrated relations between SES and parenting, methodological issues have limited the generalizability of earlier findings. These issues include the adequacy of measurement of both the parenting behaviors and of SES, as well as the typically nonclinical nature of the samples studied. Our study used a clinical sample of young children with diagnosed oppositional defiant disorder (ODD), a well validated observational

measure of parenting behavior, and several measures of SES to assess relations between parenting and SES.

SES has generally been associated with parenting behaviors as measured by parent self-report. Self-report data are subject to social desirability biases (Paulhus, 1984), which include both impression management (attempting to portray oneself in a positive light) and self-deception (a more unconscious process that reflects respondents' beliefs that they are better than objective information suggests). Given the vulnerability of self-report to bias, more objective measures of parenting are desirable in studies relating parenting to other variables of interest. Direct observation of parent behaviors allows behaviors to be defined more objectively by the researcher, rather than by the parent or child.

Some past studies have used observational methods to measure parenting in relation to SES (Bradley et al., 2001; Conger et al., 1994; Dodge et al., 1994; Hughes, Deater-Deckard, & Cutting, 1999). However, parenting behaviors in these studies were rated retrospectively following observation, which necessarily provides less objective data than behaviors coded in real time during the observation. Coding behavior in real time allows the researcher to quantify behavior by noting its duration or frequency. This study used the Dyadic Parent-Child Interaction Coding System (DPICS; Eyberg, Nelson, Duke, & Boggs, 2004) to record parent-child interactions on a moment-to-moment basis during structured laboratory situations. The DPICS categories have demonstrated strong evidence of convergent, divergent, discriminative, and predictive validity in many studies (Eyberg et al., 2004).

A second methodological concern in earlier research examining relations between SES and parenting behaviors has been the nonclinical nature of the samples. In these samples, lower SES families have been reported to have more hostile, controlling, and punitive parenting

(Bornstein, Hahn, Suwalsky, & Haynes, 2003; Grant et al., 2003), less responsiveness to their children (Bradley et al., 2001), and less warmth when interacting with their children (Dodge et al., 1994). It has been assumed, but not demonstrated, that similar relations exist in clinical samples. Yet in non-clinical samples, the coercive parent-child interactions seen in treatment-referred dyads are likely not represented, even if SES is normally distributed. Parenting styles differ in clinical and nonclinical families, regardless of SES (Bessmer et al., 2005; Webster-Stratton, 1985). For information relevant to treatment of children with disruptive behavior disorders, it is important to know whether similar relations between SES and parenting hold in a clinical population.

Another concern with existing studies has been the controversy as to which method of measuring of SES should be used (Ensminger & Fothergill, 2003; Smith & Graham, 1995). Historically, one controversy concerns whether individual or composite measures of SES should be employed (Duncan & Magnuson, 2003; Smith & Graham, 1995). The current consensus seems to be that multiple components should be measured, but used in analyses separately rather than combined into a single index of SES (Duncan & Magnuson, 2003; Ensminger & Fothergill, 2003; Hamil-Luker & O'Rand, 2007; Lidfeldt, Hu, Manson, & Kawachi, 2007; Yang, Carmichael, Canfield, Song, & Shaw, 2008). Liberatos and colleagues (1988) found that three commonly used indicators of SES – income, education, and occupation – were related to health, but not to each other. Smith and Graham (1995) pointed out that these indicators likely have differential effects on family behavior, and that each should be considered in research.

The measurement of SES in articles from three journals (*Child Development*, *Journal of Health and Social Behavior*, *Journal of Public Health*) over the last decade was recently reviewed (Ensminger & Fothergill, 2003). The review found that when SES was mentioned in an

article, it was most often measured by education, followed by income, and lastly occupation. Although the majority of reviewed articles did not use a composite scale to measure SES, articles in Child Development were more likely than articles in the other two journals to use composite scales, particularly Hollingshead's (1975) Four-Factor Index of Social Status (HI). Because SES is routinely considered in the clinical child treatment literature, it is important to understand how each measure relates to important parenting variables targeted in treatment.

The purpose of this study was to quantify the relations between family SES and relatively unbiased measures of parenting behavior in a clinical sample of mothers of preschoolers with ODD referred for parent training. Based on findings from nonclinical samples, we hypothesized that SES would be positively correlated with parental prosocial talk and negatively correlated with parental negative talk. Exploring the validity of the common SES measures in addressing these questions enabled us to consider the implications of choosing one indicator over another in parent training studies with young children.

Method

Participants

Data for this study were drawn from the pre-treatment assessment files of 100 families of 3- to 6-year-old children enrolled in a treatment outcome study. Eighty-nine families with complete demographic and observational data were included. Inclusion criteria for the larger study were as follows: (a) the child met diagnostic criteria for ODD; (b) the child's hyperactivity medication status and dosage, if any, were stable for at least one month prior to the pre-treatment assessment; (c) the child obtained a standard score equivalent of 70 or higher on a cognitive screening measure, and the child's mother obtained a standard score equivalent of 75 or higher. Children with a history of severe sensory or mental impairment or an immediate crisis requiring

out-of-home placement were not included. Table 1 shows demographic characteristics of the families. The severity of the children's behavior problems was evident in their rate of noncompliance to parental commands giving opportunity to comply, observed during parent-child interactions (M = 43%, SD = 21%).

Measures

Diagnostic Interview Schedule for Children-IV-Parent (DISC-IV-P; Shaffer, Fisher, & Lucas, 2000). The DISC-IV-P is a structured diagnostic interview that was administered to mothers to determine whether a child met diagnostic criteria for oppositional defiant disorder. The DISC-IV-P also yields data on the frequency and duration of the criterion symptoms and addresses the extent to which the child's symptoms interfere with functioning at home and at school. In a sample of parents of 9- to 17-year-old children, 1- week test-retest reliability was reported at .54 for ODD (Shaffer et al., 2000). Although the DISC-IV-P was developed for use with children ages 6 years and older, it has been used successfully with preschool-age children (Speltz, McClellan, DeKylen, & Jones, 1999).

Child Behavior Checklist (CBCL/2-3, CBCL/4-18; Achenbach, 1991a). The CBCL is a comprehensive instrument designed to assess the frequency of a variety of specific behaviors in children during the prior 6 months. To help assure that children met diagnostic inclusion criteria for ODD, we required that children have a T score of $\geq$ .61on the aggression subscale of the CBCL in addition to meeting diagnostic criteria for ODD on the DISC-IV-P. This method of diagnosis, which involves the combination of both continuous and categorical indicators, has been recommended by Jensen et al. (1993, 1996) as optimal for the diagnosis of children's externalizing behavior disorders.

Peabody Picture Vocabulary Test – Third Edition (PPVT; Dunn & Dunn, 1981; 1997). The PPVT was used as the cognitive screening measure for children. It is a well-standardized test of receptive language in children as young as 2.6 years. Each item consists of four pictures and requires child to indicate which picture represents the stimulus word given by the examiner. This measure has test-retest reliabilities ranging from .91 to .94 and high split-half reliability coefficients for children (.86 to .97). It correlates highly with the WISC-III Full Scale IQ (Altepter, 1989).

Wonderlic Personnel Test (Dodrill, 1981). The Wonderlic Personnel test is a timed test requiring adults to complete as many items (of 50) as they can in 12 minutes. It was designed as a quick cognitive screening measure for adults and possesses adequate validity for this purpose. In a sample of 120 normal adults, the Wonderlic correlated .93 with the WAIS Full Scale IQ and was within 10 points of WAIS Full Scale IQ score for 90% of participants (Dodrill, 1981). It has also shown high (.94) test-retest reliability (Dodrill, 1983).

Dyadic Parent-Child Interaction Coding System (DPICS; Eyberg, Nelson, Duke, & Boggs, 2004). The DPICS is a behavioral observation coding system for parent-child social interactions. Interaction observations are conducted during 5-minute standard situations that vary the amount of parental control required. The system includes 12 parent and child verbalization categories (e.g., Praise), 3 vocalization categories (e.g., Yell), 2 physical behavior categories (e.g.., Positive Touch), 6 response categories (e.g., comply), and several composite categories created by combining individual categories into broader constructs. The DPICS categories have been successful in distinguishing neglectful from non-neglectful mothers (Aragona & Eyberg, 1981) and physically abusive from non-abusive mothers (Borrego, Timmer,

Urquiza, & Follette, 2004) as well as mother-child and father-child dyads referred for disruptive child behavior disorders and non-referred dyads (see Eyberg et al., 2004 for a review).

Coders were graduate students and advanced undergraduate students in psychology. Coder training involved approximately 3 hours of weekly study for 12 weeks, followed by surpassing 80% accuracy on all categories with a criterion tape. Coders attended weekly training meetings throughout the study period to prevent coder drift. Coders were uninformed of the study hypotheses and family SES. One-third of the observations of each family were coded by a second observer to determine inter-rater reliability.

Parent-child interactions were observed on two occasions, 1 week apart, to increase the stability (reliability) of the scores. Scores for each behavior category were determined by averaging the behavior frequencies from each observed situation across the two occasions. Two situations, parent-led play (PLP) and Clean-Up (CU) were selected for this study because they best capture the coercive nature of parent-child interactions in families with children with disruptive behavior disorders.

Based on their validity in previous research (Eyberg et al., 2004), two composite parent categories were selected for use in this study, Prosocial Talk (PRO) and NTA (NTA). Cohen's kappa was used to assess the inter-coder agreement of the individual categories comprising these composite categories. Kappa reliabilities greater than .40 are considered moderate based on standard benchmarks in the field (Landis and & Koch, 1977). Individual categories comprising PRO include Reflections (verbalizations that repeat the child's verbalizations; kappa = .66 in our study), Behavior Descriptions (verbalizations that describe the child's activity; kappa = .56), and Labeled and Unlabeled Praises (kappa = .64 and .85, respectively). Individual categories comprising NTA include Criticism (kappa = .68) and Smart Talk (kappa = .31). Inspection of the

kappa confusion matrix for these data revealed that whenever coders disagreed on the code Smart Talk, this category was confused with the code Criticism.. Thus, by combining the categories Smart Talk and Criticism into the single composite NTA category, confidence in the intercoder reliability of NTA is increased.

Hollingshead Four-Factor Index of Social Status (HI; Hollingshead, 1975). The Hollingshead Four-Factor Index is a measure of a family's socioeconomic status. It is based on the education and occupation of each employed parent living at home. The education and occupation of homemakers, students and unemployed individuals are not included. However, if there is no gainfully employed individual at the time of the evaluation, then the scores are calculated for the person most likely to be head of the household. Thus, the occupation in which he/she is typically employed is rated. Occupations are rated on a 9-point scale (Appendix A), categorizing approximately 450 titles from the 1970 United States Census. Education is rated on a 7-point scale (Appendix B) based on the number of years of schooling. To calculate HI for a family, the occupation and education scores are weighted and summed. The occupation score is multiplied by 5, and the education score is multiplied by 3. For dual-income families, HI is calculated by averaging the scores for each earner. HI scores range from 8 to 66.

Procedure

Families arrived at the Psychology Clinic and consented to their participation in the study. The assessments were conducted by graduate students, supervised by licensed clinical psychologists. At the assessment, the parents completed a demographic questionnaire, a clinical interview, a structured diagnostic interview, and a Child Behavior Checklist (CBCL). To screen cognitive functioning, the Wonderlic was administered to each parent and the PPVT-III was

administered to each child. Each mother was video-recorded on two occasions (1 week apart) interacting with her child in the 5-minute DPICS standard situations.

Results

Initial analyses examined the descriptive statistics of prosocial talk (PRO) and negative talk (NTA), which were calculated as proportions of parent total verbalizations. Proportion PRO (M = 0.05, SD = 0.04) and proportion NTA (M = 0.09, SD = 0.06) were both skewed. To normalize the distributions, square-root transformations were made on PRO (M = 0.20, SD = 0.08) and NTA (M = 0.28, SD = 0.10).

Pearson correlations between the two composite parent DPICS categories and HI showed that HI was significantly related to maternal PRO[1], $r(N = 89) = .24, p < .05$. As hypothesized, higher SES mothers used more positive verbalizations than their more socioeconomically disadvantaged counterparts. Mother NTA was not significantly correlated with HI (see Table 2 for all correlations).

To quantify relations between the separate indices of SES and parenting behaviors, two multiple regressions were used. To correct for family-wise alpha inflation, models had to be significant at $p < .025$. For these regressions, categorical variables were dummy coded. Education was dummy coded into five variables: (a) Less than high school; (b) High school; (c) Partial college or technical school; (d) College; (e) Masters and beyond. Four of these dummy variables were included in the regression. The middle education level (c) was chosen as the reference group because more participants were in this category than other categories. Occupation was also coded into five categories: (a) Unemployed/homemaker; (b) Unskilled or semi-skilled workers; (c) Skilled workers, sales, and clerical workers; (d) Semi-professional; (e) Professional. Again, the middle category was chosen as the reference group.

To control for family size when considering income, family income was divided by the US Census poverty threshold for a given size family, resulting in an income-to-needs ratio. A ratio less than 1.0 is regarded as 'poor,' whereas ratios around 3.0 or 4.0 are considered middle-class. The income-to-needs ratios for this sample ranged from 0.1 to 7.9 and were significantly non-normal, so a logarithmic transformation of the data was conducted.

Mother PRO was significantly predicted by the multiple regression model, $R^2 = .23$, $F(9,79) = 2.60$ (p = .011)[2]. Table 3 shows that the main effect of this model was mother education. Mothers with a graduate degree ($\beta = .409$, $p < .01$) had a significantly higher proportion of PRO than the reference category (partial college or technical school). When this model was rerun using "masters or higher" as the reference category, mothers in the "masters or higher" category had significantly higher proportions ($M = .32$, $SD = .09$) of PRO than all other education categories.

The multiple regression model did not significantly predict NTA, $R^2 = .175$, $F(9, 79) = 1.857$, $p = .071$. Within NTA, however, a main effect for mother occupation was observed. Mothers who were unemployed, $\beta = -.372$, $p < .01$, or semiprofessionals, $\beta = -.285$, $p < .05$, had a significantly lower proportion of NTA than mothers with jobs in the skilled worker category. These main effects must be interpreted cautiously, however, because the overall model was nonsignificant.

Discussion

We had anticipated that SES would be related positively to mothers' prosocial talk and negatively to mothers' negative talk with young children referred for treatment of ODD. Results suggested that as HI increased, positive maternal verbalizations increased for mother-child dyads. However, the three individual indices of SES – income, education, and occupation –

together accounted for three times more variance than HI in the observed differences in maternal PRO.. Maternal education, in particular, was strongly related to PRO.

We also hypothesized that SES would be negatively correlated with maternal negative talk, but our findings did not support this hypothesis. We found no relation between SES and NTA, regardless of SES measurement method. Past research has consistently reported that among non-clinical samples, mothers with lower SES are more critical and harsh with their children.

The most important finding from this study was not a quantitative finding but a psychometric one – one measure (including income, education, and occupation) captured three times more variance in parenting behavior than the other measure (HI). By using two methods of SES measurement, it became clear that one method captured a phenomenon, the relation between maternal education and PRO, while the other did not. Because HI relies more strongly on the education and occupation of the primary earner in each family, maternal education and occupation are often entirely excluded. By examining mother's income, education, and occupation in the same model, we demonstrated the large role of maternal education in understanding relations between SES and positive maternal verbalizations with her child. Our results suggest that a measure of SES that does not consistently include maternal education (such as the Hollingshead Index) is unlikely to relate strongly to maternal warmth and responsivity. Thus, researchers—particularly clinical child researchers—risk losing important data by using composite scales of SES.

Hollingshead (1975) argued – without providing reasons – that in nuclear families where only one spouse is gainfully employed, only the employed spouse's education and occupation should be used to calculate family socioeconomic status. Early studies of social class were

conducted by sociologists whose focus was on understanding how families were evaluated by others in their community. Developmental researchers have continued to use HI, even though their focus is no longer on social status per se, but on the access to resources and on the home environment, both of which have direct implications for child development (Hoffman, 2003). Although some strengths of the HI have been acknowledged, continued use of this index is problematic in psychological research, particularly child research, because the education of nonemployed mothers is not part of the score. Many mothers self-select out of the workforce once they have children, yet it is important to consider maternal education when studying child outcomes. Maternal education appears to be the main predictor of maternal warmth and responsivity, at least in a clinical sample, which are key factors in child disruptive behavior..

Several limitations of this study should be noted. First, the study is correlational, so causation cannot be inferred. It cannot be concluded that low SES causes mothers to give fewer prosocial verbalizations, nor can it be concluded that higher SES families are better parents for giving positive attention their children more often. Second, the population is generally a homogenous one from north-central Florida, and may not generalize to other geographic areas. Finally, the relations observed between SES and parenting may not be generalizable to families of nondiagnosed children or children with diagnoses other than ODD.

Notwithstanding these considerations, our results have several important implications. First, previously documented relations between family SES and parenting styles may be different in clinic-referred and general population samples. Theories explaining the dynamics among SES, parenting, and child outcomes must be expanded to accommodate the different relations between SES and parenting that are present in clinical and nonclinical samples.

Second, for parent training programs, the connection between SES and parents' positive and negative verbalizations may help clinicians introduce and frame therapy to families considering parent training. Of note, the relation between family SES and maternal prosocial talk was found in standard situations in which parents are expected to direct the child's behavior -- precisely the times that children with ODD exhibit defiance and noncompliance.

The most important implications of this study may be for research. When selecting a measure of SES, researchers need to consider carefully the theoretical foundations of each measure. Young children today are more likely to have highly educated parents, come from families with incomes either below or well above the poverty line, and live in single parent households than children from previous (Shonkoff & Phillips, 2000). Thus, we must continue to study how these different SES indicators fit together to produce risk or resiliency in children. We must also not condense SES to a single component, such as education, in our research, because no single indicator can adequately represent the entire context of socioeconomic status. To illustrate, even though education was the main predictor in our model including income, education, and occupation, much more variability in mothers' positive verbalizations was predicted when all three indicators were used simultaneously. To understand fully the complex interactions between SES and parenting, researchers must be cognizant of the entire context in which the child resides, including the resources of both parents.

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Appendix A

Hollingshead Four Factor Index of Socioeconomic Status Occupational Status Scale

(1) Farm Laborers / Menial Service Workers

(2) Unskilled Workers

(3) Machine Operators and Semiskilled Workers

(4) Smaller Business Owners, Skilled Manual Workers, Craftsmen, and Tenant Farmers

(5) Clerical and Sales Workers, Small Farm and Business Owners

(6) Technicians, Semiprofessionals, and Small Business Owners

(7) Smaller Business Owners, Farm Owners, Managers, and Minor Professionals

(8) Administrators, Lesser Professionals, and Proprietors of Medium-Sized Businesses

(9) Higher Executives, Proprietors of Large Businesses, and Major Professionals

Appendix B

Hollingshead Four Factor Index of Socioeconomic Status Education Scale

(1) Less than 7th grade

(2) 7th, 8th, or 9th grade

(3) 10th or 11th grade

(4) High school graduate or GED

(5) Partial college or technical/specialized training

(6) Standard college or university

(7) Graduate professional training

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Table 1

Demographic Characteristics (N = 89)

Characteristic	%	*M*	*SD*	Min	Max
Child age (in years)		4.40	1.11	3.0	6.0
Hollingshead Index score		38.38	13.63	11.0	66.0
Income (dollars yearly)		34167	25590	2004	122604
Child sex (% male)	74.5				
Child ethnicity/race					
% Caucasian	74.2				
% African American	9.0				
% Hispanic	4.5				
% Asian	1.1				
% Biracial or Other	11.2				
Mother education					
% Less than high school	7.8				
% High school	16.9				
% Partial college / tech.	40.4				
% College	28.1				
% Masters and beyond	6.7				
Mother occupation					
% Employed	94.4				
% Unskilled, Semiskilled	9.0				
% Skilled , Clerical / Sales	28.1				
% Semiprofessional / Managers	24.7				
% Professional	5.6				

Table 2

Relations between parenting variables and SES

Measure	Range	M	SD	1	2
1. Proportion PRO †	.05 – .44	.20	.08		
2. Proportion NTA†	.07 – .53	.28	.10	-.365**	
3. Hollingshead Index	11 – 66	38.4	13.6	.246*	-.127

Note. $N = 89$

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

† Proportion PRO and Proportion NTA were square root transformations of the original value.

Table 3

Regression of Income-to-Needs, Mother Education, and Occupation onto Maternal PRO and NTA During Parent-Child Interactions

Socioeconomic Status	Proportion PRO				Proportion NTA			
	B	*(SE)*	*β*	*p*	*B*	*(SE)*	*β*	*p*
(Constant)	.186	(.024)		< .001	.342	(032)		< .001
Income to needs	.015	(.026)	.071	.568	-.041	(.035)	-.150	.244
Less than H.S. vs partial college / tech. school	-.002	(.035)	-.008	.945	.022	(.045)	.058	.633
H.S. vs partial college / tech. school	-.025	(.027)	-.119	.350	.002	(.035)	.007	.960
College vs partial college / tech. school	.011	(.021)	.067	.610	-.011	(.028)	-.055	.684
Masters or beyond vs Partial coll. / tech. schl	.129	(.040)	.409	.002	-.081	(.052)	-.204	.125
Homemaker vs Skilled worker	.014	(.022)	.084	.514	-.079	(.028)	-.372	.006
Unskilled worker vs Skilled worker	-.032	(.031)	-.115	-.314	-.075	(.041)	-.214	.072
Semi-professional vs Skilled worker	.004	(.024)	.022	.867	-.066	(.032)	-.285	.039
Professional vs Skilled worker	-.013	(.043)	-.039	.759	.005	(.056)	.011	.934

Footnotes

[1] HI was also significantly related to parental praise, $r(N = 89) = .25, p < .05$.

[2] When the same model was used to predict parental praise only, the results were similar, $R^2 = .31$, $F(9,79) = 3.86$, $p < .01$.