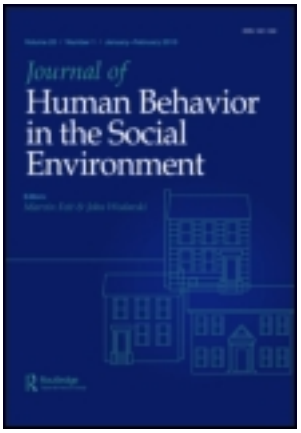

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The Importance of Early, Targeted Intervention: The Effect of Family, Maternal, and Child Characteristics on the Use of Physical Discipline

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The Importance of Early, Targeted Intervention: The Effect of Family, Maternal, and Child Characteristics on the Use of Physical Discipline

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Secondary analysis of Early Head Start Research and Evaluation Study longitudinal data explored family, parent, and child factors that contribute to the use of physical discipline with infants and toddlers. The sample included mothers ($N = 1{,}580$) who self reported the use of spanking at 14, 24, and 36 months. Eighteen percent of the mothers ($n = 287$) indicated that their children experienced consistent physical discipline. Data were analyzed using binary logistic regression. Participation in parenting classes resulted in a 30% reduction in the use of physical discipline. For every year older the mother was at the birth of the child, there was a 7% decrease in physical discipline. Increased knowledge of child development reduced spanking by 35%. Implications for social work practice with families of young children are discussed.

Keywords: Parenting, physical discipline, Head Start, spanking

Social workers, particularly in child welfare and family-serving agencies, are uniquely interested in the family, parent, and child factors that relate to the use of physical discipline with very young children. The effect of harsh discipline "... has been linked to negative outcomes for children, ranging from conduct disorder to depression and low self-esteem" (Bender et al., 2007, p. 227). Recent work on the enduring effects of abuse and neglect points to the linkage between childhood maltreatment and a variety of changes in brain structure and function (Anda et al., 2006). This emerging literature makes it critical that social workers be concerned about what discipline strategies parents are using with their infants and toddlers as the techniques chosen can have long-lasting results.

While most of the research has focused on the predictors and effects of child abuse on young children, it is important to recognize that the less severe forms of physical discipline, including spanking, are on the continuum of negative discipline strategies and require further exploration. In a meta-analysis of research on discipline, Gershoff (2002) reported that parental corporal punishment was associated with child aggression and lower levels of moral internalization and mental health. Spanking has also been associated with behavior problems in children. McLoyd and Smith (2002) found that

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> First, children who experience more spanking on average have a greater increase in behavior problems over time. Second, when the amount of spanking experienced decreases as the child ages, the impact on the growth of behavior problems is blunted, whereas an increasing amount of spanking appears to accelerate the growth of behavior problems (p. 48).

LITERATURE REVIEW

Intervention Strategies

Significant resources are devoted to multiple intervention models designed to improve parenting practices. While there is variability in the effectiveness of parenting curricula, evaluations have shown that well-designed, targeted programs implemented with fidelity have positive outcomes. In one study, teen mothers who participated in a structured program were more responsive to their children and less controlling and showed a greater ability to support language development (Deutscher, Fewell, & Gross, 2006). Parent management training has also been shown to be effective in improving parenting self-efficacy (Hautmann et al., 2009). Additionally, when parents who had been reported to child protective services for abuse or neglect were asked about their needs, they indicated a desire to participate in support groups (Bolen, McWey, & Schlee, 2008).

Family Characteristics

Family characteristics are important factors to consider when exploring what predicts the use of physical discipline. Nobes and Smith (2002), in a British study, found that while single mothers were less educated, had less income, and were less likely to be employed, they punished their children less frequently and harshly than children living with two parents. Contrastingly, Berger (2005) found that income is associated with a higher risk of maltreatment in single-parent families but not in two-parent families. "Socioeconomically disadvantaged mothers had less effective discipline, and their sons were at greater risk for antisocial behavior problems . . . " (Bank, Forgatch, Patterson, & Fetrow, 1993, p. 371). Lower family income has also been related to increased use of spanking. This finding, however, ". . . may imply either that lower income parents are more likely to use non-pecuniary methods of controlling their children's behavior, or that lower income families engage in harsher parenting, perhaps as a result of the stress associated with low-income status" (Berger, 2004, p. 742). The data are not clear-cut, however, when the effect of maternal employment is included:

> Less consistent evidence is found regarding associations between single-mother family structure and substandard parenting. . . . Analyses including these interactions suggest that, among single-mother families, substandard parenting behaviors tend to increase with average daily maternal work hours. . . . With increased work hours, single mothers may lack the time to provide high-quality care. They may also face increased stress associated with having the sole responsibility for both working and parenting. (Berger, 2007, p. 509)

Maternal Characteristics

Younger mothers have long been found to spank or use other physical discipline with their children at greater rates than older mothers (Britner & Reppucci, 1997; Giles-Sims, Straus, & Sugarman, 1995). They are also likely to lack an understanding of child developmental patterns. Mothers who were unrealistic about what a child of a particular age should be able to do were more likely

to attribute difficult child behaviors to intentional, hostile acts by the child (Bolen, McWey, & Schlee, 2008). "Maternal factors such as maternal knowledge of child development might also be associated with maternal response to mother-child conflict" (Huang, Teti, Caughy, Feldstein, & Genevro, 2006) leading to less sensitive parenting among mothers with less exposure to child-rearing information. Holden, Miller, and Harris (1999) found that mothers who spank young children believe it will lead to immediate compliance and improved behavior over the long term.

The mental health status of the parents is of critical importance in relation to their disciplinary behaviors. In a qualitative study, teen mothers reported "Feeling depressed as an adolescent mother following the birth of a baby included ... feeling changed, different, and scared with the sudden realization of motherhood; feeling abandoned and rejected by partners and peers; ... not understanding the experience of depression ..." (Clemmens, 2002, p. 561). The presence of a major depression or heavy alcohol or drug use were significantly associated with greater use of corporal punishment in fathers of 3-year-olds (Lee, Perron, Taylor, & Guterman, 2011). Maternal depression has also been linked to the emotional and behavioral regulation of children (Blandon, Calkins, Keane, & O'Brien, 2008; Zajicek-Farber, Mayer, & Daughtery, 2012). Difficulties mastering strategies that control and augment emotional experiences have been linked to emotional regulation issues throughout the life course (Calkins & Hill, 2007; Feng, Shaw, & Silk, 2008).

Being a mother had a negative effect on the completion of high school for young women who participated in a qualitative study:

> Although each stated that her pregnancy initially led her to drop out of school, the participants argued that having a child increased their interest in their education and pushed them to see how education would help them provide a better future for their children, increase their employment opportunities, and help them get off public assistance. (Zachry, 2005, p. 2566)

Child Characteristics

Concern in the field of child development has focused on the early identification of children who present with conduct and oppositional disorders in adolescence.

> An ability to accurately identify preschool children who have already developed ongoing externalising problems or who are at risk for future externalising problems is a key prerequisite for a better understanding of the etiology and developmental pathways leading to childhood externalising disorders. (Miller-Lewis et al., 2006, p. 892)

A review of six studies of low-income, preschool age children enrolled in Head Start revealed percentages of children with externalizing problems ranging from 16% to 30% (Qi & Kaiser, 2003). There seems to be consistent evidence that low-income children who have been identified with behavior problems in preschool tend to have parents who exhibit more depression and use harsher techniques when disciplining their children (Qi & Kaiser, 2003).

The gender of the child is an important predictor of discipline. Girls are less likely to receive harsh punishment (Lee et al., 2011), a trend that continues into grade school years (McKee et al., 2007). Parental warmth was a buffer against the detrimental effects of harsh physical discipline (Miller-Lewis et al., 2006; McKee et al., 2007). "Spanking was associated with an increase in behavior problems over time in the context of low levels of emotional support, but not in the context of high levels of emotional support" (McLoyd, & Smith, 2002, p. 40). In an observational study of African American mother-child dyads, researchers found "... that mothers are less warm and encouraging and express more negative affect with their sons than daughters ..." (Mandara, Murray, Telesford, Varner, & Richman, 2012, p. 137).

FOCUS OF CURRENT STUDY

Based on the review of the literature, it is evident that the use of physical discipline with very young children is influenced by a variety of factors. The purpose of this study is to explore which parent, family, and child factors predict the use of physical discipline in families with infants and toddlers who are living below the poverty line. The study is guided by the following research question: What factors best predicts physical discipline? The factors include parenting intervention (parenting classes, parent support groups, group socializations), family factors (living alone, poverty), mother factors (age at birth of focus child, depression, knowledge of child development), and child factors (gender, emotional temperament, impaired emotional regulation, and externalizing behavior pattern).

It is hypothesized that very poor, young mothers who live alone, are depressed, do not participate in parenting interventions, lack knowledge of child development, and have a son with externalizing behavior patterns and impaired emotion regulation are significantly more likely to report the use of physical discipline in the household than older, poor mothers with better financial resources who live with a husband, are not depressed, use parenting interventions, understand child development, and have a daughter with fewer externalizing and emotion regulation issues.

METHOD

This research is a secondary data analysis of the Early Head Start Research and Evaluation (EHSRE) Study (United States Department of Health and Human Services [USDHHS], Administration for Children and Families, 2011). Data from 3,001 parent-child dyads were collected between 1996 and 2010 by the USDHHS Administration for Children and Families as part of a longitudinal study of one cohort. Study data were collected via structured interviews and observations by trained data collectors. Originally, the data set was made publically available from Mathematica Policy Research, Inc. via the Child Care and Early Education Research Network and is now available through the Interuniversity Consortium for Political and Social Research (ICPSR).

This analysis used the most recent data file available. Only data collected during the birth-to-age-3 phase of the EHSRE were analyzed, as the focus of this study was on the physical discipline of infants and toddlers. The study sample included 1,580 respondents who had three data points related to the use of physical discipline in the household. This secondary analysis was approved by the Committee for the Protection of Human Subjects at The Catholic University of America.

Measurement

The codebook and detailed description of all the measures used in the EHSRE is available on the ICPSR website. Additional information on the specific psychometric properties for validity and reliability of all EHSRE measures is available through Administration for Children and Families (ACF, 2002). All measures included in this national, longitudinal study were selected based on their conceptual relevance as well as established reliability and validity. Scale scores are reported in the EHSRE public data set as total scores; individual item data on each scale are not available in the public data set. As such, reliability and validity can be reported for the scales in general but cannot be reported for this specific analysis.

Dependent Variable

The dependent variable—use of physical discipline in the household—was constructed to identify mothers who self-reported a consistent pattern of physical discipline. The mothers were

asked "Sometimes children mind pretty well and sometimes they don't. In the past week, have you or has anyone in the household spanked (CHILD) because (he/she) was misbehaving or acting up." If needed, the probe given to the mother was "Last seven days." Mothers answered this question at three separate points in time: during interviews at 14 months, 24 months, and 36 months. Answers for each of these three variables in the data set were coded 0 for no and 1 for yes.

For this study, the dependent variable—use of physical discipline at the three points in time—was recoded into one dichotomous variable using binary coding. Any mother who answered yes three times (at 14, 24, and 36 months) was coded as yes (1), and any mother who answered yes zero, one, or two times was coded as no (0) to create a dummy variable. Dummy coding, as described by Pedhazur and Schmelkin (1991), allows for the variable to be included in regression analysis. The variable was constructed in this manner to capture the consistent use of physical discipline over a 3-year time period. It is possible that social desirability bias influenced the answers given by mothers in the sample to the self-report questions related to use of physical discipline. However, the construction of this variable suggests an under-reporting of physical discipline due to social desirability, as the study looked at the people who responded positively that they engaged in this behavior at three points over a 3-year period.

Independent Variables

The covariates were grouped into four categories: parenting intervention, family characteristics, maternal factors, and child characteristics. The multivariate models were constructed using these categories. According to Pedhazur and Schmelkin (1991), independent variables that utilize binary coding can be used in regression analysis.

Parenting intervention. Parents were given the opportunity to self-report their participation in parenting interventions at 6 months, 15 months, and 26 months after enrollment. They were specifically asked about involvement in parenting classes, group socializations, and support groups. The EHSRE public dataset includes constructed variables for parents who reported participation in each of these interventions by the 26-month data collection point. If the mother reported no participation in that type of intervention at all three interviews, the response was coded as no (0). If the mother reported participation at least once over the three interviews, the response was coded as yes (1) for these summary variables. As this summary variable is constructed as one dichotomous, dummy variable based on self-report data, it is limited in relation to reliability and validity.

Family characteristics. This category included two variables that were collected at baseline: poverty status and living with husband. Poverty line was reported in the EHSRE public data set as a continuous variable to capture the percentage below the poverty line at baseline. For this analysis, poverty was recorded into four categories: poverty 1 refers to mothers who reported income below 33% of the poverty line, poverty 2 is between 34% and 67% of the poverty line, poverty 3 is between 68% and 100% of the poverty line, and poverty 4 refers to mothers who reported income at 101% or above the poverty line. The variable living with husband was derived from the baseline variable regarding living arrangements that was originally coded in the EHSRE public data set as lives with husband (1), lives with other adults (2), and lives alone with children (3). The variable was recoded so that lives with husband was coded 1 and lives with other adults or alone with children was coded 0, creating a dichotomous dummy variable.

Maternal factors. This category included four variables: age at birth of the focus child, employment/school at baseline, depression at baseline, and knowledge of child development at

14 months. Age at the birth of the focus child was collected at baseline and is recorded as a continuous variable in the public EHSRE data set. Employment or school at baseline was coded as 1 and not employed or in school coded as 0, creating a dichotomous, dummy variable. Depression at baseline was determined by administration of the Center for the Epidemiologic Depression Scale that measures the self-report of symptoms of depression via a 4-point Likert scale (Radloff, 1977). While referenced extensively in many research studies, this scale is not a diagnostic instrument but rather is used to identify risk for depression. It has high internal consistency reliability with Cronbach's alphas ranging from .85 to .90 (Radloff, 1977). Radloff reports establishment of concurrent and construct validity. In this administration, mothers were asked to self-report on the frequency of symptoms related to depression in the past week and were coded as 0 = rarely/never, 1 = some/a little, 2 = occasionally/moderately, and 3 = most/all days. The EHSRE public data set identifies mothers at risk of depression if their score was above 23 and was coded as a dichotomous, dummy variable with yes = 1 and no = 0. This interpretation of the scoring was consistent with Radloff's notion that a score of 23 was indicative of probable depression. While some studies use 16 as the cutoff score for possible depression, Knight, Smith, Martin, and the LONGSCAN Investigators (2009) indicate that a higher benchmark is less likely to lead to false positives. Knowledge of child development was assessed by the Knowledge of Infant Development Inventory. It was administered at 14 months and at 24 months. Scores were recoded in the EHSRE public dataset into a 4-point scale so that scores of 4 represented correct answers and scores of 1 or 2 constituted wrong answers. If the mothers were not sure of the answer, the response was recoded to the mean. This scale is in the EHSRE data set as a continuous variable with scores ranging from 1 to 4. In the EHSRE codebook, this scale is described as having limited reliability because of the reduction in the number of items.

Child characteristics. This category included five variables: race, gender, emotion regulation, temperament, and externalizing behavior. Race/ethnicity was recoded from a categorical variable in the EHSRE public data set into four discrete variables: White, Black, Hispanic, and other. Child gender was coded as a dummy variable with male = 1 and female = 0. Emotional regulation was measured by the Bayley Behavioral Rating Scales (1993), which assesses the child's ability to change tasks and materials, negative affect, and frustration using a 5-point scale. The emotion regulation coefficient alpha is reported to be .90 at 24 months, and the test-retest correlation is .66 for the 24- and 36-months age groups. Acceptable construct and criterion-related validity are reported by Bayley (1993). Higher scores on the scale reflect higher emotion regulation. The total score on this scale is in the EHSRE public data set as a continuous variable. Temperament was determined by the Buss and Plomin's Temperament: Early Developing Personality Traits Emotionality Scale (1984). This scale is included in the EHSRE public data set as a continuous variable. While the scale has two components, only emotionality was included in this analysis. The EHSRE codebook describes deriving this subscale by using factor analysis to identify the five scale items that relate to emotionality. Scores range from 1, indicating it was not typical of the child, to 5, indicating it was very typical. The variable in the data set reflects the mean score of these five items. Externalizing behavior was determined using the Achenbach Child Behavior Checklist Aggressive Behavior subscale (2000), which includes 19 child behavior problems related to aggression. This subscale is reported to have high test-retest reliability of .87 to .89 (Achenbach & Rescorla, 2000). It is also reported to have met criteria for content, criterion-related, and construct validity (Achenbach & Rescorla, 2000). Questions included "child hits others," "child has temper tantrums," and "child is easily frustrated." All items were recoded in the data set so that not true was 0, sometimes/somewhat true was 1, and very often/very true was 2. Scores could range from 0 to 38.

Statistical Analysis

SPSS version 17.0 was used for the analyses (Statistical Package for the Social Sciences, 2008). Bivariate analysis was conducted to test for multi-colinearity. Pearson's correlation was applied with the independent variables that were coded as continuous variables and phi correlation coefficients, and chi squares were calculated with the independent variables that were coded as dummy variables based upon Pedhazur and Schmelkin's (1991) discussion of correlation among dummy vectors. Binary logistic regression was utilized to analyze the multivariate hypotheses because the dependent variable, use of physical discipline, was constructed as a dichotomous variable (no = 0, yes = 1). A stepwise multivariate model was developed, and the variable categories were entered in this order: (1) parenting intervention, (2) family characteristics, (3) maternal factors, and (4) child characteristics.

RESULTS

Demographic Characteristics

Demographic characteristics are summarized in Table 1. The majority of the sample was below 100% of the poverty line (85%), with only 15% at 101% of the poverty line or above. More mothers (72%) were living alone or with others in the household than with a husband (28%). The

TABLE 1
Demographic Characteristics

	Total		*Physical Discipline*		*No Physical Discipline*	
	n	%	*n*	%	*n*	%
All study sample	1,580	100	287	18	1,293	82
Poverty line						
Below 33%	356	28	90	25	266	75
34%–67%	389	30	56	14	333	86
68%–100% Poverty 3	351	27	53	15	298	85
101% and above	196	15	26	13	170	87
Household						
Live with husband	440	28	54	12	386	88
Live alone	1,140	72	233	20	907	80
Employed/school						
Yes	719	47	155	22	564	78
No	801	53	123	15	678	85
Probable depression						
Probably depressed	134	8	25	19	109	81
Not depressed	1,446	92	262	18	1,184	82
Race/ethnicity						
White	637	40	95	15	542	85
Black	496	32	152	31	344	69
Hispanic	354	22	30	8	324	92
Other	66	4	8	12	58	88
Child gender						
Male	803	50.8	158	19.7	645	80.3
Female	777	49.2	129	16.6	648	83.4

sample was evenly distributed by employment/school: 47% of mothers reported being employed or in school, and 53% of mothers said they were neither working nor attending classes at baseline. Only a small percentage of the sample (9%) screened positive for depression. The mothers ranged in age from 14 to 40 with a mean age of 22.6 (*SD* 5.75). The sample was mostly White (40%), with 32% Black, 22% Hispanic, and 4% other. Data on race/ethnicity were missing for 2% of the sample. The sample was evenly distributed by gender of the focus child: 51% male and 49% female.

Of the 1,580 in the total sample, 287 mothers (18%) met the study criteria as they reported during interviews at 14, 24, and 36 months that their identified child had been spanked within the past week. Mothers with the lowest income, below 33% of the poverty line, were the most likely to report the use of physical discipline (25%). Mothers living alone (20%) were more likely to say spanking had occurred than mothers living with husbands (12%). Mothers who were employed or in school (22%) were more likely to report spanking occurred than mothers who were not employed or in school (15%). Black children were the most likely to be spanked (31%), followed by White (15%), other (12%), and Hispanic (9%). Males were more likely to experience physical discipline (20%) then females (17%).

Bivariate Analyses

Use of physical discipline in the household was found to be significantly related to two parenting interventions: parenting classes ($\phi = -.08$, $p = .00$) and group socializations ($\phi = -.08$, $p = .00$). While use of physical discipline was not significantly related to participation in parent support groups, it was determined to be relevant for inclusion in the binary logistic analysis.

Physical discipline was significantly associated with family characteristics. Poverty was significantly related to use of physical discipline ($\chi^2 = 21.44$, $df = 3$, $p = .00$). Mothers who reported income under 33% of the poverty line were most likely to report use of discipline. Spanking was found to be significantly linked to living with a husband ($\phi = -.10$, $p = .00$). Mothers with spouses were less likely to report the use of physical discipline in their home.

Spanking in the household varied with the selected maternal factors. Mother's age ($r = -.17$) was significantly, negatively related to use of discipline. Mothers who were younger at the birth of the focus child were more likely to report the use of physical discipline in the household. Similarly, when mothers worked or attended school, physical discipline within the household ($\phi = .08$, $p = .00$) was more likely to occur. Maternal knowledge of child development at 14 months was found to be significantly, negatively related to use of discipline ($r = -.67$). Greater knowledge of child development at 14 months was associated with less reliance on physical discipline. Knowledge of child development at 24 months was not significant and, as such, was not considered for inclusion in the binary logistic regression analysis.

All of the child characteristics were found to be significantly associated with the use of physical discipline in the household with the exception of gender ($\phi = .04$, $p = .11$). Race was significantly related to use of discipline ($\chi^2 = 79.81$, $df = 3$, $p = .00$). Children who were identified as White ($\phi = -.07$, $p = .01$) or Hispanic ($\phi = -.14$, $p = .00$), were less likely than Black children to experience physical discipline ($\phi = .22$, $p = .00$). Emotion regulation was significantly, negatively related to use of discipline ($r = .10$). Children who had higher regulation were less likely to experience discipline. Temperament was also significantly, positively related to spanking ($r = .11$). Externalizing behavior was significantly, positively correlated to use of discipline, with children with higher Achenbach scores at 24 months ($r = .15$) and at 36 months ($r = .14$) more likely to experience physical discipline. All items were determined to be appropriate for inclusion in binary logistic regression analysis, including gender despite its lack of significance.

Results of Hypothesis Testing

Binary logistic regression was considered to be appropriate for this analysis as the assumptions outlined by Spicer (2005) were met. The sample size of 1,580 exceeds the 50 cases per independent variable standard. The measurement of variables was appropriate, as the independent variables were coded as continuous or dummy coding. All variables met the criteria for inclusion in multivariate analysis related to multicolinearity. An iterative process was used to calculate the coefficients. All models are presented to illustrate the progression of variables through the process of building the final model in order to demonstrate the iterative process used.

The results of multivariate analyses are presented in Table 2. For Model 1, parenting intervention variables were entered in this order: parenting classes, group socializations, and support group participation. Model 2 included the parenting intervention variables in the first block and added family structure as the second block. Family structure variables were added in the order of below 33% of the poverty line, between 34 and 67% of the poverty line, between 68 and 100% of the poverty line, and living with husband. Model 3 entered parenting intervention as block 1, family structure as block 2, and added maternal factors as block 3. Maternal factors were entered as age at birth of focus child, employed or in school at baseline, depression at baseline, and knowledge of child development at 14 months. Model 4 entered parenting intervention as block 1, family structure as block 2, maternal factors as block 3, and child characteristics as block 4. Child characteristics were added in the order of White, Black, and Hispanic, gender, emotion regulation at 24 months, temperament at 14 months, externalizing behavior at 24 months, and externalizing behavior at 36 months.

Model 1 was significant ($\chi^2 = 14.53$, $df = 3$, $p = .00$). This model explained only 1% to 2% of the variance in use of physical discipline in the household (Nagelkerke's $R^2 = .02$; Cox & Snell $R^2 = .01$). The −2 log likelihood for this model was 1,285.57. The Hosmer and Lemeshow goodness-of-fit test was not significant ($\chi^2 = 1.20$, $df = 4$, $p = .88$), indicating that Model 1 is a good fit. Parenting class participation was the only significant predictor. Parents who participated in parenting classes were 31% less likely to report the use of physical discipline in the household (OR = .69, $df = 1$, $p = .02$). The other variables in this model were not significant.

Model 2 was significant ($\chi^2 = 40.00$, $df = 7$, $p = .00$). This model explained only 3% to 5% of the variance in use of physical discipline in the household (Nagelkerke's $R^2 = .05$; Cox & Snell $R^2 = .03$). The −2 log likelihood for this model was 1,260.10. The non-significant Hosmer and Lemeshow test indicated a good fit ($\chi^2 = 3.94$, $df = 8$, $p = .86$). Parenting class participation and living with a husband were significant. Mothers who participated in parenting classes were 30% less likely to report the use of physical discipline in the household (OR = .70, $df = 1$, $p = .03$). Mothers who lived with a husband were 45% less likely to report the use physical discipline in the household (OR = .55, $df = 1$, $p = .00$).

Model 3 was significant ($\chi^2 = 75.05$, $df = 11$, $p = .00$) with between 5% and 9% of variance in use of physical discipline explained by the model (Nagelkerke's $R^2 = .09$; Cox & Snell $R^2 = .05$). For this model, the −2 log likelihood was 1,225.04. The Hosmer and Lemeshow goodness-of-fit test was not significant, indicating a good fit ($\chi^2 = 7.37$, $df = 8$, $p = .50$). Parenting class participation was significant. Mothers who engaged in parenting classes were 31% less likely to report that their children had been spanked (OR = .69, $df = 1$, $p = .03$). In Model 3, family structure variables were not significant except age at the birth of the focus child. Mothers who were older when the focus child was born (OR = .93, $df = 1$, $p = .00$) had lower odds of reporting the use of physical discipline in their households. For each increased year in age, they were 7% less likely to report that their children were spanked.

Model 4 was significant ($\chi^2 = 159.93$, $df = 19$, $p = .00$) and had a good fit according to the Hosmer and Lemeshow test ($\chi^2 = 4.87$, $df = 8$, $p = .77$). Model 4 explained 11% to 18% of the

TABLE 2
Summary of Logistic Regression Analysis of Use of Physical Discipline

	Model 1				*Model 2*				*Model 3*				*Model 4*			
	B	*S.E.*	*Wald*	*OR*	*B*	*S.E.*	*Wald*	*OR*	*B*	*S.E.*	*Wald*	*OR*	*B*	*S.E.*	*Wald*	*OR*
Parent intervention																
Parent classes	−.38	.16	5.48	.69*	−.36	.16	4.72	.70*	−.37	.17	4.83	.70*	−.33	.17	3.59	.72
Socializations	−.31	.18	2.97	.73	−.26	.18	1.98	.77	−.17	.19	.83	.84	−.13	.19	.46	.88
Support group	.07	.22	.10	1.07	.02	.22	.01	1.02	.07	.22	.09	1.07	.09	.23	.16	1.10
Family characteristics																
Poverty 1					.32	.19	2.82	1.37	.32	.19	2.77	1.38	.25	.20	1.48	1.3
Poverty 2					−.27	.20	1.87	.77	−.14	.20	.48	.87	−.11	.21	.29	.89
Poverty 3					−.17	.21	.62	.85	−.05	.21	.04	.96	.05	.22	.05	1.05
Husband					−.60	.19	10.93	.55***	−.33	.19	2.91	.72	−.05	.21	.05	.95
Maternal factors																
Age at birth FC									−.07	.02	20.57	.93***	−.07	.02	17.37	.93***
Employed/School									.24	.15	2.51	1.27	.17	.16	1.18	1.19
Depression									−.00	.27	.00	1.00	−.06	.27	.06	.94
Knowledge 14 m									−.31	.18	2.96	.73	−.43	.22	4.05	.65*
Child characteristics																
White													.25	.41	.36	1.28
Black													.81	.41	3.91	2.24
Hispanic													−.64	.45	2.04	.53
Gender													.32	.15	4.49	1.38*
Emotion Reg 24 m													−.13	.10	1.74	.88
Temperament 14 m													.10	.08	1.47	1.11
Externalizing 24 m													.03	.01	5.39	1.03*
Externalizing 36 m													.04	.01	6.70	1.04**
Nagelkerke R^2	.02				.05				.09				.18			
−2 likelihood ratio	1,285.57				1,260.10				1,225.04				1,140.17			
Chi-square	14.53** ($df = 3$)				40.00*** ($df = 7$)				75.05*** ($df = 11$)				159.93*** ($df = 19$)			

Note. FC = focus child; m = month.
*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$.

variance in the use of physical discipline in the household (Nagelkerke's $R^2 = .18$; Cox & Snell $R^2 = .11$). Parenting intervention and family structure variables were not significant. However, parenting class participation approached significance (OR = .72, $df = 1$, $p = .06$). Two of the five maternal factors were significant: older mothers at the birth of the focus child (OR = .93, $df = 1$, $p = .00$), with more knowledge of child development when the child was 14 months of age (OR = .65, $df = 1$, $p = .04$) had lower odds of reporting the use of physical discipline in the household. For every year of age increase for the mother at the birth of the focus child, there was a 7% reduction in the report of the use of physical discipline. It is also important to note that an increase in knowledge of child development denoted a 35% reduction in the use of physical discipline. Four of the eight child characteristics were significant. Black children had higher odds of being spanked (OR = 2.24, $df = 1$, $p = .05$). Boys had higher odds of experiencing physical discipline (OR = 1.38, $df = 1$, $p = .03$), and children who demonstrated externalizing behaviors at 24 months (OR = 1.03, $df = 1$, $p = .02$) and at 36 months (OR = 1.04, $df = 1$, $p = .01$) had greater odds of being spanked. For each one-point increase in score on the Achenbach at 24 and 36 months, children were 1.03 and 1.04 times, respectively, more likely to experience physical discipline.

Discussion and Implications for Practice

Social work interventions to promote positive parenting strategies are uniquely concerned with what factors affect the use of physical discipline with infants and toddlers. This study explored how family characteristics, maternal factors, and child characteristics influence the use of physical discipline over a 3-year period. The study also examined the relationship between three parenting intervention strategies and the reported use of physical discipline, specifically spanking.

The notion that mothers who participate in parenting classes, support groups, and group socializations would be less likely to report the use of physical discipline in the household was partially supported. The bivariate analysis reinforced that involvement in parenting classes and group socializations reduced the use of physical discipline in the household, but that attendance at support groups did not. These findings suggest that interventions promoting positive parenting would benefit from focusing on opportunities for parents to observe and interact with one another through socialization activities. This research reinforces the use of classes where parents can learn about parenting and child development (Deutscher et al., 2006; Hautmann et al., 2009). It contradicts other research that advocates the use of support groups with at-risk families (Bolen et al., 2008).

On the multivariate level, the binary logistic regression also partially supported the hypothesis. In Model 1, Model 2, and Model 3, participation in parenting classes was the only intervention variable that remained significant. With the addition of child characteristics to Model 4, parenting classes approached, but did not reach, significance. These findings suggest that while parenting interventions might be valuable in preventing the use of physical discipline, however, when combined with specific child characteristics, they are not sufficient to protect the child.

The hypothesis addressed family characteristics, positing that mothers who were not living with a husband and had higher levels of poverty were more likely to report the use of physical discipline in the household. This was partially supported as analyses indicated that mothers with incomes below 33% of the poverty line were significantly more likely to report the use of physical discipline. Yet, poverty was not significant when combined with other variables in the binary logistic regression analysis. As the majority of the mothers in the sample were at or below 100% of the poverty line, all were struggling financially. This analysis also indicated that young children living with single mothers were more likely to be spanked, suggesting that parenting interventions should target the poorest mothers who are isolated. This confirms Berger's (2005) finding that

income is related to the higher risk of maltreatment in single-parent families. The binary logistic regression, Model 2, supported that living with a husband reduces the odds of physical discipline by 45%. However, these family characteristics did not remain significant when the maternal factors and child characteristics were added, suggesting that while they are important to consider, they are not the most significant predictors of the use of physical discipline.

The hypothesis also addressed maternal factors: Mothers who were adolescents at the birth of the focus child, were experiencing depression, and were less knowledgeable about child development were more likely to report the use of physical discipline in their households. Analysis indicated that younger mothers are at greatest risk for resorting to physical discipline and should be targeted to receive parenting interventions. While the risk factors associated with young motherhood have long been recognized and documented (Britner & Reppucci, 1997; Giles-Tims et al., 1995), these vulnerable families continue to come to the attention of social workers concerned with family stability and child safety. Mother's age was significant in both Model 3 and Model 4. With each year a mother delayed the birth of the identified child, there was a 7% reduction in the use of physical discipline. These findings clearly support targeted interventions to prevent the use of physical discipline with younger mothers.

Contrary to other studies (Blandon et al., 2008; Zajicek-Farber et al., 2012), the findings did not support maternal depression as a predictor of the use of physical discipline in the household with young children. This discrepancy could be the result of the depression variable used in this study. The cut-off score of 23 was used rather than the score of 16 that is frequently used in other studies, so the discriminating nature of the higher score could have led to different findings. Additionally, depression at baseline was the variable used in this study. It is possible that the findings would change if depression had been analyzed throughout the 3-year time period. This finding suggests the need for further evaluation of the role that depression might play in predicting the use of physical discipline.

Consistent with previous research, knowledge of human growth and development is a protective factor (Bolen et al., 2008; Huang et al., 2006). Understanding child development at 14 months was significantly related to reported use of discipline. However, knowledge of child development at 24 months failed to be significantly related to discipline and was not included in the multivariate analysis. This finding suggests the importance of designing parenting classes for mothers of infants aimed at increasing knowledge of child development. If parents learn what to expect from their child during the first year of life, they are better prepared to handle the changes in parenting routines that occur when the child becomes mobile and begins to assert independence. Waiting to increase knowledge until the child is starting the "terrible twos" is too late to prevent the continued use of physical discipline as a parenting strategy. Furthermore, knowledge of child development was not significant in Model 3 but became significant in Model 4, suggesting that there might be interactions to explore in further research of this construct as a protective factor.

Child characteristics were explored: Male children who have emotional temperaments, impaired emotional regulation, and externalizing behavior patterns are more likely to experience physical discipline. This hypothesis received mixed support. Emotional temperament and emotional regulation were significant on the bivariate but not in the logistic regression, analysis. Adding support to previous research (Qi & Kaiser, 2003), externalizing behavior was significant at both levels, indicating that children who engage in more externalizing behavior are more likely to be spanked and, therefore, their mothers need to be specifically targeted early for intervention. While gender was a significant predictor in the logistic regression analysis, it was not significantly related using the phi coefficient. This finding is indicative that boys are more likely to be spanked but not based on gender alone. Rather, the risk of using physical discipline with boys occurs in combination with other maternal and individual factors. Contrary to expectations, the race of the child was significantly related to the use of discipline. Black children were more than twice as likely to experience physical discipline.

Limitations

Several limitations impact the generalizability of the findings from this study. The dependent variable—use of physical discipline—was created as a dichotomous variable. While it was specifically constructed to capture the use of physical discipline over time, it is limited by being a dichotomous rather than a continuous variable. It is possible that this dependent variable is further limited by social desirability bias. Mothers may have not wanted to admit to engaging in spanking, assuming it would be viewed in a negative light. Several other limitations relate to conducting secondary analysis of an existing data set. First, the parenting intervention analysis used one variable in the EHSRE data set for each type of intervention. As such, the use of single indicator variables does not allow for the establishment of reliability and validity. Second, the EHSRE data set used a different benchmark for the establishment of risk of depression than what is usually utilized for the CE$D measure of depression. While this was done to differentiate probable from possible depression and to avoid false positives, it does differ from other research regarding maternal depression. Fourth, for all the scales included in the EHSRE, summary data of the total score were provided without individual item responses. As such, it was not possible to determine reliability and validity for these scales in this study.

CONCLUSION

Despite concentrated focus among social workers working in the early childhood field on the need to reduce the use of physical discipline with young children, it is still occurring in many families. While the majority of mothers in this study did not report the consistent use of physical discipline, it is concerning that 18% of the mothers ($n = 287$) acknowledged that their very young children, from infancy through toddlerhood, had experienced the use of consistent physical discipline.

The findings of this study support the social work view that physical discipline of very young children is affected by family, parent, and child characteristics. Parenting interventions need to begin early, during the first year of a child's life, using classes and group socialization methodologies. Parents need opportunities to interact with other parents in group settings where they can watch other parents relating with their infants and toddlers and, therefore, benefit from observational learning. Waiting to begin intervention until the child is 2 years of age is too late to stop a pattern of parenting that relies on physical discipline. This study also suggests that parents need opportunities to increase their knowledge of child development so that they know what to expect from their very young children. Mothers who are living alone are particularly at risk and should be targeted for additional parenting intervention.

To reduce the use of physical discipline with infants and toddlers, social workers need to include the child's personality developmental trajectory in a comprehensive assessment. Social workers can work in conjunction with families and other allied disciplines, including early childhood educators, to gather information on the child's temperament, emotion regulation, and externalizing behavior patterns. Screening and assessment related to these characteristics will help social workers identify which parents may be most at risk for the use of physical discipline. Social workers can also be attuned to the gender dynamics of discipline and offer more parenting intervention opportunities to the mothers of young boys.

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