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Risk Factors in Child Maltreatment: A Meta-analytic Review of the Literature

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Risk Factors in Child Maltreatment: A Meta-analytic Review of the Literature

Abstract

This review presents the results of a series of meta-analyses identifying the relative strength of various risk factors for child physical abuse and neglect. Data from 155 studies examining 39 different risk factors were included in the review. Large effect sizes were found between child physical abuse and four risk factors (parent perceives child as problem, parent anger, family conflict and family cohesion). Large effect sizes were also found between child neglect and six risk factors (child social competence, parent-child relationship, parent perceives child as problem, parent's level of stress, parent's level of anger, and parent's self-esteem).

Key Words: child maltreatment, child physical abuse, child neglect, risk factors, meta-analysis

Risk Factors in Child Maltreatment: A Meta-analytic Review of the Literature

Introduction

Maltreatment of children is a prevalent social problem. The National Clearinghouse on Child Abuse and Neglect reported that in 2002 an estimated 896,000 children were the victims of child abuse or neglect. Since the 1970's a large number of studies have examined risk factors for child maltreatment. However, the findings of these studies are varied. The present study summarizes the literature on child maltreatment and uses a meta-analytic design to determine the strength of the relationship between each risk factor and child physical abuse or neglect across the literature as a whole.

Review of Literature

Empirical literature on child abuse and neglect has shifted in focus over the past several decades. Earlier studies tended to focus more on psychological and personality characteristics of the offender, especially those of the mother. Later studies have examined a variety of factors pertaining to family members, the family system, and the environmental milieu. Previous reviews of child maltreatment literature demonstrate this trend. Baumrind (1995) reviewed literature on parent psychological factors and child abuse. She notes that although in the 1950s and 1960s child abuse was seen as a product of parent psychopathology, studies in the 1970s found psychopathology to be rare in abusive parents. Studies also failed to identify a specific psychological or personality pattern in abusive parents. Nevertheless, recent research has not abandoned the study of parent psychological risk factors. Parent depression and impulse control problems in particular are consistently shown to be related to child abuse and neglect.

The literature on parent biological, cognitive, affective, and behavioral factors in child physical abuse is summarized by Milner & Chilamkurti (1991) and by Milner & Dopke (1997). These reviews indicated that parental low self-esteem, depression, psychopathology, history of childhood abuse, and social isolation, among other factors, to be at least somewhat consistently

related to child physical abuse. Studies are also somewhat consistent in finding abusive parents to be more psychophysiologicaly reactive to aversive child stimuli, to have unrealistic expectations of the child (either too high or too low), to use more coercive discipline than inductive reasoning, to have less interaction with the child, to be more negative than positive in interactions with the child, and to see the child as a problem child or as acting to intentionally annoy. McCanne and Milner (1991) investigated psychophysiological reactivity in detail, summarizing six studies. They determined that although there appears to be a relationship between reactivity and abuse, not all physiological measures consistently indicate such a pattern.

Milner and Chilamkurti (1991) also found that the few studies on parent substance abuse and child maltreatment suggest a relationship between the two, particularly in the case of alcohol abuse. Studies were inconsistent in the finding of a relationship between abuse and parents' ability to read child emotional cues. Finally, Hazler and Denham (2002) supported the findings of Milner and Chilamkurti (1991) and Milner and Dopke (1997) by reviewing several studies on social isolation and child abuse and neglect, all of which found a significant relationship to exist.

None of the empirical literature reviews to date have cited demographic factors as particularly important in relation to child physical abuse or neglect. Moreover, Buckholz and Korn-Bursztyn (1993) reviewed the literature on teen parenting and child maltreatment and concluded that the high levels of abuse reported in the applicable studies seems to reflect constructs other than age of the parent, including depression and life stress. Furthermore, Giles-Sims (1997) reviewed the literature on non-biological parents and found mixed support for a higher prevalence of physical abuse in stepfamilies.

Some reviews have focused solely on child-related factors. Veltman and Browne (2001) reviewed 65 studies examining the relationship between child maltreatment and school performance and language development. Most, but not all, of these studies found delayed development and poor school performance among maltreated children. A review of the literature on child disability and maltreatment showed what little research exists on the subject to be

inconsistent (Westcott, 1991). Furthermore, Dubowitz (1999) found no consistent relationship across studies between child neglect and child age, gender, or developmental problems. Dubowitz also reviewed studies examining parent factors in neglect. His findings supported those of supported those of Milner and Chilamkurti (1991), Milner and Dopke (1997), and Hazler and Denham (2002), with parent stress, non-responsivity/negativity toward the child, social isolation, depression, unrealistic expectations, poor parenting skills, substance abuse, and history of childhood abuse being consistently shown to be related to neglect.

Belsky (1993) also reviewed the research on risk factors in child physical abuse and neglect examining multiple levels of factors, including those pertaining to individual family members, the family system, interaction with the community, and societal factors. His findings supported those of Milner and Chilamkurti (1991), Milner and Dopke (1997), Dubowitz (1999), and Hazler and Denham (2002) regarding the risk factors of childhood history of abuse, depression, psychopathology, self-esteem, psychophysiological reactivity, coercive discipline, social isolation, non-responsivity/negativity toward the child, and belief that the child has a behavior problem or acts to intentionally annoy. Like Buckholz and Korn-Bursztyn (1993), Belsky found no consistent relationship between child disability and maltreatment. Belsky also supported Dubowitz in finding inconsistency across studies on child age.

The inconsistency of the findings across studies warrants the use of meta-analytic methods to interpret the research. To date, only two reviews have calculated effect sizes for studies, one into physical abuse (Black, Heyman, & Slep, 2001) and one into neglect (Schumacher, Slep, & Heyman, 2001), examining multiple risk factors in relation to maltreatment. Black, et al. reviewed 46 studies examining parent and child cognitive, psychological, demographic, intelligence, and historical factors, as well as social isolation, family factors, and parent-child interaction factors and child physical abuse. The results of reviewed studies were summarized and an effect size was computed for each study. No composite effect sizes were computed for the purposes of summarizing all studies on a given factor. Schumacher,

et al. reviewed 10 studies examining the relationship between some of these factors and child neglect. Parent psychological and behavioral characteristics had the largest effect sizes, although effect sizes could not be computed for most factors due to a small body of literature on neglect.

The purpose of the present study is to summarize the literature on a variety of risk factors for child physical abuse and neglect. This study adds to the existing literature by providing composite effect sizes indicating the strength of the relationship between each respective factor and child physical abuse or neglect. These composite effect sizes provide some indication of the importance of each risk factor relative to other risk factors.

Theoretical Perspective

The focus of previous literature reviews on risk factors pertaining to the offending parent (Buckholz & Korn-Bursztyn, 1993; Giles-Sims, 1997; Hazler & Denham, 2002; McCanne & Milner, 1991; Milner & Chilamkurti, 1991; Milner & Dopke, 1997) and to the child victim (Veltman & Browne, 2001; Westcott, 1991) highlights the fact that much of the research on child maltreatment to date is guided by the theory that maltreatment stems from individual pathology. However, because child maltreatment occurs in a family context, family-level factors should also be considered. In this study, ecological theory guided the choice of risk factors to be examined. This theory originated with Bronfenbrenner (1979), who explains child development based on multiple levels of embedded systems. These levels range from the proximal child environment (i.e., school, home, and peer group) to more distal social structures to the larger culture. Ecological theory considers each level as relevant to child development.

For the purposes of this study, we examine various microsystems of the ecological model for both child physical abuse and child neglect. We predicted that variables most proximal to the experience of child maltreatment would have the strongest effect sizes and those variables most distal from the experience of child maltreatment would have the smallest effect sizes. Since child abuse involves both the child and the parent, we considered parent-child interaction and/or parent's report of the child's behavior to be most proximal to the issue of child abuse. For the

next microsystem level, we considered parent characteristics the next most proximal level since parents are the perpetrators of abuse. We then looked child characteristics (excluding parent) and finally, we examined the microsystemic factors we considered most distal, family characteristics. Risk factors within these levels were identified in three ways: through initial perusal of the literature reviews on child abuse and neglect cited above, by a panel of researchers and clinicians convened by the U.S. Military Family Advocacy Program, and iteratively throughout the study coding process.

Parent-Child Interaction or Parental Report of Child Behavior

In the microsystem level most proximal to the abuse, parent-child interaction or parental report of child behavior, we attempted to calculate effect sizes for six factors for child physical abuse and for child neglect. The factors examined here included *parent-child relationship* (the studies in this category primarily involved coding of parent-child interaction and/or child attachment to parent behaviors), *parenting behaviors* [the studies in this category included studies of parenting styles using measures such as, the Child-rearing Practices Q-Sort (Block, 1981), surveys measuring the parent's ability to plan or carry out to completion effective interactions with their children, such as the Parent Problem Solving Instrument (Wasik, et al, 1980), studies which examined parent's unrealistic expectations of their child with measures such as the Developmental Expectation Questionnaire derived from the Vineland Social Maturity Index (Doll, 1965), and studies which examined parental level of empathy toward the child with measures such as the Empathy Scales (Scotland, 1969)]. We also looked at the *parent's perception of the child as a problem*. Studies included in this factor included studies where the parent completed assessments of the child using measure such as the Child Behavior Checklist (Achenbach & Edelbrock, 1983). We also looked at whether the *pregnancy with the abused child was unwanted or unplanned*, *parent's use of corporal punishment*, and *parent stress regarding parenting* [this variable included studies that used measures such as the Parenting Stress Index (Abidin & Burke, 1978) to measure the parent's level of stress specifically regarding parenting].

Parent Characteristics Independent of the Child

The next more distal microsystemic level included 19 factors related to parent characteristics independent of the child. These factors included the *age*, *gender*, and *employment status* of the offending parent and whether or not the offending parent is a *single parent*. This level also included measures of the parent's *drug abuse*, *alcohol abuse* [not including other drugs], *health problems*, *anxiety*, *depression*, *personal stress*, *self-esteem*, and *psychopathology* [this variable includes any measure of mental illness besides depression or anxiety including schizophrenia, bipolar disorder, etc.]. In this level we also included *poor relationship with own parents* (either as an adult or as a child), *past criminal behavior* (including violent outside the home) and level of *anger/hyper-reactivity* [this factor assesses the parent's agitation, physiological arousal, and negative affect in response to a given stimulus (measured in laboratory studies) and global measures of hostility measured by instruments such as the Buss-Durkee Hostility Inventory (1957) and the Mood Adjective Checklist (Frodi, et al., 1978)]. We also looked at parent's experience of *childhood abuse*, parent's level of *social support*, parent's *coping or problem solving skills* [measured by scales such as the Problem Solving Inventory (Heppner & Petersen, 1982)] and parent's *approval of corporal punishment*.

Child Characteristics, Excluding Parents

Within the microsystem that contained child characteristics, excluding parents, we attempted to calculate effect sizes for seven factors for child physical abuse and the same factors for child neglect. For the studies to fit in this microsystem level, the assessment of child behavior or problem needed to come from an external source, not the parent. We calculated effect sizes for *child gender*, *age*, and *disability* (professionally diagnosed physical, mental or learning disability). We also looked at studies examining child *social competence* (child's ability to interact well with peers assessed by individuals other than parents), child *externalizing behaviors* (disruptive behavior, aggression, delinquency, non-compliant behavior, etc.), child *internalizing*

behavior (withdrawn behavior, depression, sadness, etc.), and *prenatal/neonatal problems* of the child (problems or complications in child during pregnancy, delivery, or infancy).

Family Factors

The most distal microsystemic level included seven family-related factors. We looked at *family conflict*, *family cohesion*, *spousal violence*, *socio-economic status* of the family, *marital satisfaction*, *family size*, and whether or not there was a *non-biological parent in home*.

Hypotheses

Although factors from each of these microsystemic levels influence the occurrence of child abuse and neglect, since child abuse is an interactional phenomena, we hypothesized that the microsystem level which includes “Parent-Child Interaction or Parental Report of Child Behavior” would have stronger effect sizes than would factors that from microsystemic levels representing more individual level factors (“child characteristics” or “parent characteristics”) or “family factors” which might be more distant from the parent-child interaction. Although the offender, as an individual, enacts the behaviors defined as abusive or neglectful, these incidents occur, by definition, at a dyadic level and not solely within the individual.

Methods

For the purposes of the present study, child physical abuse is defined as non-accidental injury (including bruises, welts, cuts, burns, broken bones, or other tissue damage) to the child inflicted by a parent or a caregiver in a parenting role. Child neglect is defined as failure of a parent or a caregiver in a parenting role to provide adequate supervision, safety, medical care, education, or other necessities to the child. Definitions or criteria for physical abuse and neglect vary from study to study. We did not include child sexual abuse, infanticide, Munchausen’s syndrome by proxy or failure to thrive in our definition. Because risk factors for these types of abuse were likely to be different from risk factors for other forms of child physical abuse or neglect, studies examining these types of abuse were also not included in these analyses.

Literature Search

Computer database searches were the primary method of identifying articles for inclusion in this study. The Psychological Abstracts International (PsychINFO) computer database was searched for all studies conducted to present including the keywords: “child abuse”, “child maltreatment”, “child physical abuse”, and “child neglect”. In addition to using the computer database, the reference list for each study was examined for additional potential studies to be included in the review. The literature search identified 867 relevant studies, which were obtained for possible inclusion in this meta-analysis.

Inclusion Criteria

The inclusion of studies in this meta-analysis was based on several criteria (Johnson, 1989; Stith, et al. 2000; Wampler & Serovich, 1996). First, the study must empirically examine the relationship between the identified risk factor and either child physical abuse or child neglect. Second, as mentioned earlier, the maltreatment sample may not include perpetrators or victims of child sexual abuse, failure to thrive, Munchausen’s syndrome by proxy, or infanticide. The rationale behind excluding these studies is that the profile and patterns associated with these acts is different from those associated with other forms of child maltreatment. Third, in order to be included, each study must use a non-abusive comparison group. Fourth, the perpetrators of child maltreatment in the study must be parents or in a parenting role. Fifth, included studies must not draw their entire sample from a special population (such as mentally handicapped parents). Sixth, each study must include the quantitative data necessary for the calculation of at least one effect size. Finally, each study must use an original sample. Results from separate studies using the same sample were included only if they reported data that could be used to calculate effect sizes for different variables or for different samples. Therefore, only one study using a particular sample was included in the meta-analytic review for each variable.

The literature search yielded a large number of studies for possible inclusion in the meta-analysis. This was due, in part, to the decision to use a broadly defined search. Of the 867 studies

obtained, 712 were excluded from the study because they did not meet the above criteria. Two hundred and twelve studies were excluded because they contained no empirical data. Two hundred and sixty-eight studies were excluded because the sample of abusers or abused children did not differentiate between types of abuse (neglect or physical) or the sample included emotional abuse or the study did not examine a risk factor for child maltreatment that was on our list. Sixty-four studies were excluded because the sample included sexual abusers or sexual abuse victims. One hundred and four studies were excluded for lack of a comparison group, and eight were excluded because the comparison group was not non-abusive. One study was excluded because the perpetrator of the abuse was not a parent or in a parenting role. Thirteen studies were excluded because the entire sample represented a special population. Thirteen studies were excluded because they contained duplicate samples. Twenty-nine studies were excluded because they did not contain relevant data that could be converted to an effect size, given the statistics reported. When sufficient data were not provided and the study was not published before 1985, we made an attempt to contact the authors for these data. However, no additional data were received as a result of this effort. The remaining 155 studies (published between the years of 1969 and 2003) were retained for coding.

Coding

A codebook was designed for use in this study to capture information about individual studies including bibliographical information, sample information, study quality, and data for the calculation of effect sizes. In order to resolve problems with the codebook and establish consistent guidelines for coding studies, the entire research team coded the first several studies. After team consensus in coding became typical, two team members independently coded each of the remaining studies. Each study was then cross-coded jointly by both coders in order to compare codes and achieve congruence. In all cases, the occurrence of a disagreement in coding was recorded. Overall, coders agreed on 82% of codebook items. The rate of disagreement ranged from a low of 68% on subjective rating of study quality to 100% on a number of variables

including type of publication outlet. When discrepancies occurred, the coding pair was encouraged to discuss the issue and make a joint decision as to how the particular item should be coded. Any discrepancies or questions that could not be resolved by the coding pair were brought to the remaining research team members.

Study Quality

The quality of a meta-analysis is dependent on the quality of each of the studies included in the meta-analysis. If the individual studies are of poor quality, then the results of the meta-analysis might be questionable. In order to address this concern, the codebook included a scale that rated the quality of the study on eight dimensions. Study quality scores ranged from zero (poor) to four (excellent). Only six studies received a quality rating of zero (poor). Thirty-nine studies received a quality rating of one (below average). The remaining 166 studies received a rating of two (average) or three (above average). The mean study quality score was 1.83, with a standard deviation of .60. The median/mode study quality score was 2. Removal of the poor studies from the analysis did not alter any effect sizes by more than .02; therefore, no studies were excluded on the basis of quality.

Data Analysis

We conducted 61 meta-analyses, one for each of the risk factors and child physical abuse and for the same ones (when data was available) and child neglect. Because the studies included in the meta-analyses used reported various statistics, we used *D-Stat: Software for the Meta-Analytic Review of Research Literatures* (Johnson, 1989) to transform all results into *d*-values, *g*-values, and *r*-values. *G*-values are a numerical representation of the relationship between two variables expressed in standard deviation units, that is, they represent the standardized mean difference between the two groups (abusive and non-abusive) on the risk factor. The value may be positive or negative, with the sign indicating the direction of the relationship. A value of .00 indicates no relationship. *D*-values are *g*-values that have been corrected for sample size. [The correction for sample size is $-g_i = (x_{1i} - x_{2i}) / S_i$ where x_{1i} and x_{2i} are the means of the two

comparison groups, and S_i is the pooled within-groups standard deviation.] R -values represent the relationship between two variables expressed as point-biserial correlations or Pearson's r . In general, the formulae for analyses are found in Hedges and Olkin (1986). The conversion from z -values into p is accomplished via formulae given in Abramowitz and Stegun (1964) and the conversion of X^2 to p is accomplished via formulae given in Sokol and Rohlf (1969). In some studies, the authors reported findings as significant or non-significant but did not report specific statistics. In such cases, a significance level of .05 was entered in D-Stat for findings reported as significant, and a significance level of .5 was entered for findings reported as non-significant (Amato & Keith, 1991).

Because the risk factors used in this study were not all mutually exclusive, it was necessary to generate a single effect size for each risk factor within each study. For example, a number of studies included data from multiple measures or scales reflecting the same risk factor (as defined by this meta-analysis). To prevent studies producing multiple effect sizes from being over represented in the analysis, z -transformations were used to average effect sizes within a single study and produce a single effect size. The average r -value and the total sample size were entered into D-Stat, and a single effect size was calculated for each risk factor within each study. These effect sizes were used to calculate the composite effect size for the risk factor (Durlack, 1995; Johnson, 1989; Wampler & Serovich, 1996).

Results

Meta-analysis Results

The coded studies produced 656 distinct effect sizes reflecting the relationship between one of the 39 risk factors and either child physical abuse or child neglect. These effect sizes were used to calculate composite effect sizes for each risk factor by each form of maltreatment. Composite effect sizes were calculated for 39 risk factors and child physical abuse and for 22 risk factors and child neglect. No studies were found for 17 factors with child neglect. These effect sizes are presented in Table 1 within each level of the microsystem in order of effect size. A list

of each study's effect size, measures used and sample size for physical abuse and neglect is found in Table 2.

(Insert Tables 1 and 2)

Hanson (2000) has suggested one way of interpreting the magnitude of effect sizes (absolute values), stating that effect sizes may be considered large if they exceed $r = .30$, medium if they range from $r = .20$ to $.30$, and small if they range from $r = .10$ to $.20$. The magnitude of composite effect sizes reported in this study range (in absolute value) from very large ($r = .48$) to very small ($r = .01$). The mean effect size is $r = .22$. Large effect sizes were found between child physical abuse and four risk factors (parent perceives child as problem, parent anger/hyper-reactivity, family conflict and family cohesion). Twenty moderate effect sizes and eight small, but significant effect sizes were also calculated between child physical abuse and risk factors. Seven effect sizes were found to be insignificant (i.e., parent health problems, approval of corporal punishment, child gender, prenatal or neonatal problems, disability and age, and non-biological parent in home).

Large effect sizes were also found between child neglect and six risk factors (child social competence, parent-child relationship, parent perceives child as problem, parent's level of stress, parent's level of anger, and parent's self-esteem). Five moderate effect sizes and nine small but significant effect sizes were also calculated. Two effect sizes were found to be insignificant in relationship to child neglect (i.e., child gender and child age).

Discussion

This study was guided by Bronfenbrenner (1979) ecological theory. We predicted that variables within the parent-child interaction and/or parent's report of child behavior level of the microsystem would be most proximal to the issue of child maltreatment and would have the strongest effect sizes. In fact, the two strongest risk factors for neglect (parent child relationships and parent perception of child as problem) were from this level. However, the strongest effect sizes for child physical abuse were parent factors independent of child (parent anger/hyper-

reactivity) and family factors (high family conflict and low family cohesion) which we had predicted would be most distal from the abuse. These results provide support for the importance of examining child maltreatment from a multifactoral perspective. Clearly, studying or intervening to prevent or treat child maltreatment must include risk factors at each level of the microsystem.

Furthermore, we found that many of the same risk factors were associated with child physical abuse as with neglect. Parent perception of the child as problem and parent anger/hyper-reactivity were strongly related factors for physical abuse and for neglect. The quality of the parent-child relationship was a strongly related factor in neglect and a moderately related factor in physical abuse. Child social competence was strongly related to child neglect and moderately related to child physical abuse. Child age and gender were not found to be significantly related to either form of maltreatment, and parent age was also found to have a small relationship to each form of maltreatment.

However, there were differences in which factors were most strongly related to neglect and child physical abuse. For example, risk factors strongly related to neglect but not strongly related to physical abuse include factors pertaining perhaps to personal adequacy, competency, or resilience (i.e., parent self-esteem and stress and child social competence). In the same vein, parent unemployment and family size were both moderately related to neglect and only minimally related to child physical abuse. Thus, it appears that the phenomena of child neglect may be different from child physical abuse and deserves its own investigation into cause and treatment. Currently, considerably more research has gone into understanding child physical abuse than in understanding child neglect.

The results of this meta-analysis also illustrate which variables are most strongly related to child physical abuse and neglect throughout the literature as a whole. It is interesting to note that the most frequently studied parent-related risk factors in child physical abuse pertain to factors such as parent stress, parent social support, and single parenthood. This meta-analysis,

however, showed some less frequently studied factors (e.g., parent anger/hyper-reactivity, anxiety, and psychopathology) to be more strongly related than these to physical abuse. An exception to this is that parent perception of the child as a problem is frequently studied as well as strongly related to both physical abuse and neglect. Although child misbehavior (i.e., externalizing behaviors) is a popular topic of study relating to both child physical abuse and child neglect, maltreatment is more strongly related to the *perceptions* of the parent regarding the child's behavior than to other indicators of child behavior. Furthermore, only three child factors were significantly related to abuse or neglect (i.e., child social competence, child externalizing behavior, and child internalizing behavior). However, it is important to note that the direction of causality is uncertain.

Limitations

This meta-analysis is subject to a number of limitations that should be considered when interpreting the results. First, it is impossible to include every source of relevant data on each of the risk factors considered. As a result, studies that would have dramatically influenced the results may have been overlooked. Because of the volume of literature on the subject of child maltreatment and the infeasibility of searching multiple databases and sources, only the foremost database on the subject was searched (PsychINFO). This search was also supplemented by searches of the references of several large literature reviews on the subject and of the references of the studies reviewed in this meta-analysis. However, some studies were likely excluded because they were cited in other databases or sources that were not searched. Some potentially relevant studies that were found through the database search were published in obscure sources or were otherwise unable to be obtained. In addition, we did not include unpublished dissertations in our data set. Some relevant studies were omitted because the results could not be converted to effect sizes. Furthermore, a number of the largest effect sizes were obtained with relatively few studies. For example, only two effect sizes were used to calculate unplanned pregnancy which had a strong effect size. Effect sizes based on smaller samples or smaller numbers of studies are

at greater risk for bias due to omission. Furthermore, there exists the possibility of “file drawer bias” that suggests studies that do not find significant results are less likely to be submitted for publication (Hunter & Schmidt, 1990).

A second limitation of this study pertains to the construction and definition of risk factors examined in the study. It is likely that the study variables actually encompass one or more mediating variables or overlap with one another. A measure of homogeneity, Q_w , was calculated for each of the study variables. For many of the variables, the measure indicates significantly more variability in results across studies than would be expected to occur by chance. In addition, some of the variables are likely to be correlated (such as depression, anxiety and psychopathology). Some overlap exists in the definitions of the constructs examined in the literature, and this is reflected in overlap in the definitions of the factors examined in this study. It is also likely that the significant Q_w is a result of varying research methodologies and sample populations. The lack of homogeneity within most of the data sets further illustrates the complexity of child maltreatment.

Third, there is considerable variability among studies in how child physical abuse and neglect are defined and measured. For example, some studies rely upon self-report questionnaires or interviews, while other studies rely upon clinical or Child Protective Services assessment and classification. Also, some studies report categorical data and others continuous data. While it is generally considered more appropriate to calculate an odds ratio rather than a d or r when using categorical data, we chose to use a common metric to be able to calculate composite effect sizes and compare effect sizes. This variability in data is a limitation in meta-analyses. There is also a difference between physical abuse and neglect in what risk factors are most commonly studied. This is manifested, for example, in that most of the strongest effect sizes for physical abuse could not be computed for neglect because of an insufficient number of studies examining that risk factor. Since a meta-analysis can only compare the importance of factors that have been studied

in the empirical research, caution should be taken when interpreting the strengths of these relationships relative to one another.

Finally, the vast majority of research in child maltreatment fails to distinguish actual abusers from non-offending caregivers. The bulk of the literature is biased toward viewing mothers as the abusers. All but a very small proportion of studies include only mothers in their samples. Research on abusive and neglectful fathers is rare. Furthermore, most studies do not make the distinction between parents of abused children and abusive parents, even when the sample contains both. In fact, many studies assume the mother to be the abuser when child abuse is present in the family. In many cases of child neglect, both parents may reasonably be considered offenders for failing to provide for the needs and safety of the child. However, in most cases only the mother is classified as the abuser. Furthermore, some studies classify mothers of physically abused children as abusers merely on the grounds that the mother did not prevent the father from physically harming the child. As a result of this bias in the literature, the results of this meta-analysis may be limited in their applicability to fathers.

Suggestions for Future Research

Meta-analyses often highlight areas in which more research is needed. As indicated earlier, meta-analysis can only compare the importance of factors that have been studied in the empirical research. If there are unstudied factors they cannot show up as important in the meta-analysis. We were unable to identify studies for 17 risk factors for child neglect. Some of the important risk factors for child physical abuse (unplanned pregnancy, parent use of corporal punishment, parent anxiety, past criminal behavior, family conflict, family cohesion, and spousal violence) were not found in the literature review for child neglect. A clear implication for future research involves the need for more research on child neglect.

In addition, future research needs to be conducted with subsets of these meta-analyses in order to conduct moderator analyses. To understand how moderator factors such as age of child, type of sample (community versus clinical), etc. influence the strength of the effect sizes future

work is needed. Since D-Stat (1989), the software used in these analyses to calculate effect sizes, uses a fixed effects model it is especially important that future work results in well-fitting models. Models with random effects components reduce to fixed effect models when they are well fitting (Johnson, 2005).

Our review also indicates the need for more research on abusive fathers and more research comparing mothers and fathers in abusive and neglectful families. We were able to calculate effect sizes for only two studies of parental gender for child physical abuse and no studies for child neglect. It is imaginable that a different pattern of predictive factors of abuse and neglect exists for fathers than for mothers. However, the present study was forced to combine mothers and fathers due to an insufficient number of studies on fathers to compute an effect size for most factors. Future research should also make the distinction between offending and non-offending parents in the methodology of studies and in the reporting of results.

This study identifies factors that are associated with child maltreatment. The nature of this association remains to be determined. For example, it is not yet known which factors are the best predictors of future maltreatment, only which factors are related to maltreatment. Further research into the use of the risk factors identified by the present study to predict recidivism in known cases of child maltreatment would be valuable in improving the accuracy of child maltreatment risk assessment procedures.

Furthermore, a number of studies were excluded from this meta-analysis because they did not include the basic statistics needed to calculate effect sizes. As meta-analysis is increasingly utilized in the social sciences, it becomes increasingly important for authors to include data necessary to calculate effect sizes in the published results. For example, means, standard deviations, zero-order correlation matrix, and sample sizes should be included for all groups.

Clinical Implications

Knowledge of the risk factors associated with child maltreatment is important in assessing the level of risk for future child maltreatment, and for preventing and treating child

maltreatment. The relative effect sizes presented in Table 1 should be of considerable interest to clinicians responsible for assessing and intervening with abusive families. The risk factors with large effect sizes in either analysis i.e., parent perception of child as problem, parent-child relationships, parent anger/hyper-reactivity, parent stress, parent self-esteem, family conflict, family cohesion, and child social competence are clearly factors that should be addressed in child maltreatment assessment and treatment. The results of this meta-analysis also point to the importance of addressing the mental health needs of abusive and neglectful parents. Anxiety, depression and other forms of psychopathology appear to be important risk factors for child maltreatment. Finally, the importance of family conflict and family cohesion as risk factors for child physical abuse suggest that systemic interventions with the entire family may be necessary to reduce the likelihood that abuse may recur.

Summary

This meta-analytic literature review contributes to the understanding of the risk factors related to child physical abuse and neglect. It is the first meta-analysis examining a variety of risk factors. The results of this study provide some indication of the strength of various risk factors in child maltreatment and the importance of a multi-factorial approach to assessment and intervention in child maltreatment. This study also highlights gaps in the literature on child neglect and on abusive and neglectful fathers. Future research is needed to correct these gaps.

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Citations used in meta-analysis are marked with an asterisk ().*

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Table 1

Child Physical Abuse**Parent- Child Interaction/ Parental Report of Child Behavior**

Risk Factor	d	CI	r	Q	k	N
Parent Perceives Child as Problem	0.62	0.53/0.71	.30***	57.68***	25	3317
Unplanned Pregnancy	0.58	0.28/0.89	.28***	.31	2	1490
Parent-Child Relationships	-0.55	-0.66/-0.45	-.27***	117.68***	32	1624
Parent Use of Corporal Punishment	0.55	0.38/0.72	.26***	4.65	7	703
Parenting Behaviors	0.34	0.24/0.44	.17***	130.85***	25	2956
Stress over parenting	0.15	0.00/0.30	.07***	51.14***	11	2075

Parent Characteristics Independent of the Child

Anger/ Hyper-reactivity	0.72	0.47/0.97	.34***	14.25*	9	345
Anxiety	0.60	0.41/0.79	.29***	4.39	8	563
Psychopathology	0.59	0.48/0.69	.28***	62.21***	13	8630
Depression	0.55	0.45/0.67	.27***	46.18***	14	8258
Self Esteem	-0.50	-0.64/-0.36	-.24***	32.92***	11	2485
Poor Relationship with Own Parents	0.44	0.34/0.54	.22***	20.38*	11	2997
Parent Experienced Childhood Abuse	0.44	0.34/0.54	.21***	78.55***	15	3722
Criminal Behaviors	0.42	0.24/0.60	.21***	0.66	4	1963
Personal Stress	0.39	0.29/0.49	.19***	50.74***	22	3114
Social Support	-0.36	-0.45/-0.28	-.18***	65.32***	20	10315
Alcohol Abuse	0.34	0.19/1.50	.17***	8.06*	3	654
Unemployment	0.30	0.19/0.42	.15***	29.57***	8	1263
Parent Coping and Problem-solving Skills	-0.27	-0.52/-0.02	-.14*	7.54*	4	303
Single Parenthood	0.24	0.19/0.30	.12***	108.23***	22	14223
Parent Age	-0.20	-0.26/-0.14	-.10***	234.05***	31	12136
Drug Abuse	0.16	0.01/0.32	.08*	2.18	3	654
Health Problems	0.22	-0.01/0.45	.11	3.17	3	286
Parent Gender	0.13	-0.03/0.30	.07***	.10	2	7309
Approval of Corporal Punishment	0.09	-0.11/0.30	.05	5.65	5	1674

Child Characteristics, Excluding Parents

Child Social Competence	-0.53	-0.64/-0.42	-.26***	27.46*	14	1527
Child Externalizing Behaviors	0.47	1.39/0.54	.23***	135.69***	31	2874
Child Internalizing Behaviors	0.31	0.22/0.40	.15***	50.62***	23	2282
Child Gender	0.08	-0.04/0.19	.04	6.10	13	1702
Prenatal or Neonatal Problems	0.08	-0.03/0.19	.04	15.34	10	1432
Child Disability	0.02	-0.20/0.24	.01	.8	4	325
Child Age	-0.05	-0.14/0.04	-.02	12.63	14	3332

Family Characteristics

Family Conflict	0.54	0.54/1.15	.39***	16.02*	5	170
Family Cohesion	-0.68	-0.98/-0.38	-.32***	3.02	5	183
Spousal Violence	0.46	0.31/0.61	.22***	3.82	5	773
Marital Satisfaction	-0.32	-0.47/-C90.	-.16***	14.45*	8	840
Family Size	0.31	0.24/0.38	.15***	65.53***	23	11224
Socio-economic Status	-0.28	-0.36/-0.20	-.14***	41.45***	16	10321
Non-biological Parent in Home	-0.05	-0.28/0.17	-.03	3.25	3	302

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

Table I**Child Neglect****Parent- Child Interaction/ Parental Report of Child Behavior**

Risk Factor	d	CI	r	Q	k	N
Parent-Child Relationships	-1.09	-1.31/-0.86	-.48***	58.16***	11	400
Parent Perceives Child as Problem	0.91	0.46/1.36	.41***	4.91	4	87
Parenting Behaviors	0.37	0.24/0.50	.18***	32.54***	8	1016
Stress over parenting	0.29	0.05/0.53	.14**	40.82***	4	307

Parent Characteristics Independent of the Child

Personal Stress	0.81	0.60/1.02	.38***	24.94***	3	386
Anger/ Hyper-reactivity	0.74	0.42/1.06	.35***	9.55**	3	211
Self-Esteem	-0.69	-0.99/-0.38	-.33***	1.98	4	184
Psychopathology	0.52	0.39/0.66	.25***	14.45*	8	7652
Unemployment	0.51	0.35/0.67	.25***	8.69*	4	719
Depression	0.42	0.32/0.53	.21***	15.93*	8	8207
Poor Relationship with Own Parents	0.39	0.25/0.54	.19***	15.40*	7	855
Social Support	-0.33	-0.43/-0.24	-.16***	55.11***	13	8582
Parent Experienced Childhood Abuse	0.31	0.17/0.45	.15***	25.21***	6	1417
Parent Age	-0.25	-0.36/-0.13	-.12***	19.94*	9	8120
Single Parenthood	0.16	0.03/0.28	.08***	13.41	9	7751

Child Characteristics, Excluding Parents

Child Social Competence	-0.62	-0.81/-0.43	-.30***	10.03	7	584
Child Externalizing Behaviors	0.45	0.31/0.58	.22***	35.37**	16	956
Child Internalizing Behaviors	0.22	0.08/0.36	.11***	48.22***	11	922
Child Gender	0.03	-0.17/0.22	.01	.28	5	961
Child Age	-0.02	-0.23/0.19	-.01	13.49	8	369

Family Factors

Family Size	0.54	0.45/0.64	.26***	75.19***	12	8546
Socio-economic Status	-0.39	-0.51/-0.28	-.19***	36.29***	10	7986

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

Table 2

Child Physical Abuse**Parent- Child Interaction/ Parent Report of Child Behavior**

Risk Factor	Study and Sample Size	Measure	Effect (r)
Parent Perceives Child as Problem	Whipple & Webster-Stratton (1991; fathers) n=86	Child Behavior Checklist (Achenbach & Edelbrock, 1983); Eyberg Child Behavior Inventory (Eyberg & Ross, 1978)	.17
	Bradley & Peters (1991) n=16	Eyberg Child Behavior Inventory (Eyberg & Ross, 1978)	.50*
	Kinard (1995) n=164	Child Behavior Checklist (Achenbach, 1991)	.31***
	Mash, et al. (1983) n=36	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.56***
	Graham, et al. (2001) n=47	Questionnaire (this study)	.45**
	Perry, et al. (1983) n=42	Washington Symptom Checklist (Wimberger & Gregory, 1968)	.36*
	Rohrbeck & Twentyman (1986) n=24	Revised Conners Parent Rating Scale (Conners, 1969)	.24
	Salzinger, et al. (1993) n=174	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.30***
	Whipple & Webster-Stratton (1991; mothers) n=121	Child Behavior Checklist (Achenbach & Edelbrock, 1983); Eyberg Child Behavior Inventory (Eyberg & Ross, 1978)	.31***
	Webster-Stratton (1985) n=40	Child Behavior Checklist (Achenbach & Edelbrock, 1983); Interview	.13
	Starr (1982) n=174	Questionnaire (this study)	.05
	Smith & Hanson (1975) n=187	Interview	.07
	Timmer, et al. (2002) n=30	Child Behavior Checklist (Achenbach & Edelbrock, 1983) Revised Behavior Problem	.12
	Williamson, et al. (1991) n=23	Checklist (Quay & Peterson, 1987)	.71***
	Hamilton, et al. (1987) n=54	Questionnaire (this study)	.45***
	Hansen, et al. (1989) n=20	Eyberg Child Behavior Inventory (Eyberg & Ross, 1978)	.65**
	Salzinger, et al. (1992) n=191	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.27***
	Feldman, et al. (1995) n=166	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.36***
	Smith & Alder (1991) n=90	Interview	.26*
	Trickett, et al. (1991) n=42	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.58***

		Becker Bi-Polar Adjective Checklist (Becker & Krug, 1964); Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.40**
	Reid, et al. (1987) n=42	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.47***
	Trickett (1993) n=58	Child Behavior Profile (Achenbach, 1979)	.55***
	Wolfe & Mosk (1983) n=70		
	Altemeier, et al. (1982) n=1400	Interview	.27***
	Larrance & Twentyman (1983) n=20	Coded observation	.39
	Graham, et al. (2001) n=47	Questionnaire (this study)	.23
	Starr (1982) n=174	Questionnaire (this study)	.05
Unplanned Pregnancy	Altemeier, et al. (1982) n=1400		.24***
	Green (1976) n=90		.32***
Parent-child Relationship	Browne & Saqi (1988) n=46	Coded observation using: Strange Situation (Ainsworth, et al., 1978)	-.44**
	Crittenden (1988b) n=51	Coded observation using: Strange Situation (Ainsworth, et al., 1978)	-.56***
	Crittenden (1985) n=20	Coded observation using: Strange Situation (Ainsworth, et al., 1978)	-.90***
	Shipman & Zeman (2001) n=50	Emotion Management Interview - Child Version (this study)	-.43**
	Burgess & Conger (1978; fathers) n=36	Coded observation using: Behavioral Observation Scoring System	-.11
	Coohey (2000) n=70	Questionnaire (this study)	-.30*
	Whipple & Webster-Stratton (1991; fathers) n=85	Coded observation	-.19
	Reid, et al. (1981; fathers) n=35	Coded observation	-.23
	Browne & Saqi (1988) n=46	Behavior observation using: (Burton-Jones & Leach, 1972)	-.16
	Burgess & Conger (1978; mothers) n=36	Coded observation using: Behavioral Observation Scoring System	-.30
	Crittenden (1988b) n=51	Coded observation	-.16
	Dietrich, et al. (1980) n=28	Coded observation using: Measure of Maternal Stimulation (Dietrich, 1977)	-.31
	Cerezo & D'Ocon (1995) n=30	Coded observation using: Standardized Observation Codes 3rd revision (Cerezon, et al., 1986)	.12
	Christopoulos, et al. (1988) n=20	Coded observation	-.06

Crittenden & Bonvillian (1984) n=20	Coded observation using: maternal coding device (Crittenden, 1981)	-.92***
Lahey, et al. (1984) n=24	Behavior observation using: (Conger & McLeod, 1977)	-.27
Mash, et al. (1983) n=36	Behavior observation	.11
Bousha & Twentyman (1984) n=24	Coded observation using: Interactional Language (Baldwin & Ward, 1973)	-.70***
Schindler & Arkowitz (1986) n=23	Coded observation using: Patterson System (Patterson, et al. 1969)	-.35
Whipple & Webster-Stratton (1991; mothers) n=120	Coded observation	-.21*
Wasserman, et al. (1983) n=24	Coded observation using: Maternal Style Scale (Wasserman & Solomon, 1980)	-.17
Webster-Stratton (1985) n=40	Coded observation using: Dyadic Parent-Child Interaction Coding System (Robinson & Eyberg, 1981)	-.13
Reid, et al. (1981; mothers) n=54	Coded observation	-.43***
Shipman & Zeman (1999) n=44	Mother-Child Interaction Task (Denham, et al., 1994)	-.44**
Susman, et al. (1985) n=33	Q-sort: Block Child Rearing Practices Report (Block, 1980)	-.39*
Starr (1982) n=174	Caldwell's Home Observation for the Measurement of the Environment (Caldwell, et al., 1968)	-.13
Timmer, et al. (2002) n=30	Coded observation	-.21
Smith & Hanson (1975) n=187	Interview	-.13
Hyman, et al. (1979) n=24	Coded observation	-.27
Kavanagh, et al. (1988) n=45	Coded observation using: Interactive Behavior Code (Fagot, 1984)	-.29
Trickett, et al. (1991) n=42	Child-Rearing Practices Q-Sort (Block, 1981)	-.52***
Trickett & Susman (1988) n=56	Interview	-.14
Toth & Cicchetti (1996) n=58	Relatedness Scales (Wellborn & Connell, 1987)	.20
Disbrow, et al. (1977) n=59	Coded observation using: Barnard Scales (Barnard, et al., 1974)	-.71***

Parent Use of Corporal Punishment	Whipple & Webster-Stratton (1991; fathers) n=89	Parent Daily Report (Chamberlain & Reid, 1987)	.42***
	Smith & Hanson (1975; fathers) n=187	Interview	.20**
	Whipple & Webster-Stratton (1991; mothers) n=114	Parent Daily Report (Chamberlain & Reid, 1987)	.28**
	Smith & Hanson (1975; mothers) n=187	Interview	.33***
	Trickett & Kuczynski (1986) n=40	Parent Daily Report (Chamberlain & Reid, 1987)	.17
	Trickett & Susman (1988) n=46	Interview	.20
	Webster-Stratton (1985) n=40	Interview	.16
	Parenting Behaviors	Lorber, et al. (1984) n=18	Coded observation
Shipman & Zeman (2001) n=50		Emotion Management Interview - Mother Version (this study)	-.37**
Azar, et al. (1984) n=20		Parent Problem Solving Instrument (Wasik, et al., 1980)	-.37
Hansen, et al. (1989) n=20		Parental Problem-Solving Measure (this study)	-.47*
Altemeier, et al. (1982) n=1400		Interview	.02
Azar, et al. (1984) n=20		Parent Opinion Questionnaire (Twentyman, et al. 1981)	.50*
Caselles & Milner (2000) n=60		Questionnaire (this study)	.41**
Spinetta (1978) n=63		Michigan Screening Profile of Parenting (Helfer, et al., 1977)	.50***
Starr (1982) n=174		Questionnaire (this study)	-.05
Smith & Hanson (1975) n=187		Interview	.10
Hawkins & Duncan (1985b) n=276		Survey	.41***
Kravitz & Driscoll (1983) n=60		Vineland Social Maturity Index (Doll, 1965)	.35**
Twentyman & Plotkin (1982) n=26		Developmental Expectation Questionnaire derived from: Vineland Social Maturity Index (Doll, 1965)	.49*
Corse, et al. (1990) n=52		Child-Rearing Practices Q-Sort (Block, 1981)	.24
Melnick & Hurley (1969) n=20		Manifest Rejection Scale (Hurley, 1965)	-.48*
Wasserman, et al. (1983) n=24		Coded observation using: Maternal Style Scale (Wasserman & Solomon, 1980)	.14
Susman, et al. (1985) n=33		Q-sort: Block Child Rearing Practices Report (Block, 1980)	.09

	Starr (1982) n=174	Questionnaire (this study)	.05
	Webster-Stratton (1985) n=40	Interview	.08
	Caselles & Milner (2000) n=60	Questionnaire (this study)	.31*
		Coded observation using: A role-play inventory (Rothbart & Maccoby, 1966)	.59***
	Letourneau (1981) n=60 Disbrow, et al. (1977b) n=117	Questionnaire (this study)	.38***
	Trickett & Kuczynski (1986) n=40	Parent Daily Report	.34*
		Child-Rearing Practices Q-Sort (Block, 1981)	.14
	Trickett, et al. (1991) n=42 Trickett & Susman (1988) n=46	Child-rearing Practices Q-Sort (Block, 1981)	.15
		Parental attitude scales (this study)	.25
	Disbrow, et al. (1977) n=59	Hogan Empathy Test (Hogan, 1969); Measure of Empathetic Responsiveness (Mehrabian & Epstein, 1972)	-.51***
	Letourneau (1981) n=60 Kropp & Haynes (1987) n=40	Questionnaire (this study)	-.41**
	Shipman & Zeman (2001) n=50 Disbrow, et al. (1977b) n=117	Emotion Management Interview - Mother Version (this study)	-.61***
		Empathy Scales (Scotland, 1969)	-.35***
		Adult-adolescent Parent Inventory (Bavolek, 1984)	-.27
	Rosenstein (1995) n=29 Disbrow, et al. (1977) n=59	Empathy Scales (Scotland, 1969)	-.38**
Stress over Parenting	Altemeier, et al. (1982) n=1400	Interview	.24***
		Parenting Stress Index (Abidin & Burke, 1978)	.43**
	Graham, et al. (2001) n=47 Starr (1982) n=174	Questionnaire (this study)	.06
		Parenting Stress Index (Abidin & Burke, 1978)	.47**
	Timmer, et al. (2002) n=30	Parenting Stress Index (Abidin & Burke, 1978)	.32**
	Chan (1994) n=72 Trickett & Susman (1988) n=56	Interview	.34*
	Caselles & Milner (2000) n=60	Questionnaire (this study)	-.22
		Parenting Sense of Competence Scale (Gilbaud-Wallston & Wandersman, 1978)	-.51**
	Mash, et al. (1983) n=36 Rosenberg & Reppucci (1983) n=24 Disbrow, et al. (1977b) n=117	Interview	-.31
		Interview	-.20*

	Disbrow, et al. (1977) n=59	Questionnaire (this study)	.09
Parent Characteristics Independent of Child			
Risk Factor	Study and Sample Size	Measure	Effect (r)
Gender	Chaffin, et al. (1996) n=7015		.08***
	Wiehe, 1992		.05*
Anger/ Hyper-reactivity	Friedrich, et al. (1985) n=29	Multiple Affect Adjective Checklist (Zuckerman & Lubin, 1965)	.20
	Shorkey & Armendariz (1985) n=36	Buss-Durkee Hostility Inventory (Buss & Durkee, 1957)	.15
	Spinetta (1978) n=63	Michigan Screening Profile of Parenting (Helfer, et al., 1977)	.74***
	Robyn & Fremouw (1996) n=18	State- Trait Anger Expression Inventory (Spielberger, 1988)	.10*
	Bauer & Twentyman (1985) n=24	Questionnaire (this study)	.48*
	Bradley & Peters (1991) n=16	Eyberg Child Behavior Inventory (Eyberg & Ross, 1978)	.16
	Frodi & Lamb (1980) n=28	Mood Adjective Checklist (Frodi, et al., 1978)	.38*
	Friedrich, et al. (1985) n=29	Laboratory test	.24
	Disbrow, et al. (1977b) n=117	Laboratory test	.31***
		Subjects were Interviewed and made to watch video tapes of common parent-child interactions and their sensory responses were recorded.	
	Wolfe, et al. (1983) n=14		.16
Parent Anxiety	NSPCC Battered Child Research Team (1976; fathers) n=16	Cattell's Sixteen Personality Factor Questionnaire (Cattell, et al., 1970)	.12
	Whipple & Webster-Stratton (1991; fathers) n=86	State-Trait Anxiety Inventory (Spielberger, et al., 1970)	.17
	NSPCC Battered Child Research Team (1976; mothers) n=24	Cattell's Sixteen Personality Factor Questionnaire (Cattell, et al., 1970)	.24
	Friedrich, et al. (1985) n=29	Multiple Affect Adjective Checklist (Zuckerman & Lubin, 1965)	.23
	Whipple & Webster-Stratton (1991; mothers) n=119	State-Trait Anxiety Inventory (Spielberger, et al., 1970)	.21*
	Webster-Stratton (1985) n=40	State-Trait Anxiety Inventory (Spielberger, et al., 1970)	.30
	Smith, et al. (1973) n=176	International Classification of Disease (World Health Organization, 1968)	.39***
	Robertson & Juritz (1979) n=73	DSM-II diagnosis	.34**

Psychopathology	Smith, et al. (1973; fathers) n=113	DSM-I diagnosis	.49***
	Christensen (1994) n=33	Tennessee Self Concept Scale (Fitts, 1965)	.17
		Brief Symptom Inventory (Derogatis, 1975)	.27*
	Estroff, et al. (1984) n=56	State-Trait Anxiety Inventory (Speilberger, et al., 1970); Cornell Medical Index (Brodman, et al., 1956)	.59*
		Mini-Mult (Kincannon, 1968)	.20
	Lahey, et al. (1984) n=24	Symptom Checklist-90-Revised (Derogatis, 1983)	.26
	Friedrich, et al. (1985) n=29	Current and Past Psychopathology Scales (Spitzer & Endicott, 1968)	.11
	Williamson, et al. (1991) n=23	DSM-I diagnosis	.61***
	Green, et al. (1980) n=40	Tennessee Self Concept Scale (Fitts, 1965)	.36***
		Symptom Checklist-90-Revised (Derogatis, 1983)	.40
	Smith, et al. (1973; mothers) n=176	Diagnostic Interview Schedule (Robins, et al., 1981)	.22***
	Anderson & Lauderdale (1982) n=737	Diagnostic Interview Schedule (Robins, et al., 1981)	.01
	Hansen, et al. (1989) n=20	Rorschach	.02
	Kelleher, et al. (1994) n=338		
Chaffin, et al. (1996) n=7015			
Wright (1976) n=26			
Depression	Whipple & Webster-Stratton (1991; fathers) n=86	Beck Depression Inventory (Beck, et al. 1961)	.03
	Culp, et al. (1989) n=55	Center for Epidemiologic Studies Depression Scale (Radloff, 1977)	.65***
		Parenting Stress Index (Abidin & Burke, 1978)	.17
	Chan (1994) n=72	Measure adapted from MMPI (Tryon, 1966)	.43**
	Evans (1980) n=40	Beck Depression Inventory (Beck, et al. 1961)	.68**
	Lahey, et al. (1984) n=24	CES-Depression Scale (Radloff, 1977)	.26***
	Kinard (1996) n=232	Parenting Stress Index (Abidin & Burke, 1978)	.72***
	Mash, et al. (1983) n=36	Multiple Affect Adjective Checklist (Zuckerman & Lubin, 1965)	.15
	Friedrich, et al. (1985) n=29	Beck Depression Inventory (Beck, et al. 1961)	.36***
	Whipple & Webster-Stratton (1991; mothers) n=119	Beck Depression Inventory (Beck, et al. 1961)	.49**
	Webster-Stratton (1985) n=40	Beck Depression Inventory (Beck, et al. 1961)	.16
Zuravin & Starr (1991) n=142			

	Timmer, et al. (2002) n=30	Parenting Stress Index (Abidin & Burke, 1978)	.47**
	Kelleher, et al. (1994) n=338	Diagnostic Interview Schedule (Robins, et al., 1981)	.16**
	Chaffin, et al. (1996) n=7015	Diagnostic Interview Schedule (Robins, et al., 1981)	.29***
Self-esteem	Bradley & Peters (1991) n=32	Parental Attribution Test (Bugental & Shennum, 1984)	.35*
	Culp, et al. (1989) n=55	Index of Self-Esteem (Hudson, 1982)	-.42**
	Christensen (1994) n=33	Tennessee Self Concept Scale (Fitts, 1965)	-.21
	Altemeier, et al. (1982) n=1400	Interview	-.28***
	Melnick & Hurley (1969) n=20	California Test of Personality (Thorpe, et al., 1953)	-.48*
	Shorkey & Armendariz (1985) n=36	Rosenberg Self-Esteem Scale (Robinson & Shaver, 1969)	-.02
	Anderson & Lauderdale (1982) n=737	Tennessee Self Concept Scale (Fitts, 1965)	-.23***
	Hamilton, et al. (1987) n=44	Tennessee Self Concept Scale (Fitts, 1965)	-.51***
	Lawson & Hays (1989) n=46	Items from: Parent Child Relations Questionnaire (Paitich & Langevin, 1976); Self-description and Mate Description Form (Bell, 1979)	.25
	Williamson, et al. (1991) n=23	Interpersonal Support Evaluation List (Cohen & Hoberman, 1983)	-.54**
	Disbrow, et al. (1977) n=59	Questionnaire (this study)	-.40**
Poor Relationship with Own Parents	Altemeier, et al. (1982) n=1400	Interview	.22***
	Caliso & Milner (1994) n=52	Childhood Social Network Questionnaire (Chan, 1985)	.01
	Gaines, et al. (1978) n=160	Michigan Screening Profile of Parenting (Helfer, et al., 1977)	.05
	Green (1976) n=90	Interview	.30**
	Whipple & Webster-Stratton (1991) n=122	Interview	.29**
	Spinetta (1978) n=63	Michigan Screening Profile of Parenting (Helfer, et al., 1977)	.57***
	Zuravin & Starr (1991) n=142	Michigan Screening Profile of Parenting (Helfer, et al., 1977)	.27**
	Starr (1982) n=174	Questionnaire (this study)	.07
	Smith & Hanson (1975) n=187	Interview	.34***
	Disbrow, et al. (1977b) n=117	Interview	.22*
	Wiehe (1992) n=490	Block Child Rearing Practices Report (Block, 1965)	.23***

Parent Experienced Childhood Abuse	Coohey (2000) n=70	Adapted from: Conflict Tactics Scales (Straus, 1988)	.14
	Smith & Alder (1991; fathers) n=90	Interview	.24*
	Altemeier, et al. (1982) n=1400	Interview	.14***
	Coohey & Braun (1997) n=229	Items from: Conflict Tactics Scales (Straus, 1988)	.23***
	Altemeier, et al. (1986) n=927	Interview	.02
	Whipple & Webster-Stratton (1991) n=123	Interview	.36***
	Webster-Stratton (1985) n=40	Interview	.47**
	Smith & Alder (1991; mothers) n=90	Interview	.34**
	Zuravin & Starr (1991) n=142	Interview	.09
	Disbrow, et al. (1977) n=59	Questionnaire (this study)	.59***
	Newberger, et al. (1986) n=96	Interview	.32**
	Starr (1982) n=174	Questionnaire (this study)	.13
		Attachment & Support Systems Questionnaire, based on: (Wallace, 1977; DeLozier, 1979)	.80***
	Mitchell (1990) n=60	Interview	.19*
Smith & Hanson (1975) n=187	One item from: Survey on Bringing Up Children (Helfer & Schneider, 1974)	.47**	
Criminal Behavior	Smith, et al. (1973; fathers) n=213	Criminal records	.24*
	Smith, et al. (1973; mothers) n=176	Criminal records	.21**
	Starr (1982) n=174	Questionnaire (this study)	.17*
	Altemeier, et al. (1982) n=1400	Interview	.26***
Personal Stress	Coohey (2000) n=70	Questionnaire (this study)	.17
	Whipple & Webster-Stratton (1991; fathers) n=84	Life Experience Survey (Sarason, et al., 1978)	.20
	Chan (1994) n=72	Parenting Stress Index (Abidin & Burke, 1978)	.28*
	Coohey & Braun (1997) n=229	Items from: Social Readjustment Rating Scale (Holmes & Rahe, 1967)	.13*
	Gaines, et al. (1978) n=160	Schedule of Recent Experience (Holmes & Rahe, 1967); Family Life Form (this study)	-.09
	Letourneau (1981) n=60	Social Readjustment Rating Scale (Holmes & Rahe, 1967)	.06

	Mash, et al. (1983) n=36	Parenting Stress Index (Abidin & Burke, 1978)	.51**
	Newberger, et al. (1977) n=154	Interview	.21**
	Whipple & Webster-Stratton (1991; mothers) n=120	Life Experience Survey (Sarason, et al., 1978)	.44***
	Webster-Stratton (1985) n=40	Life Experience Survey (Sarason, et al., 1978)	.33*
	Rosenberg & Reppucci (1983) n=23	Social Readjustment Rating Scale (Holmes & Rahe, 1967)	.57**
	Williamson, et al. (1991) n=23	Hassles Scale (Kanner, et al., 1981)	.49*
	Robertson & Juritz (1979) n=73	Interview	.30**
	Conger, et al. (1979) n=40	Social Readjustment Rating Scale (Holmes & Rahe, 1967)	.35*
	Hamilton, et al. (1987) n=64	Social Readjustment Rating Scale (Holmes & Rahe, 1967)	.28*
	Justice, et al. (1985) n=46	Recent Life Changes Questionnaire (Rahe, 1975)	.25
	Lawson & Hays (1989) n=46	Recent Life Changes Questionnaire (Rahe, 1975)	.31*
	Justice & Duncan (1976) n=70	Social Readjustment Rating Scale (Holmes & Rahe, 1967)	.46***
	Smith & Alder (1991) n=90	Interview	.28**
	Starr (1982) n=174	Questionnaire (this study)	.05
	NSPCC Battered Child Research Team (1976) n=40	Health Visitor questionnaire (this study)	.34*
	Smith & Alder (1991) n=90	Interview	.12
	Starr (1982) n=174	Questionnaire (this study)	.15
	Robertson & Juritz (1979) n=73	Interview	.39***
	Altemeier, et al. (1982) n=1400	Interview	.05*
Social Support	Coohey (2000) n=70	Questionnaire (this study)	-.23
	Altemeier, et al. (1982) n=1400	Interview	.02
	Chan (1994) n=72	Maternal Social Support Index (Pascoe, et al., 1981)	-.31**
	Coohey & Braun (1997) n=229	Questionnaire (this study)	-.15*
	Corse, et al. (1975) n=52	Community Relationships Index (Moos & Moos, 1981); interview; questionnaire (this study); Family Relationship Index (Holahan & Moos, 1981)	-.17
	Coohey (1996) n=195	Questionnaire (this study)	.07
	Gaudin & Pollane (1983) n=98	Index of Social Network Strength (Gaudin, 1979)	-.39***

	Mash, et al. (1983) n=36	Parenting Stress Index (Abidin & Burke, 1978)	-.60***
	Lau & Donnan (1987) n=58	Interview	-.03
	Newberger, et al. (1977) n=154	Interview	-.21**
	Mitchell (1990) n=60	Attachment & Support Systems Questionnaire, based on: (Wallace, 1977; DeLozier, 1979)	-.36**
	Zuravin & Starr (1991) n=142	Interview	-.23**
	Williamson, et al. (1991) n=23	Interpersonal Support Evaluation List (Cohen & Hoberman, 1983)	-.56**
	Newberger, et al. (1986; mothers) n=96	Interview	-.19
	Smith, et al. (1974) n=175	Interview	-.25***
	Chaffin, et al. (1996) n=7015	Diagnostic Interview Schedule (Robins, et al., 1981)	.01
	Disbrow, et al. (1977b) n=117	Interview	-.44***
	Starr (1982) n=174	Questionnaire (this study)	-.08
	Smith & Alder (1991) n=90	Interview	-.14
	Disbrow, et al. (1977) n=59	Questionnaire (this study)	-.54**
Alcohol Abuse	Zuravin & Starr (1991) n=142	Interview	.16
	Starr (1982) n=174	Questionnaire (this study)	.00
	Kelleher, et al. (1994) n=338	Diagnostic Interview Schedule (Robins, et al., 1981)	.26***
Unemployment	Coohey (2000) n=70		-.06
	Starr (1982; fathers) n=174		.22**
	Crittenden (1988) n=51		-.10
	Kinard (1995b) n=231		.44***
	Salzinger, et al. (1993) n=174		.05
	Starr (1982; mothers) n=174		.08
	Zuravin (1988) n=399		.13**
	Shipman & Zeman (2001) n=50		.07
Coping and Problem-solving Skills	Cantos, et al. (1997) n=33	Problem Solving Inventory (Heppner & Petersen, 1982)	-.50**
	Gaines, et al. (1978) n=160	Michigan Screening Profile of Parenting (Helfer, et al., 1977)	-.14
	Justice, et al. (1985) n=46	Family Environment Scale (Moos & Moos, 1981); Social Support System Inventory (Levin, 1979); Social Information Form (Luborsky, et al., 1973); Self-Description and Mate Description (Bell, 1979)	.12
	Robyn & Fremouw (1996) n=18	Social Problem Solving Inventory-Revised (D'Zurilla & Maydeu, 1995)	-.78

Single Parent	Coohey (2000) n=70	-0.16
	Gelles (1989; fathers) n=1582	.29***
	Connelly & Straus (1992) n=1997	-.02
	Coohey (1996) n=195	.17*
	Crittenden & DiLalla (1988) n=43	.06
	Gelles (1989; mothers) n=1582	.06*
	Gaines, et al. (1978) n=160	.05
	Lau & Donnan (1987) n=58	.31*
	Graham, et al. (2001) n=47	.16
	Salzinger, et al. (1993) n=174	.05
	Webster-Stratton (1985) n=40	.37*
	Starr (1982) n=174	.10
	Finzi, et al. (2003) n=76	.05
	Smith, et al. (1974) n=175	.27***
	Timmer, et al. (2002) n=30	.18
	Shipman & Zeman (2001) n=50	-.12
	Chaffin, et al. (1996) n=7015	.01
	Corey, et al. (1975) n=98	-.07
	Hoffman-Plotkin & Twentyman (1984) n=28	-.29
	Sack, et al. (1985) n=436	.11*
Whipple & Webster-Stratton (1991) n=123	.22*	
Wolfe & Mosk (1983) n=70	.25*	
Age	NSPCC Battered Child Research Team (1976; fathers) n=16	-.47
	Lauer, et al. (1974; fathers) n=243	-.13*
	Whipple & Webster-Stratton (1991; fathers) n=109	.00
	Smith & Alder (1991; fathers) n=90	-.23*
	Fundudis, et al. (2003; fathers) n=48	-.94***
	Connelly & Straus (1992) n=1997	-.07**
	NSPCC Battered Child Research Team (1976; mothers) n=24	-.59**
	DiLalla & Crittenden (1990) n=79	-.19*
	Gaines, et al. (1978) n=160	-.06
	Kinard (1995b) n=231	.04

	Letourneau (1981) n=60		.07
	Lau & Donnan (1987) n=58		-.03
	Friedrich, et al. (1985) n=29		.30
	Graham, et al. (2001) n=47		.07
	Lauer, et al. (1974; mothers) n=243		-.21***
	Salzinger, et al. (1993) n=174		.05
	Whipple & Webster-Stratton (1991; mothers) n=121		-.37***
	Webster-Stratton (1985) n=40		-.18
	Smith & Alder (1991; mothers) n=90		-.24*
	Shipman & Zeman (1999) n=44		-.02
	Zuravin & Starr (1991) n=152		.02
	Williamson, et al. (1991) n=23		-.37
	Starr (1982) n=174		.05
	Timmer, et al. (2002) n=30		.12
	Fundudis, et al. (2003; mothers) n=58		-.95***
	Zuravin (1988) n=399		-.19***
	Shipman & Zeman (2001) n=50		-.05
	Chaffin, et al. (1996) n=7015		-.11***
	Hansen, et al. (1989) n=20		.25
	Wiehe (1992) n=294		-.07
	Robyn & Fremouw (1996) n=18		.80***
Drug Abuse	Zuravin & Starr (1991) n=142	Interview	.02
	Starr (1982) n=174	Questionnaire (this study)	.02
	Kelleher, et al. (1994) n=338	Diagnostic Interview Schedule (Robins, et al., 1981)	.14*
Health Problems	Chan (1994) n=72	Parenting Stress Index (Abidin & Burke, 1978)	.12
	Starr (1982) n=174	Questionnaire (this study)	.05
	Conger, et al. (1979) n=40	Cornell Medical Index (Brodman, et al., 1956)	.35*
Approval of Corporal Punishment	Coohey (2000) n=70	Item from: General Social Science Survey	.11
	Altemeier, et al. (1982) n=1400	Interview	.21***
	Newberger, et al. (1986) n=96	Interview	-.11
	Kelley, et al. (1990) n=62	Treatment Evaluation Inventory (Kazdin, 1980)	.03

	Trickett & Susman (1988) n=46	Interview	-.05
Child Characteristics, Excluding Parents			
Risk Factor	Study and Sample Size	Measure	Effect (r)
Child Social Competence	Kinard (1995) n=164	Child Behavior Checklist (Achenbach, 1991; Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	-.13
	Perry, et al. (1983) n=42	Developmental Profile (Alpern & Boll, 1973)	-.51***
	Daniel, et al. (1983) n=32	Vineland Social Maturity Index (Doll, 1965)	-.35*
	Hoffman-Plotkin & Twentyman (1984) n=28	Child Behavior Form (Lorion, et al., 1981)	-.53**
	Haskett & Kistner (1991) n=28	Coded observation	-.37*
	Howes & Espinosa (1985) n=52	Coded observation	-.58***
	Klimes-Dougan & Kistner (1990) n=22	Coded observation based on: (Phinney, et al., 1986)	-.19
	Frodi & Smetana (1984) n=48	Rothenberg Social Sensitivity Test (Rothenberg, 1970)	-.10
	Salzinger, et al. (1993) n=174	Peer ratings	-.25**
	Rogosch & Cicchetti (1994) n=86	California Child Q-Set (Block & Block, 1969); Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991); Teacher's Rating Scale of Child's Actual Behavior (Harter, 1985)	-.33**
	Flisher, et al. (1997) n=665	Instrumental and Social Competence Scale (Beiser, et al., 1993)	-.19***
	Trickett (1993) n=58	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	-.23
	Toth & Cicchetti (1996) n=58	Self-Perception Profile for Children (Harter, 1985)	-.28*
Wolfe & Mosk (1983) n=70	Child Behavior Profile (Achenbach, 1979)	-.50***	
Child Externalizing Behavior	Bousha & Twentyman (1984) n=24	Coded observation using: Interactional Language (Baldwin & Ward, 1973)	.64***
	George & Main (1979) n=20	Coded observation	.42
	Kinard (1995) n=164	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.09
	Williamson, et al. (1991) n=23	Revised Behavior Problem Checklist (Quay & Peterson, 1987)	.64***

Green (1976) n=90	Interview	.51***
de Paul & Arruabarrena (1995) n=41	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.29
Jacobson & Straker (1982) n=57	Coded observation	.18
Hoffman-Plotkin & Twentyman (1984) n=28	Coded observation; Child Behavior Form (Lorion, et al., 1981)	.39*
Haskett & Kistner (1991) n=28	Coded observation	.42*
Reidy, et al. (1980) n=40	Behavior Problem Checklist (Quay & Peterson, 1967)	.48**
Salzinger, et al. (1993) n=174	Self and peer ratings	.20**
Prino & Peyrot (1994) n=42	Pittsburgh Adjustment Survey Scale (Ross, et al., 1965)	.69***
Toth, et al. (1992) n=118	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.12
Howes & Eldredge (1985) n=18	Coded observation	.72**
N = 2022	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.21***
Kinard (1995) n=164	Conners Teacher Rating Scale (Goyette, et al., 1978)	.15
Rohrbeck & Twentyman (1986) n=24	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.15
de Paul & Arruabarrena (1995) n=41	Coded observation	.46**
Hoffman-Plotkin & Twentyman (1984) n=28	Child Abuse Potential Inventory (Milner, 1986)	.42*
Milner & Robertson (1990) n=60	Preschool Behavior Questionnaire (Behar & Stringfield, 1974)	.42***
Haskett & Kistner (1991) n=28	Child Behavior Checklist (Achenbach, 1991); Checklist of Child Distress Symptoms (Richters & Martinez, 1990); Levonn Measure (Richters, et al., 1990)	.36
Lynch & Cicchetti (1998) n=206	Behavior Problem Checklist (Quay & Peterson, 1967)	.12
Reidy, et al. (1980) n=40	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.13
Salzinger, et al. (1992) n=191	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.16*
Feldman, et al. (1995) n=166	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.27***

	Salzinger, et al. (1993) n=174	Self and peer ratings; Teacher's Report Form of the Child Behavior Profile (Achenbach & Edelbrock, 1986)	.18*
	Rogosch & Cicchetti (1994) n=86	California Child Q-Set (Block & Block, 1969); Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991); Teacher's Rating Scale of Child's Actual Behavior (Harter, 1985)	.38***
	Waldinger, et al. (2001) n=49	Coded observation using: Core Conflictual Relationship Theme Method (Luborsky & Crits-Cristoph, 1990)	.89***
	Flisher, et al., (1997) n=665	Diagnostic Interview Schedule for Children (Shaffer, et al., 1996)	.14***
	Toth & Cicchetti (1996) n=58	Self-Perception Profile for Children (Harter, 1985)	.21
	Reid, et al. (1987) n=42 N = 512	Coded observation	.10 .20***
	Bousha & Twentyman (1984) n=24	Coded observation using: Interactional Language (Baldwin & Ward, 1973)	.76***
	Crittenden (1988b) n=51	Coded observation	.13
	Mash, et al. (1983) n=36 Newberger, et al. (1986) n=96	Parenting Stress Index (Abidin & Burke, 1978)	.50**
	Schindler & Arkowitz (1986) n=23	Infant Scales (Carey, 1970)	.22*
		Coded observation using: Patterson System (Patterson, et al. 1969)	.45*
	Webster-Stratton (1985) n=40	Coded observation using: Dyadic Parent-Child Interaction Coding System (Robinson & Eyberg, 1981)	.28
	Hoffman-Plotkin & Twentyman (1984) n=28	Coded observation	.15
	Trickett & Kuczynski (1986) n=40	Parent Daily Report	.53***
	Starr (1982) n=174	Questionnaire (this study)	-.04
Child Internalizing Behavior	Kinard (1995) n=164	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.15
	Chan (1994) n=72	Parenting Stress Index (Abidin & Burke, 1978)	.26*
	Mash, et al. (1983) n=36	Child Behavior Checklist (Achenbach & Edelbrock, 1981)	.60***
	Rohrbeck & Twentyman (1986) n=24	Conners Teacher Rating Scale (Goyette, et al., 1978); Revised Conners Parent Rating Scale (Conners, 1969)	.14

Webster-Stratton (1985) n=40	Child Behavior Checklist (Achenbach & Edelbrock, 1981)	.19
Williamson, et al. (1991) n=23	Revised Behavior Problem Checklist (Quay & Peterson, 1987)	.20
Timmer, et al. (2002) n=30	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.12
de Paul & Arruabarrena (1995) n=41	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.21
Jacobson & Straker (1982) n=57	Coded observation Preschool Behavior	.45***
Haskett & Kistner (1991) n=28	Questionnaire (Behar & Stringfield, 1974)	.31
Lynch & Cicchetti (1998) n=206	Child Behavior Checklist (Achenbach, 1991); Checklist of Child Distress Symptoms (Richters & Martinez, 1990); Levonn Measure (Richters, et al., 1990)	.09
Reidy, et al. (1980) n=40	California Child Q-Set (Block & Block, 1969); Behavior Problem Checklist (Quay & Peterson, 1967)	.26
Feldman, et al. (1995) n=166	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.22**
Salzinger, et al. (1993) n=174	Self and peer ratings	-.02
Rogosch & Cicchetti (1994) n=86	California Child Q-Set (Block & Block, 1969); Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991); Teacher's Rating Scale of Child's Actual Behavior (Harter, 1985)	.07
Trickett, et al. (1991) n=42	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.48**
Prino & Peyrot (1994) n=42	Pittsburgh Adjustment Survey Scale (Ross, et al., 1965)	-.12
Flisher, et al. (1997) n=665	Diagnostic Interview Schedule for Children (Shaffer, et al., 1996)	.10**
Wolfe & Mosk (1983) n=70	Child Behavior Profile (Achenbach, 1979)	.34**
Toth, et al. (1992) n=118	Children's Depression Inventory (Kovaks, 1981)	.02
Trickett (1993) n=58	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.52***
Toth & Cicchetti (1996) n=58	Children's Depression Inventory (Kovaks, 1981)	-.01
Reid, et al. (1987) n=42	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.10

Child Gender	Crittenden (1988) n=51		.20
	DiLalla & Crittenden (1990) n=79		-.08
	Lau & Donnan (1987) n=58		.14
	Williamson, et al. (1991) n=24		.08
	Timmer, et al. (2002) n=30		.07
	Corey, et al. (1975) n=98		.02
	Cohen, et al. (2001) n=607		.13**
	Dubowitz, et al. (1987) n=115		.06
	Bolger & Patterson (2001) n=214		.01
	Lauer, et al. (1974) n=243		-.01
	Whipple & Webster-Stratton (1991) n=123		.10
	Webster-Stratton (1985) n=40		.14
	Ten Bensel & Baxon (1973) n=20		-.20
	Child Pre- or Neo-natal Problems	Crittenden (1988) n=51	Interview
Lynch (1975) n=60		Hospital records	.45***
Lau & Donnan (1987) n=58		Interview	.09
Perry, et al. (1983) n=42		Questionnaire (this study)	.09
Starr (1982) n=174		Questionnaire (this study)	-.03
Corey, et al. (1975) n=98		Hospital records	.01
Smith & Alder (1991) n=90		Interview	.00
Flisher, et al. (1997) n=665		Diagnostic Interview Schedule for Children (Shaffer, et al., 1996)	.06
Ten Bensel & Baxton (1973) n=20		Hospital records	.00
Starr (1988) n=174		Hospital records	-.02
Child Disability	Crittenden (1988) n=51	Interview	.09
	Lau & Donnan (1987) n=58	Interview	.00
	Perry, et al. (1983) n=42	Questionnaire (this study)	.08
	Starr (1982) n=174	Questionnaire (this study)	-.03
Child Age	Connelly & Straus (1992) n=1997		-.03
	Crittenden (1988) n=51		-.30*
	During & McMahan (1991) n=46		-.14
	Crittenden & DiLalla (1988) n=43		.02
	DiLalla & Crittenden (1990) n=79		.08
	Friedrich, et al. (1985) n=29		.27
	Williamson, et al. (1991) n=23		-.20
	Hansen, et al. (1989) n=20		.23

Hoffman-Plotkin & Twentyman (1984) n=28	-08
Whipple & Webster-Stratton (1991) n=123	.00
Webster-Stratton (1985) n=40	-.08
Flisher, et al. (1997) n=665	.00
Wolfe & Mosk (1983) n=70	-.20
Toth, et al. (1992) n=118	.01

Family Factors

Risk Factor	Study and Sample Size	Measure	Effect (r)
Family Conflict	Evans (1980) n=40	Family Concept Inventory (Melnick & Hurley, 1969)	.52***
	Davis & Graybill (1983) n=30	Moos Family Environment Scale (Moos, 1974)	.28
	Howes, et al. (2000) n=42	Coded observation	.05
	Trickett, et al. (1991) n=42	Family Environment Scale (Moos & Moos, 1981)	.52***
	Silber, et al. (1993) n=16	Coded observation	.82***
	Family Cohesion	Williamson, et al. (1991) n=23	Family Adaptability & Cohesion Evaluation Scales-II (Olson, et al., 1982)
Davis & Graybill (1983) n=30		Moos Family Environment Scale (Moos, 1974)	-.24
Justice & Calvert (1990) n=46		Family Environment Scale (Moos & Moos, 1981)	-.44**
Howes, et al. (2000) n=42		Coded observation	-.15
Trickett, et al. (1991) n=42		Family Environment Scale (Moos & Moos, 1981)	-.42**
Spousal Violence	Coohey & Braun (1997) n=229	Items from: Conflict Tactics Scales (Straus, 1988)	.13*
	Green (1976) n=90	Interview	.23*
	Starr (1982) n=174	Questionnaire (this study)	.20**
	Smith & Alder (1991) n=90	Interview	.22*
	Cox, et al. (2003) n=190	Questionnaire (this study)	.39***
Marital Satisfaction	Whipple & Webster-Stratton (1991; fathers) n=82	Marital Adjustment Test (Locke & Wallace, 1959)	-.06
	Chan (1994) n=72	Parenting Stress Index (Abidin & Burke, 1978)	-.20
	Lau & Donnan (1987) n=58	Interview	-.17
	Robertson & Juritz (1979) n=73	Interview	-.44***
	Whipple & Webster-Stratton (1991; mothers) n=91	Marital Adjustment Test (Locke & Wallace, 1959)	-.26*
	Green (1976) n=90	Interview	-.14
	Starr (1982) n=174	Questionnaire (this study)	.03
	Smith, et al. (1974) n=290	Interview	-.21***

Family Size	Coohey (2000) n=70	.23*
	Connelly & Straus (1992) n=1997	.12***
	Chan (1994) n=72	.29*
	Crittenden (1988) n=51	.21
	Coohey (1996) n=195	.05
	DiLalla & Crittenden (1990) n=79	.00
	Letourneau (1981) n=60	-.03
	Friedrich, et al. (1985) n=29	.43*
	Graham, et al. (2001) n=47	.38**
	Salzinger, et al. (1993) n=174	.05
	Webster-Stratton (1985) n=40	.00
	Shipman & Zeman (1999) n=44	.10
	Zuravin & Starr (1991) n=142	.31***
	Williamson, et al. (1991) n=23	.31
	Smith, et al. (1974) n=187	.21**
	Chaffin, et al. (1996) n=7015	.13***
	Hansen, et al. (1989) n=20	-.13
	Manly, et al. (1994) n=162	.34***
	Wolfe & Mosk (1983) n=70	-.08
	Toth, et al. (1992) n=118	.04
	Trickett & Susman (1988) n=56	.09
	Starr (1982) n=174	.05
	Zuravin (1988) n=399	.39***
Socio-economic Status	Webster-Stratton (1985) n=40	-.27
	Chaffin, et al. (1996) n=7015	.01
	Whipple & Webster-Stratton (1991) n=123	-.49***
	Smith, et al. (1973) n=170	-.25***
	Price & Glad (2003) n=75	-.26*
	Smith, et al. (1974) n=91	-.31**
	Connelly & Straus (1992) n=1997	-.04*
	Crittenden (1988) n=51	-.19
	Coohey (1996) n=195	-.13
	Kinard (1995b) n=231	-.29***
	Graham, et al. (2001) n=47	-.37**
	Webster-Stratton (1985) n=40	-.45**
	Letourneau (1981) n=60	-.21
	Hansen, et al. (1989) n=20	-.32
	Hoffman-Plotkin & Twentyman (1984) n=28	-.08

	Gaines, et al. (1978) n=160	-0.15
	Howes & Eldredge (1985) n=18	-0.18
Non-biological Parent	Coohey (2000) n=70	-0.19
	Starr (1982) n=174	-0.02
	Lau & Donnan (1987) n=58	.13
Table 2		
Child Neglect		

Parent- Child Interaction/ Parent Report of Child Behavior

Risk Factor	Study and Sample Size	Measure	Effect (r)
Parent- Child Relationship	Burgess & Conger (1978; fathers) n=36	Coded observation using: Behavioral Observation Scoring System	-.43**
	Burgess & Conger (1978; mothers) n=36	Coded observation using: Behavioral Observation Scoring System	-.22
	Crittenden (1988b) n=49	Coded observation	-.19
	Christopoulos, et al. (1988) n=20	Coded observation	-.35
	Crittenden & Bonvillian (1984) n=20	Coded observation using: maternal coding device (Crittenden, 1981)	-.97***
	Fagan & Dore (1993) n=27	Parent/Caregiver Involvement Scale (Farran, et al., 1986)	-.30
	Lacharite, et al. (1996) n=48	Parenting Stress Index/Short Form (Abidin, 1990)	-.54***
	Bousha & Twentyman (1984) n=24	Coded observation using: Interactional Language (Baldwin & Ward, 1973)	-.74***
	Toth & Cicchetti (1996) n=59	Relatedness Scales (Wellborn & Connell, 1987)	-.21
	Disbrow, et al. (1977) n=61	Coded observation using: Barnard Scales (Barnard, et al., 1974)	-.61***
	Crittenden (1988b) n=49	Coded observation	-.50***
	Crittenden (1985) n=20	Coded observation	-.90***

Parent Perceives Child as Problem	Rohrbeck & Twentyman (1986) n=24	Revised Conners Parent Rating Scale (Goyette, et al., 1978)	.42*
	Hansen, et al. (1989) n=20	Eyberg Child Behavior Inventory (Eyberg & Ross, 1978)	.29
	Williamson, et al. (1991) n=23	Revised Behavior Problem Checklist (Quay & Peterson, 1987)	.69***
	Larrance & Twentyman (1983) n=20	Interview	.24
Parenting Behaviors	Jones & McNeely (1980) n=58	Questionnaire (this study)	-.33*
	Azar, et al. (1984) n=20	Parent Problem Solving Instrument (Wasik, et al. 1980)	-.49*
	Hansen, et al. (1989) n=20	Parental Problem-Solving Measure (this study)	-.46*
	Azar, et al. (1984) n=20	Parent Opinion Questionnaire (Twentyman, et al. 1981)	.70***
	Jones & McNeely (1980) n=58	Questionnaire (this study)	.24
	Spinetta (1978) n=65	Michigan Screening Profile of Parenting (Helfer, et al., 1977)	.35**
	Hawkins & Duncan (1985b) n=647	Survey	.14***
	Twentyman & Plotkin (1982) n=27	Developmental Expectation Questionnaire derived from: Vineland Social Maturity Index (Doll, 1965)	.54**
	Disbrow, et al. (1977) n=61	Questionnaire (this study)	.27*
	Disbrow et al. (1977b) n=118	Interview, Coded observation using Barnard Scales (Barnard et al., 1974), Questionnaire	.44***
Stress Over Parenting	Ethier, et al. (1995) n=80	Parental Stress Index (Abidin, 1983)	.47***
	Lacharite, et al. (1996) n=48	Parental Stress Index Short Form (Abidin, 1990)	.54***
	Disbrow, et al. (1977) n=61	Questionnaire (this study)	.09

	Disbrow et al. (1977b) n=118	Interview, Coded observation using Barnard Scales (Barnard et al., 1974), Questionnaire	-.31***
Parent Characteristics Independent of Child			
Risk Factor	Study and Sample Size	Measure	Effect (r)
Personal Stress	Gaudin, et al. (1993) n=203	Checklist of Stressful Life Events (this study)	.52***
	Gaines, et al. (1978) n=160	Schedule of Recent Experience (Holmes & Rahe, 1967); Family Life Form (this study)	.13
	Williamson, et al. (1991) n=23	Hassles Scale (Kanner, et al., 1981)	.73***
Anger/ Hyper- reactivity	Friedrich, et al. (1985) n= 28	Multiple Affect Adjective Checklist (Zuckerman & Lubin, 1965)	.42*
	Spinetta (1978) n=65	Michigan Screening Profile on Parenting (Helfer, et al., 1977)	.67***
	Disbrow (1977b) n=118	Interview, Coded observation using Barnard Scales (Barnard et al., 1974), Questionnaire	.20*
Self Esteem	Christensen (1994) n=44	Tennessee Self-Concept Scale (Fitts, 1965)	-.34*
	Culp, et al. (1989) n=56	Index of Self-Esteem (Hudson, 1982)	-.27*
	Disbrow et al. (1977) n=61	Questionnaire (this study)	-.29*
	Williamson, et al. (1991) n=23	Interpersonal Support Evaluation List (Cohen & Hoberman, 1983)	-.55**
Psychopathology	Christensen (1994) n=44	Tennessee Self-Concept Scale (Fitts, 1965)	.27
	Estroff, et al. (1984) n=43	Brief Symptom Inventory (Derogatis, 1975)	-.01
	Friedrich, et al. (1985) n=28	Mini-Mult (Kincannon, 1968)	.32
	Williamson, et al. (1991) n=23	Symptom Checklist-90- Revised (Derogatis, 1983)	.31
	Green, et al. (1980) n=40	Current and Past Psychopathology Scales (Spitzer & Endicott, 1968)	.05
	Hansen, et al. (1989) n=20	Symptom Checklist-90- Revised (Derogatis, 1983)	.21

	Kelleher, et al. (1994) n=418	Diagnostic Interview Schedule (Robins, et al., 1981)	.36***
	Chaffin, et al. (1996) n=7036	Diagnostic Interview Schedule (Robins, et al., 1981)	.15***
Unemployment	Crittenden (1988) n=49		.10
	Kinard (1995b) n=232		.40***
	Sherrod, et al. (1984) n=38		.24
	Zuravin (1988) n=400		.18***
Depression	Culp, et al. (1989) n=56	Center for Epidemiologic Studies Depression Scale (Radloff, 1977)	.51***
	Ethier, et al. (1995) n=80	Beck Depression Inventory (Beck, 1967)	.22*
	Gaudin, et al. (1993) n=205	Hudson's Generalized Contentment Scale (Hudson, 1982)	.30***
	Kinard (1996) n=232	CES-Depression Scale (Radloff, 1977)	.26***
	Friedrich, et al. (1985) n=28	Multiple Affect Adjective Checklist (Zuckerman & Lubin, 1965)	.36
	Zuravin & Starr (1991) n=152	Beck Depression Inventory (Beck, 1967)	.27***
	Kelleher, et al. (1994) n=418	Diagnostic Interview Schedule (Robins, et al., 1981)	.10*
	Chaffin, et al. (1996) n=7036	Diagnostic Interview Schedule (Robins, et al., 1981)	.16***
Poor Relationship with Own Parents	Polansky, et al. (1981) n=125	Interview	.35***
	Coohy (1995) n=175	Questionnaire (this study)	.15*
	Gaines, et al. (1978) n=160	Michigan Screening Profile of Parenting (Helfer, et al., 1977)	.04
	Green (1976) n=60	Interview	.15
	Spinetta (1978) n=65	Michigan Screening Profile of Parenting (Helfer, et al., 1977)	.46***
	Zuravin & Starr (1991) n=152	Interview	.12
	Disbrow, et al. (1977b) n=118	Interview	.37***

Social Support	Polansky, et al. (1981; fathers) n=72	Interview	-.30**
	Coohey (1996) n=219	Questionnaire (this study)	-.21**
		Social Network Map (Tracy & Whittaker, 1990)	-.18*
	Gaudin, et al. (1993) n=205	Questionnaire (this study)	-.17
	Jones & McNeely (1980) n=58	Interview	-.10
	Polansky, et al. (1985) n=306	Interview	-.16*
	Zuravin & Starr (1991) n=152	Interpersonal Support Evaluation List (Cohen & Hoberman, 1983)	-.76***
	Williamson, et al. (1991) n=23	Interview	-.29***
	Polansky, et al. (1981; mothers) n=125	Interview	.19
	Newberger, et al. (1986) n=82	Diagnostic Interview Schedule (Robins, et al., 1981)	.01
	Chaffin, et al. (1996) n=7036	Interview	-.47***
	Disbrow, et al. (1977b) n=118	Interview	-.29***
	Polansky, et al. (1981; fathers or mothers) n=125	Questionnaire (this study)	-.37**
Disbrow, et al. (1977) n=61			
Parent Experienced childhood abuse	Polansky, et al. (1981; fathers) n=72	Interview	-.06
	Polansky, et al. (1981; mothers) n=125	Interview	.45***
	Altemeier, et al. (1986) n=927	Interview	.02
	Ethier, et al. (1995) n=80	Psychosocial Interview (Ethier, et al., 1989)	.23*
		Zuravin & Starr (1991) n=152	Interview
	Disbrow, et al. (1977) n=61	Questionnaire (this study)	.37**
Age	DiLalla & Crittenden (1990) n=69		-.15
	Gaines, et al. (1978) n=160		-.03
	Kinard (1995b) n=232		.04
	Friedrich, et al. (1985) n=28		.21
	Zuravin & Starr (1991) n=152		-.04
	Williamson, et al. (1991) n=23		-.03
	Zuravin (1988) n=400		-.26***

	Chaffin, et al. (1996) n=7036	-.17***
	Hansen, et al. (1989) n=20	.23
Single Parent	Coohey (1996) n=219	-.03
	Crittenden & DiLalla (1988) n=45	.37*
	Fagan & Dore (1993) n=27	.11
	Gaines, et al. (1978) n=160	.05
	Sherrod, et al. (1984) n=38	.42**
	Finzi, et al. (2003) n=73	.19
	Chaffin, et al. (1996) n=7036	.03*
	Hoffman-Plotkin & Twentyman (1984) n=28	.08
	Polansky, et al (1979) n=125	.16

Child Characteristics, Excluding Parents

Risk Factor	Study and Sample Size	Measure	Effect (r)
Child Social Competence	Newberger, et al. (1986) n=82	Vineland Social Maturity Index (Doll, 1965)	-.29**
	Kinard (1999) n=232	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	-.31***
	Hoffman-Plotkin & Twentyman (1984) n=28	Child Behavior Form (Lorion, et al., 1981)	-.53**
	Howes & Espinosa (1985) n=52	Coded observation	-.79***
	Frodi & Smetana (1984) n=52	Rothenberg Social Sensitivity Test (Rothenberg, 1970)	-.09
	Rogosch & Cicchetti (1994) n=79	California Child Q-Set (Block & Block, 1969); Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991); Teacher's Rating Scale of Child's Actual Behavior (Harter, 1985)	-.25*
	Toth & Cicchetti (1996) n=59	Self-Perception Profile for Children (Harter, 1985)	-.22
Child Externalizing Behaviors	Bousha & Twentyman (1984) n=24	Coded observation using: Interactional Language (Baldwin & Ward, 1973)	.53**
	Williamson, et al. (1991) n=23	Revised Behavior Problem Checklist (Quay & Peterson, 1987)	.67***
	Green (1976) n=60	Interview	.42***

de Paul & Arruabarrena (1995) n=49	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.33*
Hoffman-Plotkin & Twentyman (1984) n=28	Coded observation; Child Behavior Form (Lorion, et al., 1981)	.21
Reidy, et al. (1980) n=36	Behavior Problem Checklist (Quay & Peterson, 1967)	.43**
Prino & Peyrot (1994) n=47	Pittsburgh Adjustment Survey Scale (Ross, et al., 1965)	-.17
Toth, et al. (1992) n=107	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.18
Rohrbeck & Twentyman (1986) n=24	Conners Teacher Rating Scale (Goyette, et al., 1978)	.30
de Paul & Arruabarrena (1995) n=49	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.46***
Hoffman-Plotkin & Twentyman (1984) n=28	Coded observation	.34
Milner & Robertson (1990) n=60	Child Abuse Potential Inventory (Milner, 1986)	.28*
Lynch & Cicchetti (1998) n=200	Child Behavior Checklist (Achenbach, 1991); Checklist of Child Distress Symptoms (Richters & Martinez, 1990); Levonn Measure (Richters, et al., 1990)	.07
Reyome (1993) n=63	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.15
Reidy, et al. (1980) n=36	Behavior Problem Checklist (Quay & Peterson, 1967)	.14
Rogosch & Cicchetti (1994) n=79	California Child Q-Set (Block & Block, 1969); Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991); Teacher's Rating Scale of Child's Actual Behavior (Harter, 1985)	.09
Toth & Cicchetti (1996) n=59	Self-Perception Profile for Children (Harter, 1985)	.12

	Bousha & Twentyman (1984) n=24	Coded observation using: Interactional Language (Baldwin & Ward, 1973)	.06
	Crittenden (1988b) n=49	Coded observation	.17
	Lacharite, et al. (1996) n=48	Parenting Stress Index/Short Form (Abidin, 1990)	.55***
	Hoffman-Plotkin & Twentyman (1984) n=28	Coded observation	.21
Child Internalizing Behavior	Kinard (1995b) n=232	Harter Dimensions of Depression Profile for Children (Harter & Nowakowski, 1987)	-.04
	Rohrbeck & Twentyman (1986) n=24	Conners Teacher Rating Scale (Goyette, et al., 1978); Revised Conners Parent Rating Scale (Conners, 1969)	.36
	Williamson, et al. (1991) n=23	Revised Behavior Problem Checklist (Quay & Peterson, 1987)	.18
	de Paul & Arruabarrena (1995) n=49	Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991)	.15
	Lynch & Cicchetti (1998) n=200	Child Behavior Checklist (Achenbach, 1991); Checklist of Child Distress Symptoms (Richters & Martinez, 1990); Levonn Measure (Richters, et al., 1990)	.08
	Reyome (1993) n=66	Child Behavior Checklist (Achenbach & Edelbrock, 1983)	.29*
	Reidy, et al. (1980) n=36	California Child Q-Set (Block & Block, 1969); Behavior Problem Checklist (Quay & Peterson, 1967)	.11
	Rogosch & Cicchetti (1994) n=79	California Child Q-Set (Block & Block, 1969); Teacher's Report Form of the Child Behavior Profile (Achenbach, 1991); Teacher's Rating Scale of Child's Actual Behavior (Harter, 1985)	.08

	Prino & Peyrot (1994) n=47	Pittsburgh Adjustment Survey Scale (Ross, et al., 1965)	.81***
	Toth, et al. (1992) n=107	Children's Depression Inventory (Kovaks, 1981)	-.05
	Toth & Cicchetti (1996) n=59	Children's Depression Inventory (Kovaks, 1981)	.10
Child Gender	Crittenden (1988) n=49		.06
	DiLalla & Crittenden (1990) n=69		.03
	Williamson, et al. (1991) n=23		-.02
	Cohen, et al. (2001) n=606		-.03
	Bolger & Patterson (2001) n=214		.02
Child Age	Crittenden (1988) n=49		-.38**
	Crittenden & DiLalla (1988) n=45		-.18
	DiLalla & Crittenden (1990) n=69		-.05
	Friedrich, et al. (1985) n=28		.08
	Williamson, et al. (1991) n=23		.04
	Hansen, et al. (1989) n=20		.30
	Hoffman-Plotkin & Twentyman (1984) n=28		.00
	Toth, et al. (1992) n=107		.17

Family Factors

Risk Factor	Study and Sample Size	Measure	Effect (r)
Family Size	Crittenden (1988) n=49		.00
	Coohy (1996) n=219		.05
	DiLalla & Crittenden (1990) n=69		.17
	Friedrich, et al. (1985) n=28		.41*
	Polansky, et al. (1985) n=306		.26***
	Zuravin & Starr (1991) n=152		.45***
	Williamson, et al. (1991) n=23		.18
	Chaffin, et al. (1996) n=7036		.13***
	Hansen, et al. (1989) n=20		-.04
	Manly, et al. (1994) n=137		.11
	Toth, et al. (1992) n=107		.22*
	Zuravin (1988) n=400		.55***

Socio- economic Status		
	Crittenden (1988) n=49	-.39**
	Polansky, et al. (1985) n=153	-.10
	Coohey (1996) n=219	-.04
	Kinard (1995b) n=232	-.48***
	Gaines, et al. (1978) n=160	-.06
	Hansen, et al. (1989) n=20	-.18
	Hoffman-Plotkin & Twentyman (1984) n=28	.00
	Howes & Eldredge (1985) n=8	-.13
	Chaffin, et al. (1996) n=7036	-.16***
	Price & Glad (2003) n=81	-.42***