Prenatal Child Abuse Risk Assessment: A Preliminary Validation Study

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Workers need an efficient prenatal screener that can identify mothers at greatest risk of child abuse. Existing risk assessment methods are often invasive and difficult to administer. This study assessed child abuse risk in a sample of 49 expectant mothers using the Brigid Collins Risk Screener (BCRS). At three months postpartum, high-risk mothers scored significantly lower on the quality of infants' physical, social, and emotional environments than moderate or low-risk mothers. BCRS appears to offer a noninvasive, efficient approach to assessing risk of child abuse.

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Given limited child abuse prevention resources and the negative long-term consequences of child abuse (Gelardo & Sanford, 1987; Giblin, Starr, & Agronow, 1984; Trickett & McBride-Chang, 1995), developing effective methods to identify at-risk families as early as possible in a child’s life remains a crucial aspect of protecting children. Risk assessment is a challenge because child abuse does not result from a single phenomenon, but from multiple, interacting causal factors (see Belsky [1993] for a review). The researchers designed this study in the context of a larger research program to assess child abuse risk and target intervention services. This article discusses an instrument designed for prenatal risk assessment and presents validation data for it.

Retrospective research has identified numerous correlates of child abuse, among them poverty, maternal history of abuse, drug and alcohol abuse, and social isolation (Bergner, Delgado, & Graybill, 1994; Daly & Wilson, 1985; Muller, Fitzgerald, Sullivan, & Zucker, 1994). In retrospective comparisons of abusers with nonabusers, however, it is impossible to determine whether these correlates are causes or consequences of abuse. Moreover, researchers often have relied on parents’ self-reports of their own abuse histories, with concomitant validity concerns (Belsky, 1993; Pogge, 1992). Thus, although retrospective studies provide clues to important social and demographic correlates of child maltreatment, further work must be done to identify the paths that lead to child abuse and neglect.

To date, two approaches exist in the prospective study of child abuse. One relies on parental questionnaires or interviews to assess risk of child maltreatment, then follows families over time, examining outcomes, such as referrals to child protective services. The most common self-report instrument is the Child Abuse Potential (CAP) inventory (Milner, 1980), which asks parents to agree or disagree with statements about family, frustration, unhappiness, and disciplinary philosophy. In a prenatal risk assessment validation study (Milner, Gould, Ayoub, & Jacewitz, 1984), mothers’ CAP scores showed a moderately positive correlation with
frequency of reported abuse. The false positive rate (mothers who were in the at-risk category but apparently did not abuse), however, was very high (89%).

Moreover, reliance on child abuse reports as the sole outcome measure is problematic. Reports of child abuse represent a small percentage of actual cases and, at best, provide a very late indicator of disruption in the parent-child relationship (Pogge, 1992). Finally, CAP assesses risk primarily as a function of the parent's psychological state, thereby neglecting the contribution of sociodemographic factors to child abuse risk.

The second approach to child abuse risk assessment employs a multi-informant method by adding information from medical records and professional observations to parent self-reports. Egeland and Brunnquell (1979) conducted one of the first studies using this approach. They followed 275 high-risk mothers until the target children were 12 months old and collected multiple measures of risk, including information from prenatal medical visits and parent personality assessments. Outcome measures included observed quality of care and referrals for social services. The approach to abuse prediction was relatively successful, with variables such as “specific preparation for the baby” predicting later quality of maternal care.

In a five-year longitudinal study, Altemeier, O’Conner, Vietze, Sandler, and Sherrod (1984) used an extensive prenatal interview to successfully predict frequency of child protective services (CPS) reports. The problem with this approach is its unwieldiness for large-scale use. The initial risk screening is expensive, time-consuming, and intrusive. False positives remain problematic, especially when CPS reports are used as the outcome variable.

To address the problem of false positives, the next wave of research into risk assessment used more sensitive outcome variables. For example, Murphy, Orkow, and Nicola (1985) adapted the Altemeier et al. interview into a checklist, clustering risk factors into stress, personal, and emotional factors. They took outcome measures from children’s medical charts, with a three-way classification: (1) evidence of abuse or neglect, (2) evidence of mild
neglect, and (3) no evidence of abuse or neglect. The checklist’s sensitivity to accurately predict mothers at risk for some level of abuse or neglect was 80%, with a false positive rate of only 2.6%. Researchers conducted a similar approach with comparable findings in New Zealand (Lealman, Haigh, Philips, Stone, & Ord-Smith, 1983; Muir et al., 1989). They made a four-way classification of risk based on prenatal medical records and health care worker investigations, using a brief checklist (Muir et al., 1989). Risk-group membership did not predict simple medical outcomes for the child, but 93% of those mothers in the high-risk group relinquished their children within the course of the longitudinal study.

As researchers have shifted from retrospective to prospective risk assessments, child abuse research has become more grounded in theories that reflect the transactional nature of the parent-child relationship. Theories of emotional regulation and the development of attachment have contributed to our understanding of how the parent-child relationship evolves and how it might break down (Ainsworth, 1989; Olds, Kitzman, Cole, & Robinson, 1997; Robinson, Emde, & Korfman, 1997; van den Boom, 1994). Human ecology theory (Olds et al., 1997; Rodriguez & Green, 1997), and even evolutionary psychology (Belsky, 1993), have made substantive contributions to our understanding of the relationships among risk and protective factors. Based on the cumulative work of Belsky’s (1993) developmental-ecological perspective, Rutter’s (1981) multiple stressor theory, and Lerner’s dynamic developmental contextualism, we now recognize that child abuse does not have a single cause. Rather, child abuse results from the accumulated effects of coexisting stressors—socioeconomic, interpersonal, and intrapersonal.

Thus, the most promising recent approaches to risk assessment reflect this more comprehensive perspective. This multiple pathway explanation for child abuse can be framed within the transactional context of parent-child attachment. A secure parent-child relationship is antithetical to child abuse. Conversely, when the parent has multiple stressors, the course toward a healthy parent-child relationship is disrupted, leaving the child vulnerable to abuse.
One program, Hawaii Healthy Start (HHS) (1995), focuses on identifying family stressors as an early predictor of child abuse risk. HHS developed a two-tiered risk assessment system. The first tier involved a 15-item screening checklist based on an examination of medical records. If mothers scored above a given cut-off indicating “some potential risk,” workers interviewed them before they gave birth using the Family Stress Checklist (FSC). This multiple-step procedure classified all mothers as being at no risk, low risk, or high risk of abuse. In the HHS validation study, families completed a series of measures at 6 and 12 months postpartum (HHS, 1995).

The initial hospital checklist was a more valid predictor than the follow-up interview and FSC. The dichotomous classification of no risk versus low or high risk predicted home environment and level of maternal social support at 12 months postpartum, and infant feeding problems at both 6 and 12 months postpartum. FSC scores were not effective at differentiating high-risk from low-risk families based on these validation measures, except in the case of CAP scores. As noted earlier, however, CAP scores have a history of high false positive rates and are not an ideal validation measure.

Faced with the need to accurately identify families who would most benefit from early intervention services, this study used the strongest features of the HHS program as a starting point. It simplified the screening procedure to one step and employed a modified HHS hospital checklist rather than the less valid interview protocol. The study also used the Brigid Collins Risk Screener (BCRS), a one-step prenatal screener, deriving information from medical records and a brief self-report instrument with relatively low invasiveness to participants. Participants received a risk score based on a compilation of grouped risk factors, single indicators, and protective factors suggested as important by the available literature (Corse, Schmid, & Trickett, 1990; Coulton, Korbin, Su, & Chow, 1995; Daley & Wilson, 1985; Moncher, 1995; Rodriguez & Green, 1997; Williams-Petersen et al., 1994). Because many variables within a given source of risk are intercorrelated, BCRS orga-
nizes related risk factors into categories. Furthermore, specific major factors, such as "history of abuse," are more heavily weighted in determining the final risk score due to the documented strength of their relationship with abuse.

From the literature on resilience and vulnerability (Werner & Smith, 1992), multiple stressors do not necessarily lead to child abuse. Even in the face of poor housing and struggles to maintain mental and physical health, some families do not abuse their children. Buffering factors, such as a healthy spousal relationship or an understanding of basic child development, protect the parent-child relationship from the detrimental effects of social and environmental stress.

A goal of this article is to provide validity data on the BCRS procedure. BCRS prenatally identified relative risk for child abuse. Researchers collected outcome measures during home visits when the infants were 3 months old. These outcome measures assessed the quality of the home environment, the parent-child relationship, and the level of parental stress. If BCRS is a valid risk assessment tool, it should predict scores on these outcome measures. In addition, researchers compared BCRS to the HHS initial screening procedure to better understand similarities and differences between these two approaches.

Method

Participants

The researchers recruited 98 expectant mothers residing in Whatcom County, Washington, through physician’s offices and local agencies serving pregnant women and their families. Of the 98 initially screened with BCRS, 49 completed the three-month postpartum home visit. Attrition was evenly distributed across the low-, moderate-, and high-risk groups. Attrition rates were comparable to those in other studies with high-risk populations.
(Barth, Ash, & Hacking, 1986). The age of the mothers ranged from 16 to 39 years \((M = 27.70, SD = 5.77)\). Mothers in the low-risk group had significantly more education than mothers in the moderate- and high-risk groups \((F[2, 46] = 5.12, MSE = 1.06, p < .015)\). Of the 49 infants (27 girls, 22 boys) whose families participated in the home visit, 34 were white, 5 multiracial, 3 Latino, 2 African American, 1 Asian American, 1 Native American, and 3 not recorded.

Measures

**BCRS.** The researchers assessed the expectant mother’s risk level for child abuse with BCRS. BCRS derives its information primarily from existing medical records, supplemented by an additional checklist completed by the mother at her first prenatal visit. Consistent with current research, BCRS assesses risk as the result of multiple factors (Belsky, 1993; Rutter, 1981): poverty, housing, mother’s child-rearing history, maternal health behaviors, and attitude toward the pregnancy. The researchers weighted these factors against protective factors (Bergner et al., 1994; Cicchetti & Lynch, 1993).

BCRS categories cover six areas. Environmental Stressors include variables such as income level, minority status, access to health insurance, and unstable employment. Social Isolation focuses on lack of friends or family to rely on in an emergency, three or more children in the home, and lack of a telephone in the home. General Medical/Psychological Condition identifies a history of substance abuse or psychiatric care. Nature of the Pregnancy assesses emotional and health aspects of the current pregnancy. Single Indicators include mother’s personal history of abuse, previous child abuse, previous CPS involvement, and mother’s current partner being someone other than the child’s birthfather.

The researchers weighted these cumulative risk factors against positive family aspects. The Protective Factors category includes maternal post-high school education, parent enrollment in birthing classes, and either an adult nonpartner living in the home or a supportive partner relationship with the child’s father.
BCRS Scoring. The researchers completed a BCRS after the mother’s first prenatal visit by an employee of the Brigid Collins House. In each of the four risk categories, a participant scored a point if one or more risk items were present. The total score ranged from 0 (no risk items in any of the four categories) to 4 (one or more items in each of the four risk categories). In addition, the participant scored one point for each affirmative response to the items in the Single Indicators risk category.

If the mother reported at least one single indicator, the researchers placed her in the moderate-risk category at a minimum. They reduced the total score by one point if the participant responded positively to items from the Protective Factors category. If the participant had three or fewer protective factors, however, the risk score was not reduced. The three risk levels were scored as follows: three or more points for high risk, two points for moderate risk, and one point or no points for low risk. In addition, the researchers calculated a total risk score by summing each risk item and then subtracting the number of protective factors.

HHS Hospital Checklist

Participants were also screened with the HHS hospital checklist. HHS is a 15-item risk assessment inventory based on hospital record information. The HHS score results in a binary risk placement. Families with fewer than two risk factors are at no visible risk, and families with two or more risk factors are at some risk for child abuse. The checklist has no category for protective factors.

Dependent Measures

A trained interviewer blind to family risk status completed three-month postpartum measures of parenting stress and the family environment during a one-hour in-home interview and observation.

Caldwell HOME (Home Observation for Measurement of the Environment) Inventory for Infants. The researchers assessed the quality of the infant’s home environment using HOME (Caldwell & Bradley, 1984), an in-home interview and observation of par-
ent-child interaction. The measure is composed of six subscales: maternal emotional and verbal responsivity, use of punishment or restriction, organization of the physical environment, availability of developmentally appropriate play materials, quality of maternal interaction with child, and opportunities for variety in child’s daily life. HOME is the most widely used instrument to evaluate cognitive stimulation and emotional support of an infant (Sugland et al., 1995), including low socioeconomic status (SES) populations (Bradley, Casey, & Wortham, 1984). Internal consistency is good at .85 (Boehm, 1985), as is test-retest reliability at six-month intervals (r = .62 to .77). The researchers calculated interrater reliability for HOME scoring based on a pilot sample of three mother-infant pairs who were not involved in the study. Percentage agreement of the two interviewers was 94.2% on individual items and 100% by total score quartile.

Parenting Stress Index, Short Form (PSI/SF). PSI/SF (Abidin, 1990) assesses the level of stress in the parent-child dyad. Each mother completed the self-report PSI after the HOME interview. PSI/SF consists of 36 statements that ask the participant to agree or disagree on a five-point scale (strongly disagree to strongly agree). The total PSI/SF correlates .94 with the PSI Long Form, which has a two-week test-retest reliability of r = .95 (Abidin, 1990). PSI/SF has four subscales, three of which indicate problematic parenting: Parent Stress, Parent-Child Difficult Interaction, and Difficult Child. The fourth subscale is Defensive Responding, with a low score indicating defensiveness; a score of less than than 10 is considered significantly defensive.

Procedures

The researchers recruited participants from local obstetricians and health service agencies. Based on the information from the participant’s medical records and responses to the questionnaire on the consent form, the researchers categorized participants by risk level. At three months postpartum, each mother-infant pair participated in a one-hour home visit during a time that the in-
fant was awake and active. The interviewers administered HOME and PSI during this visit. All participating mothers received a $10 gift certificate to a local bookstore.

**Results**

The researchers compared three groups on the HOME and PSI outcome measures—24 mothers in the low-risk group, 12 in the moderate-risk group, and 13 in the high-risk group. According to the hypothesis, mothers in the high-risk group would score lower on the HOME subscales and higher on the PSI domains. Based on the one-way analyses of variance with Tukey HSD follow-up analyses where appropriate, results showed partial support for the hypothesis.

Although no significant differences existed in PSI by risk group, mothers' HOME scores differed as a function of their risk status. High-risk mothers had significantly lower HOME scores than low-risk mothers on the HOME Total scale ($F[2, 52] = 5.09, MSE = 11.09, p < .01, M = 31.92, SD = 4.52; M = 35.75, SD = 2.69$, respectively), and significantly lower scores than the moderate-risk mothers ($M = 35.00, SD = 3.02$).

On the HOME Learning Materials subscale, high-risk mothers had significantly lower scores ($M = 6.46, SD = 1.330$) than low-risk mothers ($M = 8.00, SD = 1.31$) and moderate-risk mothers ($M = 7.83, SD = 0.92, F[2, 52] = 8.37, MSE = 1.17, p < .002$). No significant differences existed on the remaining HOME subscales scores as a function of maternal risk group status. The differences by risk group on the HOME Total scale were not maintained when SES was a covariate using an analysis of covariance. The risk group differences on the HOME Learning Materials subscale, however, were maintained after accounting for SES ($F[5, 43] = 3.17, MSE = 1.03, p < .05$).

The risk-group categorizations may have restricted the examination of the outcome data. Thus, the researchers examined
the relationship between total risk scores on BCRS and the outcome measures. They found significant correlations between risk status and the HOME Organization \( (r = -0.32, p < 0.02) \), HOME Involvement \( (r = -0.36, p < 0.03) \), and HOME Acceptance \( (r = -0.26, p < 0.052) \) subscales, as well as the total HOME score \( (r = -0.47, p < 0.001) \). Mothers who provided a safe environment and spent time nurturing and stimulating their infants were at less risk for child abuse.

Although PSI scores were not related to the total risk score, an interesting pattern emerged with the Protective Factors. Three of the four subscales, Parent Distress \( (r = -0.30, p < 0.04) \), Difficult Child \( (r = -0.29, p < 0.04) \), and Parent-Child Difficult Interaction \( (r = -0.33, p < 0.02) \), as well as PSI Total Scale \( (r = -0.32, p < 0.03) \) scores, related inversely to the protective factors. That is, mothers who reported greater parenting stress had fewer buffers in their lives to offset the stress.

To determine the relative influence of each BCRS category (Environmental Stressors, Social Isolation, Medical History, etc.) on risk prediction, researchers examined differences on the HOME by each subscale of BCRS. Scores on the HOME Responsivity subscale were lower for mothers who reported environmental stressors \( (F[1,47] = 6.71, MSE = 1.98, p < 0.01) \), and mothers who reported social isolation stressors \( (F[1,47] = 4.87, MSE = 2.01, p < 0.032) \). In addition, mothers who reported fewer than three Protective Factors reported less sensitivity to their infants’ needs \( (F[1, 47] = 4.57, MSE = 2.02, p < 0.04) \) and greater difficulty in their interaction with their children \( (F[1, 47] = 4.81, MSE = 21.144, p < 0.03) \) than mothers with three or more protective factors.

Finally, researchers examined the HHS Family Risk Assessment system, using it to predict outcomes on the three-month HOME and PSI Total scores. In contrast to the findings using the BCRS risk assessment, no differences emerged between the high- and low-risk groups (calculated with the HHS system) on either the HOME or PSI total scores. Thus, based on this comparison, BCRS may be a more sensitive instrument.
Discussion

Based on the three-month postpartum data, BCRS is a promising approach to early child abuse risk assessment. BCRS can prospectively predict several facets of the quality of family life when infants are 3 months old. BCRS effectively differentiated between high- and low-risk families with limited support for differences between high and moderate risk or between moderate and low risk.

Although risk category was an effective predictor of the quality of the family environment, as measured by the HOME inventory, it was not effective at predicting parenting stress as measured by PSI. One explanation for the lack of differences on PSI among the risk groups is that this study may have assessed parenting stress too early in the child’s development. Research is continuing to follow these families and infants into their toddler years to determine how the relationship between risk categories and parenting stress might play out over time. As infants mature and begin to assert their own will, parents are more challenged to maintain warmth and caring while setting limits on toddler behavior. Thus, at 18 or 24 months old, parenting stress may be more differentiated by risk group.

Alternatively, parenting stress was elevated in mothers with few protective factors. The area of protective factors is important both theoretically and practically. Theoretically, including protective factors provides a more comprehensive picture of the factors impinging on the parent-child relationship. Practically, a number of these protective factors, such as a supportive relationship or parenting education, are modifiable and could be meaningful foci for intervention with these mothers. Thus, this component may be an area to target in future intervention studies because it may be easier to add protective factors to a family than to remove risk factors.

To compare the effectiveness of BCRS with the effectiveness of the HHS risk assessment, researchers used the approaches con-
currently. The results showed that BCRS was able to predict outcomes at three months whereas HHS was not. Thus, although the HHS system provided a useful model for BCRS, the BCRS refinements have led to a more accurate assessment measure.

SES by itself is a strong predictor of the HOME scores obtained at three months. Indeed, when researchers entered SES as a covariate, BCRS significantly predicted only the Learning Materials subscale on the HOME inventory. It is equally important, however, that researchers and practitioners understand the role of mediators between broad demographic variables, such as SES and outcomes measuring the quality of family life and the parent-child bond. This study is a step in that direction. Findings show that certain prenatal risk factors highly correlated with SES, such as environmental stressors, are effective predictors of parents’ responsivity after infants are born.

Having this specific knowledge provides direction for interventions, such as incorporating protective factors. A family’s SES cannot be readily modified, but practitioners can intervene to broaden the parents’ understanding of normal child development, support parents’ efforts to stabilize their housing, or help develop a viable social support network. Any of these interventions can reduce environmental stressors or the sense of social isolation, both of which are related to lower responsivity to the child. If reducing these specific stressors can lead to increased sensitivity and attentiveness to an infant, it can increase the possibility for a securely attached parent-child relationship and reduce the risk for abuse.

This study has several important implications for practitioners who aim to provide services to at-risk families with young infants. BCRS is a relatively inexpensive, noninvasive tool for determining families who are at risk for breakdown in the parent-child relationship. Furthermore, because it uses outcome measures that are sensitive to the quality of the environment and the developing parent-child relationship, this research can begin
to inform practitioners of how risk factors may play out in the early years of the family. Finally, because of the combined emphasis on both risk and protective factors, the findings can contribute to developing targeted, cost-effective interventions to improve the quality of family life in at-risk families, thus preventing child abuse and its negative developmental spiral.

References


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