PERINATAL RISK FACTORS FOR EMOTIONAL PROBLEMS IN PRESCHOOL

Sara J. Vagi & Christine E. F. Delgado, Ph.D.
University of Miami

Poster presented at the International Conference on Infant Studies
May 2004, Chicago, Illinois

Introduction

In the past, serious emotional problems for preschool children were believed to be of too low prevalence to warrant professional attention. Only recently has researched begun to focus on preschool children to examine these emotional problems. Among the research pointing to the importance of psychological adjustment at this early age is the finding that the presence of an emotional problem is the strongest predictor for a later emotional problem (Prior, Smart, Sanson & Oberklaid, 2001). Further, emotional disturbances that remain untreated are related to further problems in adulthood, whereas interventions after early detection are relatively successful. (Harland, Reijneveld, Brugman, Verloove-Vanbrick, and Vernhulst, 2002)

The current study examines emotional handicap and severe emotional disturbance ascribed in preschool. Emotional Handicap (EH) and Severe Emotional Disturbances were identified based on the diagnostic criteria specified in the Florida Statutes and State Board of Education Rules (Florida Department of Education, 2002). Emotional Handicap was defined as a condition resulting in persistent and consistent maladaptive behavior which exists to a marked degree and which interferes with the student's own learning process. EH may include, but is not limited to, any of the following characteristics: an inability to build or maintain satisfactory relationships with peers or teachers, inappropriate types of behavior or feelings under normal circumstances, a general pervasive mood of unhappiness or depression or a tendency to develop physical symptoms or fears associated with personal or school problems. This definition also includes a more severe display of emotional problems indicated as Severe Emotional Disturbances (SED).

Early Detection and Intervention

Both research and policy suggest the need to detect emotional problems early in effort to provide effective intervention. The Individuals with Disabilities Education Act (IDEA), in a recent amendment (IDEA, 1997), states that any child exhibiting "serious emotional disturbance" by age 3, must receive appropriate assessment and early intervention services in the least restrictive environment. Often, children with emotional problems are not identified until middle or late elementary school. Furthermore, they are often misclassified and placed in programs for specific learning disabilities rather than for emotional problems (Forness, Serna, Nielsen, Lambros, Hale, & Kavale, 2000). Early identification has become recognized as a necessary tool in providing the most effective treatment and intervention services to children with emotional problems. Identification of risk factors for children likely to present emotional problems will assist in the early identification of these children and allow for earlier intervention, helping children to become better adjusted.

Previous research has identified a variety of conditions that place children at risk for emotional problems (Harland et al, 2002; Liu, Kurita, Guo, Miyake, Ze, & Cao, 1999; Mason, Chapman, & Scott, 1999; Sourander, 2000; Weiss, Goebel, Page, Wilson, & Warda, 1999).

Very few studies, however, have focused specifically on emotional problems as an exceptionality in preschool-age children. Most of the studies which have been done have utilized specific populations making it difficult to accurately generalize the true relations between early risk factors and later exceptionalities to a large population. The present study utilizes a population-based sample of all children born in Florida to examine the early risk factors for emotional handicap and severe emotional disturbance.

Methods

Database Integration

For the purposes of the present study, data from the Children's Registry and Information System (CHRIS) database were integrated with Florida Department of Health birth records (1994 through 1998). The integration of databases was accomplished using deterministic data linkage techniques whereby a child's unique record was identified in multiple databases and joined across datasets to establish one record. Records were linked based on an exact match of a child's last name, first name, and date of birth. If any of the matching variables differed, the pair was considered a non-match and was not included in the linked sample. Combining records in this way allowed for the tracking of children from birth, through preschool evaluation and placement, and into the public school system.

Children's Registry and Information System

The Children's Registry and Information System (CHRIS) is a statewide database developed at the University of Miami in 1990 in response to the need to track children who receive services under Part B of IDEA. The CHRIS database contains referral, screening, evaluation, and eligibility information for preschool children in the state of Florida. Data entry for CHRIS is conducted at the Florida Diagnostic and Learning Resource System (FDLRS) sites located throughout the state of Florida. The CHRIS database provides the Florida Department of Education with a means of documenting Child Find efforts to locate, evaluate, and provide necessary services to at-risk children as well as providing a useful tool for service coordination.

Sample

The sample consisted of children born in Florida between 1/1/1994 and 12/31/1998 (N = 959,148). Information from the CHRIS database indicated that 308 children were identified with EH, and 27 were identified with SED. Due to the low occurrence of SED, and the similarity in the definitions and eligibility criteria of EH and SED, the two were combined into one group of interest (EH/SED). This group was comprised of children with primary exceptionalities of either emotional handicap or severe emotional disturbance (n=335). The 958,813 children who were born in Florida but were not identified with EH or SED served as the comparison group. Gender and race information for the EH/SED and comparison groups is provided in Table 1. Eighty-two percent of children with EH/SED were boys. The increased risk of EH/SED for boys is consistent with previous research (Harland et al., 2002; Liu et al., 1999; Mason et al., 1999; Sourander, 2000; Weiss, et al., 1999).

Results

Risk Factors

The significance of a variety of child, maternal, and paternal factors were evaluated using risk ratios. Risk ratios represent the increased risk to an individual when a risk factor is present compared to when it is absent. A risk ratio of 1.0 indicates equal levels of risk for developmental delay between the groups being compared (e.g., LBW vs. NBW). Risk ratios greater than 2.0 (i.e., double or greater risk) are considered of major importance in health research and risk ratios of 5.0 or greater are considered very large. Ninety-five percent confidence intervals were also calculated for each risk ratio. Confidence intervals for which either limit crosses or is equal to 1.0 were not considered meaningful because one cannot be confident that the presence of the risk factor truly elevated the risk for EH/SED.

Risk ratios were determined by comparing children diagnosed with either EH or SED in preschool (N = 335) with all children born in Florida between 1/1/1994 and 12/31/1998, not including children diagnosed with EH/SED (N = 958,813). The distribution of the risk characteristics and the risk ratios are provided in Table 2. Graphical representations of statistically significant risk factors are presented in Figure 1.

Results indicated that none of the child factors were significant. The following maternal factors were associated with a significantly increased risk for EH/SED in preschool-age children: maternal education less than 12 years (RR = 2.24), maternal education of only 12 years (RR = 1.69), maternal age less than 18 years (RR = 1.63), unwed marital status (RR = 2.31) maternal tobacco use during pregnancy (RR = 2.50). Maternal alcohol use during pregnancy, presence of maternal medical history factors, and presence of complications of labor and delivery were not significant parental risk factors for EH/SD. Paternal factors associated with an increase in risk for EH/SED included paternal education less than 12 years (RR = 3.51), paternal education of only 12 years (RR = 2.71). Parental education levels were the factors associated with the largest increased risk for EH/SED. Paternal age over 35, however, acted as a protective factor (RR = 0.71); indicating that children whose father was over the age of 35 were at only 71% of the risk for EH/SED compared to children of younger fathers.

Risk ratios yield an index of individual-level risk. It is also important, however, to examine the level of risk to the community. Therefore, population attributable fraction percentages were also computed. The population attributable fraction percentage (PAF %) is the "incidence of a disease in a population that is associated with exposure to the risk factor" (Last, 1995). PAF% yield an index of community-level risk or the impact of risk factors on the overall number of cases. The risk on the individual versus the risk to the community may be quite different. If the risk factor is uncommon, yet severe, the impact on the individual exposed to the risk factor will be high. Whereas a very common yet less harmful risk factor may not have a very high risk to the individual, but can create a high risk to the community because of the great number of those exposed (Mason, Scott, Chapman, & Tu, 2000). The results for PAF% are presented in Table 2. The largest increase in risk to the community was associated with unmarried mothers (PAF%=31.66%) and fathers with 12 years of education (PAF%=34.64%).

Conclusion

Interestingly, none of the child-related perinatal factors significantly increased the risk for emotional problems in preschool. Maternal and paternal factors such as low education, single marital status, low maternal age, and tobacco use were associated with an increase in risk. This indicates that environmental factors may have a more prominent role than biological factors in the prediction of emotional problems. This is congruent to previous literature on emotional problems in preschool (Forness et al., 2000; Harland et al., 2002; Liu et al., 1999; Sourander, 2000; Weiss et al., 1999). But it is inconsistent with research on emotional problems in older (school-age) children which identified both low birthweight and low gestational age as risk factors for emotional problems (Batchelor, Dean, Gray, & Wenck, 1991, Mason et al., 1999).

Factors such as parental educational attainment, parental age, marital status, and substance use serve as an indicator of the family's socioeconomic strata, and thereby the environment, in which the child is raised. Education level is positively correlated with socioeconomic status and income. Furthermore, children of more highly educated mothers are more likely to be living with both natural parents (McMunn, Nazroo, Marmot, Boreham, Goodman, 2001), and therefore are less likely to face the economic difficulties often confronted by single parents. Higher levels of education are associated with a greater sense of personal control that may bring about better parenting behaviors (Slaughter-Defoe, Addae, Bell, 2002).

The present study illustrates the potential for research involving the linkage of large, statewide data sets. Continued research utilizing data linkage techniques will enable the identification of risk factors and outcomes for preschoolers with other disabilities as well as lead to the development of more effective methods for identifying, screening, assessing, placing, and serving these children.

Table 1.

Gender, Race and Maternal Ethnicity for Children with EH/SED and the Comparison Group

	EH/SED		Comparison	
	n	%	n	%
Gender				
Male	275	82.09%	490,955	51.20%
Female	60	17.91%	467,835	48.79%
Unknown	0	0.00%	23	0.00%
Child Race				
Caucasian	239	71.34%	700,026	73.01%
African American	91	27.16%	230,466	24.04%
Asian/Pacific Islander	1	0.30%	21,651	2.26%
Other	4	1.19%	6,043	0.63%
Unknown	0	0.00%	627	0.07%
Maternal Ethnicity				
Non-Hispanic	266	79.40%	753,972	78.64%
Hispanic	65	19.40%	179,831	18.76%
Haitian	4	1.19%	24,304	2.53%
Unknown	0	0.00%	706	0.07%

Figure1: Selected Risk Ratios for Parental Factors for Emotional Problems in Preschool

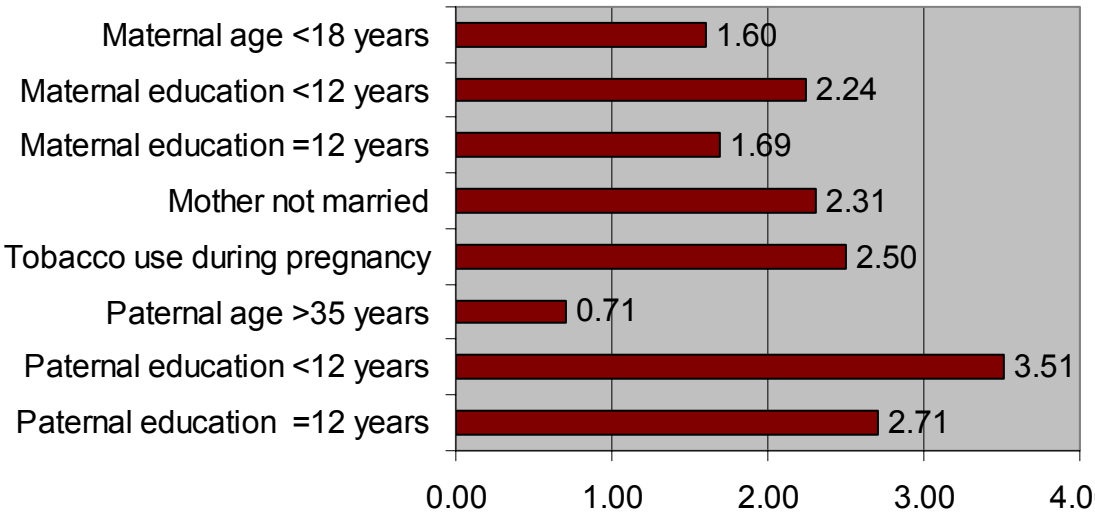
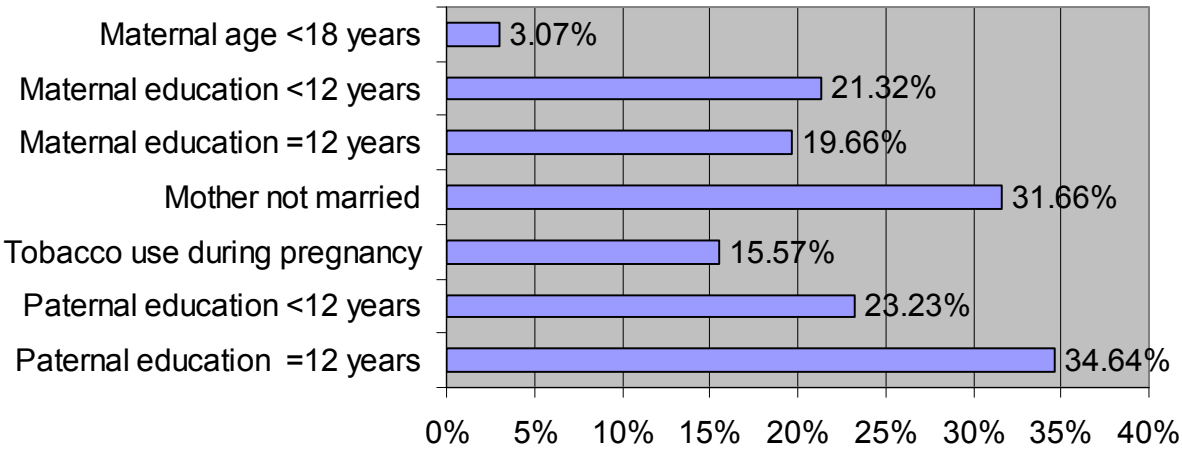


Figure 2: Selected Population Attributable Fraction Percentages for Parental Factors for Emotional Problems in Preschool



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