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ABSTRACT

To determine whether parents in families that live in high-risk environments accurately complete developmental questionnaires to be used in identifying infants at-risk for developmental delay, this study evaluated 54 at-risk and 43 nonrisk parent-infant dyads. Risk dyads included those living in extreme poverty and those with mothers whose maternal age was 19 or younger, with mothers who had less than a 12th grade education, and with parents who were involved with Children's Protective Services for reported abuse or neglect of their children. All parents completed Infant/Child Monitoring Questionnaires when their infants were 4, 8, 12, 16, 20, and 24 months old. At 12 and 24 months, children were assessed by a professional examiner using the Bayley Scales of Infant Development. Parents' accuracy was examined by comparing their classification of their infant's performance as normal or abnormal with the classification derived from professional assessment. Concurrent validity of the Infant/Child Monitoring Questionnaires, using the Bayley Scales as the criterion measure, was also investigated. Analysis showed that overall, the sensitivity and specificity of the questionnaires were in the acceptable ranges for a screening instrument. Results from this study suggest that although information from some at-risk parents must be regarded with suspicion, developmental information obtained from parents in high-risk environments can be accurate and useful in screening infants for developmental delay. (MM)

USE OF HIGH-RISK PARENTS FOR DEVELOPMENTAL SCREENING

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One cost-effective strategy for screening infants at-risk for developmental delay is to use their parents to supply developmental information. Based on work from numerous investigators who reported substantial agreement between parent and professional assessment of their child, a longitudinal screening system was developed specifically for use by parents. The Infant/Child Monitoring Questionnaires (ICMQs) are a set of 9 questionnaires designed to be completed by parents at 4 month intervals until 24 months, then at 30, 36, and 48 months. Each questionnaire contains 30 simply-worded developmental items. Previous studies with a sample of over 900 parents have found substantial agreement between parent and professional evaluations.

This research extended the experimental work with the questionnaires by focusing on their use with parents deemed to be at-risk due to severe economic, social, or personal stresses. This research addressed the question of whether parents from high-risk environments can accurately complete developmental questionnaires on their infants.

For this study, 54 at-risk and 43 non-risk parent-infant dyads were recruited. All dyads were recruited when infants were between 2 and 3 months. Risk dyads were those which met one or more of the following risk criteria: (a) extreme poverty (according to family income level as defined by federal guidelines of 100% poverty level); (b) maternal age 19 or younger at the time of the infant's birth; (c) maternal education less than 12th grade; and/or (d) parents involved with Children's Protective Services for reported abuse and/or neglect of their children. In the risk group, 58% were Caucasian, 23% Hispanic, 8% Black, 4% Asian, and 2% other. In the non-risk group, 89% were Caucasian, 5% Hispanic, 2% Native American, 2% Black, and 2% Asian. For the risk group, 88% had an annual income less than $15,000; for the non-risk group 79% had an income of $20,000 or above.

All parents completed Infant/Child Monitoring Questionnaires when their infants were 4, 8,12, 16, 20, and 24 months. At 12 and 24 months, children were assessed by a professional examiner using the Bayley Scales of Infant Development. Accuracy of the parents was examined by comparing the classification of the infant's performance as normal or abnormal on the Infant/Child Monitoring Questionnaires with the classification derived from the professional assessment using the Bayley. An infant's performance on the Infant/Child Monitoring Questionnaires was classified as abnormal if the infant

received a score falling below the empirically-derived cut-off points (2 standard deviations below the mean) on any domain. Mean scores by domain for each questionnaire interval are contained in Table 1. An infant's performance on the Bayley was classified as abnormal if his or her score fell 1-1/2 standard deviations below the mean on either motor or mental scales. Percentage agreement between classifications on the ICMQs and the Bayley was calculated, as shown in Table 2.

Concurrent validity of the Infant/Child Monitoring Questionnaires, using the Bayley as the criterion measure, was also investigated. Agreement between the classification on the questionnaires and the Bayley is shown in Table 3. Overall, the sensitivity and specificity of the questionnaires are in the acceptable ranges for a screening instrument, although the small number of "failed" questionnaires and Bayleys limits these findings.

Although information from some parents (e.g., parents using illegal substances, parents with limited cognitive abilities) must be regarded with suspicion, developmental information obtained from parents from high-risk environments may be accurate and useful in the screening process. Further research is needed to: 1) determine which parental features (variables) are associated with accurate completion of their child's questionnaire; 2) explore what factors may contribute to parental participation and maintenance in infant tracking programs; 3) develop procedures for examining the teaching effects of completing developmental questionnaires; and 4) examine response patterns on the questionnaires to determine if reliable sub-profiles exist.

For further information on the Infant/Child Monitoring Questionnaires, see:

Bricker, D., & Squires, J. (1989). A low-cost system using parents to monitor the development of at risk infants. *Journal of Early Intervention, 13*(1), 50-60.

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Table 1

Mean Scores by domain for ICMQ intervals

	N	*Mean*	*s.d.*	*Cutoff*
4 month				
Communication	933	5	0.91	3.18
Gross Motor	933	5.5	0.77	3.96
Fine Motor	933	4.84	1.14	2.56
Adaptive	933	5.23	1.14	2.95
Personal Social	933	5.12	0.93	3.26
8 month				
Communication	839	5.33	0.86	3.61
Gross Motor	839	4.88	1.38	2.12
Fine Motor	839	5.4	0.85	3.7
Adaptive	839	5.13	0.95	3.23
Personal Social	838	5.13	1.02	3.09
12 month				
Communication	728	4.02	1.32	1.38
Gross Motor	728	4.62	1.61	1.4
Fine Motor	728	4.78	1.04	2.7
Adaptive	727	4.83	1.18	2.47
Personal Social	728	4.4	1.28	1.84
16 month				
Communication	711	4.89	1.28	2.33
Gross Motor	711	5.42	1.33	2.76
Fine Motor	711	5.12	1.12	2.88
Adaptive	710	4.85	1.24	2.37
Personal Social	711	4.71	1.2	2.31

	N	*Mean*	*s.d.*	*Cutoff*
20 month				
Communication	621	4.74	1.04	2.66
Gross Motor	621	5.57	0.91	3.75
Fine Motor	621	5.48	0.74	4
Adaptive	621	4.91	0.97	2.97
Personal Social	621	5.22	0.91	3.4
24 month				
Communication	605	4.77	1.13	2.51
Gross Motor	605	5.41	0.9	3.61
Fine Motor	605	5.29	0.82	3.65
Adaptive	605	5.14	0.97	3.2
Personal Social	605	5.17	0.86	3.45
30 month				
Communication	334	5.61	0.85	3.91
Gross Motor	334	4.91	1.09	2.73
Fine Motor	334	5.11	1.19	2.73
Adaptive	334	5.22	1.01	3.2
Personal Social	334	5.18	0.81	3.56
36 month				
Communication	326	5.48	0.78	3.92
Gross Motor	326	5.42	1	3.42
Fine Motor	326	5.24	1.07	3.1
Adaptive	326	5.51	0.78	3.95
Personal Social	326	5.29	0.77	3.75

Table 2

Percentage Agreement for Bayley Screening and Infant Child Monitoring Questionnaire: Risk and Non-risk Groups

	12 Month		24 Month	
	Agreement	N	Agreement	N
At Risk	92.6%	54	80.0%	50
Non-risk	92.9%	42	87.1%	31
Overall	92.7%	96	82.7%	81

Table 3
Concurrent Validity of 12- and 24-Months

12-Month ICMQ validity

ICMQ	Bayley: Fail	Bayley: Pass
Fail	2	13
Pass	1	80

% Agreement:	93%
Sensitivity:	0.67
Specificity:	0.94
False Positive Rate:	0.07
False Negative Rate:	0.33

24-Month ICMQ validity

ICMQ	Bayley: Fail	Bayley: Pass
Fail	1	14
Pass	0	66

% Agreement:	83%
Sensitivity:	1.00
Specificity:	0.83
False Positive Rate:	0.18
False Negative Rate:	0.00