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ABSTRACT

This study explored the role of perinatal vulnerability (PV) in mothers and infants in relationship to the development of interaffectivity and attachment, and the relationship between interaffectivity and attachment. Participating were a low-risk sample of 74 middle-class mother/first-born infant dyads who had participated as volunteers in a combined parent-support program and research project over seven years. Infants ranged in age from 3 weeks to 9 months at time of entry, with mothers' age ranging from 26 to 43 years. Within the context of the ongoing program, the following assessments were conducted: (1) interaffectivity, through ratings of mother-infant videotaped play; (2) quality of attachment; (3) perinatal vulnerability, through structured clinical interviews with mothers; and (4) infant temperament. Findings indicated that interaffectivity and attachment were significantly correlated for the entire sample and the PV group. Although postnatal maternal illness and prenatal vulnerabilities tended to lower attachment for the group as a whole, those dyads showing higher levels of interaffectivity had higher levels of attachment. Maternal depression symptoms following birth were reported by 27 percent of the subjects; self-report of such symptoms during the first 6 months was correlated to observations at 14 months through the depression variables of the interaffectivity scale. Self-reported depression was negatively related to interaffectivity and attachment, and was related positively to previous pregnancy loss, fertility problems, and C-section delivery. Mothers reporting perinatal depression saw their infants as unusually fussy, difficult, demanding, unadaptable, persistent, and unsociable at 14 months. (Six tables detail findings.) (KB)

INTERAFFECTIVITY, ATTACHMENT, AND PERINATAL VULNERABILITY: COMPLEXITIES OF MOTHERHOOD IN THE NINETIES

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Interaffectivity, Attachment and Perinatal Vulnerabilities in Mothers and Infants: Complexities of Motherhood in the Nineties

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INTRODUCTION

Within a multifaceted project exploring a variety of developmental issues longitudinally, a wide range of data is being collected, including mother-child interaction data investigating the development of attachment, interaffectivity and communication, as well as data from clinical interviews, Parental Stress Inventory and Bates child temperament scales. These data continue to provide a framework for investigating developmental pathways in a complex manner; the construct of emotional engagement has emerged as a unifying construct (Weissmann, et al, 1998, 1996; Harding, et al, 1997). Interaffectivity, indicating a sense of emotional intimacy, connectedness or "being with" and the ability to share on a feeling level (Weissmann, 1987), conceptualized as a result of affect attunement (Stern, 1985), has been shown to be related to attachment, a strong affectional tie between mother and infant.

This study continues to explore the role of perinatal vulnerability (PV) in a low-risk sample in relationship to the development of interaffectivity and attachment, as well as the relationship between interaffectivity and attachment (Kromelow, et al, 1997).

METHOD

Subjects included 74 middle-class mother/first-born infant dyads who have participated as volunteers in a combined parent-support program/research project over a period of 7 years. Infants (53% boys and 47% girls) ranged in age from 3 weeks to 9 months at time of entry into the project's parent-support program. Mothers ranged in age from 26 to 43 years, with a mean age of 33; fathers ranged in age from 25 to 50, with a mean of 34. (See Table 1.)

Participation in the parent support/education group was limited to first time mothers with babies under one year of age, who responded to notices appearing in suburban newspapers, parenting periodicals, and flyers posted in the community. An individual session at the conclusion of the five-week group included video taping of the mother and infant at play, playback of the video with feedback, and a structured clinical interview. The support and trust engendered through the group and individual sessions contributed to the high rate of return of subjects for additional data gathering, and contributes to the ecological validity of the study.

With parental consent, the following assessments were conducted within the context of the on-going parent-support program:

Interaffectivity represents a sense of emotional intimacy, connectedness and "being with" experienced between mother and infant and the experience of sharing on a feeling level, (Weissmann, 1987); it is conceptualized as a result of affect attunement (Stern, 1985), which develops between the ages of 9 to 12 months, as the child develops the realization that feelings can be shared. It is an interactional, relational construct residing in neither the mother nor the child, but in the dynamic "space between".

Interaffectivity has been assessed at an average age of 14 months through the use of a videotaped play paradigm, which is analyzed using the Mother-Infant Interaffectivity Scale, (Weissmann, 1987), an adaptation of the Parent-Child Early Relational Assessment (Clark, et al, 1980, 1985). The Interaffectivity Scale consists of 20 variables, (rated on a 5 point Likert-like scale) which are closely related theoretically and statistically. The range of possible scores is from 20 to 100. The mean for this group is 76.5. (See Table 2.)

Quality of attachment, assessed at 14 months, has been measured by a laboratory procedure identical to Ainsworth's Strange Situation. To quantitatively reflect the range and variation of the quality of attachment, a continuum of felt security was conceptualized. A 7-point hierarchical continuum integrating original Ainsworth et al subcategories with additional borderline subcategories was created. (Kromelow, et al, 1997) The mean for this group is 4.7. (See Table 2.)

Perinatal Vulnerability was assessed as present through structured clinical interviews with mothers. Included in the category of perinatal vulnerability are such maternal and infant issues as infertility, previous pregnancy loss, labor problems including C-section, preterm birth, maternal illness, maternal depression, and infant concerns. 86% of the 74 subjects reported one or more of these issues.

Temperament (Bates, 1979) was assessed at 14 months, at the time of data gathering for attachment and interaffectivity.

RESULTS AND DISCUSSION

The data was analyzed through Pearson Correlation, Multiple Regression, and because variables tended to be inter-correlated, t-tests, cross tabs and patrial correlations were run, in order to support the associations found through correlational analysis.

Results of the effects of perinatal vulnerabilities on attachment, interaffectivity and each other were more complex than anticipated. (See Table 3: Correlation Coefficients for Attachment, Interaffectivity and Vulnerabilities.)

Relationships with attachment and interaffectivity

1. **Interaffectivity and attachment** were found to be significantly correlated both for the entire sample and for the PV group. Both optimal interaffectivity and optimal attachment represent the existence of a strong dyadic relationship, and the strong association may indicate a tie which includes a sense of intersubjective relatedness, and dyadic reciprocity. The use of

a continuum representing felt security permitted an analysis of attachment with a complex construct, and supports the continued use of such a continuum.

2. **Prenatal maternal vulnerabilities** (a variable which includes mothers with infertility issues and/or previous pregnancy loss) and **postnatal maternal illness** were both negatively related to attachment, and not to interaffectivity. Multiple regressions show that this relationship was mediated by interaffectivity. (See Tables 4 and 5.) This indicates that for those mothers with these vulnerabilities, attachment tended to be generally lower, except for those mothers where interaffectivity was high. Although post-natal maternal illness and prenatal vulnerabilities tended to lower attachment for the group as a whole, those dyads showing higher levels of interaffectivity had higher levels of attachment.

Relationships with **self-reported maternal depression**

3.. Symptoms of maternal depression following birth were self-reported by 27% of the subjects; the self report during the first 6 months was **correlated to observations** made at 14 months through the maternal, child and dyadic "depression" variables of the interaffectivity Scale. (See Table 3.) The relationship of the self-reported depression following birth with observed depression at 14 months, in mother, child and dyad, speaks both to the validity of early self-report, and to the long lasting effect of depression reported following childbirth.

4. Self-reported depression shows a negative relationship with both **interaffectivity and attachment.**

5. Self-reported depression also shows significant relationships with several other perinatal variables, including a positive correlation with **previous pregnancy loss and/or fertility problems**, and a positive correlation with **C-section.**

Relationships with temperament.

6 Self reported maternal depression was significantly related to **infant temperament**, as measured on the Bates Temperament Scale at an average age of 14 months, showing that mothers reporting depression around the time of birth saw their babies as unusually fussy, difficult, demanding, unadaptable, persistent and unsociable at 14 months. (See Table 6.)

CONCLUSIONS and IMPLICATIONS

These findings highlight the prevalence of perinatal vulnerabilities among middle-class families, and the complex relationships among them. Particularly noteworthy are the long range effects of self-reported depression: its relationship to previous pregnancy loss and or/fertility problems, to C-section, to perceptions of child temperament, and to the development of interaffectivity and attachment. The persistence of depressive symptoms is supported by the relationship with observed depression in the mother, child and dyad as rated in the interaffectivity scale at 14 months..

This group of middle to upper-middle class mothers is by most standards a low-risk

group. However, by choosing issues which could be defined as "vulnerabilities" rather than risks, 65 of the 75 dyads have been found to experience one or more such issues. The large portion of the sample experiencing vulnerabilities may be explained in several ways. Any issue that seemed removed from the norm, or expected result, was included, regardless of severity, because many of the issues, such as infertility, are recognized as being problematic, physically and/or emotionally. In addition, this self-selected sample chose to join a group housed in a University setting, where they might expect to encounter experts, and may have been drawn to the group for that reason.

And perhaps, becoming a parent in the 90's may itself promote vulnerability, most importantly through the fact of delayed child bearing and the issues of infertility, anxiety and loss of identity that accompany it. In terms of infertility issues, for example, this group, 19% of whom have experienced infertility, exceeds the 1998 reported national figure of 14%. In addition, the number seems to be increasing every year; between 1998 and 1999 our subject pool increased by 22; those experiencing fertility problems were 5 out of the 6 most recent births, and 4 of those 5 had experienced previous pregnancy loss. Recent governmental reports from the Centers for Disease Control and Prevention have also indicated an increase in fertility-enhanced births nationwide.

Implications for interventions include the notion that perhaps becoming a parent in the 90's may itself promote vulnerability, most importantly through the fact of delayed child-bearing and the issues of infertility, anxiety and loss of identity that accompany it. Older mothers who have been pursuing careers prior to childbirth have high expectations for performance, and although they seek out support in various ways, they may have greater needs than have been acknowledged, by themselves or by society.

Follow-up and support for older mothers suffering infertility and/or previous pregnancy loss should be built into the process. Support for women undergoing C-section is particularly important. The finding related to the effects of C-sections indicates a need for intervention very early. Acknowledging the emotional as well as physical effects of a C-section on a group of well educated, sophisticated mothers, and targeting this group for support services around the time of birth could have important effects on the infant and the relationship.

Further exploration of these complex relationships is underway, both statistically, with a structural path model, and qualitatively, through case study analysis. It is anticipated that the need for additional support for today's families will continue to be seen as important.

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Table 1. Demographics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
MOMAGE	70	26.00	43.00	32.8714	3.9367
DADAGE	69	25.00	50.00	34.4348	4.7904
MOMED	70	12.00	20.00	16.7000	1.3551
DADED	69	12.00	22.00	17.2754	1.7977
Valid N (listwise)	68				

SEX

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	40	53.3	53.3	53.3
	female	35	46.7	46.7	100.0
	Total	75	100.0	100.0	

Table 2. Descriptives

• = variables with values ranging from 0-1

	N	Minimum	Maximum	Mean	Std. Deviation
interaff	74	45.00	100.00	76.4865	11.5927
attach	74	1.00	7.00	4.7027	2.1180
pre maternal vul•	74	.00	1.00	.3243	.4713
c section•	74	.00	1.00	.2568	.4398
maternal ill post•	71	.00	1.00	.1972	.4007
maternal dep (rep)•	75	.00	1.00	.2533	.4378
maternal dep (obs)	72	2.00	5.00	4.2708	.7779
child dep (obs)	72	3.00	5.00	4.1944	.7246
dyad dep (obs)	72	2.00	5.00	3.7639	.8004
Bates F1 fussy-demand	55	15.00	51.00	28.7545	8.6847
Bates F2 undadapt	55	5.00	23.00	13.4000	4.0396
Bates F3 Persistant	55	5.00	20.00	13.4182	3.2185
Bates F4 Unsociable	55	2.50	13.00	6.5727	2.2982
MOMAGE	70	26.00	43.00	32.8714	3.9367
DADAGE	69	25.00	50.00	34.4348	4.7904
MOMED	70	12.00	20.00	16.7000	1.3551
DADED	69	12.00	22.00	17.2754	1.7977
Valid N (listwise)	50				

le 3. Correlation Coefficients for Attachment, Interaffectivity and Vulnerabilities

Correlations

		interaff	attach	pre maternal vul	c section	maternal ill post	maternal dep (rep)	maternal dep (obs)	child dep (obs)	dyad dep (obs)
interaff	Pearson Correlation	1.000	.321**	-.087	-.074	.047	-.342**	.657**	.588**	.753**
	Sig. (2-tailed)	.	.005	.462	.536	.700	.003	.000	.000	.000
	N	74	74	73	73	70	74	72	72	72
attach	Pearson Correlation	.321**	1.000	-.282*	.015	-.272*	-.196	.385**	.123	.269*
	Sig. (2-tailed)	.005	.	.016	.903	.022	.094	.001	.303	.022
	N	74	74	73	73	70	74	72	72	72
pre maternal vul	Pearson Correlation	-.087	-.282*	1.000	-.011	.204	.188	.029	-.099	-.035
	Sig. (2-tailed)	.462	.016	.	.928	.088	.110	.812	.410	.774
	N	73	73	74	74	71	74	71	71	71
c section	Pearson Correlation	-.074	.015	-.011	1.000	.100	.221	-.029	-.194	-.080
	Sig. (2-tailed)	.536	.903	.928	.	.406	.058	.811	.106	.509
	N	73	73	74	74	71	74	71	71	71
maternal ill post	Pearson Correlation	.047	-.272*	.204	.100	1.000	.180	-.165	.057	.090
	Sig. (2-tailed)	.700	.022	.088	.406	.	.133	.178	.647	.467
	N	70	70	71	71	71	71	68	68	68
maternal dep (rep)	Pearson Correlation	-.342**	-.196	.188	.221	.180	1.000	-.285*	-.245*	-.252*
	Sig. (2-tailed)	.003	.094	.110	.058	.133	.	.015	.038	.033
	N	74	74	74	74	71	75	72	72	72
maternal dep (obs)	Pearson Correlation	.657**	.385**	.029	-.029	-.165	-.285*	1.000	.530**	.647**
	Sig. (2-tailed)	.000	.001	.812	.811	.178	.015	.	.000	.000
	N	72	72	71	71	68	72	72	72	72
child dep (obs)	Pearson Correlation	.588**	.123	-.099	-.194	.057	-.245*	.530**	1.000	.748**
	Sig. (2-tailed)	.000	.303	.410	.106	.647	.038	.000	.	.000
	N	72	72	71	71	68	72	72	72	72
dyad dep (obs)	Pearson Correlation	.753**	.269*	-.035	-.080	.090	-.252*	.647**	.748**	1.000
	Sig. (2-tailed)	.000	.022	.774	.509	.467	.033	.000	.000	.
	N	72	72	71	71	68	72	72	72	72

Table 4. Hierarchical Regression with Attachment, Interaffectivity, and Prenatal Maternal Vulneraty

Descriptive Statistics

	Mean	Std. Deviation	N
attach	4.6849	2.1271	73
pre maternal vul	.3288	.4730	73
interaff	76 2603	11.5073	73

Correlations

		attach	pre maternal vul	interaff
Pearson Correlation	attach	1.000	-.282	.314
	pre maternal vul	-.282	1.000	-.087
	interaff	.314	-.087	1.000
Sig. (1-tailed)	attach	.	.008	.003
	pre maternal vul	.008	.	.231
	interaff	.003	.231	.
N	attach	73	73	73
	pre maternal vul	73	73	73
	interaff	73	73	73

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	pre maternal vul[a]	.	Enter
2	interaff[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: attach

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.282[a]	.080	.067	2.0550
2	.405[b]	.164	.140	1.9726

Model Summary

Model	Change Statistics				
	R Square Change	F Change	df1	df2	Sig. F Change
1	.080	6.140	1	71	.016
2	.084	7.052	1	70	.010

a. Predictors: (Constant), pre maternal vul

b. Predictors: (Constant), pre maternal vul, interaff

ANOVA[c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.930	1	25.930	6.140	.016[a]
	Residual	299.823	71	4.223		
	Total	325.753	72			
2	Regression	53.372	2	26.686	6.858	.002[b]
	Residual	272.382	70	3.891		
	Total	325.753	72			

a. Predictors: (Constant), pre maternal vul

b. Predictors: (Constant), pre maternal vul, interaff

c. Dependent Variable: attach

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.102	.284		17.380	.000
	pre maternal vul	-1.269	.512	-.282	-2.478	.016
2	(Constant)	.957	1.586		.604	.548
	pre maternal vul	-1.154	.493	-.257	-2.340	.022
	interaff	5.386E-02	.020	.291	2.656	.010

a. Dependent Variable: attach

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	interaff	.291[a]	2.656	.010	.303	.992

a. Predictors in the Model: (Constant), pre maternal vul

b. Dependent Variable: attach

Table 5. Hierarchical Regression with Attachment, Interafectivity, and Postnatal Maternal Illness

Descriptive Statistics

	Mean	Std. Deviation	N
attach	4.6714	2.1651	70
maternal ill post	.2000	.4029	70
interaff	76.6429	11.5270	70

Correlations

		attach	maternal ill post	interaff
Pearson Correlation	attach	1.000	-.272	.318
	maternal ill post	-.272	1.000	.047
	interaff	.318	.047	1.000
Sig. (1-tailed)	attach	.	.011	.004
	maternal ill post	.011	.	.350
	interaff	.004	.350	.
N	attach	70	70	70
	maternal ill post	70	70	70
	interaff	70	70	70

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	maternal ill post[a]	.	Enter
2	interaff[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: attach

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.272[a]	.074	.061	2.0984
2	.428[b]	.184	.159	1.9853

Model Summary

Model	Change Statistics				
	R Square Change	F Change	df1	df2	Sig. F Change
1	.074	5.454	1	68	.022
2	.109	8.972	1	67	.004

a. Predictors: (Constant), maternal ill post

b. Predictors: (Constant), maternal ill post, interaff

ANOVA[c]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.014	1	24.014	5.454	.022[a]
	Residual	299.429	68	4.403		
	Total	323.443	69			
2	Regression	59.375	2	29.687	7.532	.001[b]
	Residual	264.068	67	3.941		
	Total	323.443	69			

a. Predictors: (Constant), maternal ill post

b. Predictors: (Constant), maternal ill post, interaff

c. Dependent Variable: attach

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.964	.280		17.703	.000
	maternal ill post	-1.464	.627	-.272	-2.335	.022
2	(Constant)	.216	1.607		.134	.894
	maternal ill post	-1.548	.594	-.288	-2.606	.011
	interaff	6.217E-02	.021	.331	2.995	.004

a. Dependent Variable: attach

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	interaff	.331[a]	2.995	.004	.344	.998

a. Predictors in the Model: (Constant), maternal ill post

b. Dependent Variable: attach

able 6. Correlation Coefficients for Infant Temperament Variables and Self- Reported Maternal Depression

Correlations

		maternal dep (rep)	Bates F1 fussy-demand	Bates F2 undadapt	Bates F3 Persistant	Bates F4 Unsociable
maternal dep (rep)	Pearson Correlation	1.000	.362**	.258	.270*	.333*
	Sig. (2-tailed)	.	.007	.058	.046	.013
	N	75	55	55	55	55
Bates F1 fussy-demand	Pearson Correlation	.362**	1.000	.418**	.409**	.519**
	Sig. (2-tailed)	.007	.	.001	.002	.000
	N	55	55	55	55	55
Bates F2 undadapt	Pearson Correlation	.258	.418**	1.000	.148	.361**
	Sig. (2-tailed)	.058	.001	.	.281	.007
	N	55	55	55	55	55
Bates F3 Persistant	Pearson Correlation	.270*	.409**	.148	1.000	.152
	Sig. (2-tailed)	.046	.002	.281	.	.267
	N	55	55	55	55	55
Bates F4 Unsociable	Pearson Correlation	.333*	.519**	.361**	.152	1.000
	Sig. (2-tailed)	.013	.000	.007	.267	.
	N	55	55	55	55	55

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

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