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Attachment styles in everyday social interaction

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Abstract

For seven days, participants described the important interactions they had using a variant of the Rochester Interaction Record and reported their attachment style using Bartholomew's four-category system. A series of multilevel random coefficient analyses found that across all interactions securely attached participants, compared to those who were insecurely attached, found their interactions to be more intimate and more positive emotionally. Secure participants also felt that others were more responsive to them and their needs. Secure–insecure differences were most pronounced when secure and dismissive avoidant participants were compared. Differences between secure and fearful types were minimal. In contrast, differences in reactions to interactions with close and not close friends were more pronounced for fearful types than for secures, dismissing, or preoccupied types. These results highlight the importance of distinguishing fearful and dismissive avoidance. Copyright © 2002 John Wiley & Sons, Ltd.

In the past decade and a half, a wealth of studies have thrown light on the cognitive, affective, and behavioural effects of attachment styles in people's relationships. Despite the considerable attention such individual differences in adult attachment have received, still relatively little is known about attachment style effects on people's everyday social lives. Much of the research concerning attachment and the nature of people's personal relationships has been either laboratory based or has used relatively broadly focused surveys or questionnaires. Although this existing research is informative, it needs to be complemented by studies in specific relational contexts that examine the links between attachment and interpersonal interaction, outside the confines of the laboratory and with more specificity than that provided by surveys and questionnaires.

Studies of naturally occurring interaction are needed because of the difficulty in generalising the results of controlled laboratory research which typically suffer from limited external validity. By design, laboratory studies examine behaviour in restricted, perhaps artificial, settings to ensure internal validity and clarity of inferences. For example, some studies have examined attachment working models using reaction time methods (e.g. Baldwin, Fehr, Keedian, Seidel, & Thompson, 1993;

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Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996) and responses to imaginary situations of general relationship descriptions (e.g. Collins, 1996; Pietromonaco & Carnelley, 1994). Although informative, it is not clear how well the results of such studies can be generalised to real-life situations.

Studies using global or undifferentiated measures or proxy measures of interaction may also be limited in that they may not be sensitive to potentially important differences among types or characteristics of interactions. Research on relationships between social interaction and other individual differences suggests that such relationships can vary considerably as a function of the people who are present during an interaction (e.g. Nezlek, Hampton, & Shean, 2000). In contrast, it appears that the implicit assumption made in many studies is that attachment is a sort of trait or disposition with similar effects across different interactional or relational contexts. Such an approach has been criticised because it inaccurately represents the dynamic character of attachment (Kelley, 1992; Kobak, 1994; Noller & Feeney, 1994; Simpson & Rholes, 1994). For example, some accounts of attachment processes have stressed differences across different affective contexts in how the attachment system is activated (e.g. Sroufe & Waters, 1977).

The present study was intended to complement existing research by examining the connections between attachment styles and people's naturally occurring, daily social interactions in different relational contexts. Participants maintained a variant of the Rochester Interaction Record (Wheeler & Nezlek, 1977), and they provided measures of their attachment style using Bartholomew's (1990) four-prototype model. Relationships between social interaction and attachment style were examined with a series of multilevel random coefficient models. Day-to-day social interaction was measured using the RIR because it provides both finely differentiated and broad-based measures of day-to-day social interaction. In addition to providing a description of people's general pattern of interactions, the RIR can assess interactions in different relational contexts (e.g. friends versus acquaintances), an important distinction in understanding relationships between attachment and interaction.

When conducting research on studying naturally occurring social interaction using the RIR it is important to have a clear rationale for the measures used to describe interaction because there is nothing inherent in the technique that dictates what aspects of interaction should be measured. Accordingly, the measures collected in this study reflected theoretical frameworks concerning the quality of interaction in personal relationships (e.g. Hinde, 1979, 1995; Bradbury & Fincham, 1987) and accounts of cognitive, emotional, and behavioural components of adult attachment (e.g. Shaver, Collins, & Clark, 1996; Collins, 1996; Collins & Read, 1994). For each interaction participants described behavioural, emotional, and perceptual dimensions of the interaction (disclosure, initiation, emotions, and self-other perceptions) representing aspects of interaction these bodies of research suggested were important.

Interpersonal intimacy and self-disclosure are two aspects of social interaction that existing research suggests vary as a function of attachment style. Studies using global measures of relationships and interactions have found that securely attached people self-disclose more than insecurely attached people (e.g. Miculincer & Nachson, 1991; Feeney & Noller, 1991). Other research suggests that individuals with anxious/preoccupied styles desire more intimacy than they find in their social interactions and tend to be indiscriminate in their self-disclosure, whereas people with avoidant styles tend to limit their self-disclosure (Bartholomew & Horowitz, 1991).

Relationships between attachment style and expectations of relationships have also been examined. For example, avoidant men and anxious/preoccupied women report more negative expectations about themselves and relationships (e.g. Pietromonaco & Carnelley, 1994). More cognitively focused research has found that securely attached people have more clearly structured positive expectations about interactional scenarios and have easier access to positive expectations of relational interactions than avoidant people (e.g. Baldwin et al., 1993). Along these same lines, securely attached people, compared to insecure people, have been found to report more positive and less negative emotions in

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relationships (Feeney, 1995; Simpson, 1990; Simpson & Rholes, 1994) and globally (Magai, Distel, & Liker, 1995).

Despite whatever consistency exists across these studies, this research may provide a misleading picture because many of these studies have relied on single assessments or global reports of interaction. As noted previously, such measures may not represent the nature of people's day-to-day interactions because of selective attention, and they may be insensitive to differences across interaction with different relational partners. Such a possibility was confirmed by Tidwell, Reis, and Shaver (1996) who used a variant of the RIR to study relationships between attachment style and reactions to everyday social interaction. They found numerous differences in reactions to social interaction as a function of attachment style, but primarily for opposite-sex interactions. With the exception of negative emotions, there were no differences in reactions to interactions as a function of attachment style for interactions with same-sex others.

The Tidwell et al. (1996) study, although informative, suffers from a potentially important shortcoming: Tidwell et al. used a tri-partite measure of adult attachment (Hazan & Shaver, 1987) that did not allow examination of the differences between people with fearful and dismissing avoidant attachment styles (Bartholomew & Horowitz, 1991). The Bartholomew and Horowitz (1991) prototype model distinguishes attachment styles in terms of combinations of self and other models inspired by Bowlby's initial conceptualisation of working models of attachment. The *secure* style combines positive models of the self and of others, and the *anxious/preoccupied* style combines a negative model of self and a positive model of others. The *avoidant* style originally proposed by Hazan and Shaver (1987) is divided into two subtypes, *fearful* (negative models of both self and others) and *dismissive* (negative model of others and a positive model of self). The four prototypes can be expressed as combinations of two dimensions anxiety (self-model) and avoidance (other-model) (Griffin & Bartholomew, 1994 a,b).

The distinction between fearful- and dismissive-avoidance is important because of the fundamental difference in the emotional regulation patterns of people with these two types of avoidant styles (Bartholomew, 1990, 1993; Fraley, Davis, & Shaver, 1998). The dismissing avoidance strategy in order to regulate affect is to minimise negative affect (Fraley & Shaver, 1997) whereas fearful avoidance is associated with high levels of anxiety and negative affect in a north American context (Fraley et al., 1998) and in other cultures (Kafetsios, 2000). Moreover, the importance of this distinction for understanding relationships between attachment and daily social interaction was confirmed by Pietromonaco and Feldman Barrett (1997). This study found that dismissive-avoidants (compared to fearful-avoidants) had less satisfying interactions and felt their interaction partners had less positive emotions.

The primary hypothesis guiding the study was that securely attached people would have more psychologically rewarding social interactions than insecurely attached people. More rewarding in this sense refers to greater enjoyment and intimacy, more positive and less negative emotional reactions, and perceptions of self and other. In addition, we also were interested in examining the utility of distinguishing dismissive-avoidant and fearful-avoidant attachment styles. Pietromonaco and Feldman Barrett (1997) found that fearful participants had somewhat more positive interactions than dismissives, and we expected to confirm their findings.

In addition to examining relationships between attachment style and social interaction measured at the general level (as discussed above), the data generated by the RIR provided the opportunity to examine relationships between attachment style and interactions with different types of relational partners. For example, Tidwell et al. (1996) found that securely attached people distinguished interactions with romantic partners from interactions with other opposite-sex persons more than people who were insecurely attached (particularly those with an avoidant style). Those with an ambivalent style were between secures and avoidants on this measure. In contrast, they found no

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attachment style differences in how much people distinguished same-sex relationships. They reasoned that securely attached people were more comfortable with the intimacy that accompanies romantic relationships than the insecurely attached, resulting in a larger difference between romantic and non-romantic relationships. They further reasoned that intimacy concerns were not that relevant for same-sex relationships which would not be likely to be romantic.

Although we agree with much of their reasoning, Tidwell et al. did not distinguish dismissive and fearful avoidants, and this distinction might be critical when considering how people distinguish interactions with close and not close others. In particular, fearful avoidant people might distinguish close and not close relationships more sharply than others because close relationships provide secure, predictable contexts, i.e. contexts which minimise negative affect (i.e. fear). Moreover, although Tidwell et al. did not find relationships between attachment style and how people distinguished interactions with same-sex others, intimacy concerns have been found to be relevant to close same-sex relationships (Nezlek, 1995). With these considerations in mind, no specific hypotheses were formed about relationships between attachment style and how people distinguished interactions with close and not close others.

The present study was also intended to illustrate the utility of analysing social interaction diary with multilevel random coefficient modelling (MRCM). Tidwell et al. (1996) and Pietromomaco and Feldman Barrett (1997) used ordinary least squares (OLS) and weighted least squares (WLS) respectively, and both of these techniques provide less accurate parameter estimates than MRCM.[1] A description of the relative advantages of MRCM over OLS and WLS can be found in Nezlek (2001), and descriptions of how to analyse social interaction diary data with MRCM can be found in Nezlek (2001, in press).

METHOD

Participants

To recruit participants, posters and calls at lectures in a British University requested volunteers for a study entitled 'How people make new friends in their first year in university', and a letter was circulated to 50 randomly selected first-year students. Of the 60 people who responded to these requests (48 responded to the poster and 12 to the letter), 42 provided completed records. At a brief introductory meeting, the details of the study were explained to participants. The instructions were based on those developed by Wheeler and Nezlek (1977) and were similar to those used in previous research using the RIR. Participants were told that the study concerned the friendships and relationships that emerge when someone enters a new social environment. Participants were told to complete their diaries at the end of each day. After a week, when participants returned with their completed diaries, they completed the Bartholomew Relationships Questionnaire, attended a short debriefing session, and were paid £5.

Similar to most studies using the RIR, participants described the social interactions they had by indicating the date and time the interaction began, its length, and who their cointeractants were, using unique initials for each cointeractant and indicating the sex of each cointeractant. They also indicated

[1] Pierce and Lydon (2001) used MRCM to analyse relationships between attachment style and social interaction; however, the focus and methods of their study differed so much from those of the present study and those of other research on attachment and social interaction that it is not appropriate to discuss their analyses in detail. Pierce and Lydon studied only interactions with most frequent interaction partners (up to five) and were primarily concerned with comparing global and relationship specific models of self and others. Moreover, they did not use a typology based definition of attachment.

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if the interaction was with a best friend, close friend, acquaintance, or someone with whom they shared another type of relationship.

Participants also provided twelve ratings of each interaction. All ratings were done using 7-point scales, with endpoints labelled 'not at all' and 'very much'. Participants rated each interaction on twelve dimensions using 7-point scales. Four ratings, self-disclosure, other-disclosure, other's responsiveness, and other's understanding, concerned interpersonal closeness, four ratings, happy, anxious, relaxed, and rejected, concerned participants' affective reactions, and three ratings, positive, negative, and neutral, concerned other's feelings about the participant. Participants also rated how much they initiated the interaction, but ratings of initiation did not vary at all as a function of attachment style ($M = 4.1$), and none of these results are presented.

There was one critical difference between the instructions provided in this study and those used in previous research. In the present study participants were asked to describe the important interactions they had, whereas in previous studies, participants have described all interactions lasting 10 minutes or longer. Although the ten-minute criterion does not seem to cause important interactions to be missed (Sullivan, 1989), when only a temporal criterion is used, unimportant interactions may be included that could obscure relationships between attachment style and reactions to interactions. We revisit this issue in the discussion. Over the week of the study, participants described 1015 interactions.[2]

Attachment style was measured using Bartholomew and Horowitz's (1991) Relationships Questionnaire. This measure is an adaptation of Hazan and Shaver's original three-category measure which distinguished secure, anxious-ambivalent, and avoidant attachment styles. The critical difference between the two is that Bartholomew and Horowitz's measure distinguishes fearful-avoidant and dismissive avoidant styles, whereas Hazan and Shaver's measure does not.

RESULTS

Overview of Analyses

In most previous research using diaries such as the RIR, hypotheses have been tested by analysing summary measures of interaction (usually means aggregated across interactions) using OLS-based techniques such as ANOVA or correlation. For example, group differences in average enjoyment in interaction have been examined, and such averages have been correlated with other individual difference measures. These procedures and a rationale for them were introduced by Wheeler and Nezlek (1977) and are discussed by Nezlek and Wheeler (1984).

Such procedures have provided empirical support for a wide variety of hypotheses (e.g. Reis & Wheeler, 1991). Nevertheless, random-coefficient modelling procedures are now available that provide important advantages over OLS procedures (Bryk & Raudenbush, 1991; Kreft & deLeeuw, 1998), advantages that are particularly pronounced for data structures in which units of analysis have different numbers of observations, for example, different numbers of interactions across individuals. Accordingly, the data collected in this study were analysed with a series of multilevel random coefficient models (MRCM). These analyses tested the same types of hypotheses as the OLS analyses used in previous research but provided more accurate parameter estimates. Using MRCM to analyse social interaction diary data is discussed by Nezlek (2001, in press).

[2] Participants in the present study recorded their interactions once, at the end of each day. In most previous research using the RIR, participants have recorded their interactions an average of 1.5 times per day (e.g. Nezlek, 1993b). Given the emphasis of the present study on *important* interactions, we think that this difference in protocols did not unduly influence our results. That is, it is unlikely that at the end of a day, participants had trouble recalling the important interactions they had that day.

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The data in this study were analysed using the program HLM (Version 5.0; Raudenbush, Bryk, Cheong, & Congdon, 2000). Reactions to interactions were conceptualised as interaction level phenomena, and interactions were analysed as nested within participants. In these analyses, interaction level phenomena were modelled at what is called level 1 in MRCM terminology, and interactions were the units of analysis at level 1. In turn, individual differences in interaction level phenomena were analysed at what is called level 2, and the individual participant was the unit of analysis at level 2. Coefficients representing mean ratings of interactions were calculated for each participant. In MRCM terminology, a level 1 model was estimated for each level 2 unit. The level 1 model was:

$$y_{ij} = \beta_{0j} + r_{ij}$$

In these models, β_{0j} was a random coefficient representing the mean of y_{ij} across all observations (interactions, subscripted i) for each participant (subscripted j), and r_{ij} represented error. Therefore, β_{0j} represented an individual's mean self disclosure, other disclosure, and so forth.

To examine relationships between attachment style and reactions to interactions, the level 1 coefficients were analysed at level 2, the person level, using the following model:

$$\beta_{0j} = \gamma_{01}(\text{Secure}) + \gamma_{02}(\text{Dismiss}) + \gamma_{03}(\text{Anxious}) + \gamma_{04}(\text{Fearful}) + u_{0j}$$

For these analyses, attachment style was represented by four dummy-coded (0, 1) variables, one for each of the four styles, and error was represented by u_{0j}. For example, a person categorised as Secure was given a 1 for the Secure variable, and 0s for the other three. In these no-intercept models this meant that the γ_{01} coefficient (Secure) represented the mean for securely attached people, the γ_{02} coefficient (Dismiss) represented the mean for people with a dismissive style, and so forth. Mean scores across the four styles (i.e. differences among the γ_{01}, γ_{02}, γ_{03}, and γ_{04} coefficients) were compared using procedures for comparing fixed effects described in Bryk and Raudenbush (1992, pp. 48–52) and in Nezlek (2001, in press).

The primary question addressed by the analyses concerned differences between securely attached people and insecurely attached people, considering the three insecure styles both individually and as a group. Such differences were examined in terms of all social interactions, in terms of how such differences varied as a function of the sexual composition of an interaction, (same-, opposite-, and mixed-sex), and in terms of differences between interactions with close and not close others.

Participants' descriptions of their attachment styles are summarised in Table 1. Approximately one-quarter of participants (26%) described themselves as securely attached, another quarter (26%) described themselves as anxiously attached, just over a third (36%) described themselves as having a fearful-avoidant style, and the remaining 12% described themselves as having a dismissing-avoidant style. There were no sex differences in the selection of four prototypes ($\chi^2(1) = 2.62$, ns.).

Reactions to All Interactions

There were statistically significant differences between securely attached participants and insecurely attached participants (considered together) in the analyses of self- and other disclosure, others'

Table 1. Distribution of attachment styles

	Secure	Dismiss	Preocc.	Fearful	Total
Women	8	3	5	11	27
Men	3	2	6	4	15
Total	11	5	11	15	42

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responsiveness and understanding, how happy participants were, and positive and neutral moods. Also, this comparison approached, but did not reach, conventional levels of significance in the analysis of rejection ($p = 0.08$). In each of these analyses, secure participants reported more positive and interpersonally close interactions than insecurely attached participants.

Follow-up analyses suggested that these differences were largely due to differences between secure and dismissing participants. *Post-hoc* comparisons between secure participants and each of the other three groups found significant differences between secures and dismissives for self- and other-disclosure, others' responsiveness, how happy participants were, and positive and neutral feelings. Also, this comparison approached, but did not reach, conventional levels of significance in the analyses of others' understanding ($p = 0.08$) and rejection ($p = 0.10$).

Follow-up analyses also suggested characteristics of interactions on which secure and anxious/preoccupied participants differed. Like dismissing, those with anxious styles had lower ratings (compared to those with a secure style) on other-disclosure, positive and neutral feelings, and rejection. (This comparison approached but did not reach conventional levels of significance in the analysis of self-disclosure, $p = 0.07$.) Anxiously attached participants also were more anxious and reported more negative feelings than securely attached participants. The results of these analyses are summarised in Table 2.

Same, Opposite, and Mixed-sex Interactions

Since the beginning of research on day-to-day social interaction (e.g. Wheeler & Nezlek, 1977), it has been informative to distinguish interactions on the basis of their sexual composition. From the perspective of the target participant (i.e. the person maintaining the diary) this refers to interactions in which the others present are all of the same sex as the participants, of the opposite sex, or when both men and women are present. Of particular relevance is the fact that Tidwell et al. (1996) found that

Table 2. Attachment style and reactions to all interactions

	Attachment style				Chi-squared statistics			
	Secure	Dismiss	Preocc.	Fearful	S–I	S–D	S–P	S–F
Intimacy								
Self-disclosure	4.3	2.9	3.7	3.8	8.4**	10.6**	3.3[a]	2.3
Other disclosure	4.6	3.4	4.1	4.2	9.2**	10.5**	3.8*	3.0[a]
Other responsive	5.3	4.4	4.9	4.9	5.9**	6.4**	1.9	2.9[a]
Other understand	5.2	4.4	4.7	4.6	4.0*	3.0[a]	1.9	2.5
Own feelings								
Happy	5.0	3.9	4.5	4.2	6.0**	5.3*	1.8	4.5*
Relaxed	5.0	4.4	4.2	4.5	1.7	< 1	1.9	< 1
Anxious	2.0	2.3	2.8	2.4	2.2	< 1	4.0*	1.2
Rejected	1.4	2.0	2.2	1.5	3.2	2.6	5.5*	< 1
Others' feelings								
Positive feelings	5.4	4.5	4.7	4.6	9.4**	5.2*	4.9*	< 1
Negative feelings	1.6	2.0	2.2	1.6	2.3	1.2	5.8*	< 1
Neutral feelings	2.0	3.3	3.1	2.8	5.2*	3.6*	3.9*	2.3

Note: The column labeled 'S–I' contains the comparisons of Secure and Insecure persons, 'S–D' the comparisons of Secure and Dismissive, 'S–A' the comparisons of Secure and Anxious, 'S–F' and the comparisons of Secure and Fearful (all 1 df). Chi-squared statistics marked with **were significant at the 0.01 level or beyond, those marked with *were significant at the 0.05 level, and those marked with[a] significant at the 0.10 level.

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differences among attachment styles in reactions to interactions were greater for opposite-sex than for same- or mixed-sex interactions. Accordingly, differences among same-, opposite-, and mixed-sex interactions were examined in the present study.

Means representing reactions to and perceptions of same-, opposite-, and mixed-sex interactions were estimated using the following level 1 (interaction level) model:

$$y_{ij} = \beta_{1j}(Same) + \beta_{2j}(Opposite) + \beta_{3j}(Mixed) + r_{ij}$$

In these zero intercept models, *Same*, *Opposite*, and *Mixed* were dummy-coded $(0, 1)$ variables representing whether an interaction was same-, opposite-, or mixed-sex. Within such an analysis, β_{1j}, β_{2j}, and β_{3j} become random coefficients representing the mean of y_{ij} across same-, opposite-, and mixed-sex interactions respectively. Individual differences in these coefficients were then analysed at level 2. More details about the rationale for such analyses can be found in Nezlek (2001, in press), and other applications of this technique are presented in Nezlek (1999) and in Nezlek and Leary (2002).

A series of planned contrasts (tests of fixed effects) were used to determine if differences among attachment styles varied across sexual composition. These planned contrasts paralleled those used in the analysis of all interactions (i.e. one compared secure vs. insecure, another compared secure and dismissive, etc.). Each test had 2 degrees of freedom because the comparability of three measures (same, opposite, and mixed) was being examined. Such analyses are functionally equivalent to a three (composition) by four (attachment style) ANOVA with planned comparisons.

These analyses strongly suggested that the attachment effects found in the analyses of all interactions were similar for same-, opposite-, and mixed sex interactions. Analyses of the comparison of secure to all three insecure styles considered as a group found only one significant effect ($p < 0.05$). The secure–insecure difference for how relaxed people felt was greater for mixed-sex interactions than it was for same- and opposite-sex interactions. As might be expected from these analyses, there were only a few significant effects (6 of a possible 33, and 2 of these involved the relaxed variable) when the securely attached were compared to individual types of insecure attachment. To the extent a pattern could be extrapolated from these results, it would be that secure–insecure differences were smaller for same-sex interactions than they were for opposite- and mixed-sex interactions. It is important to note, however, that no particular individual insecure attachment style figured more or less prominently in these effects.

Sex Differences

The number of participants made it difficult to examine sex differences. Nevertheless, to eliminate whatever confounds might exist between sex and attachment style, a series of analyses were done using the following level 2 model:

$$\beta_{0j} = \gamma_{01}(Secure) + \gamma_{02}(Dismiss) + \gamma_{03}(Anxious) + \gamma_{04}(Fearful) + \gamma_{05}(Sex) + u_{0j}$$

In these models, *Sex* was a contrast coded variable (1 for women, -1 for men). Including this term adjusted the coefficients for the four attachment styles for any sex differences in reactions to interactions. These analyses indicated that the differences among attachment styles in reactions to interactions found in the previous analyses were not confounded with sex. In none of the analysis did the *Sex* coefficient reach conventional levels of significance.

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Reactions to Interactions with Friends and Close Friends

The previous analyses examined reactions to all interactions, and because of this, they did not address questions about the extent to which relationships between attachment style and reactions to interactions varied across interactions with different relational partners. When describing their co-interactants participants indicated if these co-interactants were acquaintances, friends, close friends, or best friends. Not all participants had interactions with all four types of relational partners, and so it was not possible to compare interactions with all four types of relational partners. Moreover, interactions frequently involved more than one type of partner (e.g. an acquaintance and a friend). In light of this, interactions were classified into two mutually exclusive categories on the basis of whether they involved acquaintances or friends (64%) versus close friends or best friends (36%).[3]

Differences in reactions to interactions with friends and close friends were examined using the following models:

$$y_{ij} = \beta_{0j} + \beta_{1j}(\textit{Relate}) + r_{ij} \qquad \beta_{0j} = \gamma_{00} + u_{0j} \qquad \beta_{1j} = \gamma_{10} + u_{1j}$$

In this model, *Relate* was a contrast-coded variable which was coded -1 for interactions involving acquaintances or friends and $+1$ for interactions involving close and best friends. A statistically significant γ_{10} coefficient (referred to as a slope in multilevel terminology to distinguish it from an intercept) indicated that, on average, reactions to the two types of interactions differed.

These analyses indicated that interactions with close and best friends were perceived as more positive and less negative than interactions with acquaintances and friends. For all reactions the γ_{10} coefficients (slopes) were significant (all ps < 0.01). Means for reactions to interactions with friends and close friends (for all participants combined) are presented in Table 3.

Table 3. Differences in reactions to interactions with friends and close friends as a function of attachment style

	Full sample		Attachment style				
	Fr.	CFr.	Secure CFr-Fr	Dismiss CFr-Fr	Preocc. CFr-Fr	Fearful CFr-Fr	Fearful versus others
Intimacy							
Self-disclosure	3.5	4.5	1.00**	0.73**	0.78**	1.43**	4.0*
Other disclosure	3.9	4.7	0.82**	0.54	0.46	1.33**	6.4**
Other responsive	4.8	5.2	0.32	0.45	0.12	0.79**	2.9[a]
Other understand	4.5	5.2	0.42**	0.84**	0.66*	0.85*	<1
Own feelings							
Happy	4.2	4.9	0.42	0.47*	0.68**	1.06**	2.9[a]
Relaxed	4.3	5.0	0.65**	0.57*	0.35*	1.10**	3.4[a]
Anxious	2.6	2.0	−0.49*	−0.23	−0.62**	−0.76**	<1
Rejected	1.8	1.6	−0.23*	−0.09	−0.20	−0.36*	<1
Others' feelings							
Positive feelings	4.6	5.3	0.72**	0.12	0.52*	1.36**	10.4**
Negative feelings	2.0	1.8	−0.17	−0.13	−0.41**	−0.75**	4.8*
Neutral feelings	2.9	2.4	−0.57	0.08	0.04	−1.15**	9.2**

Note: Differences marked with **were significant at the 0.01 level or beyond, those marked with *were significant at the 0.05 level, and those marked with [a]significant at the 0.10 level. The column labelled 'Fearful versus others' contains the results of chi-squared tests comparing the difference for fearfully attached versus the three other styles combined.

[3] Descriptions of the distributions of interactions with relational partners and the rationale for the two-category classification are available from the authors.

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To determine if differences between interactions with friends and close friends varied as a function of attachment style, the slopes from the level 1 models were then analysed at level 2 as a function of participants' attachment style. These models were similar to those used in the analyses of all interactions except that there were two equations, one for the intercept (β_{0j}) and one for the slope (β_{1j}). Such analyses are referred to as cross-level interactions or 'slopes as outcomes analyses' in the multilevel literature. These analyses addressed two related questions. Were there relationship effects for participants with each attachment style, and were these relationship effects equally strong across the four styles?

The results of these analyses, summarised in Table 3, suggested that relationship effects were the most pronounced for participants with a fearful attachment style. For participants with a fearful attachment style, the slope for relationship was significant all 11 analyses of reactions to interactions. For secure participants, 7 of 11 slopes were significant, followed by 7 for anxious, and 4 for dismissing participants. Stronger relationship effects for fearfully attached participants were also suggested by the results of a series of analyses that compared the slopes for participants with a fearful attachment style to the mean slope for those with the other three styles. Compared to participants with secure, anxious, and dismissive styles, the relationship effect (slope) for fearfully attached participants was significantly greater for self- and other-disclosure, and for positive, negative, and neutral feelings (all ps < 0.05), and this comparison approached conventional levels of significance for relaxation, happiness, and others' responsiveness (all ps < 0.10).

Dismissive versus Fearful Styles

An important focus of the present study was investigating the utility of distinguishing people with dismissive-avoidant and fearful-avoidant attachment styles. This was examined by comparing mean ratings of all interactions (the data presented in Table 2) and the difference in ratings of interactions with close friends and not close friends (the relationship effects data presented in Table 3) for dismissives and fearfuls.

These comparisons provided mixed support for the utility of distinguishing these two types of avoidant styles. When reactions to all interactions were examined, fearfully attached participants disclosed more to their interactional partners than dismissing avoidant participants (4.3 versus 2.9; $\chi^2(1) = 4.9$, $p < 0.05$), and the interactional partners of fearfully attached participants disclosed more to them than the partners of dismissing avoidant participants (4.2 versus 3.4; $\chi^2(1) = 4.2$, $p < 0.05$). On all the other measures (except anxiety and positive emotions) the interactions of the fearfully attached were more rewarding than the interactions of the dismissives. Although these differences did not approach conventional levels of significance, the fact that 7 of 9 were in the same direction suggests some consistency.

Analyses of how much people differentiated interactions with close and not-so-close friends provided similar support for the utility of distinguishing dismissive- and fearful-avoidant styles. For all measures, participants with a fearful style distinguished interactions with close and not-so-close friends more than dismissives. For positive emotions, the difference between interactions with close and not-so-close friends was 0.12, whereas it was 1.36 for fearfuls, and this difference was statistically significant ($\chi^2(1) = 8.3$, $p < 0.01$). For negative emotions, the difference between interactions with close and not-so-close friends was -0.13, whereas it was -0.75 for fearfuls, and this difference was also statistically significant ($\chi^2(1) = 6.3$, $p < 0.01$). Differences between dismissives and fearfuls in how much they distinguished interactions with close and no-so-close friends approached conventional levels of significance (ps < 0.08) in the analyses of other-disclosure and negative emotions.

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Recall that there were only 5 dismissive and 15 fearfully attached people. Such a sample provides limited power for testing differences between groups. One way to interpret the differences between dismissive- and fearful-avoidant types is to recognise that although the differences were not uniformly statistically significant, it is highly unlikely that all these differences would have been in the same direction if there were in fact no differences between the two groups. Across the 11 variables that were the focus of analyses comparing interactions with not-so-close and close friends, the odds that the difference would be greater for fearfuls than for dismissives (assuming they were in fact the same) would be 0.5^{11} or less than 0.0005. Nevertheless, the lack of significant differences in the analyses of individual measures suggests that differences between these two subtypes need to be considered with some caution.

Distribution of Interactions

The previous analyses concerned reactions to and perceptions of interactions. These analyses did not examine differences in how participants with different attachment styles may have distributed their interactions. For example, did securely attached people have relatively more interactions with close friends than the insecurely attached? A series of analyses were conducted to examine such possibilities. The dependent measures were dummy-coded variables representing whether an interaction was a dyad, involved a close friend, or was same-, opposite-, or mixed-sex.

Analysing categorical outcomes requires techniques different from those used for continuous measures because distributions of categorical variables violate assumptions such as the independence of means and variances (Raudenbush et al., 2000). When the dependent measure is dichotomous, the interaction level model is a Bernoulli model with $n = 1$.

$$\text{Prob}(y = 1/\beta_{0j}) = \phi$$

The coefficients from this model, the log-odds of a particular type of event occurring, were then analysed at the person level using the same techniques as those used in previous analyses. These analyses found that 59% of interactions were dyads, 53% were same-sex, 28% were opposite-sex, and 19% were mixed-sex. Recall that 36% of interactions involved close friends. In all these analyses only one effect was significant ($p < 0.05$). Opposite-sex interactions accounted for 24% of the interactions of the securely attached, whereas it accounted for 39% of the interactions of the anxious/preoccupied.

DISCUSSION

As expected, when all interactions were considered together, securely attached people (compared to all three insecure types considered as group) reported more self- and other-disclosure, felt happier and felt that others were more responsive and understood them better, and reported more positive feelings and less neutral feelings in others. These results are consistent with (Bartholomew's 1990; Bartholomew & Horowitz, 1991) depiction of the secure prototype consisting of positive models of the self and others and with the general patterns found in some pervious research (e.g. Tidwell et al., 1996). Differences between securely and insecurely attached seemed to be more pronounced for dismissives, however, highlighting the importance of distinguishing fearful- and dismissive-avoidant styles while raising questions about why this may have occurred.

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As suggested by the label, people with a dismissive-avoidant style might be expected to find social interaction unrewarding (or generally less positive) because they do not value the thoughts and feelings of others. According to the Bartholomew and Horowitz typology, they have positive views of themselves and relatively negative views of others. They may find the company of others tolerable, but not particularly important, i.e. they dismiss others. In the present study, dismissives had the lowest ratings on measures that reflected social integration: happiness, disclosure, and others' responsiveness and understanding. Interestingly, dismissives did not differ from the securely attached in terms of how anxious and relaxed they were. The company of others provides dismissives few rewards but also few punishments. Finally, and also consistent with the negative views of others dismissives are presumed to have within the four prototype model, dismissives perceived the emotions of others as less positive and more neutral than secures perceived them to be.

Many of these differences are in the same direction as secure-dismissive differences reported by Pietromonaco and Feldman Barrett (1997), although many of the differences in reactions to all social interactions were not significant in their study. It is difficult, however, to determine if the lack of significance in their results was due to the sub-optimal statistical analyses they used (WLS versus MRCM) or to how interactions were selected for analysis. They included all interactions in one set of analyses and only high-conflict interactions in another set. Finally, our results regarding the dismissive style cannot be compared to the results of Tidwell et al. (1996) because they did not distinguish fearful and dismissive avoidant styles.

Some of the differences between the secure and anxious/preoccupied attachment styles were clearly consistent with the conceptualisation of the four prototype model. Compared to secures, anxious/preoccupied participants were more anxious and felt more rejected. Clearly, increased anxiety and feelings of rejection are consistent with the negative view of the self that anxious/preoccupied people are presumed to have. Compared to secures, anxious/preoccupied participants also disclosed less and had less disclosed to them. They disclosed less to others (perhaps because they feared rejection) and in turn, others disclosed less to them.

Compared to secures, anxious/preoccupied participants perceived less positive and more negative and neutral emotions in others. It is not clear, however, how these differences correspond to the positive view of others anxious/preoccupied people are presumed to have. The lower levels of disclosure, greater anxiety, and increased feelings of rejection of anxious/preoccupied participants may have led them to believe that others were experiencing less positive interactions despite the positive models they had of others. More research is needed to understand how general models of self and others influence the perception of others' emotions in specific situations.

Surprisingly, there were relatively few differences between secure and fearful-avoidant participants in reactions to and perceptions of interactions. In fact, only 1 of 11 of these comparisons reached conventional levels of significance (2 were at the 0.10 level) in the primary analyses presented in Table 2. This lack is surprising because within the four prototype model, fearful-avoidant (negative self and other models) is the insecure type that is the most different from secure (positive self and other models). It should be noted that Pietromonaco and Feldman Barrettt (1997) found no significant differences between secure and fearful-avoidant participants on 10 measures describing all interactions.

Although the fearful-avoidant and secure attachment styles did not differ in terms of reactions to all interactions, the results suggested that the fearful-avoidant style was associated with greater differences between interactions with friends and close friends. In general, participants found interactions with close friends to be more positive than interactions with others (more disclosure, greater intimacy and happiness, more positive emotions, etc.); however, such differences tended to be greater for fearful-avoidants than for those with other attachment styles. Such a difference is consistent with how this style is defined. As suggested by the label, fearful-avoidants fear social interaction more

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than the people with the other three styles. To the extent this is true, it makes sense that fearful avoidants would be particularly sensitive to how familiar they are with their interaction partners. More familiarity should be associated with less anxiety (fear), and this should translate into more positive perceptions of and reactions to social interaction.

This finding is inconsistent with some of the results reported by Tidwell et al. (1996) who found that differences between romantic partners and other opposite-sex friends, were *greater* for *securely* attached people than for the insecurely attached. Perhaps the clearest explanation of the difference between the two sets of results is that Tidwell et al. did not distinguish dismissive- and fearful-avoidance. Examination of the difference scores in Table 3 shows that differences between friends and close friends tended to be greater for securely attached participants than for preoccupieds or dismissive-avoidants, a difference consistent with the results of Tidwell et al. (1996).

Moreover, although we could not make specific distinctions between same-sex friends and same-sex best friends or between romantic partners and other close opposite-sex friends as made by Tidwell et al. (1996), additional analyses suggested that the differences we found characterised same-sex relationships just as much as they characterised opposite-sex relationships. Tidwell et al. did not find that differences between interactions with same-sex best friends and other same-sex friends varied as a function of attachment style,[4] and their analyses of close relationships examined only dyads involving specific relational partners. Additional analyses were conducted that included at the interaction level contrast-coded variables indicating whether interactions were dyads, same-sex or not, and opposite-sex or not. These contrast-coded variables adjusted mean ratings for dyad or composition differences in ratings. The results of these analyses were very similar to the results reported above, suggesting that the size and sexual composition of interactions were unrelated to differences between close friends and others.

The results suggest a modest but clear difference in the effects of attachment styles in differing contexts (friend versus close relationships). These findings could be explained from a social cognitive perspective as a function of global and specific relational models (Pierce & Lydon, 2001; Cozzarelli, Hoekstra, & Bylsma, 2000). However, a more emotion-oriented explanation should not be excluded. Attachment working models are dynamic constructs incorporating emotional components (Shaver et al., 1996) and for key attachment theorists security is the set-goal of a normative attachment affiliative system especially when this is activated (Sroufe & Waters, 1977; Kobak, Holland, Rayanne, Fleming, & Gamble, 1993). Our research targeted participants in a stressful period of transition and interpersonal distress (first month in the University) when the attachment affiliation system should be activated (Bowlby, 1969, 1988). Anticipated or experienced felt security in close relationships (in contrast to acquaintances/friends) could have affected emotions and perceptions of close relationships differentially, depending on attachment style. These findings call for a more close examination of the interplay of cognitive and affective aspects of attachment styles in specific interpersonal contexts.

Limitations and Conclusions

In comparison to other studies using the RIR, participants in the present study were told to record only the 'important' interactions they had each day. The average number recorded was 3.1 ($SD = 1.4$), below the approximately 5 interactions per day typically recorded by collegians in the US (e.g. Nezlek, 1993a). The implications of this selectivity are not clear. The intent was to eliminate from consideration unimportant interactions, such as casual conversations, that would not be expected

[4] Pietromonaco and Feldman Barrett (1997) examined relationships between attachment style and interactions with close others. They did not, however, conduct the critical analyses of how close and not close relationships differed, rendering their analyses irrelevant to the issue at hand.

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to relate to or reflect attachment styles. Although it is likely that this intent was realised, in retrospect, it might have been better (if only for the sake of consistency) if participants had rated the importance of individual interactions and unimportant interactions were eliminated from certain analyses after the fact.

It is also possible that the fewer interactions reported by participants in the present study reflects a difference between the USA and the UK in how socially active students are. Consistent with the possibility that American students are more socially active than their European counterparts, Schütz, Sellin, and Nezlek ('self-presentational success in daily social interaction', in preparation, 2001) found that German students reported 3.9 interactions per day, with no restrictions on what type of interaction should be reported. Unfortunately, such cultural differences have not been examined closely, and so it is difficult to know if the smaller number of interactions in the present study was due to different criteria or cultural differences. Moreover, and unfortunately, Tidwell et al. (1996), Pietromonaco and Feldman Barrett (1997), and Pierce and Lydon (2001) did not provide any indication of how many interactions were recorded per day, so direct comparisons to the most relevant existing research could not be made.

The distribution of attachment prototypes among participants in the study also warrants discussion. Compared to many samples (predominately studies in the USA) there were relatively fewer securely attached participants in the present sample, although relative rates for the three insecure attachment prototypes were consistent with other studies. It is important to note however, that such a distribution did not unduly influence the results because all analyses took the distribution of prototypes into account. That is, the analyses focused on comparisons of mean reactions to interactions, and these means were estimated for each prototype separately. It is of some interest to note that the sample studied by Pietromonaco and Feldman Barrett (1997) also had a below normal per cent of securely attached participants (i.e. 21 of 70 or 30%). Nevertheless, because all their analyses examined differences among attachment styles, such an atypical distribution did not contribute to their results, just as was they did not contribute to the results of our analyses.

Two limitations of this study were the sample size due and the drop-out rate of 30%. Although previous research (e.g. Nezlek, 1993b) suggests that there are few (if any) meaningful differences between participants and non-participants in social interaction diary studies, it is possible that such differences exist. Moreover, the number of participants made it difficult to examine some relationships between attachment prototypes and interaction outcomes, and the sample size also made it difficult to examine sex diferrences. Nevertheless, it is important to keep in mind that despite a smaller sample, differences among attachment styles were as or more statistically reliable in the present study than they were in either Tidwell et al. (1996) or Piertomonaco or Feldman Barrett (1997), studies that had larger samples ($n = 135$ and 70 respectively).

Finally, it should be noted that the assessment of attachment styles in exclusive prototypes entails some shortcomings in comparison to single-item measurement approaches (which typically assess two underlying dimensions: anxiety and avoidance). Single-item measurements that tap on the two dimensions have obvious analytical advantages (Brennan & Shaver, 1995) over the one-choice methods. It is still undecided however, whether the typological or the dimensional approach capture the true quality of adult attachment and much depends on each researcher's conceptualisation of attachment (Bartholomew & Shaver, 1998; Griffin & Bartholomew, 1994a).

Despite its limitations, this study contributes meaningfully to our understanding of how attachment processes unfold in everyday life. First and perhaps foremost, the present results highlight the importance of distinguishing dismissive- and fearful-avoidant attachment styles. Although the distinction between secure and insecure attachment (broadly defined) was meaningful, dismissive and fearful styles related to different measures of interaction in different ways. The present results also suggest that researchers need to examine attachment effects in different ways. The secure-dismissive

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distinction was most informative when all interactions were considered together, whereas the secure-fearful distinction was the most informative when differences between interactions with friends and close friends were examined.

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