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# Romantic attachment and support adequacy in new mothers

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## ABSTRACT

In the present research, we examined whether attachment anxiety and avoidance in support recipients were related to the extent to which social support received from a romantic partner matched the actual needs of the recipient. Two-hundred and forty-five first-time mothers, currently involved in romantic relationships, participated in study 1, in which perceptions of support were appraised over the previous month using self-reports. In study 2, we sought to replicate these findings using an experience sampling method to examine the association between attachment and momentary support perceptions in the daily life of mothers with babies ( $N = 40$ ). Results indicated that high levels of attachment avoidance or anxiety in mothers were associated with negative appraisals of support matching. Receiving support which matched the needs of the mother (i.e., adequate support) was beneficial to mood, but not constructive to relationship satisfaction or perceptions of maternal efficacy.

## ARTICLE HISTORY

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## Keywords

Attachment; social support; romantic couples; transition to parenthood; experience sampling; depression

Social support plays a pivotal role in facilitating health and wellbeing. Individuals are more likely to thrive when they have close relationships with other people who care about their wellbeing and are willing and able to provide support when difficulties arise (Bowlby, 1973). We have decided to study support with a population of new mothers as they are highly likely to experience periods of chronic stress during the first-year transition to parenthood (Cowan & Cowan, 1992; Pistrang & Barker, 2005). During adulthood, romantic partners are frequently the most important providers of social support (Ptacek et al., 1997) and are also typically the primary attachment figure in adult close relationships (Trinke & Bartholomew, 1997). Indeed, partner support, as compared to support provided within women's other close relationships is unique in its ability to contribute to both better and worse prenatal adjustment (Kroelinger & Oths, 2000). Furthermore, rather than conceptualizing received support as a binary process (either present as absent), we decided to test the matching model of support which assessed the relationship between desired and received support (Cutrona, 1990; Cutrona & Russell, 1990; Gardner & Cutrona, 2004).

## Support adequacy

Recent findings suggest support attempts are more successful when they are responsive and therefore matched to the needs of the recipient (Lorenzo et al., 2018; Maisel & Gable, 2009). For example, the optimal matching model (Cutrona, 1990; Cutrona & Russell, 1990) states that for support to be effective, it should be appropriate to the demands of a stressful situation placed upon an individual. This means that not only should the quantity of support provision be applicable to the stressor, the type of support (e.g., emotional, informational, tangible) should also be congruent with the demands placed upon an individual. The optimal match between desired and received levels of support has been labeled support adequacy (Dehle et al., 2001; Lawrence et al., 2008), and has been conceptualized as support effectiveness (Rini et al., 2006). People who receive the type of support that matches their

needs or preferences tend to be happier in their relationship (Dehle et al., 2001), and can reappraise a situation as less threatening (Cutrona & Cole, 2000). For example, Brock and Lawrence (2009) found adequate support was associated with positive affect and relationship satisfaction during the first five years of marriage.

### **Support gap: over and under support**

Alternatively, a “support gap” will exist if there is a mismatch between an individual’s desire for support and the amount of support they receive. A support gap occurs when a recipient is either under-supported, receiving too little help, or over-supported, receiving more support than required. Imbalance of support leave recipients at risk of experiencing negative emotions such as depression, anger, or anxiety (e.g., Shrout et al., 2006). While some scholars have argued that under-and-over-support provision are both undesirable, and should be treated similarly (Matsunaga, 2011), other researchers have argued that these processes can lead to different outcomes and should be viewed as qualitatively distinct constructs (Brock & Lawrence, 2009). For example, being under-supported may be harmful as it risks an individual becoming overwhelmed by a stressor, and it may prompt feelings of relational disappointment when an intimate partner has been unresponsive to one’s needs (Holmes et al., 2004; Maisel & Gable, 2009). Being under-supported during specific transactions (Bar-Kalifa & Rafaeli, 2013; Siewert et al., 2011) and in general over time (Lorenzo et al., 2018) has been found to be associated with less favorable affect, and with declines in marital satisfaction (Brock & Lawrence, 2009).

In contrast, over-support involves supplying unwanted support, which may communicate an implicit message that the recipient does not possess the skills or qualities required to cope effectively with a stressor (Coyne et al., 1988). This implicit message can make support recipients feel “guilty, incompetent, resentful, lacking in autonomy, or coerced” (Coyne et al., 1988, p. 307). Therefore, like under-support, one would expect being over-supported to impair relationship functioning and the wellbeing of an individual. Surprisingly, the effects of being over-supported vary, predicting distress (Merluzzi et al., 2016), reduced esteem (McLaren & High, 2019) and a decline in relationship satisfaction (Brock & Lawrence, 2009; Reynolds & Perrin, 2004; Williamson et al., 2019), while also associated with improved mood (Lorenzo et al., 2018; Siewert et al., 2011), and at times no relationship with mood (Bar-Kalifa & Rafaeli, 2013). These findings provide evidence for the view that under and over-support are qualitatively different constructs (Brock & Lawrence, 2009), and indeed within the over-support category there may also be sub-categories, depending on what the nature of the over-support is and how it is interpreted.

More recent thinking about matching in support interaction recognizes that recipients’ support needs are not solely dictated by the characteristics of a stressor, dispositional factors also play a role. Findings suggest that recipients have unique support needs and preferences regarding the amount of support they desire from their partners that can influence the outcome of support transactions (e.g., Gardner & Cutrona, 2004; McLeod et al., 2020). Therefore, in addition to the social context of a stressor, researchers must also consider individual differences regarding the type and amount of support a recipient desires. The optimal matching model needs to be tested by examining how individual differences shape support interactions. We argue that attachment theory may provide the tools to examine how individual differences shape support interactions in romantic relationships, such as new parents.

### **Attachment dimensions**

Attachment theory offers a framework for understanding individual differences in support needs via dispositional variations, known as attachment styles (e.g., secure, anxious, avoidant). Attachment style can be summed up as a persistent way of relating to others, based on experiences and learned expectations of the behavior of the self and others in relationships (Bowlby, 1969). While attachment style can be categorized as above, it is also possible to conceptualize attachment in terms of underlying dimensions. For example, some researchers conceptualize attachment

security in a two-dimensional space (Brennan et al., 1998; Mikulincer & Shaver, 2007). The two dimensions correspond to those originally proposed by Ainsworth and Bell (1970), namely anxiety (about relationship issues) and avoidance (discomfort with closeness and interdependence). Here, low scores on both avoidance and anxiety would correspond with a secure attachment style. Accordingly, insecure attachment is expressed by high levels of anxiety, avoidance, or both (Brennan et al., 1998).

Individuals who score high on the dimension of avoidance show discomfort with emotional intimacy and view others as unreliable. Due to their need for self-reliance, highly avoidant individuals favor support which de-emphasizes dependence, emotional vulnerability, and intimacy (Simpson & Rholes, 2017). However, these support features are difficult to communicate, and as avoidant individuals are more likely to withdraw from social interactions to cope with their problems, even small amounts of support may be unwelcome (Brock & Lawrence, 2014). Thus, avoidant support recipients are at risk of perceiving they are being over-supported. Individuals who score high on the dimension of anxiety display a need for intimacy and approval and are sensitive to threats of rejection. Such individuals prefer partners who conceal their discontent and communicate love, future support and commitment (Simpson & Rholes, 2017). The high levels of emotional dependency expressed by individuals with high levels of anxious attachment may lead them to experience an under-provision of support, as their support needs may be too high for their partner to meet. Alternatively, anxious attachment might be associated with a perception of receiving an over provision of support, because they feel undeserving of emotional care, in which instance even minimal amounts of support may be viewed as excessive or unjustified (Brock & Lawrence, 2014). Individuals low in the dimensions of attachment anxiety and avoidance have a secure attachment style, and view others as reliable and trustworthy, and are comfortable with intimacy and receiving support from others (Mikulincer & Shaver, 2005). Securely attached support recipients have been shown to perceive their partners as being better support providers (Kane et al., 2007).

### ***Attachment and support adequacy***

Although it is clear that attachment dimensions shape support transactions, previous studies have tended to view received support as a dichotomous construct (i.e., either present or absent) and this is limiting as it ignores important qualitative features of support (e.g., matching support). Only two studies have examined how attachment predicts perceptions of received support in relation to support adequacy (Brock & Lawrence, 2014; Rini et al., 2006). Of these studies, only one has analyzed how attachment predicts perceptions of inadequate support, namely over-and-under support (Brock & Lawrence, 2014). Married couples reported on global perceptions of over or under-support during five time points, although unfortunately, no clinical or health outcome variables (such as depression) were tested to examine their associations with support adequacy. The findings revealed that anxious attachment was associated with perceptions of under-support provision in both genders, and avoidant attachment was related with perceptions of over-provision of received support in men, but under-provision of received support in women. Rini et al. (2006) distinguished between the different types of adequate support (e.g., emotional, informational) experienced by pregnant women, but did not discriminate between over-and-under-support, nor anxious or avoidant attachment dimensions (attachment was conceptualized as an index of security). Attachment security was found to be predictive of positive appraisals of adequate support from a romantic partner, which in turn were associated with lower levels of prenatal anxiety.

### ***The present research***

The data collection for this study is described in McLeod et al. (2021). Our research studies are the first to examine how anxious and avoidant attachment dimensions predict perceptions of adequate (i.e., matched support) and inadequate (over or under) support in relation to both global and specific support needs, e.g., emotional, tangible, and informational. We also examined

the interaction between mother's attachment dimensions, to establish whether the combination of the two attachment dimensions provides an additional more nuanced interpretation. In study 1, we examined appraisals of support perceptions over the prior month, and aimed to replicate these findings in study 2 by investigating momentary perceptions of support over a 7-day period. We have chosen to study support perceptions with a population of new mothers, who are experiencing a period of significant interpersonal change. First-time mothers are faced with the demands of learning new skills relating to infant care, while also experiencing an emotional burden due to deprived sleep and rest. Accordingly, there are numerous opportunities for both desired and received support, and to assess if support adequacy can predict specific outcomes such as postpartum depression and maternal efficacy (as these were under-addressed by previous studies). Approximately 25% of women experience elevated symptoms of depression postpartum (O'hara & Swain, 1996), and 5% to 8% of mothers are estimated to meet diagnostic criteria for an anxiety disorder (Ross & McLean, 2006). Insecure attachment has also been established as a risk factor to the well-being of mothers and their families during the transition to parenthood (Ikeda et al., 2014), and conducting hierarchical regression analysis will allow us to establish the relative contribution of attachment and support to maternal health. Therefore, the findings from this research are important as they can be used to help develop interventions to buffer couples' relationships against the effects of the transition to parenthood, in order to contribute to improvements in parental and child health.

## Study 1

This study has two key aims. Firstly, to identify if perceptions of support adequacy are predicted by the dimension of attachment anxiety and avoidance in a sample of new mothers. We hypothesized that support recipients high in the dimension of attachment avoidance would be more likely to perceive that they receive more support than they desire from a romantic partner, and recipients with an anxious attachment will be under-supported. In addition to examining whether the two attachment dimensions on their own can predict support perceptions, we also tested for interactions between attachment anxiety and avoidance in relation to adequate, over-and-under support. We expected higher attachment security (low levels of both anxiety and avoidance) to be associated with perception of adequate support. Our second aim is to examine the relationship between perceptions of support and specific outcomes measures, including depression, relationship satisfaction and maternal efficacy. We are primarily interested in symptoms of depressed mood, which have implications for maternal wellbeing and the capacity for infant care (Fowles, 1998). We predicted that under-provision of support (receiving less support than is required) and over-provision (receiving more support than is desired) would be associated with increased levels of depression, poorer relationship satisfaction, and lower maternal efficacy. Furthermore, the present study will build on previous literature by considering how contextual factors (factors outside of the dyad) influence the association between support perceptions and outcomes. For example, we considered the availability of other network members in relation to perceptions of partner support, because individuals who perceive that support is available from other sources may be less impacted by under-support from a romantic partner

## Method

### *Participants and procedure*

Participants ( $N = 245$ ) were recruited using targeted advertising on Facebook between July 2017 and April 2018. For inclusion, the participants had to be (a) a first-time mother with a child 12 months or under; (b) married or cohabiting with their romantic partner; (c) over 18 years of age, and (d) English speaking. Participation in the study was not restricted by ethnicity or sexuality.

Facebook's Ads Manager program was used from 10/07/17 to 15/04/18 to create ads to appear in the "newsfeed" (a streaming list of updates from Facebook connections ["friends"] or advertisers). The ads could only be viewed on mobile devices via a Wi-Fi network rather than a cellular connection, and linked to an external website hosted by the University of Manchester. All newsfeeds ads were targeted by age (18 to 45 years), gender (female), location (UK) and language (English). The ads further targeted by demographics, or participants' interests specified in their Facebook profiles, specifically "New Parents (0–12 months)," and "In a relationship, Married or Engaged." Ads included a picture of a baby and the following text: "You are being invited to take part in a research study looking at how romantic partners support each other after the birth of their first child, and how this affects the experience of parenting."

In total 55,667 people viewed the ads in their Facebook feed and 2,499 people clicked on the link to the study information page. On 16/04/2018, we downloaded the data for the purposes of data analysis. At that time, we had data on 379 participants, and 245 had completed all seven measures. To reduce burden on participants we only requested demographic information regarding relationship length ( $M = 7.9$  years,  $SD = 4.32$  years) and baby's age ( $M = 4.70$  months,  $SD = 4.00$  months).

## Measures

### *Support adequacy (matching, over-and-under-support)*

The frequencies of received and preferred support from the spouse were measured with the Support in Intimate Relationships Rating Scale-Revised (SIRRS-R; Barry et al., 2009). The SIRRS-R comprises four types of support: 8 items representing informational support (e.g., providing information, advice), 8 items for emotional support (e.g., providing reassurance, love, affection), 4 items related to acts of physical support (e.g., hugging, kissing etc.), and 5 items of tangible support (i.e., providing direct or indirect assistance in solving the problem). Each item had two parts in which participants reported firstly how frequently over the past month they had received specific acts of social support and secondly how frequently they would have preferred to receive these specific acts of social support. Participants rated both frequencies on 5-point scales ranging from 0 (never) to 4 (almost always). Following the procedure of Brock and Lawrence (2008) support behaviors were calculated by classifying each item as "prefer more," "same," and "prefer less." Support adequacy was calculated by summing the items endorsed as "same," that is the number of support acts for which scores of received support and preference for support matched. We also calculated the under-and-over-support scores, which are reflective of inadequate support (Brock & Lawrence, 2009). Under-provision was the sum of the items endorsed as "prefer more" (where preferred support was higher than received support). Over-provision was the sum of the item endorsed "prefer less" (whereby received support was higher than preferred support). To be theoretically consistent with much of the literature on the optimal match theory, two of the items of the SIRRS-R were removed because they were deemed to be somewhat inconsistent with theoretical perspectives underlying their respective support types (Lorenzo et al., 2018). Specifically, my partner "offered to do something with me to help me feel better" was removed from the tangible support subscale because this item appears to assess a form of emotion-focused coping whereas tangible support is typically conceptualized as enabling problem-focused coping. My partner "Inferred how I was feeling about a situation" was removed from the informational support subscale because it appears to assess the partner's validation of the individual's feelings; whereas, informational support is typically conceptualized as providing advice or information needed to solve a problem. The SIRRS-R internal consistencies ( $\alpha$ s) in this sample for the different types of received support were .90 for emotional, .89 for tangible, .84 for informational, and .89 for physical. The internal consistencies ( $\alpha$ s) in this sample for the different types of desired support were .86 for emotional, .84 for tangible, .85 for informational, and .81 for physical.

### **Attachment orientation**

Mothers' attachment orientations were measured using the Experiences in Close Relationships – Short Form (ECR-S; Wei et al., 2007). The ECR-S is a 12-item self-report scale designed to assess dimensional measures of attachment avoidance (six items) and anxiety (six items) in general experiences of romantic relationships. Examples of items include “I want to get close to my partner, but I keep pulling back” (attachment avoidance), and “I get frustrated if romantic partners are not available when I need them” (attachment anxiety). Participants rated the extent to which each item of the questionnaire was descriptive of their general experiences of romantic relationships. Items were rated on a 7-point scale, ranging from not at all (1) to very much (7), and two subscales were created, by separately summing the items for avoidance and anxiety. Higher scores indicate greater attachment anxiety or avoidance. The ECR-S internal consistencies ( $\alpha$ s) in this sample were .61 for anxiety and .72 for avoidance scores, which is comparable to other studies (e.g., .69 and .65, respectively; Kuijpers et al., 2012). In general, a Cronbach's alpha of .60 or higher is considered a minimum acceptable level in case of short instruments (e.g., Murphy & Davidshofer, 1998, pp. 142–143), although some researchers adopt a stronger criterion of at least .70 (Nunnally, 1978).

### **Relationship satisfaction**

The Relationship Assessment Scale (RAS; Hendrick, 1988) was used to measure relationship satisfaction with a romantic partner. Participants answered seven items using a 5-point scale ranging from 1 (low satisfaction) to 5 (high satisfaction). Item scores are summed, whereby the higher the score the more satisfied the respondent is with his/her relationship. Example items include “How good is your relationship compared to most?” and “How well does your partner meet your needs?” The RAS has demonstrated good criterion-related validity and good discriminant validity (Vaughn & Matyastik Baier, 1999). It has also been shown to have good internal consistency and acceptable concurrent validity (Renshaw et al., 2011). The RAS internal consistencies ( $\alpha$ s) in this sample were .90.

### **Depressive symptoms**

Postnatal depression was assessed using the Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987), which is a 10-item, self-report instrument designed as a screening questionnaire to detect postnatal depression. Participants rated the occurrence of their feelings over the past seven days using a 4-point scale ranging from 0 (no, not at all) to 3 (yes, all the time). Items 3, 5 to 10 are reverse scored (i.e., 3, 2, 1, and 0). Item scores are summed, whereby the higher the score the greater the severity of the depressive illness. Example items include “I have blamed myself unnecessarily when things went wrong,” and “I have been so unhappy that I have been crying.” The EPDS internal consistencies ( $\alpha$ s) in this sample were .89.

### **Maternal efficacy**

The Maternal Efficacy Questionnaire (MEQ; Teti & Gelfand, 1991) measured mothers' self-perceptions of competence and effectiveness in the parenting role in relation to infant behavioral states and caregiving tasks. Participants were asked to rate ten items on a 4-point Likert scale regarding the degree to which they were able to handle different situations with their infant compared with other mothers, from 0 (much worse) to 3 (better than others). All items were scored in a positive direction, with a single score computed for the total maternal efficacy score ( $\alpha$ s = .84). Example items include “Compared to other mothers in general, how good are you at feeding, changing, and bathing your baby?” and “Compared to other mothers, how good a mother do feel you are?”

### **Family support**

The Family Support Scale (FSS; Dunst et al., 1984) is a self-report instrument used to evaluate the helpfulness of various sources of support to parents of young children external to the romantic dyad. Mothers rated each of the 19 items on a 5-point Likert scale regarding how helpful people and groups

have been to their family during the past 3 to 6 months. The categories of support include, kinship (own relatives), spouse/partner (and spouse's family), informal support (e.g., friends), organizations (e.g., school, work), and professional services and agencies (e.g., doctors). If a source of help had not been available during this period, participants indicated NA (Not Available) response. We decided to remove one item related to spouse/partner in order to evaluate support from outside of the dyad only. For the current study, internal consistency was found to be adequate for the total FSS scale ( $\alpha = .68$ ).

### Data analysis

The distributions of variables were inspected and found to be approximately normal. SPSS (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.) was used for statistical analysis. A total of fifteen research hypotheses were tested using hierarchical multiple regression analysis, including the relationship between attachment dimensions (anxiety and avoidance) and support perceptions (including adequate, over-and-under support), and associations between support perceptions and three outcome variables, including depression, maternal efficacy and relationship satisfaction. *P*-values less than .05 were considered to be significant in all cases.

Prior to conducting a hierarchical multiple regression, the relevant assumptions of this statistical analysis were tested (Ethington et al., 2002; Pedhazur, 1997). Firstly, an examination of correlations (see Table 1) revealed that no independent variables were highly correlated, with the exception of (i) attachment anxiety and avoidance and (ii) support adequacy and under-support. Harris and Hagger (2007) noted that multi-collinearity is not a serious issue if none of the correlation coefficients between variables exceeds .70. Unfortunately, the correlation between support adequacy and under-support exceeded this value ( $r = .78$ ), and the decision was made to remove support adequacy as a predictor variable for regression predicting outcomes, such as depression and maternal efficacy. However, as the collinearity statistics (i.e., Tolerance and VIF) were all within acceptable limits for the remaining correlated variables, the assumption of multicollinearity was deemed to have been met (Coakes, 2005; Hair et al., 2006). Residual and scatter plots indicated the assumptions of normality, linearity and homoscedasticity were all satisfied (Hair et al., 2006; Pallant, 2013). To conclude, the sample data were judged to meet the criteria for further analysis.

A post hoc power analysis was conducted using the software package, GPower (Faul & Erdfelder, 1992). The sample size of 245 was used for the statistical power analyses and a 2 predictor variable equation was used as a baseline. The recommended effect sizes used for this assessment were as follows: small ( $f^2 = .02$ ), medium ( $f^2 = .15$ ), and large ( $f^2 = .35$ ) (see Cohen, 1977). The alpha level used for this analysis was  $p < .05$ . The post hoc analyses revealed the statistical power for this study was .49 for detecting a small effect, whereas the power exceeded .99 for the detection of a moderate to large effect size. Thus, there was more than adequate power (i.e., power  $> .80$ ) at the moderate to large effect size level, but less than adequate statistical power at the small effect size level.

**Table 1.** Means, standard deviations, and correlations of study 1 variables.

Measures	AV	AN	SA	SU	SO	FS	BA	RS	D	ME
Attachment Avoidance (AV)	-									
Attachment Anxiety (AN)	.029**	-								
Adequate Support (SA)	-0.38**	-0.21**	-							
Support Underprovision (SU)	0.28**	.024**	-0.78**	-						
Support Overprovision (SO)	0.08	-0.02	-0.29**	-0.27**	-					
Family Support (FS)	-0.09	-0.05	0.25**	-0.19**	-0.09	-				
Baby's Age (BA)	0.01	.009	-0.13*	0.08	0.02	-0.01	-			
Relationship Satisfaction (RS)	0.02	-0.03	0.00	0.01	0.01	-0.12	0.08	-		
Depression (D)	0.31**	.034**	-0.22**	0.20**	0.05	-0.05	0.11	-0.12	-	
Maternal Efficacy (ME)	-0.01	-0.23**	-0.02	-0.01	0.01	0.11	0.04	0.12	-0.28**	-
Mean	13.13	21.10	13.08	7.56	2.10	31.73	5.23	30.04	16.52	30.32
Standard deviation	5.03	5.83	6.05	5.97	3.46	9.88	3.33	5.30	5.50	3.64

\* $p < .05$  \*\*  $p < .01$

## Results

### Preliminary analysis

The discrepancy scores indicated that mothers most frequently perceived a match in the support they received and desired from their partners (global: 57.5%; emotional: 59%; information: 58.5%; practical: 60.5%; and tangible: 49%), followed by under-provision (global: 33%; emotional: 32.5%; information: 31%; practical: 31.5%; and tangible: 41%). Overprovision appeared most frequently for informational support (10.5%), and tangible support (10%), but was less frequent for global support (9.5%), emotional support (8.5%), and physical support (8%).

Descriptive statistics relating to the variables included within the hierarchical regression analyses presented below can be found in Table 1.

### Hierarchical multiple regression analysis of support (in)adequacy

Our primary aim was to identify if attachment dimensions predicted perceptions of support from a romantic partner. To test these hypotheses a series of hierarchical multiple regression analyses was performed with three sets of dependent variables, including support adequacy, under-support, and over-support, with a Bonferroni adjusted alpha level of .01 per each predictor variable (.05/5). Support (in)adequacy was regressed first on control variables, including baby's age and family support, and second on the attachment dimension of anxiety and avoidance. After centering attachment dimensions and computing the anxiety-by-avoidance interaction terms (Aiken et al., 1991; Cohen et al., 2003), the interaction term was included during the third step of each model.

Table 2 represents the results of hierarchical multiple regression analysis on support adequacy, under-support, and over-support,

### Support adequacy

At step1 control variables explained 2.2% of the variance of mothers' perception of support adequacy. Inspection of the beta weights indicated that baby's age was significant in the regression analyses. At step 2, the attachment dimensions explained an additional 15.1% of the variance, and the model was a significant predictor of adequate support,  $F(2,239) = 21.78, p = .001$ . Avoidance was the only significant predictor of support adequacy. The negative beta coefficient indicates that mothers with lower levels of avoidant attachment reported receiving higher amounts of adequate support from their romantic partner. Avoidance remained a significant predictor in the final model ( $\beta = .590, p = .014$ ). At step 3, the addition of the interaction term to the regression did not significantly improve the model fit, explaining an additional 4% of the variance.

**Table 2.** Hierarchical multiple regression of support (in)adequacy on baby's age, family support, anxiety, avoidance, and interaction of anxiety and avoidance, for study 1.

Predictor	Support Adequacy				Under Support				Over Support			
	B	SE	$\beta$	R <sup>2</sup>	B	SE	$\beta$	R <sup>2</sup>	B	SE	$\beta$	R <sup>2</sup>
Step 1:				0.02				0.01				0.00
Baby's Age	-0.24	0.22	-0.13		0.20	0.12	0.11					
Family Support	0.05	0.04	0.07		0.01	0.04	0.02		-0.02	0.02	-0.05	
Step 2:				0.17**				0.12**				0.01
Attachment Anxiety	-0.11	0.06	-0.11		0.16	0.07	0.16*		0.03	0.04	-0.05	
Attachment Avoidance	-0.41	0.07	-0.34**		0.29	0.08	0.24**		0.04	0.04	0.06	
Step 3:				0.18				0.12				0.03*
Anxiety x Avoidance	0.01	0.01	0.35		-0.00	0.01	-0.11		-0.02	0.01	-0.82**	

Statistical significance for each predictor is indicated in the  $\beta$  columns.

\* $p < .05$  \*\*  $p < .01$

### Under-support

In step 1, the control variables accounted for 1.3% of the total variance. Inspection of the beta weights indicated that family support and baby's age were not significant in any of the regression analyses. The inclusion of anxiety and avoidance in step 2 significantly increased the explained amount of variance by 10.5%, and the model was a significant predictor of under-support,  $F(2,239) = 14.23, p = .001$ . Both avoidance and anxiety emerged as significant predictors of under-support. The subsequent addition of the interaction term at step 3 did not significantly improve the model fit.

### Over-support

The control variables entering in step 1 were not significant and contributed 3% of the total variance. Inspection of the beta weights indicated that family support and baby's age were not significant in any of the regression analyses. At step 2, the inclusion of attachment anxiety and avoidance dimensions did not have a significant effect on the model, and explained an additional 0.4% of the variance. At step 3, the addition of the interaction term significantly improved the model fit,  $F(1,239) = 6.27, p = .013$ , explaining an additional 2.8% of the variance. The pattern of interaction between avoidance and anxiety was plotted by means of simple-slope (Aiken, West & Reno 1991), in which the effects of avoidance on perceptions of over-support were assessed across low ( $-1 SD$ ) and high ( $+1 SD$ ) levels of attachment anxiety in the total sample. As shown in Figure 1, the observed pattern reveals that mothers experience perceptions of over-support when they are concurrently high in the dimensions of avoidance and anxiety.

### Hierarchical multiple regression analysis of outcome variables

In our next series of analyses, we examined if depressive symptoms can be predicted by the mismatch between desired and received support. Although we were primarily interested in the mother's depressive symptoms, we also explored whether over or under-support was associated with additional outcome variables, namely relationship satisfaction and maternal efficacy. To test these hypotheses a series of hierarchical multiple regression analyses was performed for each dependent variable. Family support was entered at stage one of the regression to control for support outside of the dyad, and

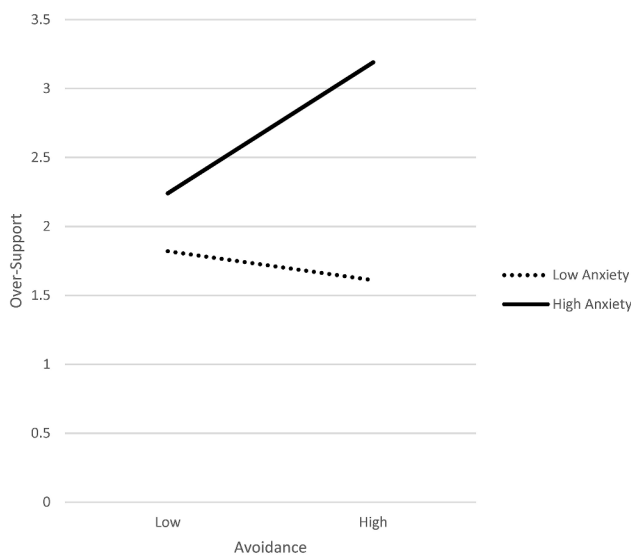


Figure 1. Simple slopes for the interaction between attachment avoidance and anxiety in over-support.

baby's age was also entered as a control variable. Mothers' perceptions of under-and-over support were both entered in the second step. Table 3 represents the results of hierarchical multiple regression analysis on outcome variables.

### Depression

In step 1, the control variables accounted for 1.1% of the total variance. Inspection of the beta weights indicated that family support and baby's age were not significant. Adding under-and-over support to the regression model explained an additional 4.3% of the variation in depression symptoms and this change in  $R^2$  was significant,  $F(2,239) = 5.45$ ,  $p = .005$ . Under-support was the only significant predictor of depression. The positive beta coefficient indicates that mothers who reported higher levels of under support also tended to report higher depressive symptoms.

### Relationship satisfaction

The results of the regression indicated that control variables explained 3.8% of the variance and that the model was a significant predictor of relationship satisfaction,  $F(2,241) = 4.79$ ,  $p = .009$ . Inspection of the beta weights indicated that family support was significant in the regression analyses, and a significant and independent predictor of relationship satisfaction in the final regression model ( $\beta = -.156$ ,  $p = .015$ ). When all four predictor variables were included in the final step of the regression model, neither under-support nor over-support were significant predictors of relationship satisfaction, and explained an additional 0.1% of the total variance.

### Maternal efficacy

At step 1, the control variables accounted for 1.6% of the total variance. Inspection of the beta weights indicated that family support and baby's age were not significant in any of the regression analyses. Subsequent addition of support variables in step 2 had no effect on the total variance.

### Summary of the results

Study 1 is the first to separately examine the dimensions of attachment anxiety and avoidance in relation to adequate, under-and over-provision of support in a population of first-time mothers. There was a consistent relationship between insecure attachment (high levels of avoidance or anxiety) and negative support appraisals. The findings also revealed that support outside of the dyad was less important than support received from a romantic partner in relation to the mother's mood, but not interpersonal adaptation. For example, when family support was controlled, we still found associations between perceptions of under-support from a romantic partner and mothers' depression symptoms. However, support received from family, friends and service providers predicted the mothers' perception of relationship satisfaction, while support from their partner had minimal influence. Overall, under-support predicted an increase in depressive symptoms, but not maternal efficacy or relationship satisfaction, while over-support was not associated with any outcome variables. However, we must be

**Table 3.** Hierarchical multiple regression of outcome variables on baby's age, family support, perceived stress, over-and-under support.

Predictor	Depression				Relationship Satisfaction				Maternal Efficacy			
	B	SE	$\beta$	$R^2$	B	SE	$\beta$	$R^2$	B	SE	$\beta$	$R^2$
Step 1:				0.01				0.04*				0.02
Baby's Age	0.17	0.11	0.11		-0.09	0.04	-0.16*		0.13	0.07	0.12	
Family Support	0.01	0.04	0.02		-0.19	0.10	-0.12		0.02	0.03	0.05	
Step 2:				0.06				0.04				0.02
Under-Support	0.20	0.06	0.22**		0.03	0.06	0.03		-0.01	0.04	-0.02	
Over-Support	0.12	0.11	0.07		0.05	0.19	0.03		-0.01	0.08	-0.01	

Statistical significance for each predictor is indicated in the  $\beta$  columns.

\* $p < .05$  \*\*  $p < .01$

cautious when interpreting the findings of cross-sectional data, which are sensitive to retrospective response bias, and do not allow us to test the direction of effects. In addition, this study has only examined the attachment of the support recipient, and there is evidence that when support providers are high in the dimension of attachment avoidance, they can influence the recipient's support perceptions (Brock & Lawrence, 2014; Kane, 2007).

## Study 2

In study 2, we used experience sampling to collect a range of data points for each participant, increasing the sensitivity of measurements to detect micro changes in perceptions of support matching. The experience sampling procedure has various psychometric strengths. Compared with a single self-report questionnaire assessment, it minimizes the retrospection bias and thus reduces effects of motivated and biased social perception (Fahrenberg et al., 2007). Momentary experiences of support perceptions are valuable, as, unlike self-report measures, there is less time for support recipients to reflect on instances of desired and received support. Preventing time for reflection is important as it ensures that reports of support perceptions are more likely to be embedded in concrete support transactions, rather than an individual reporting what they believed to have experienced, which could be prone to primacy or recency bias. Experience sampling is also beneficial as it allows for longitudinal analysis, by showing if support perceptions can predict outcomes at a later point in time, thus clarifying the direction of effects.

This study has two key aims. Firstly, to identify if momentary perceptions of support adequacy are predicted by the dimension of attachment anxiety and avoidance in a sample of mothers. We predicted higher attachment security (low levels of both anxiety and avoidance) will be associated with perceptions of adequate support. We predicted that mothers high in avoidant attachment are more likely to report being over-benefited in support. We expect mothers high in anxious attachment to experience inadequate support (either over or under support). We also examined if interactions between the mothers' attachment dimensions are associated with the perception of adequate support. We predicted higher attachment security (low levels of both anxiety and avoidance) will be associated with the perception of adequate support. Our second aim is to examine if the relationship between momentary fluctuations of adequate support are associated with feelings of mood, once support availability and stress are controlled. By controlling for momentary perceptions of stress we can establish if the effect of support underprovision on mother mood was above and beyond the unabated stress that elicited the need for support in the first place (for more details, see Shrout et al., 2010). We predicted that perceptions of adequate support will be associated with more a positive mood and under-support will be related to a more negative mood state. Based on previous findings, we expect over-provision (receiving more support than is desired) to be associated with a positive mood state.

## Method

### Participants

Participants were 40 mothers of babies between three to twelve months of age, recruited by contacting administrators of mother and baby groups on Facebook. We asked administrators to share an image of the study recruitment poster with members of the group. The poster invited mothers and their partners to participate in a research study looking at "how couples support each other after the birth of a child, and how this affects the experience of parenting." Prospective participants were asked to contact the principal investigator (first author) who emailed a participant information sheet to mothers, and answered questions relating to study participation. We screened potential participants by phone or e-mail to determine whether they met the following inclusion criteria: (i) mother with a child between 3– 12 months, (ii) married or living together with their romantic partner, (iii) at least 18 years of age, (iv) English speaking, and the mother required (v) use of a mobile phone with internet access.

### ***Premonitoring session***

Prior to the experience sampling procedure, we assigned participants an ID number, and posted questionnaires to assess for (a) attachment anxiety and avoidance, and (b) the perceived availability of support at the relationship level, in reference to their romantic partner, best friend and parent(s).

### ***Attachment***

We measured the dimensions of attachment anxiety and avoidance using the Experiences in Close Relationships – Short Form (ECR-S; Wei et al., 2007). For further information regarding scale items please refer to the study 1 method section. The reliability of the scale was adequate with a Cronbach's alpha of .69 for anxiety and .76 for avoidance for mothers.

### ***Support availability***

Relationship specific expectations regarding the mother's perceived availability of support were measured using the first 7 items from the Quality of Relationships Inventory (Pierce et al., 1991). Examples of items include "To what extent could you count on this person for help with a problem?" and "To what extent can you count on this person to give you honest feedback, even if you might not want to hear it?" We scored items on a 4-point scale, ranging from not at all (1) to very much (4) in reference to an individual's romantic partner, best friend and parent(s). The internal consistencies ( $\alpha$ s) in this sample were .56 for partner, .91 for friend, and .94 for parent.

### ***Experience sampling***

The experience sampling procedure was implemented using a web-based application (survey-signal.com; Hofmann & Patel, 2015) which used short message service (SMS) messages as signals and reminders. Mothers accessed the ESM items online via a website hosted by the University of Manchester, and access was restricted by ID number and password. Each SMS included the link to the website, and participants could only click on this link once, after which time it was deactivated to prevent participants from completing ESM items beyond the signal time limits. Mothers were asked to choose a "study week" that would be representative of their daily lives. They were explicitly asked to exclude weeks that included holidays, visits, or other special events. The data collection began on 30th June 2018 and finished on 27th August 2018.

Mothers were sent an e-mail prior to their "study week" requesting them to login to the ESM website via their mobile phone, using their ID number and a predetermined password. The purpose of this procedure was to check if the internet browser on their mobile phone remembered the login details for subsequent attempts. Mothers were also asked to complete a pilot trial by answering the items on their phone to familiarize themselves with the ESM procedure.

During the "study week" participants were randomly signaled (i.e., not the same time each day) six times a day for seven consecutive days, between 9 a.m. and 9 p.m., with at least one hour between receiving SMS signals. Therefore, each participant could provide up to 42 records throughout the experience-sampling period. After receiving an SMS each participant had up to 60 minutes to complete the ESM items, and an SMS reminder was sent after 30 minutes if a participant had not clicked on the study link in their original signal. After 60 minutes the website link within the SMS was deactivated.

Throughout the duration of the ESM procedure participants were encouraged to contact the researcher if they had any questions, or if they were not receiving SMS to their phone. After the ESM procedure participants were debriefed and mothers received a £40 shopping voucher in exchange for their voluntary participation.

## **Momentary level measures**

### **Positive state affect**

Positive affect was calculated using the mean score from two items which were feeling “happy” and “relaxed.” Mothers were asked to rate how they were feeling “in the moment,” that is, at the time preceding the alert. Items were rated using a 5-point Likert scale, ranging from not at all (1) to extremely (5). The alpha coefficient for two items was calculated at  $\alpha = .68$ .

### **Negative state affect**

Negative effect was defined as a mean score of three items assessed “in the moment,” specifically, “lonely,” “helpless” and “sad” (Cronbach’s  $\alpha = .79$ ). Participants were asked “RIGHT NOW, how are you feeling,” and rated the negative feelings using a 5-point Likert scale, ranging from not at all (1) to extremely (5).

### **Desired support**

Three items were used to assess desired support, adapted from the Support in Intimate Relationships Rating Scale Revised (SIRRS-R; Barry et al., 2009). Participants were asked how much support they have needed since the last beep: emotional “needed someone to comfort me emotionally,” informational support “needed someone to advise me on how to handle a situation,” and tangible “needed someone to help me with the things I have needed to do.” Items were rated on a 5-point Likert scale from not at all (1) to extremely (5).

### **Received support**

Three items were used to assess received support, adapted from the Support in Intimate Relationships Rating Scale Revised (SIRRS-R; Barry et al., 2009). Participants were asked how much support they had received from their partner since the last beep. Emotional “my partner comforted me emotionally,” informational “my partner has advised me on how to handle a situation,” and tangible “my partner has helped me with the things I needed to do.” Items were rated on a 5-point Likert scale from not at all (1) to extremely (5).

### **ESM perceived stress**

We assessed perceived stress using a single item “SINCE THE LAST BEEP, I have felt stressed,” rated on a 5-point Likert scale from not at all (1) to extremely (5).

## **Data analysis**

Experience sampling data share cross-sectional time-series characteristics containing a hierarchical structure, whereby measures are clustered in three levels: Beeps are nested in days which are nested within participants (Bolger et al., 2003). A total of 1303 out of possible 1680 recordings were obtained, resulting in an overall 75.5% response rate to the beep. Only one participant responded to less than 50% of their signals. These data indicated a high level of compliance with the protocol.

We computed global scores representing overall adequate support, by summing the three types of support, emotional, informational, and tangible. For example, support matching (i.e., adequate support) was calculated by summing the items endorsed as “same,” for which scores of received support and desired support matched for each type of support. Therefore, for each momentary record, the lowest possible score was 0 (no instances of support matches) and the highest was three (emotional, informational, and tangible received and desired support all matched). For example, support matching (i.e., adequate support) was calculated by summing the items endorsed as “same,” for which scores of received support and desired support matched for each type of support.

The XTMIXED command in Stata (version 10, Stata Corp., College Station, TX, USA) was used for all continuous outcome variables, with a random intercept for each participant and for each day within participant; betas, 95% CI, and  $p$ -values are reported for all associations between independent and dependent variables. Simple slopes were tested for all interactions that were significant at the  $p < .05$  level using the margins command in Stata 10 (Dawson & Richter, 2006). We performed a random-effects model for each dependent variable (support adequacy, under-support, and over-support) to test the relevance of a random effect. The random effects were tested using likelihood ratio test (LRT) comparing a simple model excluding the random effect versus a model including the random effects. See Table S3 in the supplementary materials section for random slope data.

A post hoc power analysis was conducted using the software package, GPower (Faul & Erdfelder, 1992). The sample size of 40 was used for the statistical power analyses and a 2 predictor variable equation was used as a baseline. The recommended effect sizes used for this assessment were as follows: small ( $f^2 = .02$ ), medium ( $f^2 = .15$ ), and large ( $f^2 = .35$ ) (see Cohen, 1977). The alpha level used for this analysis was  $p < .05$ . The post hoc analyses revealed the statistical power for this study was .11 for detecting a small effect, whereas the power exceeded .55 for the detection of a moderate and .91 for a large effect size. Thus, there was more than adequate power (i.e., power  $> .80$ ) at the large effect size level, but less than adequate statistical power at the small to moderate to effect size level.

## Results

### *Matching, under-and-overprovision of social support*

The discrepancy scores indicated that mothers most frequently perceived a match in the support they received and desired from their partner (global: 54%; emotional: 62.5%; information: 70%; and tangible: 51%), followed by under-provision (global: 23%; emotional: 19%; information: 16.5%; and tangible: 25.5%). Overprovision appeared most frequently for tangible support (23.5%), and global support (23%), but was less frequent for emotional support (18.5%) and informational support (13.5%).

Descriptive statistics relating to the variables included within the multilevel model analyses can be found in Table 4.

### *Confounding variables*

Preliminary analyses indicated that neither support availability of either partner, parent, or friend significantly predicted perceptions of support matching or under-and-over-support on a momentary basis (data not shown). No further analyses including these variables were therefore conducted. We

**Table 4.** Descriptive information for continuous variables included within the multilevel model analyses for study 2.

Variable	No of observations	Min, Max	Mean (SD)
<b>Surveys Mother</b>			
Attachment Avoidance	40	6, 42	12.32 (4.56)
Attachment Anxiety	40	6, 42	22.88 (6.16)
Partner Available	40	7, 28	26.10 (5.43)
Parent Available	40	7, 28	19.52 (6.85)
Friend Available	40	7, 28	22.19 (5.48)
<b>ESM Mother</b>			
Global Adequate	1250	0, 3	1.84 (1.08)
Global Over	1250	0, 3	0.55 (.87)
Global Under	1249	0, 3	0.61 (.94)
Positive Affect	1254	2, 10	7.10 (1.85)
Negative Affect	1251	3, 15	4.26 (2.15)
Perceived Stress	1251	1, 5	2.44 (1.35)

also examined the relationship between stress and mood and found this to be significant for both positive ( $r = -.51, p = .001$ ) and negative ( $r = 0.4, p = .001$ ) affect state. Accordingly, the analysis for under-support and mood are now adjusted for momentary stress as an additional covariate.

### **Associations between mother's attachment and momentary perceptions of adequate, support**

To investigate this hypothesis 3 multilevel linear regression models were estimated with momentary perceptions of adequate support as the dependent variable and mother's attachment dimensions (anxious or avoidant) as the independent variables. As displayed in Table 5, attachment anxiety and avoidance were associated with perceptions of adequate support. Here attachment dimensions predicted negative perceptions of adequate support (i.e., received support was not matched to preferred support). The interaction between the dimensions of attachment anxiety and avoidance was not associated with momentary perceptions of adequate support.

We also carried out some exploratory analysis to look at whether mothers high in avoidant attachment are more likely to report being over-benefited in support, and if mothers high in attachment anxiety experienced over or under support (see supplementary material for findings).

### **Do momentary perceptions of support adequacy predict mother's mood?**

Table 6 summarizes the results of the four, multilevel linear regression models calculated to examine the extent to which support adequacy was associated with mother's mood. The results revealed that momentary adequate and support significantly predicted higher levels of positive mood. The support adequacy variables were then lagged, to reflect the responses reported at the previous beep ( $n - 1$ ), and regression analyses repeated; these indicated that there were no significant associations between adequate support at the previous assessment and current mood.

We carried out some exploratory analysis to look at whether perceptions of over-support would be associated with more positive mood and under-support related to a more negative mood state (see Table S2).

### **Summary of the results**

The primary aim of study 2 was to examine the relationship between attachment dimensions of anxiety and avoidance and support adequacy in the context of the daily life of mothers, and to observe if support perceptions influence mood. Support recipients high in the dimension of attachment avoidance or anxiety reported a decrease in perceptions of support adequacy. Although adequate

**Table 5.** The relationship between attachment dimensions and support adequacy for study 2.

Support Adequacy	Unstandardized B coefficient	S.E.	<i>p</i>	95% Confidence intervals (CI)
Attachment Anxiety	<b>-0.04</b>	<b>0.01</b>	<b>.001</b>	<b>-0.06 to -0.02</b>
Attachment Avoidance	<b>-0.05</b>	<b>0.02</b>	<b>.008</b>	<b>-0.08 to -0.01</b>
Anxiety x Avoidance	-0.00	0.01	.287	-0.01 to 0.00

*p* < .05 is in boldface.

**Table 6.** The associations between support adequacy and mothers' mood in current (t) and lagged (t-1) analyses for study 2.

Predictor	Positive Mood				Negative Mood			
	Unstandardized $\beta$ coefficient	SE	<i>p</i>	95% Confidence intervals (CI)	Unstandardized $\beta$ coefficient	SE	<i>p</i>	95% Confidence intervals (CI)
Momentary	0.28	0.05	.001	0.19 to 0.37	-0.34	0.05	.001	-0.44 to -0.24
Lagged ( $n - 1$ )	-0.01	0.05	.867	-1.00 to 0.08	0.07	0.05	.207	-0.04 to 0.17

support was associated with the higher levels of positive mood, this was only observed at the momentary level. Exploratory analysis revealed that perceptions of under-support were associated with negative mood, and that both adequate and over-support were associated with positive mood. Whereas when a support recipient perceived being over-supported, they experienced an improvement in mood both in the current moment and at the next time point.

## General discussion

### *Attachment and support adequacy*

As expected, attachment avoidance was related to reduced perceptions of adequate support. Due to the low support needs of avoidant mothers, we anticipated a risk of them being over benefited in support, although our findings revealed the opposite. Possibly avoidant mothers express being under-supported as they are more likely to be partnered with an avoidant husband, as predicted by the principles of assortative mating (Schwartz & Graf, 2009). However, previous research has only identified a small correlation between husbands' and wives' avoidant attachment (Brock & Lawrence, 2014), therefore a low frequency partner support provision may be related to perceptions of under-support. In addition, evidence suggests provider and recipient accounts of support are, at best, only moderately correlated. Internal models may implicitly bias how individuals process information regarding social support by directing attention toward certain features of the environment which confirm prior beliefs and expectations (Collins & Allard, 2001; Collins & Read, 1994). Indeed, individuals more readily notice information that can be easily integrated into their existing knowledge about self and others (Cohen, 1981; Markus, 1977; Roskos-Ewoldsen & Fazio, 1992). Therefore, as avoidant mothers are more likely to believe that others are unreliable, they may have discounted genuine attempts of support from their partner, thus perceiving being under-supported. Another interpretation is that support recipients higher in avoidance do not communicate their needs as much as those lower in avoidance and this means that partners do not pick up on their needs as much.

The findings also supported our prediction that attachment anxiety would be related to lower levels of adequate support, and perceptions of being under-supported. For example, as individuals high in the dimension of attachment anxiety are sensitive to acts of rejection and disapproval from others, their internal models of others may bias them to notice evidence which corresponds with these fears (Collins & Allard, 2001; Collins & Read, 1994). However, the exploratory analysis of study 2 revealed that mothers high in the dimension of attachment anxiety experienced perceptions of being over-and-under supported. We expected mothers high in attachment anxiety to report being under-supported, as their support needs are so high, they may be impossible to meet. However, perceptions of over-support may be experienced, as individuals high in attachment anxiety hold internal models which conceptualize a negative model of self, whereby an individual views themselves as unworthy of support. Therefore, it is important to explore under which circumstances specific cognitions associated with attachment anxiety (such as dependency on others, and a negative self-concept) become salient, to better understand the relationship between attachment and support perceptions. Alternatively, support recipients high in the dimension of attachment anxiety may experience an overprovision of support if their partner has learned that they are just "needy" in general. In such circumstance, support providers might not be accurate in any specific moment, but they have learned to just assume "my partner needs support."

In addition to examining mothers' attachment dimensions independently, we also examined the interaction between anxiety and avoidance, to establish whether the variance of attachment patterns can provide additional, more graduated understanding regarding support perceptions. The interaction of mothers' attachment dimension did not predict perceptions of being adequately supported by a romantic partner. However, the exploratory analysis revealed that mothers' high on both anxiety and avoidance were more likely to report over-support. One explanation may be that cognitions regarding self and others associated with each attachment dimension may combine to

create a type of additive effect. For example, individuals high in the dimension of attachment anxiety do not think themselves worthy of support due to negative beliefs about themselves, which is coupled with a lack of trust in others and discomfort in close relationships, associated with attachment avoidance.

### ***Depression, relationship satisfaction and maternal efficacy***

The matching hypothesis states that for support to be effective it must match the stressor (Cutrona, 1990). This was only partially supported, as although adequate support predicted a reduction in symptoms of depression and an improvement of general mood, it was not associated with perceptions of maternal efficacy or relationship satisfaction. We expected that levels of depression are higher when the social support provided is incongruent with the amount and type of support mothers want to receive (i.e., under-or-over-support). When recording daily experiences of support perceptions, a lack of support was associated with a negative mood, and appraisals of under-support over a monthly period were related to depressive symptoms. However, being under-supported was not associated with maternal efficacy or relationship satisfaction. We predicted that the perception of being over-supported would have a harmful effect on mood, as this type of support may implicitly communicate to the support recipient that they are unable to cope with a stressor. Study 1 did not find a relationship between over-support and outcome variables. However, it may take time for the effects of support adequacy to become apparent, and study 1 only measured perceptions of support on a single occasion. For example, as there was only a small number of over-support acts perceived by the mothers, there may have been a lack of data necessary to detect meaningful associations. Our second study overcame this limitation and showed that being over-supported was beneficial to mood state, although not as favorable as adequate support which matched the needs of the mother. However, unlike adequate support, perceptions of over-support by a romantic partner continued to be associated with an improved mood after the instance of a supportive act.

### ***Limitations and future directions***

These studies have advanced the literature on attachment and social support by considering the effects of specific types of support in relation to attachment and outcome variables within a population where support is a salient feature of their lives. This is important, as making a distinction between over-and-under support can help improve the accuracy of interventions by identifying the support needs not already being met. Indeed, our studies have shown that over-support is the most beneficial, as mood is improved both in the present moment and immediate future. Therefore, it would be advisable for future research to adopt longitudinal design, and examine the enduring nature of over-support, and assess if there is a point when levels of over-support become harmful to specific outcomes, such as mood and relationship satisfaction. We have also considered the influence of contextual factors, demonstrating that support outside of the dyad is less effective than support received from a romantic partner. In addition, we have also controlled for the influence of baby's age in study 1, as parents face quite different support needs when the child is 3-months old (e.g., the sleep pattern is not stable for many babies) compared with 12-months old (e.g., many parents return to their workplace). Although we did not collect this demographic data for study 2, we acknowledge that the age of the baby could have been a confounding factor.

To reduce the burden on participants, we did not collect demographic data regarding the experience of new mothers across immigrant status, sexual orientation, age, and racial groups. Furthermore, although participant eligibility was unrestricted by sexuality, there was an implicit assumption (by the researcher) that "mothers" here are birthing mothers. Therefore, future studies should apply inclusion criteria which consider other potential routes to motherhood, such as adoption, and record demographic data, which could operate as a moderator of attachment and support perceptions.

Furthermore, our research demonstrated correlational relationships, and as such, causation between attachment and support perceptions cannot be implied. It is also possible that attachment and support could operate in a bidirectional manner, such that low support levels (after childbirth) could result in shifts in attachment. In addition, study 1 examined the association between attachment and social support using cross-sectional methods, which are susceptible to retrospective response bias. We recommend future studies use longitudinal methods which could establish a baseline for support and outcome variables, as specific types of support, such as emotional, require time to become effective, and are best studied over a series of time points (Burluson & Goldsmith, 1998). Longitudinal studies would enable researchers to establish how patterns of support perceptions develop over time in relation to attachment dimensions. Indeed, novel findings in the support literature have typically derived from studies measuring support over a longitudinal period (Brock & Lawrence, 2014; Cobb et al., 2001; Conde et al., 2011; Feeney et al., 2003; Iles et al., 2011; Rini et al., 2006). Finally, in study 1, internal consistencies of several self-report scales were lower than expected, possibly threatening the validity of the measures.

This study focused on a sample undergoing a major life transition, encompassing specific support needs which may not be generalizable to intimate relationships beyond parental dyads. For example, if couples have a brief relationship history, they may not have experienced stressful events in such a brief duration. Therefore, social support may not be a feature of their relationship to date. A further limitation concerns the small sample sizes of the second study, (40 mothers), although the repeated momentary measures obtained from each participant over 7 days increase the study's power. However, the absence of data regarding the social location of the mother, and significant contact with others means that it is not clear whether mothers were at home with their babies during the study, were alone or in the company of others, or had returned to work after maternity leave. These socially contextual features could have impacted both their received and desired support, and social interaction with significant others could have influenced their mood state.

It is possible that matching theory is not the complete model and equity also plays a role (Walster et al., 1973). Using the conjunction between both partners' reports of support would allow researchers to examine how an individual perceives the relationship between partner support provision in proportion to their input into the relationship. Specifically, Walster et al. (1978) posit that, "When individuals find themselves participating in inequitable relationships, they will become distressed. The more inequitable the relationship, the more distress they will feel" (p. 6). As such, when recipients experience a state of inequitable (nonreciprocal) support this may exacerbate the negative effects associated with being under-supported. Alternatively, reciprocation could have an additive effect on a recipient's perceptions of matched support from their partner, possibly improving outcomes such as mood and relationship satisfaction. The opportunity to reciprocate support provision may enable a support recipient to restore their sense of competence and self-esteem, allowing them to feel wanted and appreciated (for review, see Rafaeli & Gleason, 2009). There is evidence that negative effects associated with over-support can be offset if the support recipient is able to reciprocate supportive acts from their partner (Gleason et al., 2003, 2008; McClure et al., 2014). The equity theory of support needs to be tested using an attachment framework, to examine if specific provision/receipt balances are associated with particular dyad attachment combinations. For example, avoidant support recipients partnered with a secure partner would be expected to be more at risk of experiencing negative equity, as they are unlikely to reciprocate acts of support. However, maybe reciprocation does not have to involve supportive acts, and acts, such as making dinner for your partner or complementing them, can restore a sense of equity. Rotter (1966) proposes that supportive reciprocity (the act of giving back support to one's partner) could be important as it may enable an individual to establish a sense of control. This would be beneficial to individuals high in the dimension of attachment avoidance who hold an excessive need for self-reliance and fear of emotional closeness or dependence (Brennan et al., 1998). Thus, there may be individual differences regarding the benefits of providing reciprocal support, and perhaps this would overcome the excessive need for interpersonal approval and fear of rejection associated with the dimension of attachment anxiety.

Finally, although we understand how support behavior is shaped by an individual's sense of security, there is limited evidence to show how this is influenced in combination with the attachment style of the partner. For example, the effects of attachment on the recipient's perception of support may be amplified or attenuated depending on the attachment of the support provider. Adult attachment dimensions are associated with specific support needs, based on expectations of responsiveness and reliability in others (attachment anxiety) and how individuals differ in terms of their comfort with intimacy (attachment avoidance). In addition, attachment dimensions have also revealed individual differences in support provision, such as responsiveness, characterized by showing sensitivity toward a partner's signals of distress, and a willingness to offer comfort, reassurance, and affection corresponding to the needs of the partner (Kunce & Shaver, 1994; Mikulincer & Shaver, 2005). Accordingly, the attachment dimensions of both the support recipient and provider are relevant to conceptualizations of optimal matching such as support adequacy. For example, are avoidant individuals (support recipient) more likely to report being over-supported when partnered with an anxious individual, and under-benefited with partnered with an avoidant individual? Similarly, are anxious individuals (support recipient) more likely to report being under benefited when partnered with either an avoidant or anxious individual? Psychopathology, in the form of anxiety and depression, is more frequent in insecure dyads compared with dyads where both members had a secure attachment (Conde et al., 2011). This suggests attachment may be involved in the support process through interaction with the partner's attachment dimensions. It is imperative that future studies record support transactions from both members of the dyad to better understand support processes. As support is an interpersonal process future studies must acknowledge that each person within the dyad can act as both a support recipient (requesting help) and a support provider across support transactions.

### **Summary**

Our studies are the first to examine how anxious and avoidant attachment dimensions predict perceptions of adequate (i.e., matched support) and inadequate (over or under) support in a population of mothers, within the context of romantic relationships. The results contribute to the literature on attachment and social support (McLeod et al., 2020). Specifically, they show that insecure attachment is associated with the perception of being under-supported by a romantic partner, and that over-and-under support are associated with different outcomes and should be viewed as qualitatively distinct constructs (Brock & Lawrence, 2009). Finally, our studies have advanced the literature on attachment and support adequacy by considering how environmental context (support from outside of the dyad) shapes dyadic interaction of attachment styles in relation to support matching. It would be advisable for future interventions to target support perceptions and attachment dimensions perinatally to improve maternal emotional adjustment during the challenging transition to becoming a parent. For example, cognitive behavioral therapies which first help to develop the mother's understanding of how earlier experiences and attachment patterns impact on thoughts and feelings in relationships with partners and then reappraise negative perceptions of support attempts.

### **Disclosure statement**

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## Ethics statement

Authors confirm that this article adheres to ethical guidelines specified in the APA Code of Conduct as well as the authors' national ethics guidelines. This study was approved by The University of Manchester Ethics Committee (Psychology and Mental Health Division Panel), Ref: 2017-0136-544, Ref: 2017-0136-544.

## Author contribution

All four authors were involved with the data analysis and report writing. The lead author collected the data. Note that this study was not preregistered.

## Transparency statement

The research datasets analysis during the current study are available from <https://data.mendeley.com/datasets/by6sgy8rcb>

## Data availability statement

The data described in this article are openly available in the Open Science Framework at <https://data.mendeley.com/datasets/zh4d8dk282/1>.

## Open scholarship



This article has earned the Center for Open Science badges for Open Data and Open Materials through Open Practices Disclosure. The data and materials are openly accessible at <https://data.mendeley.com/datasets/zh4d8dk282/1> and <https://data.mendeley.com/datasets/pb85s4tv23/1>.

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