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Abstract

Objective: Mothers with insecure attachment styles may have increased difficulty establishing secure attachment with their infant and may experience emotion regulation difficulties in the postpartum period. This study aimed to examine the mediating effect of emotion dysregulation (ED) on the relationship between maternal insecure attachment style and self-reported attachment to infant in women admitted to a mother-baby unit. **Methods:** At admission, women completed self-report questionnaires measuring attachment style, ED, postnatal attachment and postnatal depression (PND) symptoms. Descriptive statistics, correlations, and mediation analyses (PROCESS macro) were conducted. **Results:** Insecure maternal attachment style was found to predict postnatal attachment through ED. When PND symptoms were accounted for, this model was no longer significant, and instead a serial mediation found that ED predicted PND, which was in turn associated with reduced postnatal attachment quality. **Conclusions:** This study provides preliminary support for continued research into maternal ED as a predictor of adverse maternal and infant outcomes postnatally. Individuals with attachment insecurity experiencing emotion regulation difficulties may be at an increased risk of developing PND and in turn experiencing adverse mother-infant attachment outcomes. This has clinical implications for the screening, assessment and treatment of women experiencing mental health or attachment related concerns postnatally.

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The Relationship between Emotion Dysregulation and Postnatal Attachment in Women
Admitted to a Mother Baby Unit

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Abstract

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Methods: At admission, women completed self-report questionnaires measuring attachment style, ED, postnatal attachment and postnatal depression (PND) symptoms. Descriptive statistics, correlations and mediation analyses (PROCESS macro) were conducted.

Results: Insecure maternal attachment style was found to predict postnatal attachment through ED. When PND symptoms were accounted for, this model was no longer significant, and instead a serial mediation found that ED predicted PND, which was in turn associated with reduced postnatal attachment quality.

Conclusions: This study provides preliminary support for continued research into maternal ED as a predictor of adverse maternal and infant outcomes postnatally. Individuals with attachment insecurity experiencing emotion regulation difficulties may be at an increased risk of developing PND and in turn experiencing adverse mother-infant attachment outcomes. This has clinical implications for the screening, assessment and treatment of women experiencing mental health or attachment related concerns postnatally.

Keywords: attachment; emotion dysregulation; mother baby unit; perinatal; postnatal depression.

What is already known about this topic:

- Experiences of caregiving received in infancy and early development may influence the development of an individual's own attachment style and emotion regulation capacities.
- Women with insecure or disorganised attachment styles are at an increased risk of postnatal depression.
- People with insecure attachment styles (attachment avoidance or attachment anxiety) may be more likely to experience emotion regulation difficulties.

What this topic adds:

- There were high rates of self-reported emotion dysregulation in women admitted to a MBU within the first postnatal year.
- Emotion dysregulation was found to be a key predictor of postnatal depression symptoms and compromised postnatal attachment.
- A serial mediation model indicated that insecure attachment was associated with increased emotion dysregulation, which predicted increased postnatal depression symptoms, which was in turn related to reduced postnatal attachment quality.

The early perinatal period is a time of intense change and adjustment for mothers in the context of shifting roles, responsibilities and relationships. These changes elicit an array of positive and negative emotions and can increase vulnerability for the onset, relapse or exacerbation of mental health difficulties (Robertson et al., 2004). A mother's capacity to regulate her emotional experiences at this time may influence her level of postpartum well-being and her ability to engage in *sensitive* caregiving, which is implicated in the development of healthy infant attachment (Tatnell et al., 2018).

Emotion Dysregulation

The Dix (1991) model of affective processes in parenting suggests that a parent's ability to adaptively regulate their emotions, rather than their experience of emotions per se, is a determinant of effective and sensitive caregiving. *Emotion regulation* is defined by Gross (2007) as a collection of "processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions" (p. 275). In contrast, *emotion dysregulation* (ED) captures when an individual perceives their emotions to be overwhelming, confusing, out of control, causing inappropriate behaviours, and interfering with their goals (Gratz and Roemer, 2004).

Maternal Attachment and Postnatal Attachment

From an intergenerational perspective, pregnancy and the transition to motherhood is considered a life event that activates a women's attachment representations that have formed as a result of her own experiences of early caregiving (Robakis et al., 2016). Experiences of caregiving received in infancy and early development are proposed to influence the development of an individual's own attachment style and emotion regulation capacities (Bowlby, 1982). When attachment needs are not met during these formative periods, individuals develop coping mechanisms which are classified under the dimensions of

attachment avoidance or anxiety, of which both have been associated with ED (Marganska et al., 2013).

For women with insecure attachment, the activation of this framework may lead to increased difficulties regulating emotional experiences postnatally, which is likely to influence their provision of sensitive caregiving, and may in turn influence their infant's levels of attachment insecurity (Slade et al., 2005). Empirical research has explored the intergeneration transmission of attachment and meta-analytic studies have confirmed the association between maternal and infant attachment representations (Van Ijzendoorn, 1995; Verhage et al., 2016).

Emotion Dysregulation and Postnatal Attachment

In the early postpartum period, infants are primarily reliant on their caregivers for support in managing their emotional experiences. In order to do so, mothers must regulate their own emotional state so as to better allow them to acknowledge their infant's cues, interpret them accurately, and modulate their own behavioural responses in a way that is sensitive and facilitative of co-regulation (Tronick and Cohn, 1989). This dyadic attunement between mother and infant is theorised to underpin the development of secure infant attachment (Ainsworth, 1978; Bowlby, 1982).

In contrast, mothers who experience ED may be more dismissive or intrusive in their responding to infant distress, and may become self-focused on soothing their own emotional experience, rather than responding based on the needs of the infant (Rutherford et al., 2015). Through repetition of these experiences, infants may learn that expressing distress leads to inconsistent or dismissive caregiver responses, which may in turn lead to the development of attachment insecurity (Aldao et al., 2010). Over time this may have potentially lasting consequences for the development of the infant's attachment, emotion regulation capacities and subsequent socioemotional health (Crandall et al., 2015; Rutherford et al., 2015).

Despite the considerable implications associated with emotion regulation in the perinatal period, few studies have explored the relationship between maternal ED and infant attachment outcomes. In studies of older children and adolescents, mothers who have heightened self-report ED have been found to offer less supportive responses to their children's distress (Morelen et al., 2016), demonstrate more rejecting, hostile, and less warm behaviours when interacting with their adolescents (Saritaş et al., 2013), and are observed to be less sensitive, responsive and positive when interacting with their young children (Shaffer and Obradović, 2017) in comparison to mothers with lower self-reported ED. These findings suggest that increased emotion regulation capacities may be linked to both maternal wellbeing and parenting capacities, with likely impacts on attachment.

Maternal Attachment and Emotion Dysregulation

There are strong empirical links between individual's attachment representations and their emotion regulation capacity (Cassidy, 1994). As discussed above, attachment theory suggests that these factors develop in response to early infant-caregiver interactions. ED is theorised to develop as a way of coping with sub-optimal early environments in which infant needs were not consistently met. A review by Mikulincer and Shaver (2019) found that people with secure attachment, whose emotional needs were acknowledged and responded to sensitively, are more confident in their ability to deal with challenges and employ more constructive and effective emotion regulation strategies.

Comparatively, it has been suggested that individuals with insecure attachment styles (attachment avoidance or attachment anxiety) may be more likely to experience ED. Specifically, avoidant individuals, whose emotional expressions were dismissed by caregivers, may develop tendencies to suppress or minimize their emotions, whereas anxious individuals, whose emotional needs were responded to inconsistently by caregivers, may

develop tendencies to exaggerate or maximize their emotions and ruminate on their problems (Cassidy, 1994).

Postnatal Depression

Attachment insecurity and ED appear to have strong associations with depressive symptoms (Marganska et al., 2013). Individuals with insecure attachment styles, characterized by either preoccupation about the emotional availability of others (attachment anxiety) or by distrust of closeness with others (attachment avoidance), appear to attend selectively to aspects of interpersonal interactions which support their views of self and others (Monk et al., 2008). Over time these experiences predispose people to poorer psychological wellbeing and difficulties establishing a strong mother-infant relationship.

Women with insecure or disorganised attachment styles are at an increased risk of postnatal depression (PND; McMahon et al., 2005; Robakis et al., 2016). For instance, Bifulco et al. (2004) reported that enmeshed and fearful attachment styles in mothers were associated with postnatal onset of depression. Moreover, Nonnenmacher et al. (2016) found that maternal depression mediated the relationship between maternal attachment insecurity and self-reported bonding to infant. This study suggests that the combination of insecure attachment and PND symptoms may pose a risk to developing secure infant attachment. Despite known links between PND and adverse infant outcomes (Field, 2010), research has found that psychological treatments for PND have little to no benefit on the mother-infant relationship (see Galbally and Lewis (2017) review).

Aside from attachment, depression symptoms also appear to be associated with emotion dysregulation (Joorman & Stanton, 2016). Malik, Wells, and Wittkowski's (2015) review of general population studies shows that emotion regulation is consistently found to be a mediator in the relationship between attachment style and depression. More recently these pathways have also been shown in postnatal women whereby the relationship between

insecure attachment and postpartum psychological functioning was mediated by self-reported emotion regulation difficulties (Marques, Monteiro, Canavarro, & Fonseca, 2018). Haga et al. (2012) also found a significant relationship between the use of maladaptive cognitive emotion regulation strategies over time and postpartum depressive symptoms in a longitudinal study of new mothers. Extending from this Edwards et al. (2017) found that the relationship between maternal use of maladaptive emotion regulation strategies and increased negative infant affect was mediated by maternal internalising symptoms.

The sequence by which attachment insecurity in mothers might contribute to their postnatal attachment with baby also awaits clarification. While the relationship between maternal attachment and infant attachment may be mediated by emotion (dys)regulation, the above evidence also suggests a potential pathway via depressive symptoms. In this respect, there may be dual pathways and a “parallel mediation” process at play. Alternatively, to the extent that emotion dysregulation is associated with depression symptoms, there may also be a sequential pathway by which attachment insecurity is associated with emotion dysregulation which in turn may contribute to depression symptoms in undermining mothers’ attachment to their baby. To the best of our knowledge, these dual mediation models have not previously been subjected to empirical examination.

Given the importance of better understanding the factors which are associated with compromised maternal-infant attachment, we aimed to investigate the unique role of maternal emotion regulation capacity as a factor hypothesised to be implicated in the relationship between maternal attachment and infant outcomes. In order to distil the unique contribution of emotion regulation difficulties, PND symptoms was included as a covariate in the analysis. Given the prevalence of postnatal depression in the perinatal period, and the theory underlying maternal attachment, emotion regulation, PND and infant outcomes, a parallel mediation model assessing the cumulative influence of emotion regulation difficulties and

PND symptoms on the relationship between insecure maternal attachment and infant attachment outcomes was also assessed. It was hypothesised that emotion regulation difficulties would be a significant sequential and parallel mediator of the association between attachment insecurity in mothers and postnatal attachment between mother and baby. In this respect, emotion dysregulation may play an important role in the intergenerational transmission of attachment insecurity and provide a preliminary explanatory hypothesis for the lack of clear benefit of depression treatment on offspring outcomes.

Method

Participants

Participants were mothers who had been voluntarily admitted to a private inpatient mother-baby unit (MBU) in [Blinded for review] during their first postnatal year. The unit provides multidisciplinary care focused on the treatment of mothers' mental health conditions, building attachment and positive interactions with infants, and assisting mothers to gain skills in mothercraft (see Christl et al. (2013) for an overview). One hundred and twenty three women were admitted to the MBU during the study period (September 2017 – September 2018) and were asked to complete self-report measures at admission. Mothers were excluded if they did not give written informed consent to participate in research, had multiple readmissions during the study period, or their medical record was not able to be accessed. 85 participants were included in the study.

Measures

The *Difficulties in Emotion Regulation Scale (DERS; Gratz and Roemer, 2004)* is a 36-item self-report measure assessing difficulties in emotion regulation. The scale yields a total score (range 36–180) with higher scores indicative of the degree of ED. The score reflects an individual's cumulative difficulties with (a) awareness and understanding of

emotions; (b) acceptance of emotions; (c) the ability to engage in goal-directed behaviour, and refrain from impulsive behaviour, when experiencing negative emotions; and (d) access to emotion regulation strategies perceived as effective.

The *Attachment Style Questionnaire (ASQ)*; Feeney, 1994) is a 40-item self-report scale designed to assess attachment style in adults. Participants are asked to rate the extent to which items describe their feelings and behaviour in close relationships. The ASQ has been shown to have 5-factor structure: Confidence, Need for Approval, Relationships as Secondary, Discomfort with Closeness, and Preoccupation with Relationships. In line with previous research (Robakis, 2016), an adjusted total score was calculated in which the Confidence subscale was subtracted from the sum, in order to give an overall measure of maternal attachment insecurity.

The *Maternal Postnatal Attachment Scale (MPAS)*; Condon and Corkindale, 1998) is a 19-item self-report questionnaire assessing the feelings experienced by a mother towards her infant. Condon and Corkindale (1998) contend that although parental subjective feelings about their infant are not sufficient to define the complexity of parent–infant attachment, they are thought to be ‘indicators’ of the ‘probable presence of attachment’ (p.7). A higher score on the MPAS indicates more favourable feelings held by the mother toward her infant.

The *Edinburgh Postnatal Depression Scale (EPDS)*; Cox et al., 1987) is a well-established 10-item self-report scale used for perinatal depression screening. Respondents rate the intensity of depressive symptoms present within the previous seven days to produce a summative score ranging from 0 to 30, with higher scores indicating elevated risk for postpartum depression.

Data Analysis

Data was analysed using IBM SPSS version 25. For all analyses, a non-directional alpha was set at $p \leq 0.05$. Data were screened for outliers and assessed for assumptions of normality

using Shapiro-Wilk test and visual assessment of histograms, of which there were no violations. Analysis of residuals indicated that assumptions necessary for statistical tests were met. Descriptive statistics and Pearson's r bivariate correlations were calculated. Mediation models using SPSS PROCESS Macro version 3.1 (Hayes and Preacher, 2014) were conducted based on 5000 bootstrap resamples, and the indirect effect was considered significant if the 95% Bias Corrected Confidence Interval (CI) did not contain zero.

Ethics

This study was approved by the [blinded for review].

Results

Missing data (2.4% - 7.1%) on key study variables and was found to be missing completely at random according to Little's MCAR test: $\chi^2(261) = 95.14, p=1.00$. Multiple imputation was used to estimate values for missing data and analyses were not found to differ significantly depending on dataset used, therefore statistics are presented for dataset including imputed data.

Descriptive Statistics and Correlations

Demographic information for participants ($N = 85$; Mean age=34.37, $SD=4.70$; 90.6% married or de facto) is presented in Table 1. The majority of participants were first time mothers admitted to the MBU within the first 3 months postpartum (62.7%). The homogeneity of the sample may be reflective of the assumed mid-high socioeconomic status of participants given top tier private health insurance is a requirement for admission to the MBU.

Descriptive statistics and correlations are presented in Table 2. High levels of ED were reported in the current sample (mean DERS total score = 106). Bivariate correlations confirmed that the variables of interest were significantly correlated in the expected

directions. As shown, ED was positively associated with attachment insecurity and PND symptoms, and negatively associated with postnatal attachment quality.

Mediation Analyses

Prior to running the mediation analyses, we examined the Variance Inflation Factor (VIF) and plots of the standardised predicted values and residuals by running regression analyses to determine whether multicollinearity or heteroscedasticity were evident between the predictor and mediator variables of our mediation analyses. All VIF values were ≤ 1.89 , indicating that multicollinearity was unlikely and the plots of predicted values and standardised residuals indicated that homoscedasticity could be assumed.

Results of the mediation analysis are presented in Figure 1. This shows that insecure maternal attachment style was significantly related to ED, and had a significant direct effect on postnatal attachment. ED was also found to be significantly related to postnatal attachment when controlling for insecure attachment. After controlling for ED, insecure attachment was no longer significantly related to postnatal attachment and the unstandardized indirect effect of ED on this relationship was significant $ab = -0.72$, $SE = 0.37$, 95% BCa CI [-1.61, -.19], indicating that ED did mediate the relationship between maternal insecure attachment and postnatal attachment.

Given the theoretical and empirical links between attachment insecurity, ED and psychopathology, PND symptoms was included in the original mediation model as a covariate in order to assess the unique contribution of ED above and beyond that of associated PND symptoms (see Figure 2). In this model, attachment insecurity remained significantly associated with ED, but was not found to be significantly associated with postnatal attachment. In addition, ED was not found to be significantly associated with postnatal attachment when PND symptoms were controlled for in the model. Instead, PND symptoms were found to be significantly related to both ED and postnatal attachment.

Overall, the indirect effect of ED was no longer found to mediate the relationship between maternal attachment insecurity and postnatal attachment when controlling for PND symptoms $ab = -0.11$, $SE = 0.16$, 95% BCa CI $[-.52, .13]$.

As the indirect effect of ED was no longer significant when accounting for the influence of PND symptoms, an updated serial mediation model was assessed (see Figure 3). In this model, attachment insecurity (independent variable) was theorised to influence postnatal attachment (dependent variable) through the causal sequence of ED (mediator 1) and PND symptoms (mediator 2). In this model, maternal attachment insecurity was found to be predictive of ED (path A1), and postnatal attachment directly (path C), though it was not found to be associated with PND symptoms (path A2). With the inclusion of PND symptoms in this model, ED was no longer associated with postnatal attachment (path B1), though there was a significant partial correlation with PND symptoms (Path D) when controlling for the independent variable. PND symptoms were in turn, predictive of postnatal attachment (path B2).

The relationship between maternal attachment insecurity and postnatal attachment was no longer significant when accounting for the inclusion of ED and PND symptoms as mediators, suggesting collectively these variables mediated the relationship. Three indirect effects were calculated for this model. Neither path A (A1A2) through ED nor path B (B1B2) through PND were found to mediate the relationship between attachment insecurity and postnatal attachment. This relationship was mediated by the inclusion of both mediator variables in a sequence such that attachment insecurity was associated with increased ED which was predictive of increased PND symptoms and subsequent decreased postnatal attachment $A1DB2 = -.47$, $SE = 0.26$, 95% BCa CI $[-1.10, -0.10]$. We then repeated the three bootstrapped mediation analyses with attachment insecurity mediating the relationship

between ED and postnatal attachment. The results of these post-hoc analyses are summarised in Supplementary Material 1.

Discussion

Despite strong theoretical consensus that ED may have significant impacts on the provision of sensitive caregiving and subsequent mother-infant attachment (Crandall et al., 2015; Rutherford et al., 2015), limited research has explored this in women experiencing mental health difficulties in the postnatal period. The present study sought to address this gap in research and provide a preliminary overview of ED in a MBU sample, as well as explore the impact of ED on the relationship between maternal attachment style and the quality of reported attachment to infant postnatally.

Overall, there were high rates of self-reported ED in women admitted to a MBU within the first postnatal year. The mean total DERS score reported in our study ($M=106$) is greater than that reported in a community sample of postnatal women (infant aged 12-23 months) identified as having high BPD symptoms (DERS Total $M=76.61$; Gratz and Roemer, 2004). Heightened maternal ED was also found to be significantly associated with increased maternal attachment insecurity, increased PND symptoms, and decreased reported quality of postnatal attachment to infant. Maternal attachment insecurity and postnatal attachment also shared a significant negative association.

The most important contribution of the present study is confirmation of the theorised association between emotion dysregulation and compromised mother-baby attachment. We found that ED significantly mediated the relationship between insecure maternal attachment and reported postnatal attachment to infant, such that increased attachment insecurity was predictive of increased ED difficulties which in turn predicted reduced postnatal attachment quality, as expected. When PND symptoms were included as a covariate in this model, the

mediating effect of ED was no longer significant. Due to the large influence of PND as a covariate in this model, a serial multiple mediator analysis was also conducted to explore the cumulative contribution of ED and PND on this relationship. This model showed that insecure attachment was associated with increased ED, which in turn predicted increased PND symptoms, which was related to reduced postnatal attachment quality. Notably, when ED and PND were included as serial mediators in this model neither individually mediated the relationship when controlling for the other, but instead were found to significantly mediate the relationship when modelled with ED predicting PND. This finding suggests that women with insecure attachment and associated ED difficulties may be at increased risk of PND and subsequent adverse infant attachment outcomes postnatally.

These associations have implications for theory. Mothers with insecure attachment may find it especially difficult to regulate their own emotional states if emotions such as fear are easily activated, or activated more strongly, in situations where one's attachment with a significant other is under threat (Mikulincer & Shaver, 2012). So far as ED and postnatal attachment to one's infant is concerned, ED may not in its own right undermine attachment with one's baby, as proposed by Mikulincer and Shaver (2012), but instead, place the mother at risk of increased depressive symptoms which in turn may compromise postnatal attachment. Furthermore, our paper provides ongoing support and continued momentum for the shift in the field of perinatal mental health research away from a sole focus on PND as a catch all for psychological distress in the perinatal period to encouraging a more nuanced look at the underlying factors that may be impacting women's wellbeing and parenting practices (Judd, Newman, & Kimiti, 2018; Sved Williams, 2018; Yelland, Girke, Tottman, Williams, 2015).

There is an expansive literature suggesting that PND is a risk factor for adverse infant attachment outcomes (Field, 2010). Although speculative, findings from the current study

suggest that PND treatments may benefit from the inclusion of ED focused components in order to improve postnatal attachment quality. This accords with emerging research showing that self-guided, web based interventions lead to significant decreases in new mothers' self-reported levels of emotion regulation difficulties (e.g., the "Be a Mom" program; Ana, Fabiana, Stephanie, Ricardo, & Maria Cristina, 2019). For instance, findings from the "Be a Mom" program suggest that decreases in emotion regulation difficulties are associated with decreases in depressive symptoms. Although this study did not assess infant outcomes, it provides preliminary findings, which if replicated and extended, may point to the inclusion of emotion regulation focused interventions in the management of postnatal depression.

Our findings, need to be interpreted in the context of key study limitations. Most notably the use of a small, cross-sectional sample does not allow for inferences about the temporal sequencing of variables to be established nor definitive conclusions about their associations across time. Bidirectional relationships remain possible. Maternal PND symptoms and reported postnatal attachment to infant may also be intertwined in a reciprocal feedback loop. For example, difficulties establishing strong postnatal attachment to infant may lead to increased PND symptoms over time, further impacting attachment quality (Stein et al., 2014). Nevertheless, our findings provide a preliminary indication of where relationships exist, and may thus provide a platform for future prospective research. For instance, the relationship between emotion dysregulation and postnatal attachment might best be investigated with consideration of postnatal depressive symptoms, as such symptoms may explain some of the relationship between emotion dysregulation and postnatal attachment. Another limitation is a reliance on self-report questionnaires to measure study variables, especially as they were administered upon admission to the MBU when women may have increased difficulties with reflective self-reporting of symptoms. Future research may benefit from the use of infant simulator paradigms, video observations and physiological markers to

better capture the nuances of ED in the context of caregiving situations (Hollenstein, 2017). Finally, given that the current sample was comprised of treatment seeking women in the postpartum phase, there is a need to determine whether our findings extend to the vast majority of postpartum women with depression who may not be actively seeking treatment. To our knowledge this is the first study to report on ED in women admitted to a MBU – a population at particular risk so far as mother-infant attachment difficulties are concerned. These preliminary findings based on self-report data highlight the potential implications of maternal ED on postnatal maternal wellbeing and infant attachment outcomes. Our findings call for prospective study designs and multi-method assessments which may provide greater insight into the modifiable factors in the intergenerational transmission of attachment difficulties.

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Table 1

Demographic and Clinical Characteristics of Participants (N=85)

	Mean (SD)
Maternal age (years) at admission	34.37 (4.70)
Infant age (months) at admission	4.00 (3.78)
Length of stay (days)	20.89 (10.76)
	N (%)
Parity	
One	57 (67.1%)
Two	22 (25.9%)
Three or more	6 (7.1%)
Country of birth	
Australia	78 (91.8%)
Other	7 (8.2%)
Infant gender^{ab}	
Male	45 (52.9%)
Female	37 (43.5%)
Marital status	
Married/ de facto	77 (90.6%)
Single/ never married	5 (5.9%)
Separated/ divorced	3 (3.5%)
Readmission to hospital	9 (10.6)
Readmission to MBU	6 (7.1%)
Primary psychiatric diagnosis (ICD-10)	
Mood disorders ^c	74 (87.1%)
Anxiety disorders ^d	4 (4.7%)
Other ^e	7 (8.2%)

^a 3 women admitted with fraternal twins.

^b 2 woman admitted whilst pregnant.

^c Includes $n=1$ bipolar disorder, $n=54$ major depressive disorder, single episode, mild, $n=21$ major depressive disorder single episode moderate.

^d Includes $n=1$ generalised anxiety disorder, $n=1$ panic disorder, $n=2$ obsessive compulsive disorder.

^e Includes $n=1$ adjustment disorder, $n=1$ hypersomnia, $n=5$ puerperal psychosis.

Table 2
Correlations Among Study Variables (N=85)

	EPDS ¹	MPAS ²	DERS ³	ASQ ⁴
EPDS	-			
MPAS	-.50**	-		
DERS	.67**	-.41**	-	
ASQ	.36**	-.23*	.39**	
M (SD)	17.69 (6.10)	66.95 (13.82)	105.98 (24.88)	3.05 (2.83)

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

¹ Edinburgh Postnatal Depression Scale

² Maternal Postnatal Attachment Scale

³ Difficulties in Emotion Regulation Scale

⁴ Attachment Style Questionnaire

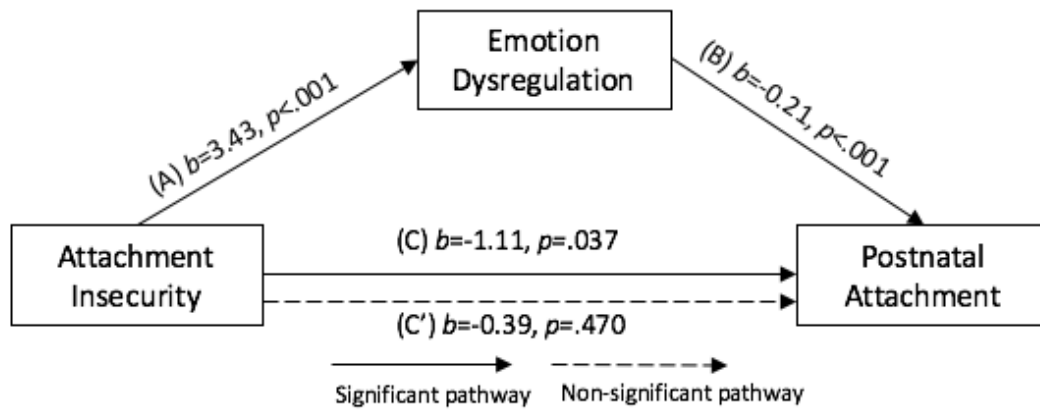


Figure 1. Mediation model showing the relationship between maternal attachment insecurity and postnatal attachment through the mediator of emotion dysregulation (ED; $N=85$)

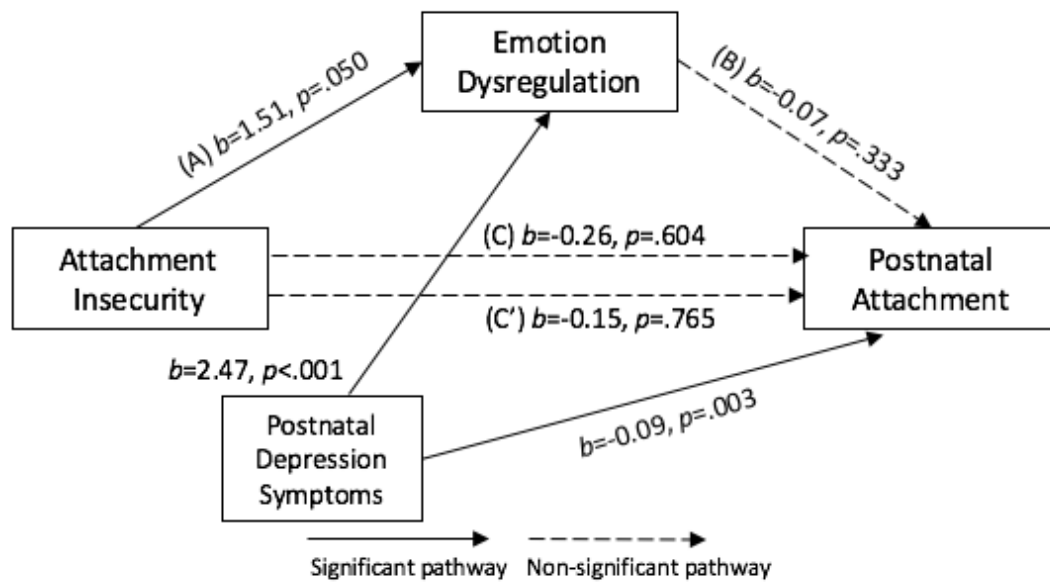


Figure 2. Mediation model showing the mediating effect of emotion dysregulation (ED) on the relationship between attachment insecurity and postnatal attachment whilst controlling for postnatal depression (PND) symptom ($N=85$).

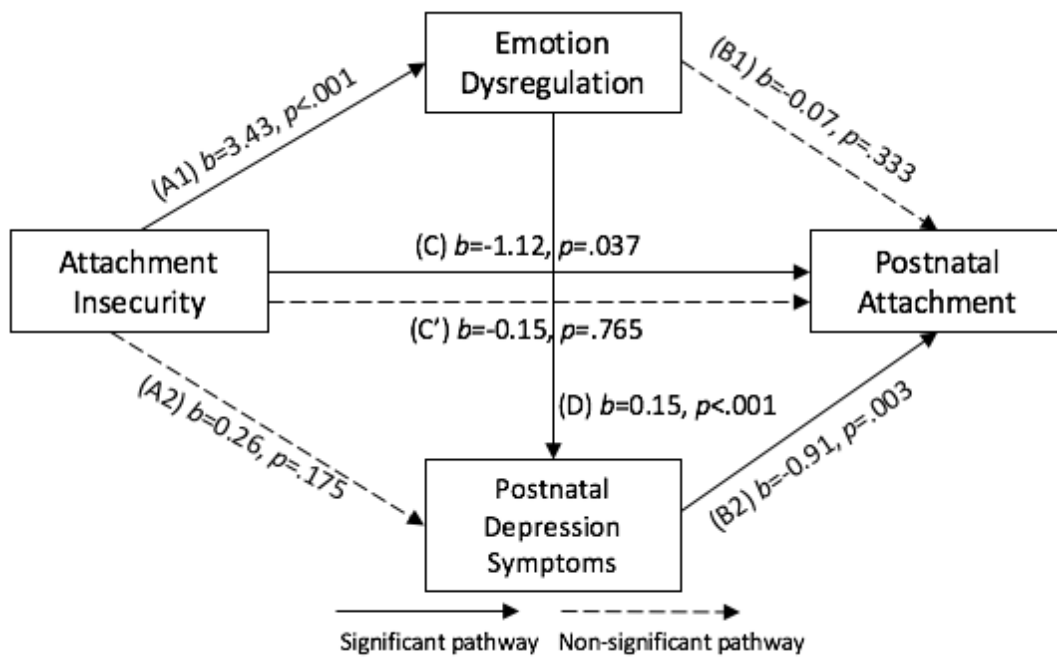


Figure 3. Serial mediation model showing the relationship between attachment insecurity and postnatal attachment through the temporal mediators of emotion dysregulation (ED) and postnatal depression (PND) symptoms ($N=85$).