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**Loss of group memberships predicts depression in postpartum mothers**

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**Abstract**

**Purpose**

The postpartum period presents the highest risk for women’s mental health throughout the lifespan. We aimed to examine the Social Identity Model of Identity Change (SIMIC) in this context. More specifically, we investigated changes in social identity during this life transition and their consequences for women’s postpartum mental health.

**Methods**

Women who had given birth within twelve months (N = 387) reported on measures of depression, social group memberships, and motherhood identification.

**Results**

Analyses indicated that a decrease in group memberships after having a baby, controlling for group memberships prior to birth, were associated with an increase in depressive symptomology. However, maintaining pre-existing group memberships was predictive of better mental health. New group memberships were not associated with depressive symptomology. Identification as a mother was a strong positive predictor of mental health in the postpartum period.

**Conclusions**

The social identity model of identity change provides a useful framework for understanding postpartum depression. Interventions to prevent and treat postpartum depression might aim to support women in maintaining important social group networks throughout pregnancy and the postpartum period.

Keywords: social identity, group memberships, identity continuity, postpartum depression, maternal health.

**Loss of Valued Group Memberships Predicts Depression in Postpartum Mothers**

Postpartum depression (also known as postnatal depression) is estimated to affect 10-20% of mothers [1,2] and is widely recognised as a significant public health issue [3,4]. Major features of postpartum depression include severely depressed mood, anxiety, fatigue, compulsive thoughts, loss of control, feelings of inadequacy, irrational fears, and an inability to cope [5]. The condition critically impairs maternal well-being and functioning, and has serious consequences for both the mother and her infant, including insecure attachment in infants [6], childhood conduct problems [7], decreased marital relationship quality [8,9] and increased suicide risk [10-12]. Indeed, postpartum presents the highest risk period for women’s mental health throughout the lifespan [13].

All women are potentially vulnerable to postpartum depression; however, a consistent finding of epidemiological studies is that the major risk factors for developing postpartum depression are largely of a psychosocial nature [14]. In particular, lack of social support has been reliably identified as a strong predictor [15-19]. These findings highlight the importance of supportive relationships for maternal mental health. Previous research in the context of postpartum depression has predominantly conceptualised social support as an individual difference (e.g., as arising from a women’s interpersonal social networks and being relatively stable over time [20]). However, an alternative perspective can be proposed on the basis of social identity theorizing [21] which argues that social group memberships (rather than interpersonal relationships) are a key basis for social support [22]. This is because a person’s sense of self is informed as much by their social identities (“we” and “us”) as by interpersonal relationships [21,23]. This sense of “us” can be derived from a wide range of group memberships (e.g., work groups, sporting teams, recreational clubs), and the social identities which emerge when individuals come to define themselves in terms of group membership provide a sense of belonging and connectedness [24,25]. In line with these arguments, social identification has been shown to have a range of benefits for mental health, such as instilling a sense of control [26], meaning [22], coping [27] and resilience [28].

Particularly relevant to the present discussion is the fact that social identification has also been found to be a key basis for the provision and receipt of effective social support [61,62]. More specifically, it has been found that people are more likely to *provide* social support to others with whom they feel they share social identity, (i.e., members of a psychological ingroup), and also, as a corollary, to *receive* support from others who perceive them to share social identity. Social support is also more likely to be *perceived* as helpful (e.g., interpreted in the spirit that is intended) in the context of shared social identity [22].

Supporting this analysis, a growing body of research suggests that many of the health benefits attributed to social connectedness arise from membership in social groups [29]. For example, group memberships negatively predict depressive symptoms, such that the more group memberships a person has, the lower their risk of developing depression. In particular, longitudinal research [30] has found that social group memberships help to alleviate depression symptoms, prevent against depression relapse, and protect against future depression. Importantly too, these group memberships can be derived from a wide range of different sources (e.g., religious, sporting, educational), indicating that, whatever the basis of a particular group membership, the feeling of “us” that members experience has benefits for mental health [31]. Further research has also shown that it is not merely group attendance, social contact, or formal membership that has this anti-depressant effect, but instead it is only those who socially identify with a group who experience the benefits of group membership [32,33].

It is clear, then, that group memberships are an important basis of healthy functioning, at least in part because of the social identification that they create and consolidate. But what happens when an individual loses important group memberships? The Social Identity Model of Identity Change (SIMIC [34-36]) argues that, because our sense of self is comprised of social identities, any loss of group memberships will pose a threat to well-being. SIMIC argues that life transitions (e.g., becoming a mother) are often stressful precisely because they involve identity loss [37]. Consistent with this point, studies that have tested SIMIC in the context of a range of life transitions have shown that these involve a loss of group memberships (and thus social identity), with negative consequences for well-being. These include the transition from school to university [35], entry into residential care [38], and the onset of stroke [39].

It follows from this analysis that pregnancy (and becoming a mother) could also be a life transition that is associated with social identity discontinuity of a form that compromises mental health. Pregnancy and childbirth are major life events in their own right [55], and potentially contribute to women’s higher risk of mental illness during this period. Indeed, research shows that suicide is the leading cause of maternal death [12]. SIMIC suggests that one reason for this increased risk is that the transition to motherhood often involves women giving up recreational activities (and associated membership of activity groups) and employment (and associated membership of work groups) and thereby losing important aspects of their social sense of self. Qualitative evidence (e.g., [56,57]) suggests that women often experience motherhood as involving major identity change. Nevertheless, to our knowledge, no prior research has investigated the implications of this for social connectedness or provided a quantitative examination of identity loss in motherhood.

At the same time, though, SIMIC argues that the stress of life transitions can be counteracted if individuals are able to maintain group memberships or to replace lost group memberships with new ones [35]. Accordingly, to the extent that a mother is able to maintain valued group memberships that she had prior to pregnancy and childbirth (e.g., those associated with family), or to join new valued groups (e.g., a mother’s group), this should tend to be associated with positive mental health outcomes (see Figure 1). Indeed, to the extent that being a mother is itself a basis for valued social identity, this should be predictive of well-being.

The aim of the present study is to test SIMIC in the context of women giving birth. More specifically, we aim to investigate the effects of changes in social identity associated with this life transition on women’s postpartum mental health. In line with SIMIC and the arguments above, we tested three hypotheses:

H1. After having a baby, women will report a decline in important group memberships.

H2. Changes in important group memberships will predict postpartum mental health, such that (a) a decrease in group memberships will predict increased depressive symptomology, whereas (b) maintaining group memberships, or (c) gaining new group memberships will predict reduced depressive symptomology.

H3. Social identification as a mother will be positively associated with mental health.

**Method**

**Participants and Procedure**

Participants (*N* = 387) were recruited via Amazon Mechanical Turk, an online platform for recruiting workers for small tasks [40]. Women from the United States who had given birth within the past 12 months were invited to complete the “Your Baby, Your Story” survey, which included questionnaires to assess mood and identity changes following having a baby. Women were asked to respond to the questions with regard to their youngest child. Five participants who did not identify as female or did not state that they had given birth in the last year were excluded from the analyses. Ethical approval was provided by the University of Queensland within the guidelines of the National Statement on Ethical Conduct in Human Research.

**Measures and Design**

*Social Identity Measures*

Participants indicated the degree to which they agreed or disagreed with statements on seven-point Likert scales (1 = do not agree at all; 7 = agree completely). Responses for each subscale were averaged to create a mean score.

*Current Group Memberships.* Four items (α = 0.93) from the Exeter Identity Transition Scales (EXITS: [39]) were used to assess current membership in multiple groups (e.g., “I have strong ties with lots of different groups”).

*New Group Memberships*. Four items (α = 0.97) from the EXITS [39] assessed joining and belonging to new groups since having a baby (e.g., “After having a baby, I have strong ties with one or more *new* groups”).

*Past Group Memberships*. Four items (α = 0.95) from the EXITS [39] assessed past membership in multiple groups (e.g., “*Before* having a baby I had strong ties with lots of different groups”).

*Continuity of Group Memberships*. Four items (α = 0.93) from the EXITS [39] assessed continuity of membership in multiple groups over the course of pregnancy and having a baby (e.g., “After having a baby I continue to have strong ties with the same groups as before having a baby”).

*Social identification as a mother.* Four items (α = 0.86 [41], adapted from [42]) were used to measure women’s identification as a mother (e.g., “Being a mother is an important part of how I see myself”).

*Depression Symptoms*

General depression symptoms were assessed using the Depression Anxiety Stress Scales (DASS21: [43]) — a self-report scale designed to measure negative emotional states of depression, anxiety and stress. Participants indicated how much particular statements applied to them over the past week on a four-point scale (0 = did not apply to me at all; 4 = applied to me very much; e.g., “I felt that life was meaningless”). Scores for the depression subscale were summed and multiplied by two [43]. The depression sub-scale was reliable (α = 0.93).

In addition, the 10 item Edinburgh Postnatal Depression Scale (EPDS: [44]) was used to assess emotional distress specific to the postpartum period (e.g., “I have blamed myself unnecessarily when things went wrong” on a four-point scale; 0 = Never; 3 = Most of the time). The items were summed and formed a reliable scale (α = 0.78).

Finally, the survey included measures of depression diagnosis (past or present). Women were first asked if they had ever been diagnosed with depression by a medical professional prior to the birth of their youngest child (yes = 1; no = 0). Second, women were asked if they had been diagnosed with depression by a medical professional in the time since the birth of their youngest child.

*Demographics*

Participants were asked to enter their age, ethnicity and marital status (which was converted to a dichotomous categorical variable; 1 = relationship, 0 = single). They were also asked to indicate their annual household income (on a seven-point scale; under $10,000 = 1; over $60,000 = 7) as a measure of socioeconomic status. Women indicated how many children they had (converted to a dichotomous categorical variable: 2 = multiparous, 1 = primiparous), and their youngest child’s age in months.

**Results**

*Descriptive statistics*

Descriptive statistics and correlations are presented in Table 1. Women were on average 28.87 years old (*SD* = 5.07), typically in a relationship (*n* = 323, 83.5%), and identified as being Caucasian (*n* = 288, 74.4%). The median household income was US$40000-$50000 per year. 260 women (67.2%) were primiparous. On average, mothers had given birth six months prior to the study.

In regard to mental health, 66 women (17.1%) reported having a diagnosis of depression prior to the birth of their youngest child. Only 17 women (4.4%) reported a formal current diagnosis of postnatal depression; however, 162 women (41.9%) had a score of >13 on the EPDS, indicating significant emotional distress [45], and 105 women (27.1%) gave a score greater than 0 (“Never”) when asked if they had experienced thoughts of harming themselves within the past week.

Current group memberships were negatively correlated with depression scores on the DASS21 (*r*=-.15) and EPDS (*r*=-.18). Continuity of group memberships was also negatively correlated with depression scores on the DASS21 (*r*=-.16) and EPDS (*r*=-.23). Past group memberships and new group memberships were not significantly associated with depression scores on the DASS21 or the EPDS. Consistent with previous literature (e.g., [14,60]), history of depression was significantly positively correlated with postpartum depression scores on both the DASS21 (*r*=.23) and EPDS (*r*=.21).

*Tests of hypotheses*

Table 2 presents the analyses conducted to examine the hypotheses.

To testH1, a paired-samples *t*-test was conducted to examine women’s multiple group memberships before and after having a baby. Women scored higher on past group memberships (*M*=3.76, *SD*=1.79) than on current group memberships (*M*=3.59, *SD*=1.63); *t*(386)=2.53, *p*=.012. In line with H1, this suggests that women on average experienced a (small) decline in multiple group memberships after the birth of a child.

Two hierarchical regressions were conducted to test H2a, with the (1) DASS21-depression subscale and (2) the EPDS as dependent variables. Previous multiple group memberships were included as a covariate at Step 1. Current multiple group memberships were entered at Step 2 and significantly predicted DASS21-depression (β=-.22, *p*=.002) and EPDS (β=-.27, *p*=.001). In line with H2a, a decrease in multiple group memberships after having a baby was thus associated with an increase in depressive symptomology during the postpartum period.

Two further hierarchical regressions were conducted to test the proposed pathways through which current group memberships might protect mental health: H2b (that maintaining group memberships will predict less depressive symptomology) and H2c (that gaining new group memberships will predict less depressive symptomology). At Step 1, previous multiple group memberships were added; at Step 2, continuity of group memberships and new group memberships were added. Continuity of group memberships emerged as a significant negative predictor of DASS21-depression (β=-.16, *p*=.002) and EPSD (β=-.24, *p*<.001). However, new group memberships did not predict DASS21-depression (β=.04, *p*=.382) or EPDS (β=.08, *p*=.136). This indicates that, in line with H2b, continuity of social group memberships during pregnancy and the postpartum period tends to protect women against a decline in mental health. However, and contrary to H2c, gaining new group memberships after the birth of a baby was unrelated to women’s mental health.

To test H3, two regression models were conducted. Identification as a mother was a significant negative predictor of both DASS21-depression (β=-.44, *p*<.001) and EPDS (β=-.45, *p*<.001). In line with H3, this indicates that the more that a mother *identifies* as a mother the less likely she is to experience depressive symptomology after giving birth.

*Sensitivity Analyses*

Several follow-up analyses were conducted to provide more conservative tests of the hypotheses. The first analysis added several covariates — specifically, age, socioeconomic status, marital status, and previous history of depression — to the hierarchal regression models used to test H2a, H2b, and H2c. For H2a, Current multiple group memberships (controlling for previous multiple group memberships) marginally significantly predicted DASS2-depression (β=-.13, *p*=.062) and remained a significant negative predictor of EPDS (β=-.18, *p*=.012). This suggests that a decrease in multiple group memberships after having a baby is still associated with increased depressive symptomology even when controlling for known risk factors for postpartum depression. For H2b, continuity of group memberships remained a significant negative predictor of DASS21-depression (β=-.13, *p*=.014) and EPDS (β=-.21, *p*<.001). For H2c, and consistent with the results above, new group memberships did not predict DASS21-depression (β=.09, *p*=.107) or EPDS (β=.11, *p*=.028). For H3, identification as a mother remained a significant negative predictor of both DASS21 depression (β=-.39, *p*<.001) and EPDS (β=-.40, *p*<.001).

Additionally, we ran a series of analyses to determine whether parity (i.e., where a participant was a first-time mother or not) moderates the effect of group membership on depressive symptomology. It seems likely that the life transition would be more stressful for primiparous mothers than multiparous women, as women who already have other children may already be integrated into social groups relevant to motherhood, and hence the birth of another child may have less consequential impact on their group memberships.

Analyses to test H2b and H2b were repeated with mean-centred variables, with parity (Step 2), its interaction with new group memberships, and its interaction with continuity of group memberships (both Step 3) all added to the model. For DASS-21-depression, parity was a non-significant predictor (β=-.07, *p*=.175). At Step 3, the addition of the interaction terms was not significant, *Fchange*(2,376)=2.64, *p*=.073. The new group memberships×parity interaction term was non-significant (β=-.06, *p*=.244). However, the continuity of group memberships×parity interaction was marginally significant (β=-.09, *p*=.086). Simple slopes analysis indicated that for primiparous mothers, continuity of group memberships did not significantly predict DASS21-depression (β=-.05, *p*=.482). However, for multiparous mothers, continuity of group memberships significantly and negatively predicted depressive symptoms, such that increased continuity of group memberships resulted in lower depression symptoms (β=-.24, *p*=.001). For the EPDS, parity was also a non-significant individual predictor (β=-.06, *p*=.210). At Step 3, the addition of the interaction terms was non-significant, *Fchange*(2,376), *p*=.201.

**Discussion**

The aim of this study was to investigate the relationship between changes in social identity and women’s mental health during pregnancy and the postpartum period. As anticipated, women reported significant changes in valued group memberships over this period, indicating that pregnancy and childbirth are significant life events that mark a period of substantial social identity change for women. Consistent with H1, women reported a decline in group memberships since the birth of their child. This is in line with previous research investigating social identity changes during major life transitions [35]. In line with H2a, it was those women who experienced a more marked decline in their group memberships who were at greatest risk of reporting depression and postpartum depression symptoms.

However, continuity of group memberships — that is, the maintenance of pre-existing social identities — was predictive of better mental health. Specifically, consistent with H2b, women were at a lower risk of depression and postpartum depression when they stayed connected with important social group networks that they had been members of prior to the birth of their child. This is in line with previous research indicating that maintaining connections with important social groups over the course of transitional life events can sustain a sense of social support and thus be protective of mental health [15,16].

Unexpectedly, however, analyses suggested that new group memberships did not predict mental health (contrary to H2c). This is not consistent with SIMIC. We propose this may be a result specific to new mothers, whose options for joining new social groups may be restricted by the realities of having responsibility for a newborn, unlike some of populations that have been investigated in previous research (e.g., new university students [35]). Another possibility is that some women experienced the new group memberships that were available to them (e.g., mothers’ groups) as incompatible with their existing group memberships. To explore this possibility, future research could employ a qualitative design to explore what kinds of groups women join during the postpartum period and ascertain whether their options here are indeed limited, and whether this has a bearing on mental health. A third possibility is that the development of meaningful identification with any new groups, and the support that flows from such identification, occurs over a longer period than that of this study (on average, mothers had given birth six months prior to the study). Given that shared social identification is an essential platform for giving and receiving support [22], it is possible that the benefits of new group memberships for participants may still be emerging. Accordingly, future research could investigate how (and if) these new social groups memberships unfold over time and whether, as they do, this is associated with benefits for mental health.

Importantly too, identification as a mother was a strong positive predictor of mental health (H3). In other words, we can conceptualise motherhood *itself* as a new social identity, with mothers varying in the degree to which they incorporate motherhood into their self-concept. Those women who did identify as mothers were protected against depressive symptomology during the postpartum period (consistent with the broader literature on social identity and depression; e.g., [24,33]). However, mothers who had difficulty embracing this new identity were at a much higher risk for postpartum depression. This is consistent with claims that identification configures not only a person’s social life, but also their self-concept [46]. To be a mother, but not actually identify as one, leads to forms of social discontinuity and social displacement that compromise mental wellbeing [22].

Additionally, we explored the possibility that the life transition brought about by giving birth may be more significant for primiparous than multiparous mothers, as women who already have other children may already be integrated into groups relevant to motherhood, and thus the birth of another child may have less impact on their group memberships and mental health. We did not find this to be the case. Indeed, on the contrary, it appears that, if anything, the well-being of multiparous mothers was *more* dependent on the continuity of group memberships after childbirth than is the case for primiparous mothers. Nevertheless, we stress that these results must be interpreted with caution, as this marginally significant effect was only found for one of the two measures of depression.

*Theoretical and practical implications*

SIMIC has previously been tested in a range of populations (e.g., [35,38,39]), but this is the first study to examine this theoretical framework with a population of mothers. In line with our hypotheses, it indicates that the life transition associated with becoming a mother typically involves loss of group memberships (and thus loss of social identity) which is associated with compromised mental health. In this, the results also provided further evidence of the generalisability of the social identity approach to health in general (e.g., [25,29]) and supports previous claims (e.g., [30,33]) that the SIMIC model provides an appropriate and powerful framework for depression research and clinical practice.

However, the results also indicate that the social connections afforded by the maintenance of *existing* valued group memberships may be more important (at least for mothers) than joining *new* groups after a life transition. This suggests that any interventions for social isolation during the postpartum period may need to focus more strongly on the maintenance of existing valued group memberships than on encouraging women to join new groups (which may produce more stress than relief from social isolation).

The results of this study also suggest that existing explanatory models of postpartum depression need to incorporate social *group* networks, and explore how these change over time, if they are to fully account for this condition. Although other forms of social connectedness, such as interpersonal bonds of affiliation between individuals [47], are certainly not irrelevant, it appears that a woman’s social identity network is very important for mental health in the postpartum period. This study provides evidence that loss of valued social networks during pregnancy and the postpartum period should be considered to be a significant risk factor in its own right that warrants screening and intervention.

From a clinical perspective, the present results point to the importance of antenatal screening — not just for symptoms of depression, but also to assess the social changes that women experience during pregnancy. Maternal health workers could monitor women for any loss of valued group memberships throughout pregnancy and the postpartum period in order to undertake early intervention. For example, by measuring social identification as a mother (e.g., with a single-item self-report measure (e.g., [41]) during antenatal care appointments, maternal health professionals could quickly and easily assess whether a woman’s social identity is changing. Low identification as a mother could be an early warning sign that a woman is at risk of developing depression. Furthermore, practitioners and support services for new mothers might direct resources to help women “keep in touch” with subjectively important social group networks throughout pregnancy and the postpartum period.

Another important practical implication of this study is that an intervention (or other form of preventative action) for mothers at risk of developing postpartum depression might benefit from a focus on strengthening existing group memberships. Individual psychotherapy sessions may not be available, affordable, or practicable for many mothers. In addition, postpartum depression in general remains under-screened, under-diagnosed, and under-treated [48] as women do not proactively seek help due to normative but stigmatised distress surrounding the condition. Moreover, mothers’ fears about losing their baby have been found to be a major barrier to help-seeking behaviours, and thus may also lead to underreporting of postpartum distress. This in turn leads to women lacking assistance from supportive, accepting and non-judgmental sources [49,50]. Furthermore, given that the vast majority of mothers refuse pharmacological treatment due to concerns about side-effects and breast-feeding [48,50,51], a program that targets social (rather than individual) dysfunction may be preferable for many women. Indeed, research shows that maintaining one’s membership of groups that have meaning for an individual is likely to be an effective intervention for depression [30]. Such theoretically-derived interventions are rare, but one option is Groups 4 Health (G4H), — a manualised psychological intervention that targets the development and maintenance of social group relationships and has been shown to improve mental health [52,53]. In line with this suggestion, future research in the present program will seek to determine the utility of this intervention for postpartum samples.

*Strengths and Limitations*

As with all research, this study is not without limitations. A first limitation of the present study is that participants self-selected via MTurk. However, it is worth noting that MTurk participants have previously been found to be reliable [58], attentive [59], and more socio-economically and ethnically diverse than participants recruited by other means [40]. We also note that sample that was captured in our study broadly reflects the American population in terms of ethnicity and socio-economic status. We had 75% of women in our sample identify as being Caucasian; the United States Census Bureau estimates that, as of July 2015, 77% of the American population identified as being Caucasian [63]. We had a reported median household income of US$40,000 to $60,000; the United States Census Bureau shows that the median household income for 2015 was $56,516 [64]. Accordingly, the limitations of this sample are not self-evidently more serious than those of the samples included in prior research on postpartum depression — where challenges of participant recruitment are widely recognized (e.g., [1,10]). Second, a previous history of depression may have impacted on participants’ responses. For example, women who had a diagnosis of depression prior to having their youngest child may have had fewer previous group memberships than other women. Likewise, it is possible that women who were depressed had difficulty embracing their identity as mothers or engaging with other social group memberships. Another possibility is that women who experienced depression evaluated their postpartum group memberships more negatively than women who were not depressed. While this study cannot speak to the issue of causality and the relationship between depression and social identity is likely to be bidirectional, previous longitudinal research has found the pathway from depression to (lack of) social identity to be weaker than that from social identity to (lack of) depression [24].

A third set of limitations also arise from the study’s cross-sectional design. In particular, the questions related to past group membership (e.g. “before having a baby”) did not specify a particular timeframe prior to childbirth, and thus there may be an issue of retrospective recall such that it is not clear exactly when the reported changes in group membership took place. Our analysis therefore cannot speak to *when* exactly changes in group memberships are happening during pregnancy and/or the postpartum period or support strong causal claims. For example, some women may be required or choose to terminate employment halfway through their pregnancy, whereas other women may be required or choose to work up until labour commences. Additionally, common features of the pregnancy, such as nausea and weight gain, may preclude participation in certain recreational activities. Importantly though, it is *subjective* change in group memberships (i.e. women’s perspectives on group membership loss, as opposed to measurable objective changes) that is theorised to be most relevant to mental health [22,24,28,39]. However, future research may benefit from a longitudinal design in order to clarify the temporal impact of group membership loss on mental health.

Nevertheless, this study has demonstrated that changes in social identity do indeed occur during postpartum period, and are meaningfully related to women’s mental health. In this regard, confidence in the validity of our analysis is increased by the fact that the patterns observed here align closely with predictions derived from theorising that has been supported in a range of domains, and in studies using a wide range of methodologies (both longitudinal and experimental).

*Conclusion*

This study has demonstrated that changes in social identity during pregnancy and in becoming a mother are meaningfully related to women’s postpartum mental health. Specifically, a decrease in valued group memberships after having a baby is associated with an increase in depressive symptomology during the postpartum period. Understood in the context of the Social Identity Model of Identity Change, we argue that pregnancy and childbirth are a risky time for women’s mental health largely as a result of the identity transition that this typically entails. Although more work clearly needs to be done, we believe that the model we advance offers an important new way of conceptualising postpartum depression — and one that has profound implications for both researchers and practitioners. Most particularly, by specifying more closely the social determinants of postpartum depression it provides insight not only into the way that changes in social identity can impact women’s postpartum mental health, but also into the means by which practitioners might best deliver a social cure.

**Conflict of interest statement**

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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**References**

[1] Leahy-Warren, P., & McCarthy, G. (2007). Postnatal depression: prevalence, mothers’ perspectives, and treatments. *Archives of Psychiatric Nursing*, *21*(2), 91-100. doi: http://dx.doi.org/10.1016/j.apnu.2006.10.006

[2] O’Hara, M.W., & Swain, A.M. (1996). Rates and risk of postpartum depression—a meta-analysis. *International Review of Psychiatry, 8*(1), 37-54. doi:10.3109/09540269609037816

[3] Almond, P. (2009). Postnatal depression: a global public health perspective. *Perspectives in Public Health, 129*(5), 221-227. doi:10.1177/1757913909343882

[4] O’Hara, M.W., & McCabe, J.E. (2013). Postpartum Depression: Current Status and Future Directions. *Annual Review of Clinical Psychology, 9*, 379-407. doi:10.1146/annurev-clinpsy-050212-185612

[5] Beck, C.T. (2006). Postpartum Depression: It isn’t just the blues. *American Journal of Nursing, 106*(5), 40-50.

[6] Murray, L. (1992). The Impact of Postnatal Depression on Infant Development. *Journal of Child Psychology and Psychiatry, 33*, 543-561. doi: 10.1111/j.1469-7610.1992.tb00890.x

[7] Hendricks, K., & Liu, J. (2012). Maternal Depression and Childhood Aggression: Literature Review. *The American Journal of Maternal Child Nursing, 37*(4), 253-261. doi: http://doi.org/10.1097/NMC.0b013e3182482c5e

[8] Shapiro, A. F., Gottman, J. M., and Carrère, S. (2000). The baby and the marriage: Identifying factors that buffer against decline in marital satisfaction after the first baby arrives. *Journal of Family Psychology, 14*, 59-70. doi: 10.1037//0893-3200.14.1.59

[9] Stamp, G. H. (1994). The appropriation of the parental role through communication during the transition to parenthood. *Communication Monographs, 61*, 89-112. doi:10.1080/03637759409376327

[10] Austin, M-P, Kildea, S., & Sullivan, E. (2007). Maternal mortality and psychiatric morbidity in the perinatal period: challenges and opportunities for prevention in the Australian setting. *The Medical Journal of Australia, 186*, 364-367.

[11] Mendez-Bustos, P., Lopez-Castroman, J., Baca-García, E., & Ceverino, A. Life Cycle and Suicidal Behaviour among Women. (2013). *The Scientific World Journal, 2013*. doi: :10.1155/2013/485851

[12] Oates, M. (2003). Suicide: the leading cause of maternal death. *The British Journal of Psychiatry, 183*, 279-281. doi: 10.1192/bjp.183.4.279

[13] World Health Organization. (2011). Mental Health: Depression. Retrieved from <http://www.who.int/mental_health/management/depression/definition/en/>

[14] Beck, C.T. (2001). Predictors of postpartum depression: an update. *Nursing Research, 50*(5), 275-285. doi:10.1097/00006199-200109000-00004

[15] Barnet, B., Joffe, A., Duggan, A.K., Wilson, M.D., & Repke, J.T. (1996). Depressive symptoms, stress, and social support in pregnant and postpartum adolescents. *Archives of Paediatrics and Adolescent Medicine, 150*(1), 64-69. doi: 10.1001/archpedi.1996.02170260068011.

[16] Glazier, R.H., Elgar, F.J., Goel, V., & Holzapfel, S. (2004). Stress, social support, and emotional distress in a community sample of pregnant women. *Journal of Psychosomatic Obstetrics & Gynaecology, 25*(3-4), 247-55. doi: 10.1080/01674820400024406

[17] Manuel, J.I., Martinson, M., Bledsoe-Mansorid, S.E., & Bellamye, J.L. (2012). The influence of stress and social support on depressive symptoms in mothers with young children. *Social Science and Medicine, 75*(11), 2013-2020. doi: 10.1016/j.socscimed.2012.07.034

[18] Orr, S.T. (2004). Social support and pregnancy outcome: a review of the literature. *Clinical Obstetrics and Gynaecology, 47*(4), 842-855. doi: 10.1097/01.grf.0000141451.68933.9f.

[19] Swendsen, J. D. & Mazure, C. M. (2000). Life Stress as a Risk Factor for Postpartum Depression: Current Research and Methodological Issues. *Clinical Psychology: Science and Practice, 7*, 17-31. doi: 10.1093/clipsy.7.1.17

[20] Bolger, N., & Eckenrode, J. (1991). Social relationships, personality, and anxiety during a major stressful event. *Journal of Personality and Social Psychology, 61*, 440-449. doi:10.1037/0022-3514.61.3.440

[21] Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), The social psychology of intergroup relations (pp. 33-48). Monterey, CA: Brooks/Cole.

[22] Haslam, S. A., Reicher, S. D., & Levine, M. (2012). When other people are heaven, when other people are hell: How social identity determines the nature and impact of social support. In J. Jetten, C. Haslam, & S. A. Haslam (Eds.). *The social cure: Identity, health and well-being* (pp. 157-174). New York, NY: Psychology Press.

[23] Haslam, C., Cruwys, T, & Haslam, S.A. (2014). “The we’s have it”: Evidence for the distinctive benefits of group engagement in enhancing cognitive health in aging. *Social Science & Medicine, 120*, 57-66. doi: 10.1016/j.socscimed.2014.08.037

[24] Cruwys, T., Haslam, S. A., Dingle, G. A., Haslam C., & Jetten, J. (2014a). Depression and social identity: an integrative review. *Personality and Social Psychology Review, 18*, 215-238. doi: 10.1177/1088868314523839

[25] Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: An emerging agenda for applied psychology. *Applied Psychology, 58*, 1-23. doi: 10.1111/j.1464-0597.2008.00379.x

[26] Greenaway, K. H., Haslam, S. A., Cruwys, T., Branscombe, N. R., Ysseldyk, R., & Heldreth, C. (2015). From “We” to “Me”: Group Identification Enhances Perceived Personal Control with Consequences for Health and Well-Being. *Journal of Personality and Social Psychology, 109*(1), 53-74. doi: http://dx.doi.org/10.1037/pspi0000019

[27] Schmitt, M. T., Spears, R., & Branscombe, N. R. (2003). Constructing a minority group identity out of shared rejection: The case of international students. *European Journal of Social Psychology, 33*, 1-12. doi:10.1002/ejsp.131

[28] Drury, J., Cocking, C. and Reicher, S. (2009). Everyone for themselves? A comparative study of crowd solidarity among emergency survivors. *British Journal of Social Psychology, 48*, 487-506. doi: 10.1348/014466608X357893

[29] Jetten, J., Haslam, C., & Haslam, S. A. (2012). The social cure: Identity, health and well-being. New York, NY: Psychology Press.

[30] Cruwys, T., Dingle, G. A., Haslam, C., Haslam, S. A., Jetten, J., & Morton, T. A. (2013). Social group memberships alleviate depression symptoms, prevent depression relapse, and protect against future depression. *Social Science & Medicine, 98*, 179-186. doi: http://dx.doi.org/10.1016/j.socscimed.2013.09.013

[31] Dingle, G. A., Brander, C., Ballantyne, J., & Baker, F. A. (2012). “To be heard”: The social and mental health benefits of choir singing for disadvantaged adults. *Psychology of Music*. Retrieved from http://pom.sagepub.com/content/early/2012/01/24/0305735611430081.abstract

[32] Cruwys, T., Haslam, S. A., Dingle, G. A., Jetten, J., Hornsey, M. J., Chong, E. M. D., & Oei, T. P. S. (2014b). Feeling connected again: Interventions that increase social identification reduce depression symptoms in community and clinical settings*. Journal of Affective Disorders, 159*, 139-146. doi: 10.1016/j.jad.2014.02.019

[33] Sani, F., Herrera, M., Wakefield, J. R. H., Boroch, O. & Gulyas, C. (2012). Comparing social contact and group identification as predictors of mental health. *British Journal of Social Psychology, 51*, 781-790. doi: 10.1111/j.2044-8309.2012.02101.x

[34] Iyer, A., Jetten, J., & Tsivrikos, D. (2008). Torn between identities: Predictors of adjustment to identity change. In F. Sani (Ed.), Self-continuity: Individual and collective perspectives (pp. 187–197). New York, NY: Psychology Press.

[35] Iyer, A., Jetten, J., Tsivrikos, D., Postmes, T., & Haslam, S. A. (2009). The more (and the more compatible) the merrier: Multiple group memberships and identity compatibility as predictors of adjustment after life transitions. *British Journal of Social Psychology, 48*, 707-733. doi:10.1348/014466608X397628

[36] Jetten, J., Haslam, S.A., Iyer, A., & Haslam, C. (2009). Turning to others in times of change: Shared identity and coping with stress. In S. Stürmer and M. Snyder (Eds.), New directions in the study of helping: Group-level perspectives on motivations, consequences and interventions (pp. 139-156). Wiley-Blackwell.

[37] Haslam, C., Jetten, J., Haslam, S.A., & Knight, C. (2012). The importance of remembering and deciding together: Enhancing the health and well-being of older adults in care. In J. Jetten, C. Haslam & S.A. Haslam (Eds.) The social cure: Identity, health and well-being. London: Psychology Press.

[38] Haslam, C., Haslam, S. A., Knight, C., Gleibs, I., Ysseldyk, R., & McCloskey, L.-G. (2014). We can work it out: Group decision making builds social identity and enhances the cognitive performance of care home residents. *British Journal of Psychology, 105*, 17–34. doi:10.1111/bjop.12012

[39] Haslam, C., Holme, A., Haslam, S. A., Iyer, A., Jetten, J., & Williams, W. H. (2008). Maintaining group memberships: Social identity continuity predicts well-being after stroke. *Neuropsychological Rehabilitation, 18*, 671-691. doi: 10.1080/09602010701643449

[40] Casler, K., Bickel, L., & Hackett, E. (2013). Separate but equal? A comparison of participants and data gathered via amazon's MTurk, social media, and face-to-face behavioural testing*. Computers in Human Behaviour, 29*(6), 2156. doi: 10.1016/j.chb.2013.05.009

[41] Potmes, T., Haslam, S. A., & Jans, L. (2012). A single-item measure of social identification: Reliability, validity and utility. *British Journal of Social Psychology, 52*, 597-617. doi:10.1111/bjso.12006

[42] Doosje, B., Ellemers, N., & Spears, R. (1995). Perceived intragroup variability as a function of group status and identification. *Journal of Experimental Social Psychology, 31*(5), 410-436. doi:10.1006/jesp.1995.1018

[43] Lovibond, S. H., & Lovibond, P. F. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behaviour Research and Therapy, 33*(3), 335-343. doi:10.1016/0005-7967(94)00075-U

[44] Cox, J., Holden, J., & Sagovsky, R. (1987). Detection of postnatal depression. development of the 10-item Edinburgh postnatal depression scale. *The British Journal of Psychiatry, 150*(6), 782-786. doi:10.1192/bjp.150.6.782

[45] Murray, D., & Cox, J.L. (1990). Screening for depression during pregnancy with the Edinburgh Depression Scale (EPDS). *Journal of Reproductive and Infant Psychology, 8*(2), 99-107. doi: 10.1080/02646839008403615

[46] Turner, J. C. (1982). Towards a cognition redefinition of the social group. In H. Tajfel (Ed.), Social identity and intergroup relations (pp. 15-40). Cambridge, UK: Cambridge University Press.

[47] Leger, J., & Letourneau, N. (2015). New mothers and postpartum depression: A narrative review of peer support intervention studies. *Health & Social Care in the Community, 23*(4), 337-348. doi:10.1111/hsc.12125

[48] Dennis, C., & Chung-Lee, L. (2006). Postpartum depression help-seeking barriers and maternal treatment preferences: A qualitative systematic review. *Birth, 33*(4), 323-331. doi:10.1111/j.1523-536X.2006.00130.x

[49] Mauthner, N. S. (1999). Feeling low and feeling really bad about feeling low: Women’s experiences of motherhood and postpartum depression. *Canadian Psychology, 40*(2), 143. doi: 10.1037/h0086833

[50] Whitton, A., Warner, R., & Appleby, L. (1996). The pathway to care in post-natal depression: Women’s attitudes to post-natal depression and its treatment. *The British Journal of General Practice: The Journal of the Royal College of General Practitioners, 46*(408), 427-428.

[51] Boath, E., Bradley, E., & Henshaw, C. (2004). Women’s views of antidepressants in the treatment of postnatal depression. *Journal of Psychosomatic Obstetrics & Gynaecology, 25*(3-4), 221-233. doi:10.1080/01674820400017889

[52] Haslam, C. Cruwys, T., Haslam, S.A., & Dingle, G. (2015). Groups for Health: Therapist Manual. Centre for Health Outcomes, Innovation and Clinical Education. University of Queensland, Brisbane.

[53] Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G., & Chang, M. X. (2016). Groups 4 health: Evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of Affective Disorders, 194*, 188-195. doi:10.1016/j.jad.2016.01.010

[54] Haslam, C., Cruwys, T., Milne, M., Kan, C-H., & Haslam, S. A. (2016). Group ties protect cognitive health by promoting social identification and social support. *Journal of Health and Aging, 28*(2), 244-266. doi: 10.1177/0898264315589578

[55] Holmes, T.H., & Rahe, R.H. (1967). The Social Readjustment Rating Scale. *Journal of Psychosomatic Research, 11*(2): 213-218. doi:10.1016/0022-3999(67)90010-4

[56] Abrams, L. S., & Curran, L. (2011). Maternal identity negotiations among low-income women with symptoms of postpartum depression. *Qualitative Health Research, 21*(3), 373–85. doi:10.1177/1049732310385123

[57] Vik, K. (2012). “Smile through It!” Keeping up the facade while suffering from postnatal depressive symptoms and feelings of loss: Findings of a qualitative study. *Psychology, 3*(29), 810–817. doi:10.4236/psych.2012.329123

[58] Buhrmester, M., Kwang, T., & Gosling, S. (2011). Amazon's Mechanical Turk. *Perspectives on Psychological Science, 6*(1), 3-5. doi: 10.1177/1745691610393980

[59] Hauser, D., & Schwarz, N. (2016). Attentive Turkers: MTurk participants perform better on online attention checks than do subject pool participants. *Behavior Research Methods, 48*(1), 400. doi:10.3758/s13428-015-0578-z

[60] Beck, C. T. (1996). A Meta-Analysis of Predictors of Postpartum Depression. *Nursing Research, 45*(5), 297-303.

[61] Haslam, S. A., O’Brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British Journal of Social Psychology, 44*(3), 355-370. doi:10.1348/014466605X37468

[62] Haslam, S. A., & Reicher, S. (2006). Stressing the group: social identity and the unfolding dynamics of responses to stress. *The Journal of Applied Psychology, 91*(5), 1037–52. doi:10.1037/0021-9010.91.5.1037

[63] U.S. Census Bureau, Population Division. (2016). *Annual Estimates of the Resident Population by Sex, Race Alone or in Combination, and Hispanic Origin for the United States, States, and Counties: April 1, 2010 to July 1, 2015*. <http://www.census.gov/popest/data/national/asrh/2015/index.html>.

[64] Proctor, B.D., J.L. Semega & M.A. Kollar. (2016). U.S. Census Bureau. Current Population Reports, P60-256 (RV). *Income and Poverty in the United States: 2015.* U.S. Government Printing Office, Washington, DC.

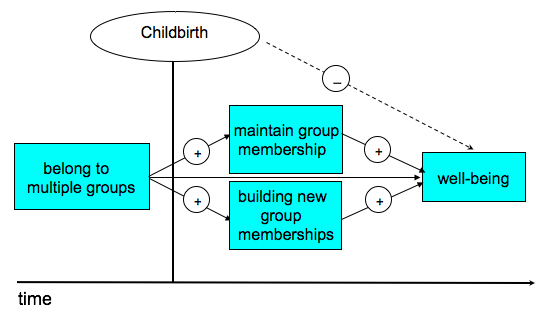


Figure 1. The social identity model of identity change, as applied to postpartum mental health. Adapted from [36].

Table 1. *Descriptive statistics and bivariate correlations*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | |
| Variable | *M* | SD |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| 1. Current Group Memberships | 3.59 | 1.63 | - | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| 2. New Group Memberships | 2.81 | 1.93 | .43\* | | - | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| 3. Pre-Birth Multiple Group Memberships | 3.76 | 1.79 | .70\*\* | | .35\*\* | | - | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| 4. Identity Continuity | 4.11 | 1.73 | .39\*\* | | .17\*\* | | .28\*\* | | - | |  | |  | |  | |  | |  | |  | |  | |  | |
| 5. Identification as a Mother | 6.03 | 1.03 | .16\*\* | | -.11 | | .14\*\* | | .20\*\* | | - | |  | |  | |  | |  | |  | |  | |  | |
| 6. DASS-21 (Dep) | 25.01 | 5.64 | -.15\*\* | | .01 | | -.05 | | -.16\*\* | | -.44\*\* | | - | |  | |  | |  | |  | |  | |  | |
| 7. EPDS | 11.09 | 5.11 | -.18\*\* | | .02 | | -.07 | | -.23\*\* | | -.45\*\* | | .80\*\* | | - | |  | |  | |  | |  | |  | |
| 8. History of Depression | 1.83 | 0.38 | -.20\*\* | | -.16\* | | -.10\* | | -.08 | | -.13\*\* | | .23\*\* | | .21\*\* | | - | |  | |  | |  | |  | |
| 9. Age | 29.87 | 5.07 | -.11\* | | -.08 | | -.07 | | -.01 | | .11\* | | -.07 | | -.11\* | | .07 | | - | |  | |  | |  | |
| 10. Parity | 1.32 | 0.46 | -.07 | | -.07 | | -.03 | | -.07 | | .05 | | -.06 | | -.05 | | .11\* | | .26\*\* | | - | |  | |  | |
| 11. Marital Status | 0.83 | 0.37 | .05 | | .01 | | .03 | | .10\* | | .05 | | -.09 | | -.06 | | -.01 | | .10\* | | .09 | | - | |  | |
| 12. SES | 4.94 | 1.87 | .23\*\* | | .16\*\* | | .17\*\* | | .18\*\* | | .10 | | -.19\*\* | | -.20\*\* | | -.01 | | .09 | | .12\* | | .31\*\* | | - | |
| 13. Ethnicity | 1.23 | 0.44 | .10\* | .06 | | .06 | | .04 | | -.05 | | .06 | | .09 | | -.20\*\* | | -.03 | | -.07 | | .02 | | .03 | |

*Note*: \* *p* < 0.05, \*\* *p* <.001.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | DASS21 | | | | EPDS | | | |
|  |  | R2 | *SE* | β | semi-partial *r* | R2 | *SE* | β | semi-partial *r* |
| Step 1 |  | .10\*\* |  |  |  | .10\*\* |  |  |  |
|  | Age |  | .06 | -.07 | -.07 |  | .05 | -.12\* | -.11 |
|  | SES |  | .16 | -.17\* | -.16 |  | .14 | -.18\*\* | -.17 |
|  | Marital status |  | .79 | -.04 | -.04 |  | .71 | .01 | .01 |
|  | Prior depression |  | .74 | .24\*\* | -.23 |  | .67 | .22\*\* | -.22 |
|  | Past Group Memberships |  | .16 | -.01 | -.01 |  | .14 | -.04 | -.04 |
| Step 2 (H2a) |  | .11\*\* |  |  |  | .11\*\* |  |  |  |
|  | Current Group Memberships |  | .25 | -.13 | -.09 |  | .22 | -.18\* | -.12 |
| Step 2 (H2b and H2c) |  | .12\*\* |  |  |  | .132\*\* |  |  |  |
|  | New Group Memberships |  | .15 | .08 | .08 |  | .14 | .11\* | .10 |
|  | Continuity of Group Memberships |  | .17 | -.13\* | -.12 |  | .15 | -.21\*\* | -.20 |

Table 2. *Hypothesis 2: Hierarchical regression models predicting depression symptoms as measured by the DASS21 and the EPDS*

*Note*: \* *p* < 0.05, \*\* *p* <.001.