

The Role of Autobiographical Reasoning in the Shared Experience Pathway to Identity Fusion



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Abstract

Identity fusion – a visceral sense of oneness with the group linked to extreme pro-group action in adults – is thought to result from at least two distinct pathways, namely shared experience and shared biology. The main objective of this thesis was to focus on the shared experience pathway – in which self-defining memories about intensely emotional events are perceived as shared with other group members – in populations largely unexplored in previous fusion literature, namely children, adolescents, and women. Autobiographical reasoning about shared personal experiences – the cornerstone of narrative identity – in conjunction with other post-event processes, were examined across three studies. Study 1 explored the role of autobiographical memory processes in the emergence of identity fusion over the course of development. Findings showed that while identity fusion could be reliably measured from early adolescence, autobiographical reasoning was positively linked to identity fusion beginning in mid-adolescence. Studies 2 and 3 investigated the relationship between a woman's first experience of childbirth and her identity fusion with other mothers. While Study 2 examined both antenatal and postpartum first-time mothers, Study 3 examined only postpartum first-time mothers. Findings demonstrated that identity fusion was stronger for women who had experienced childbirth for the first time in their lives than for women who were still pregnant with their firstborn. The pathway to identity fusion among first-time mothers manifested in different ways, such that the nature of first-time mothers' childbirth experiences created powerful social bonds with other mothers who had also endured similar experiences. Thought processes and autobiographical reasoning mediated the pathway to identity fusion in complex ways. Identity fusion showed the potential to affect women's psychological health outcomes after childbirth. Altogether, autobiographical memories of shared life-altering experiences are the means by which autobiographical reasoning and other post-event processes give rise to identity fusion.

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Chapter 1. General introduction

Questions still remain about identity fusion: What are the underlying mechanisms of this particular form of social bonding? How does fusion emerge in children, adolescents, and women? The central aim of this thesis was to investigate how identity fusion develops at different stages of life as a consequence of personally significant life experiences that are perceived as shared with others. In particular, this thesis examined the underlying mechanisms of the shared experience pathway to identity fusion in children, adolescents, and first-time mothers. It was hypothesised that certain post-event processes create powerful social bonds via autobiographical memories of shared life-altering experiences with another group or individual. Autobiographical reasoning – the process by which an individual creates links between past experiences and their present self (Habermas & Bluck, 2000) – could play an important role in the shared experience pathway to identity fusion. Similarly, how an individual acknowledges and accepts the reality and the ramifications of a personally transformative life experience could give rise to identity fusion. This thesis focused on if and how identity fusion appears over the course of development in order to gain insight into the ontogenetic origins of this visceral feeling of oneness with group members. Equally so, shedding light on the processes at work that lead to the manifestation of identity fusion among women who have shared a naturally occurring and significant life event can have important implications for female sisterhood and camaraderie. In view of the fact that past literature on the shared experience pathway to identity fusion has been primarily centred on men and mixed populations, first-time mothers were of particular interest as this population allowed for an extension of developmental considerations into another important stage of the lifespan.

1.1 Structure of the thesis

This thesis includes the following chapters: Chapter 1 presents a general introduction and literature review; Chapter 2 presents the first empirical study examining the development of identity fusion in adolescence via shared experiences; Chapter 3 presents the second empirical study examining identity fusion in first-time mothers via the birth of their child up to 6 months postpartum; Chapter 4 presents the third empirical study examining the pathways to identity fusion in first-time mothers, taking into account the role of autobiographical reasoning; and Chapter 5 presents a general discussion.

Chapter 2 investigated the role of autobiographical memory in the shared experience pathway to identity fusion among children and adolescents. Specifically, this study examined the emergence of identity fusion in concert with the emergence of autobiographical reasoning about personally defining experiences that are perceived as shared with a group or individual. The central aim was to bring to light the function of autobiographical reasoning and its precursors in the emergence of identity fusion over the course of development – and whether identity fusion materialises in part as a consequence of changes in autobiographical memory in adolescence. Chapter 3 investigated if and how a woman's first childbirth experience affects her social psychology. This study surveyed both antenatal and postpartum first-time mothers in order to compare identity fusion levels with other mothers before and after childbirth. In an effort to examine whether indirectly shared (i.e., shared experiences that are endured independently rather than as a group) and similar childbirth experiences can fuse women to one another, postpartum first-time mothers' perceptions of their childbirth experience (e.g., perceived pain), thoughts about their childbirth experience (e.g., ruminative thought), and psychological health outcomes (e.g., postpartum depression, posttraumatic growth) were measured. Chapter 4 aimed to replicate and

build on Chapter 3 by also collecting childbirth narratives in order to consider the function of autobiographical reasoning in the pathway to identity fusion with other mothers. Notably, Chapters 3 and 4 explored if and how postpartum fusion with other mothers can play a role in bolstering or hindering positive or negative psychological health outcomes.

1.2 Identity fusion theory

Identity fusion is a distinct form of group alignment in which there is a visceral feeling of oneness with the group (Gómez & Vázquez, 2015; Swann & Buhrmester, 2015; cf. Swann, Jetten, Gómez, Whitehouse, & Bastian, 2012). Identity fusion occurs when an individual's personal identity becomes fused with their identity as a group member. Among fused individuals, the border between the personal and group identities is porous, and the group becomes functionally equivalent to the personal self (Swann, Gómez, Seyle, Morales, & Huici, 2009). For instance, Buhrmester et al. (2012) revealed that positive or negative outcomes for the group significantly impacted the way fused individuals perceived the personal self. Specifically, after an affiliated political party won a national election, fused individuals were more optimistic about their personal futures than non-fused individuals. Conversely, after an affiliated political party lost a national election, fused individuals were less hopeful about their personal futures than non-fused individuals. That is, fused individuals felt that their personal future life quality was dependent on their political party's victory or defeat in the national election. The successes and failures of the group seep across the border of one's group identity to influence one's personal identity.

Moreover, aspects of both the personal and social selves flow into one another, where each influences the other while not lessening the potency of either the personal

or social self (Swann et al., 2012). In fact, the personal self continues to be viable and effective among fused individuals. Because fused individuals care as much about the fortunes or misfortunes of the group as their own fortunes or misfortunes, they feel that group membership is intimately tied to their personal identities. They are more likely to participate in behaviours that are not usually characteristic of the group; rather than adhering to rules and following orders, they are motivationally equipped and uniquely driven to engage in extreme actions for the group (Swann, Gómez, Dovidio, Hart, & Jetten, 2010; Swann et al., 2009). For example, Swann, Gómez, Dovidio et al. (2010) looked at how fused individuals have a strong sense of individual agency that motivates them to save members of their group. They found that a greater proportion of fused individuals favoured jumping in front of a deadly trolley, saving five in-group members (i.e., their fellow Spanish countrymen), while a greater proportion of non-fused individuals favoured allowing the deadly trolley to collide into their fellow countrymen, sparing their own lives instead. When presented with another predicament, wherein they could either allow an in-group member to jump from a bridge and divert a deadly train so that it collides into five individuals who had just committed a grave crime, or push aside that in-group member and take the jump themselves, fused individuals favoured pushing aside the in-group member, while non-fused individuals favoured allowing the in-group member to jump from the bridge. Using two new trolley dilemmas, Swann, Gómez et al. (2014) also demonstrated that fused individuals are extraordinarily devoted to the well-being of their fellow group members. For example, they found that strongly fused individuals favoured self-sacrifice more than weakly fused individuals. That is, regardless of whether participants were asked to decide if they wanted to flip a switch that would prevent a deadly train from killing five in-group members, killing the participants

instead, or lure five in-group members into a deathtrap when a deadly train was actually coming for participants, killing the five in-group members instead, strongly fused individuals were more willing to self-sacrifice than weakly fused individuals. When participants were asked to provide a rationale as to why they decided to self-sacrifice, strongly fused individuals were particularly likely to express emotional distress and anxiety over the well-being of in-group members (e.g., “It would be horrible if they should die and I know without thinking that sacrificing myself is the right thing to do”), while weakly fused individuals were especially likely to express utilitarian concerns (e.g., “It is better to save five lives than only one, even when the one life is mine”).

Previous fusion literature has narrowly focused on comparing the nature and consequences of identity fusion against that of group identification, and argued that identity fusion and group identification are fundamentally different processes of group alignment (e.g., Gómez, Brooks et al., 2011; Swann et al., 2012). While identity fusion is a type of social bonding that can be generated from highly arousing and infrequently occurring so-called ‘imagistic’ experiences, group identification is a contrasting type of social bonding that can be derived from negligibly arousing and frequently recurring so-called ‘doctrinal’ experiences (Whitehouse & Lanman, 2014; see also Whitehouse 1995, 2000, 2004). Identified individuals experience depersonalisation, in which they see themselves and their fellow group members as exchangeable and keeping within the norms of the group. Identified individuals can be characterised by a hydraulic relationship between their personal and social selves, whereby any increases in the strength of one kind of identity weaken the vigor of another kind of identity (e.g., Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). In contrast, the personal and social identities of fused individuals strengthen and support

one another as a result of group membership. For instance, when fused participants were given positive feedback that challenged the validity of their negative personal identities (i.e., an in-group or out-group evaluator had perceived the participant's personal flaws more positively than the way she/he had described her or himself), they were more willing to prop up their social identities and fight and die for their group. Non-fused participants were not influenced by the positive feedback. That is, the personal self can galvanise pro-group behaviour among fused individuals.

Extreme pro-group behaviour can stem from fused individuals' efforts to keep their ingrained convictions about themselves (Swann et al., 2009; cf. Gómez, Brooks et al., 2011). Several studies have displayed that fusion is a stronger predictor for pro-group behaviours than identification (using a unidimensional identification scale, Mael & Ashforth, 1992; e.g., Gómez, Brooks et al., 2011; Swann, Gómez, Dovidio et al., 2010; Swann et al., 2009). For example, Kavanagh, Jong, McKay, and Whitehouse (2018) showed that fusion more strongly predicted costly pro-group behaviours (e.g., donating one's free time to their Brazilian Jiu Jitsu (BJJ) school, risking one's life fighting to defend their BJJ school, and donating money to their BJJ school) than group identification. Interestingly, Bortolini, Newson, Natividade, Vázquez, and Gómez (2018) demonstrated that identity fusion with one's nationality, religion, and football club accounted for additional variance of the endorsement of pro-group behaviours (i.e., the willingness to fight and die for one's group) than single-item (Postmes, Haslam, & Jans, 2013) and multidimensional (Leach et al., 2008) measures of group identification.

Several studies have looked at how different processes can elicit extreme behaviours on behalf of a group. As fused individuals perceive their personal and social identities as functionally equivalent (Swann et al., 2009), activating or

challenging either the personal or social identities of fused individuals increases their willingness to endorse extreme behaviours on behalf of their group (Gómez, Brooks et al., 2011; Gómez, Morales, Hart, Vázquez, & Swann, 2011; Swann, Gómez et al., 2014; Swann, Gómez, Dovidio et al., 2010; Swann, Gómez, Huici, Morales, & Hixon, 2010; Swann et al., 2009). For example, strongly fused individuals were more willing to self-sacrifice after their personal and social selves were activated (e.g., after they were asked to think about what they were like as a person, after they were asked to think about what they and their fellow countrymen were like, respectively) than after neither was activated (i.e., a control condition asking them to describe the place they were currently located in). No such pattern was found among weakly fused individuals. Also, while strongly fused individuals were equally willing to self-sacrifice after their personal and social selves were activated, weakly fused individuals were more willing to self-sacrifice after their social self was activated than after their personal self was activated. That is, because strongly fused persons have a visceral connection with the group, as well as share powerful, familial ties with fellow group members, they were more eager to act on behalf of the group after either of their personal or social selves was incited (Swann, Gómez et al., 2014; cf. Swann et al., 2009).

Moreover, fusion theory proposes that with such intense ties to in-group members, strongly fused individuals feel compelled to aid and protect their fellow group members. In the same way that they would do anything for the group and its members, they expect similar feelings of agency from other group members and therefore believe that other group members are equally devoted to the group and its members. This belief encourages the notion of reciprocal strength, whereby strongly fused individuals view their group as a mighty, formidable, and even invulnerable

force (Gómez, Brooks et al., 2011; Swann et al., 2012). Interestingly, Swann, Gómez, Huici et al. (2010) found that increasing the arousal of fused individuals, whether by having them play a group activity like dodgeball, or engage in individual activities like running sprints or riding an exercycle, increased their endorsement of extreme behaviours for the in-group (i.e., their willingness to fight and die for their group), increased their willingness to donate money to in-group members in need, and increased their speed when racing an in-group avatar through a video game. Non-fused individuals were not impacted by the arousal manipulation. Agency for the in-group (e.g., “I have as much control over the group’s outcomes as my own actions”, “I feel responsible for what happens to the group”, and “I feel responsible for what the group does”) was also shown to partially mediate the interactive effects of fusion and arousal on pro-group actions, namely endorsement of extreme behaviours for the in-group and speed when racing an in-group avatar. In fact, Gómez, Brooks et al. (2011) found that agency (e.g., “I am able to control what my group does”, “I am able to control what my group does in the same way that I control what I do”, “I usually feel responsible for what my group does”, “I am responsible for my group’s actions”, and “I feel as responsible for what my group does as for what I do”) and invulnerability (e.g., “In the face of danger, I am convinced that my group and I will survive”, “Nothing bad can happen to me or my group”, “Anything could damage me or my group” (reverse-scored), “My group is less vulnerable than most other groups”, and “My group will be able to cope with any sort of threat”) either partially mediated the effect of pictorial fusion (Swann et al., 2009) on endorsement of extreme behaviours for the in-group or fully mediated the effect of verbal fusion (Gómez, Brooks et al., 2011) on endorsement of extreme behaviours for the in-group. Similarly, Swann, Gómez et al. (2014) found that one’s devotion to save fellow group members (e.g.,

“Protecting the lives of in-group members is really important to me”, “I am devoted to saving in-group members”, and “I would kill to save members of my group”) fully mediated the effect of fusion on endorsement of self-sacrifice. In another study, emotional engagement with fellow group members (i.e., feeling distressed or anxious regarding a dangerous predicament facing fellow group members) partially mediated the effect of fusion on endorsement of self-sacrifice.

In summary, identity fusion consists of four main principles that capture its core essence: the agentic personal self principle, the identity synergy principle, the relational ties principle, and the irrevocability principle (Gómez & Vázquez, 2015; Swann & Buhrmester, 2015; cf. Swann et al., 2012). The agentic personal self principle states that the personal self is not lost among fused individuals, and that both the personal and social selves of fused individuals play a role in endorsing behaviours on behalf of the group. The identity synergy principle takes the agentic personal self principle a little further, explaining that the personal and social selves of fused individuals work together synergistically to elicit pro-group acts. Activating either the personal or social identities of fused individuals would bolster pro-group behaviours. The relational ties principle describes how fused individuals assume that their fellow group members also have strong personal and social identities. Thus, fused individuals are attracted to other group members based on the members’ social identities as well as unique personal identities. Relational ties can be characterised differently depending on whether fusion is local or extended in nature. Local fusion is when relational ties are formed between group members who share significant life experiences with one another (e.g., members of a family, a group of friends), while extended fusion is when relational ties that are usually related to local fusion are then directed towards larger and more abstract groups where there is no personal

interaction with other group members (e.g., a country, a political party). Swann, Buhrmester, et al. (2014) collected data from 11 countries (e.g., Spain, Japan, South Africa) demonstrating the universality of fused individuals' endorsement of extreme behaviours for an extended group (i.e., their country); nevertheless, when they were asked to choose one group they were most inclined to die for, there was a partiality towards choosing a local group (e.g., their family) as opposed to an extended group (e.g., their country). Strongly fused individuals were more inclined to endorse extreme behaviours for their country after they were primed with the belief that members of their country shared biological characteristics (i.e., shared genes) or psychological characteristics (i.e., shared core values) than after they were primed with the belief that members of their country did not share genes or core values. There was no such pattern for weakly fused individuals. Even further, perception of familial ties (e.g., "If someone in my country is hurt or in danger, it is like a family member is hurt or in danger", "Members of my country are like my family to me", and "I see other members of my country as brothers and sisters") mediated the relationship between fusion and endorsement of extreme behaviours; notably, this mediated effect was strengthened when individuals were primed with positive or negative shared core values. Buhrmester, Fraser, Lanman, Whitehouse, and Swann (2015) extended upon these findings, demonstrating that strongly fused individuals were more inclined to report supportive actions (e.g., pray for or donate blood to the victims of the Boston Marathon bombings), indicate empathy or emotional concern for the victims, indicate they would self-sacrifice in order to capture those who hurt the victims, write a message of support to a particular victim, and donate to a victims charity fund than weakly fused individuals; interestingly, perception of familial ties mediated the relationship between fusion and these various ways of providing help to victims.

Lastly, the irrevocability principle states that once individuals are fused with a group, they will likely stay fused. Uniquely close relational ties with fellow group members, compensatory reactions when either personal or social identities are threatened, as well as the exclusive nature of fusion (i.e., identity fusion is not a personality trait but instead taps into an individual's specific alignment with a particular group; Swann et al., 2009) reinforce and sustain feelings of fusion among fused individuals (Gómez & Vázquez, 2015; Swann & Buhrmester, 2015; cf. Swann et al., 2012).

1.3 Pathways to identity fusion

Whitehouse (2018) has argued that two distinct pathways lead to identity fusion: shared significant life experiences and shared genes with fellow group members. Feelings of shared group essence as a result of either pathway may in turn lead to identity fusion. The shared genes pathway has been explored in various contexts. For example, Vázquez, Gómez, Ordoñana, and Paredes (2015) found that gender similarity and age predicted fusion with the sibling, where same-gendered siblings and lower age elicited higher fusion. Also, individuals who were more fused with their siblings were also more willing to fight and die for their siblings. Vázquez, Gómez, Ordoñana, Swann, and Whitehouse (2017) demonstrated that zygosity predicted fusion and altruistic behaviours among twins, where monozygotic twins evoked more fusion as well as a stronger inclination to interact, co-experience, forgive, and self-sacrifice than dizygotic twins. Even further, fusion mediated the effect of zygosity on these altruistic actions (i.e., zygosity predicted fusion, which in turn predicted these pro-twin behaviours). Specific to the shared experience pathway, Whitehouse and Lanman (2014) proposed that two processes elicit identity fusion, namely the formation of the autobiographical self through episodic memories and kin

recognition systems. Significant experiences can become essential components of one's personal identity. Individuals may then perceive these important elements in another person, thus prompting kin recognition systems that result in psychological kinship (Bailey, 1988), allowing fused individuals to see their fellow group members as kin-like rather than simply as partners. That is, the systems that support phenotypic matching may also include prompts for shared experience, and the perception that a significant, life-shaping experience is shared with another individual or group can lead to identity fusion (Whitehouse & Lanman, 2014). For instance, Newson, Buhrmester, and Whitehouse (2016) found that self-shaping euphoric events (i.e., "To what extent have your team's wins shaped you as a person") and self-shaping dysphoric events (i.e., "To what extent have your team's losses shaped you as a person") predicted fusion with the football team, independent of past time invested in supporting the football team.

Interestingly, it has been postulated that identity fusion can result from shared, especially highly dysphoric experiences with other group members (Whitehouse, 2018; Whitehouse & Lanman, 2014). Whitehouse (1996) found that so-called "rites of terror", including instances of extreme isolation and violence towards novice members of a tribe, can be simultaneously shocking, unforeseen, and emotionally poignant for the individual and their peers who experience the same distressing event, all contributing to an unforgettable shared memory. Whitehouse (2012, 2013) went on further to state that there are three psychological processes eliciting group solidarity, namely cognitive dissonance (i.e., when an individual has to pay a greater price for group entry, they are more fond of the group and its members), unique memories that are shared with other group members, and the illusion that what was a meaningful experience for them was also equally as significant for their fellow group members.

Whitehouse, McQuinn, Buhrmester, and Swann (2014) revealed that nearly half of self-identified frontline fighters in the Libyan revolution of 2011 indicated being more strongly fused with their own battalion than with their own families, whereas only a little over a quarter of self-identified battalion non-fighters reported being more strongly fused with their own battalion than with their own families, suggesting that the experience of active warfare may be eliciting fusion with fellow battalion members. Whitehouse et al. (2017) showed how fusion could arise from different kinds of shared life experiences across a wide variety of samples. They found that when Americans shared a greater number of experiences with fellow Americans, they were also more willing to aid (e.g., donate funds to) fellow countrymen during a natural disaster or violent attack on the nation. Shared experiences among Americans predicted fusion, which in turn predicted willingness to support pro-group behaviours (e.g., self-sacrifice). Moreover, football fans that shared negative experiences (e.g., losing games) were also more willing to view pro-group actions as moral and endorse self-sacrificial behaviour on behalf of a group member. These correlations were stronger than they were for football fans that shared positive experiences (e.g., winning championships). Shared experiences among football fans predicted fusion, which in turn predicted moral approval of pro-group actions and self-sacrifice. Intensity of shared dysphoric experiences was also shown to be important: veterans who encountered more intense experiences such as the loss of a fellow soldier during the Vietnam War were also more fused with fellow veterans and more willing to act on behalf of fellow veterans. Intensity of war experiences among veterans predicted fusion, which in turn predicted willingness to aid fellow veterans. Furthermore, American fraternity and sorority members who rated initiation rituals (e.g., hazing) as more self-transforming were also more fused with the group

and more willing to endorse self-sacrificial behaviour on behalf of the group. Self-transformation among fraternity and sorority members predicted fusion, which in turn predicted willingness to support self-sacrifice. Likewise, Brazilian Jiu Jitsu members who rated their experiences as more intense were also more fused with the club, and those who were more fused with the club were also more willing to act on behalf of the club (e.g., donate money). Intensity of Jiu Jitsu experiences predicted fusion, which in turn predicted endorsement of pro-group actions. Among participants who were primed by first being asked to write about a self-shaping experience, inherited traits (i.e., genes), or the changing seasons, and then to think about an individual who shared the same life experience with them, an individual who resurfaced as their long lost brother or sister, or a stranger, respectively, fusion was higher in the shared experience condition than in the shared genes condition, trust was similar in both the shared experience and shared genes conditions, and economic sacrifice was higher in the shared genes condition than in the shared experience condition. Sharing an experience or genes with another individual predicted fusion, which in turn predicted pro-group behaviour. Lastly, Whitehouse et al. found that shared experiences and zygosity among monozygotic and dizygotic twins each predicted fusion. When controlling for zygosity, shared experiences still predicted fusion. In a study looking at the aftermath of the killing of Cecil the Lion by a trophy hunter in Zimbabwe, individuals who had donated to a wildlife organisation after the lion's passing were asked to provide their dysphoric reactions to the lion's death (e.g., felt anger in the wake of Cecil's story) as well as the extent to which they were fused with Cecil and with the wildlife organisation. Results indicated that dysphoric reaction was a predictor of fusion with Cecil, which in turn predicted fusion with the wildlife

organisation. That is, donors felt that Cecil's passing had brought them closer to fellow organisation members (Buhrmester, Burnham et al., 2018).

Although dysphoric life experiences have been construed as having an equal if not more powerful role in the emergence of fusion than euphoric life experiences (e.g., Whitehouse & Lanman, 2014), Newson et al. (2016) found that the extent to which a favourite football team's losses as well as wins were perceived as having an impact on a fan's life predicted their fusion with that beloved football team. Among a community of Brazilian Jiu Jitsu (BJJ) practitioners, positive affect (i.e., "to what extent they judged their experience to be enjoyable, valuable, and meaningful"), but not negative affect (i.e., "to what extent they judged their experience to be unpleasant, painful, and intense"), in relation to belt promotion/grading rituals was associated with both group identification and identity fusion with their BJJ group/school, and the relationship between positive affect and fusion was stronger than the relationship between positive affect and identification. Even further, positive affect in relation to belt promotion/grading rituals predicted fusion, which in turn predicted willingness to donate time to the BJJ group/school, risk one's life fighting to defend the BJJ group/school, and donate money to the BJJ group/school. These pathways were either non-existent or weaker when group identification was acting as a mediator (Kavanagh et al., 2018).

Several studies have tried to understand just how a shared dysphoric experience can lead to identity fusion among group members, and a possible answer is reflection on and meaning-making of the life event (e.g., Swann et al., 2012). Whitehouse and Lanman (2014) suggested that when a negatively-valenced and personally significant experience converges with causal opacity, personal reflection can be inspired. The event becomes emboldened in value and has an even stronger

impression on the individual as a result of this process of reflection. For instance, Richert, Whitehouse, and Stewart (2005) assessed the role of personal reflection in rarely-occurring and highly dysphoric rituals, in which individuals who experienced higher emotional arousal during a ritual (e.g., derivation of a propagation ritual in the Amazon) engaged in greater spontaneous exegetical reflection (SER) by ascribing meaning to a greater number of specific ritual actions and providing a greater number of specific analogs (e.g., “the stone symbolized a seed, and pushing it into the ground was like planting it to grow”). Jong, Whitehouse, Kavanagh, and Lane (2015) found that greater direct exposure to shared negative experiences (e.g., public shaming, verbal attacks), greater frequency of physical, emotional, or other suffering, and greater severity of physical, emotional or other suffering among Unionist or Republican party members in Northern Ireland each led to more time reflecting on their negative experiences, which in turn led to stronger identity fusion with their respective Unionist or Republican groups. In a second study, Jong et al. revealed that when Boston residents were asked to think and write about their experiences of the 2013 Boston Marathon bombings, and then indicate if they or their families or friends were directly affected by the bombings as well as rate the severity of their own personal physical, emotional, or other suffering, both greater direct exposure to the bombings and greater suffering led to more time reflecting which in turn led to stronger fusion with the city of Boston. In a final study, Jong et al. showed that temporarily amplified salience of the Boston Marathon bombings led to stronger state fusion with the city of Boston only among residents who experienced greater negative affect. Here, residents of Boston were either first primed with detailed questions concerning their experiences of the 2013 Boston Marathon bombings (e.g., what happened, where they were, if it affected them or someone they knew directly, how it

made them feel) or with questions about a recent experience of routine and unexceptional errand-running in Boston (e.g., what the errand was, where they went, whether they accomplished their goals, what the commute was like, how it made them feel), followed by a measure of positive/negative affect and measures of so-called state fusion (e.g., statements asking them to rate how they felt about Boston “right now”). In a study mentioned earlier in this review, Buhrmester, Burnham et al. (2018) revealed that dysphoric reaction to the passing of Cecil the Lion predicted the extent of reflection (e.g., to what extent the experience is thought about in words or pictures) at a later point in time as well as perceived event centrality (e.g., to what extent the event was personally significant, to what extent the event was significant for fellow organisation members) at a later point in time. That is, intense levels of pain after the lion’s passing fostered extensive reflection and a feeling that the event was central to donors’ identities as well as the identities of fellow organisation members. Furthermore, fusion with the wildlife organisation was shown to increase over time only when donors engaged in deeper reflection and also felt that Cecil’s story was significant for themselves and fellow members.

In summary, Whitehouse (2018) structured the shared experience pathway to fusion to be comprised of a causal chain of various psychological processes. First, an individual experiences an emotional life event that is then stowed in their episodic memory. With causal opacity present, the individual is driven towards personal reflection and meaning-making; this process of reflection produces a deeper representation of the poignant memory, lending to a transformation of the individual’s sense of self. If the individual then perceives this particular feeling of personal change as shared with another individual or group, they will feel a sense of shared essence with that individual or group, producing fusion.

Interestingly, two studies have indirectly investigated the shared experience pathway to identity fusion in childhood and early adolescence. Gaviria, Ferreira, Martínez, and Whitehouse (2015) examined children and young adolescents aged 6 to 12 years using both group-style interview sessions as well as one-on-one interview sessions. In the one-on-one interview sessions, an adapted version of the verbal fusion measure (Gómez, Brooks et al., 2011) was used. Results showed that children and young adolescents felt a close connection with the group and its members. Although they felt stronger because of their membership to the group, they did not express strong agency or accept full responsibility to defend the group (i.e., “If your group had a problem, would you be willing to do more, the same, or less than other group members for the group?”). Gaviria et al. attributed this finding to a term they coined as ‘protofusion’: a feeling that precedes identity fusion, whereby self-identity has not fully crystallised in these age groups. Additionally, Vezzali, Drury, Versari, and Cadamuro (2015) used a measure of psychological closeness in romantic relationships (Inclusion of Other in the Self scale, IOS; Aron, Aron, Smollan, 1992) in order to gauge what they referred to as either “perceived closeness” or “enhanced social identification” in children and young adolescents aged 7 to 12 years after experiencing two large earthquakes in Italy. Vezzali et al. found that children who demonstrated greater posttraumatic stress symptoms (using the Impact of Event Scale, IES; Horowitz, Wilner, & Alvarez, 1979) felt closer to the other survivors (i.e., felt psychologically closer to an unknown child who also attended the same school and endured the earthquakes); in turn, children who felt closer to the other survivors perceived themselves as belonging to the same group as the other survivors, indicated that they would like to interact, play, and enjoy an ice cream with another survivor, and reported that they would be willing to help another survivor with their

schoolwork or finding a lost book. Altogether, these findings are important to understanding the development of identity fusion in children and adolescents. Nevertheless, Gaviria et al.'s (2015) study did not directly examine the shared experience pathway to identity fusion; that is, perceived kinship founded on either phenotypic cues or shared life-altering experiences could be at work here (see Whitehouse et al., 2018). Also, Vezzali et al. (2015) used a measure of psychological closeness that is different from the pictorial fusion measure (Swann et al., 2009), suggesting that identity fusion may not have been measured. Neither study considered identity fusion within the context of narrative identity.

1.4 Autobiographical reasoning – the cornerstone of narrative identity

One of the central goals of this thesis was to investigate how identity fusion emerges as a consequence of shared life-altering experiences in childhood and adolescence. Specifically, this thesis aimed to examine the development of identity fusion in concert with the development of autobiographical reasoning about transformative experiences that are perceived as shared with others. In order to understand whether the shared experience pathway to identity fusion fully crystallises in adolescence in part as a by-product of changes in autobiographical memory, this thesis sought to shed light on the role of autobiographical reasoning and its precursors in the emergence of identity fusion over the course of development. Tulving (1972, 1983) proposed that there are two functionally distinct memory systems: semantic memory and episodic memory. Semantic memory is a composition of organised facts, rules, and ideas, while episodic memory refers to temporally-situated past experiences. Tulving (1993, 2002) went on further to say that episodic memory consists of three vital components, namely a sense of subjective time (i.e., ability to travel back in time in one's own mind), autonoetic awareness (i.e., conscious

awareness that one is remembering a past event), and the self (i.e., the actual mental traveller). Remembering one's past life experiences involves auto-noetic awareness, in which the individual is consciously re-experiencing here and now an earlier event that happened in a certain place at a certain time. Auto-noesis permits an individual to mentally travel back in time. Mahr and Csibra (2018) argued that episodic memory and other kinds of faculties (e.g., planning for the future, counterfactual thinking, dreaming) are the outputs of a 'scenario construction mechanism', whereby memory traces (i.e., trace information, or stored information learned from past situations) are used to create specific scenarios. They went on to explain that because episodic memories are representations of real past occurrences, they should rely more greatly on memory traces; conversely, other kinds of faculties that represent possible events (e.g., counterfactual thinking, or what might have been or what could be) should rely more greatly on appropriate semantic information. Interestingly, Mahr and Csibra differentiated between three kinds of memory capacities: unlike episodic memories, event memories (i.e., representations of specific past events) along with semantic memories do not involve an 'attitude of remembering' where events are conceptualised as being acquired through past first-hand experience; they instead utilise an 'attitude of believing' in the occurrence of past events (i.e., "just know"). That is, remembering an event entails believing that the event happened because of first-hand experience; first-hand experience warrants claims to believing (i.e., "knowing why we know", or providing a justification for the belief).

Fivush (2010) made a distinction between episodic memory and autobiographical memory, and stated that while episodic memory does capture the what, when, and where of past life experiences, it does not require mental time travel and auto-noetic awareness; conversely, autobiographical memory focuses on the

representation of past life experiences in relation to the self, whereby the self temporally extends in time. That is, Fivush argued that autobiographical memory extends upon episodic memory in three unique ways: autobiographical memory features late-developing autonoetic awareness, or subjective consciousness, where there is memory of the self as the one who experienced a past event – not just memory centering on the past event itself – and an awareness that different people can have different memories, or subjective representations, of the same experienced objective event; autobiographical memory constructs a coherent life narrative, in which events from the past are meaningfully arranged and causally connected together along a personal timeline that defines the self through past, present, and future – not just memories consisting of a string of single events from the past; autobiographical memory not only directs present and future behaviours, it shapes one's identity and goals in life. Fivush proposed that while preschool-aged children can describe the what, when, and where of a particular life event, it may be by the end of the preschool years (i.e., around the age of 5) that autobiographical memory begins to materialise and only fully blossoms into an all-encompassing life narrative through adolescence and adulthood.

The Self-Memory System (SMS) proposes that autobiographical memories consist of knowledge at different levels of specificity – event-specific knowledge (ESK; i.e., single episodic memories that evoke images and are “experience-near”; Conway, 2005), general events, lifetime periods, and the life story. Even-specific details (e.g., orientation day) are nested within general events (e.g., going to lab meetings), which in turn are embedded in one or more lifetime periods (e.g., graduate school days). Eventually, different lifetime periods contribute to the life story. Consequently, the SMS model suggests that single episodic memories, general events,

lifetime periods, and the life story all make up the autobiographical knowledge base (for an overview of this model see Conway, 2005; Conway, 2009; Conway & Pleydell-Pearce, 2000; Conway, Singer, & Tagini, 2004).

Habermas and Bluck (2000) argued that the life story is a subjective representation of one's life as described and remembered by the individual, and materialises in two forms, namely the life narrative and autobiographical reasoning. The life narrative is a complete life story, in which past experiences span across time and different situations; autobiographical reasoning is the process by which the life story is produced, whereby self-examination connects past experiences to the present self and provides global coherence in life narratives. Autobiographical reasoning pulls remembering closer to the self, and illustrates how past experiences carry meaning for one's life by connecting them to individual development (Habermas, 2011).

Habermas and Bluck (2000) proposed four types of global coherence (i.e., coherence of the whole text and not just neighbouring sections in a text, or life events are linked to each other and to the individual's development) that they deemed to be central for constructing a coherent life story: temporal coherence (i.e., at what point in time a particular life event occurred), the cultural concept of biography (i.e., culturally normative order of life events), causal coherence (i.e., causal links between life events and one's personal development), and thematic coherence (i.e., central themes running throughout the life narrative).

Habermas (2011) described that autobiographical reasoning frequently involves autobiographical arguments that either refer to change or draw out continuity across change. Autobiographical arguments that indicate biographical change range from specific life experiences that influence personality development to an increase in knowledge and a shift in outlook. Arguments that draw out continuity across change –

and organise temporally dispersed events under an overarching concept – range from something that is to this day unchanged to the occurrence of a characteristic (i.e., to be expected) experience.

Building on McAdams' (1985, 1996) assertion that the life story does not emerge until late adolescence and early adulthood, Habermas and Bluck (2000) posited that while by the end of childhood (i.e., around the age of 10) an individual may be able to construct a single story, even if it consists of many episodes that happened over many days or weeks, the ability to connect a large number of events or stories with one another and with the self to achieve overall global coherence in a life story depends on social-motivational and social-cognitive developments in adolescence. That is, factors such as societal and cultural expectations, an interest in activities relating to the self, as well as a variety of cognitive tools necessary for autobiographical reasoning and thereby each type of global coherence, enable adolescents' construction of life stories.

Mid-adolescence marks the emergence of a coherent life story (Habermas & Reese, 2015). Interestingly, Bohn and Berntsen (2008) collected a written account of a recent single event, a written account of a life story, and a written cultural life script (culturally shared views as to the order of transitional events in an idealised life; e.g., Berntsen & Rubin, 2004) from three different grade levels, namely third grade (mean age was 9.51 years), fifth and sixth grades together (mean age was 11.87 years), and eighth grade (mean age was 14.46 years). In order to measure what a normative cultural life script should look like, cultural life scripts were also collected from a sample of adults (mean age was 28.33 years); using Berntsen and Rubin's (2004) event categories as a guide, the adult life script events were classified according to a total of forty-two event categories (e.g., "having children"). Life script events from

children and adolescents were then scored according to these adult event categories. Life script normativity was measured using a typicality score (i.e., how many times a life script event was mentioned by the sample of adults, anywhere from 4 to 100) and an idiosyncrasy score (i.e., all life script events that were mentioned by less than 4 adults). Single-event narratives were coded on coherence using an adapted version of Peterson and McCabe's (1983) coding scheme (e.g., a story is too disorganised to understand). Life story coherence was coded on the following dimensions: the beginning and ending of a life story using adapted versions of Habermas' (2006) scales (e.g., begins a little bit after the child's birth, ends in the past), global life story coherence (i.e., temporal, thematic, causal, and cultural coherence; cf. Habermas & Bluck, 2000, see below for more details) using Peterson and McCabe's (1983) coding scheme as a guide (e.g., a life story includes only a single event), and the number of life script events in a life story that were mentioned by the adult life script norm.

Results of Bohn and Berntsen (2008) showed that cultural life scripts became more typical and less idiosyncratic with age. Even though cultural life scripts became increasingly adult-like with age, there was a significant positive link between age and the typicality score and a significant negative link between age and the idiosyncrasy score for the child and adolescent groups. There were no significant links between these variables for the adult sample, suggesting that the cultural life script eventually levels off in adulthood. Additionally, life stories were lengthier, became more globally coherent, began with more details surrounding their births, ended with more details surrounding their future outlooks on life, and included more adult life script events with age. Single-event narratives were also lengthier and more coherent with age. Notably, global life story coherence was lower than single-event coherence for third graders only. Moreover, global life story coherence was not linked to single-

event coherence when controlling for grade level, and Bohn and Berntsen (2008) proposed that constructing a life story and putting together a single autobiographical memory are likely unique processes. Only the typicality score and age uniquely predicted life story coherence variables (i.e., the beginning and ending of a life story, global life story coherence, and the number of life script events). Coherence of single-event narratives only uniquely predicted the number of life script events. Furthermore, Habermas and de Silveira (2008) asked a sample of 8-, 12-, 16-, and 20-year-olds to provide a life narrative twice over a 2-week period. Prior to providing a life narrative, participants were asked to write down seven of their most significant memories on cards, order the cards in sequential order, and include each of the seven memories in the life narrative. In between the first and second meetings, half of each age group was trained by engaging in biography-related activities (e.g., asking participants for the culturally expected age for specific life events), while the other half engaged in neutral activities. Life narratives were scored on three global rating scales: extent of global temporal coherence (temporal orientation) was based on the degree to which the life narrative specified in what order and at what time life events occurred; extent of global causal coherence (developmental consequentiality) was based on the degree to which the life narrative described how one's personality had changed after life events took place; extent of global thematic coherence (plausible transitions) was based on the degree to which the life narrative connected life events to one another. Life narratives were also coded for the presence or absence of local indicators of global coherence (e.g., global temporal coherence supported by phrases that described one's age at the time of a life event, global causal coherence supported by phrases that described a change in personality due to a life event, global thematic coherence

supported by phrases that validated a general assertion made earlier on in the life narrative through the example of a specific life event).

Results of Habermas and de Silveira (2008) indicated that while re-testing had minor effects on local indicators and ratings of global coherence, and factors such as training, intelligence, or biographical practises (e.g., writing in a diary) had no effect whatsoever, age did have an extensive effect: temporal orientation increased with age, especially between the ages of 8 and 12, with local indicators of temporal coherence following a similar trend; both developmental consequentiality and local indicators of causal coherence increased with age, and developmental consequentiality increased most between the ages of 12 and 16; plausible transitions and local indicators of thematic coherence increased with age, and plausible transitions increased most between the ages of 16 and 20. Even further, some of the local indicators of global coherence were nearly missing in the life narratives of the youngest age group: for example, 8-year-olds did not use calendar dates when referring to a particular life event. Interestingly, Habermas and Paha (2001) conducted an exploratory version of this study using a sample of 12-, 15- and 18-year-olds. Although the sample size was very small (only four participants per age group), there was a trend for indicators of global coherence to increase with age. Markedly, while participants in the youngest age group did not begin their life narratives with a description of their family histories, 15-year-olds started to provide a family background that extended beyond their own personal histories and acted as a central theme in their life narratives.

Narrative coherence has also been observed in single event narratives, particularly how it is linked to adolescents' personality traits, well-being, and concern for others. For instance, Chen, McAnally, Wang, and Reese (2012) collected low-point (e.g., a life experience that left an individual feeling extreme despair) and high-

point (e.g., a life experience that left an individual feeling extreme happiness) event narratives (adapted from McAdams, 2008) from three different age groups: an early adolescence group (12- to 14-year olds), a mid-adolescence group (15- to 17-year-olds), and a late adolescence group (18- to 21-year-olds). After free-recall of each event, participants were asked to answer a few questions about that event, such as “How did you and any others present feel”. Psychological functioning was also measured using the following questionnaires: the Reynolds Adolescent Depression Scale 2 (RADSD-2; Reynolds, 2002) was used to measure depression, the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) was used to measure global life satisfaction with phrases like “If I could live my life over, I would change almost nothing”, the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) was used to measure levels of self-esteem with phrases like “I feel that I have a number of good qualities”, and the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) was used to measure adolescents’ behaviours, relationships, and emotions with phrases like “Easily distracted, concentration wanders”, “Considerate of other people’s feelings”, and “Often unhappy, down-hearted or tearful”. Adapting previous event categories (e.g., Thorne, McLean, & Lawrence, 2004), each narrative was then coded for the type of event described (e.g., about an achievement, an accident, relationships, immigration, leisure, personal development). Narratives were also coded for the extent of autobiographical reasoning with regard to three aspects: theme using the Narrative Coherence Coding Scheme (NaCCS; Reese et al., 2011), whereby the extent to which participants’ narratives were detailed, on-topic, resolved, and incorporated into their lives was scored, developmental consequentiality using an adapted version of Habermas and de Silveira’s (2008) Developmental Consequentiality scale (DC), and meaning-making using McLean and Pratt’s (2006)

meaning-making scale (MM), whereby the extent to which participants gained insights that stretched beyond that particular life event and led to a more rounded understanding of themselves was scored.

Results of Chen et al. (2012) indicated that low-point developmental consequentiality increased across adolescence, and low-point meaning-making increased only between early and mid-adolescence. Even further, there was a trend for developmental consequentiality and meaning-making scores to be higher for the low-point event narratives than for the high-point event narratives among all age groups, suggesting that dysphoric life events required higher levels of narrative processing than euphoric life events among adolescents. Age was shown to moderate the link between narrative coherence and pro-social behaviour; that is, greater developmental consequentiality for the low-point event narratives was related to greater pro-social behaviour in late adolescence, but not in early or mid-adolescence. Furthermore, gender moderated the link between narrative coherence and well-being; namely, greater levels of theme for the high-point event narratives was linked to lower well-being among boys, but not among girls. Moreover, Reese et al. (2014) focused on critical life event narratives that included turning point (e.g., an event that changed an individual's life), low-point, and high-point event narratives (Chen et al., 2012, adapted from McAdams, 2008) from adolescents aged between 12 and 21 years from three New Zealand cultures (e.g., Māori, Chinese, and European). Adolescents from each culture were similarly divided into three different age groups: an early adolescence group (12-14 years), a mid-adolescence group (15-17 years), and a late adolescence group (18-21 years). All critical event narratives were then coded for two dimensions of narrative coherence, namely thematic coherence using the Narrative Coherence Coding Scheme (NaCCS; Reese et al., 2011; Chen et al., 2012) and causal

coherence in the form of developmental consequentiality (Chen et al., 2012, adapted from Habermas & de Silveira, 2008). Also, participants completed a personality trait inventory for extraversion, agreeableness, conscientiousness, neuroticism, and openness to new experience using the 44-item Big Five Inventory (BFI; John & Srivastava, 1999). Results revealed that New Zealand European adolescents scored higher on both causal and thematic coherence than New Zealand Chinese and New Zealand Māori adolescents. There were only age-related increases in causal coherence among NZ European adolescents, whereby NZ European girls showed increases in causal coherence across adolescence, while NZ European boys did not show increases in causal coherence until mid- to late adolescence (i.e., causal coherence differed only between early and late adolescence). Adolescents from all three cultures demonstrated increases in thematic coherence across adolescence. Moreover, while narrative coherence and traits were independent qualities of personality for the early adolescence group, greater narrative coherence was linked to greater neuroticism, particularly for the low-point event narrative and mid-adolescence group. Greater narrative coherence was also linked to greater openness to new experience for both the mid- and late adolescence groups (Reese et al., 2014).

Even further, Reese et al. (2017) focused on turning point event narratives (Reese et al., 2014, adapted from McAdams, 2008) from another sample of NZ Māori, NZ Chinese, and NZ European adolescents aged between 12 and 21 years. Adolescents from each culture were again similarly divided into three different age groups, namely an early adolescence group (12-14 years), a mid-adolescence group (15-17 years), and a late adolescence group (18-21 years). After free-recall of the turning point, participants were asked to answer a few questions about that event (e.g., how they or other people may have felt). Adapting previous event categories (e.g.,

Thorne et al., 2004), each turning point event narrative was then coded for a specific topic, such as an achievement, accidents, relationships, immigration, leisure, and personal development. Narratives were also coded for causal coherence in the form of developmental consequentiality (Reese et al., 2014, adapted from Habermas & de Silveira, 2008), local thematic coherence (i.e., the term used in this study to refer to the thematic coherence of an event narrative, and not of an entire life story) using the Narrative Coherence Coding Scheme (NaCCS; Reese et al., 2011; Reese et al., 2014), and the reference to and valence of emotional words, desires, and evaluations (Bohanek & Fivush, 2010). Participants completed the personality trait inventory for extraversion, agreeableness, conscientiousness, neuroticism, and openness to new experience using the 44-item Big Five Inventory (BFI; John & Srivastava, 1999). Participants were also asked to complete the following questionnaires on well-being: the Reynolds Adolescent Depression Scale 2 (RADs-2; Reynolds, 2002), the Satisfaction with Life Scale (SWLS; Diener et al., 1985), and the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965).

Results of Reese et al. (2017) showed that there were expected age-related increases in causal coherence only among NZ European adolescents. NZ Chinese girls were greater in causal coherence than NZ Chinese boys, with NZ Chinese boys in the late adolescence group scoring higher than NZ Chinese boys in the early adolescence group. Adolescents from all three cultures demonstrated increases in thematic coherence, whereby the late adolescence group scored higher than the early adolescence group. Both NZ Chinese and NZ Europeans in the early adolescence groups discussed fewer events about personal development than the mid- and late adolescence groups, with NZ European mid-adolescent girls discussing more events about personal development than NZ European mid-adolescent boys. Interestingly,

aspects of both narrative identity and personality traits predicted well-being: adolescents with more negative emotions, desires, and evaluations throughout their event narratives, greater neuroticism, and lower conscientiousness had greater depression; adolescents with greater causal coherence in their event narratives, greater conscientiousness, greater openness to new experience, and lower neuroticism had greater self-esteem; adolescents with greater thematic coherence in their event narratives, greater conscientiousness, and lower neuroticism had greater life satisfaction. Across all three cultures, those in the early adolescent group with greater causal coherence displayed lower life satisfaction, and those in the older adolescent group with greater causal coherence displayed greater life satisfaction; there was no significant link between causal coherence and life satisfaction for the mid-adolescent group. Regardless of age, NZ European adolescents with more personal development events exhibited greater life satisfaction; there was no significant link between personal development events and life satisfaction for NZ Chinese or NZ Māori adolescents. Also irrespective of age, NZ Māori adolescents with greater thematic coherence demonstrated greater life satisfaction; there was no significant link between thematic coherence and life satisfaction for NZ Chinese or NZ European adolescents.

The organisation of autobiographical memories also provides unique insight into the global coherence of life stories (Habermas & Reese, 2015). For instance, Chen, McAnally, and Reese (2013) collected life stories from predominantly NZ European children and adolescents aged between 8 and 12 years using the Emerging Life Story Interview (ELSI; Reese et al., 2010, adapted from McAdams, 2008). Each chapter in the life stories was then coded for two dimensions: whether it was a lifetime period chapter that included numerous events happening over a particular time period to form an all-encompassing theme (e.g., my years being in the

cheerleading squad), or a single event chapter that included discrete events that did not form an all-encompassing theme (e.g., my visit to Disneyworld), as well as chapter specificity (e.g., whether a chapter included one or more specific events). Results demonstrated that participants in the middle childhood group (8-10 years) used a lower proportion of lifetime period chapters than participants in the early adolescence group (11-12 years). In a second study, life stories were collected from adolescents aged between 12 and 21 years from two New Zealand cultures, namely NZ Chinese and NZ European. Similar to previously mentioned studies, adolescents were divided into three different age groups: an early adolescence group (12-14 years), a mid-adolescence group (15-17 years), and a late adolescence group (18-21 years). Results indicated that NZ European adolescents used more chapters that included specific events than NZ Chinese adolescents. Markedly, participants in the early adolescence group used a lower proportion of lifetime period chapters than participants in the late adolescence group, with 18-21 year-olds only using lifetime period chapters (i.e., they never organised their life stories based on single event chapters). Chen et al. suggested that irrespective of culture, individuals' abilities to organise autobiographical memories in the form of lifetime periods begins to materialise as early as age 8 and continues to develop well up to age 14.

In summary, Fivush, Habermas, Waters, and Zaman (2011) posited that the life story appears in adolescence when remembering one's past experiences marries with one's understanding of who they are as an individual. Even further, budding social and cognitive skills, a growing drive to build a unique adult personal identity, and a cultivated understanding of social and cultural frameworks that decide an individual's life course all combine to result in an ability to narrate one's entire life story.

1.5 Development of group processes

Fusion theory has proposed that fused individuals are not particularly interested in out-group members; instead, they pay heed to the perception of shared essence with in-group members. Only when out-groups are made salient and perceived as viable threats do fused individuals take notice of out-group members. In the context of national sports competitions and passionate team rivalries, fused in-group members seek competitive advantage over out-group members only when they believe that a part of their group's essence has been threatened. For example, national soccer rivalries in England, Brazil, and Spain are seen as part of the nation's shared essence and carry consequences that not only affect the team (e.g., soccer players are traded or their contracts are not renewed) but can also potentially damper fan support. Interestingly, it has been shown that individuals who were strongly fused to their countries (England, Brazil, and Spain) were more likely than weakly fused individuals to donate money to junior players from their respective countries *and* simultaneously take away money from junior players from different countries than to take the money for themselves or to donate the money to junior players from their respective countries only. That is, strongly fused individuals will choose to amplify the in-group's competitive advantage over the out-group even when the situation requires personal cost (i.e., not taking the money for themselves) and harming the out-group (i.e., taking away money from the out-group). In contrast to national soccer rivalries in England, Brazil, and Spain, Americans perceive baseball with sizeable variation – some Americans view baseball as part of the nation's essence more so than others. For individuals from the United States who believed that baseball was a part of the nation's essence (e.g., "Baseball lies at the core of what it means to be American"), stronger fusion with the United States was linked to a greater amount of money

donated to the American youth baseball players and simultaneously taken away from the Cuban youth baseball players. Conversely, for individuals from the United States who did not believe that baseball was a part of America's essence, fusion with the United States was not linked to the amount of money donated to the American youth baseball players and simultaneously taken away from the Cuban youth baseball players (i.e., not all fused individuals act in the same way; Buhrmester, Newson, Vázquez, Hattori, & Whitehouse, 2018). Even further, Newson et al. (2018) found that strongly fused members of Brazilian football (i.e., soccer) superfan organisations, or 'torcida organizadas' (with reference to their fellow fans, e.g. "I feel immersed in my fellow fans") were especially likely to reveal past violence against the outgroup (i.e., rival team fans). However, fusion with fellow fans had no effect on past outgroup hostility for general fans. Unlike general fans, torcidas organizadas are likely to form in settings of enduring threat, whereby highly fused superfan members direct their aggression towards specific out-groups.

Interestingly, Buhrmester, Newson et al. (2018) proposed that there are two unique stages of identity fusion, each relating to extreme pro-group behaviour in distinct ways: on the one hand, fusion acts as an essential and adequate form of social cohesion that lends to self-sacrificial behaviours on behalf of the in-group (e.g., Swann, Gómez, Dovidio et al., 2010), but on the other hand fusion also acts as an essential but inadequate form of social cohesion that lends to out-group aggression. This essential but inadequate stage of fusion can be mobilised when a fused individual's perception of shared essence has been threatened (Buhrmester, Newson et al., 2018). Fusion, in conjunction with a hostile environment, can be fertile ground for motivating groups to displace or surpass other threatening groups (Newson et al., 2018). Consequently, identity fusion should also be viewed in the context of

intergroup biases, and how favoritism for the in-group over the out-group can affect behaviours at both the individual and group levels.

While there has not been extensive study on the emergence of identity fusion in children and adolescents (cf. Gaviria et al., 2015), different theories on the developmental roots of intergroup bias have been offered. For instance, Devine (1989) asserted that cultural stereotypes and personal beliefs are two distinct cognitive components. Individuals' responses to stereotyped groups of people are based on automatic and controlled processes, whereby stereotypes are automatically activated and personal beliefs necessitate conscious awareness. Automatic processes occur when already acquired associations are triggered, and both low- and high-prejudiced individuals are susceptible to this spontaneous activation of stereotypes. While high-prejudiced individuals' personal beliefs match their knowledge of stereotypes, low-prejudiced individuals choose to go against the automatically activated stereotypes. That is, low-prejudiced individuals intentionally reject the stereotypes and instead activate a newly formed cognitive structure that embodies her or his personal beliefs in equality between groups. Additionally, Aboud's social-cognitive developmental theory of prejudice (SCDT; 1988, 2008) proposed that children become cognisant of social groups early on in their development, whereby their in-group and out-group biases rise quickly around the age of 4 or 5 years and show decline after the age of 7 years. That is, children above the age of 7 years come to display less prejudice because of developmental changes: namely, affective and perceptual information processes (e.g., fear of something unknown, denunciation of a different out-group based on physical characteristics such as skin colour) are converted into cognitive processes that allow children to view individuals in light of many dimensions. There

comes an understanding that out-group members, even though they may look unlike one's in-group, can indeed be similar to the self.

Moreover, Nesdale's social identity development theory (SIDT; e.g., 2004, 2007) offered an even more complex assessment of the development of intergroup bias in children. The theory stated that by the age of 4 or 5 years, children are aware that members of one group are more fortunate and more highly respected than members of other groups, and they compare their own standing as a member of one group against members of other groups. Children also prefer being a part of a group that is higher in status. Being a member of a dominant group elicits a preference for the group. Beginning at 7 years of age, there is a shift from in-group preferences to out-group prejudices among some children; this transition can take place when the child highly identifies with their in-group, out-group prejudices are conveyed by many of their fellow group members (i.e., negative attitudes towards the out-group are a norm), or there is a perception of threat or conflict between groups and their members. Also, developmental intergroup theory (DIT; Bigler & Liben, 2006, 2007) proposed a domain-general approach, rather than a domain-specific approach, as to how children develop stereotypes and prejudices on the grounds of certain human attributes (e.g., gender, race, age) and not others (e.g., handedness). Similar to previous theories, Bigler and Liben's theory posited that both environmental conditions and the child's cognitive or socio-emotional development (e.g., the child's skills, attitude, self-esteem) are necessary to interact with and shape one another in order to elicit prejudice and stereotyping among children. DIT proposes that there are four main processes driving stereotypes and prejudices in children. First, as children learn to navigate the world around them, their highly adaptable cognitive systems help them gauge out which of the many possible bases for categorising a person or a group

of people are adequately meaningful or useful within their cultural environment. Four factors affect how children designate certain human attributes as meaningful: (a) a perceptually distinguishable feature (e.g., gender or race), (b) a proportionally smaller group size, (c) adults' explicit labeling and use of a particular characteristic (e.g., allocating school desks to children based on their gender or eye colour), and (d) implicit practises (e.g., groups are segregated on the basis of a particular characteristic). Second, children classify the people they meet into groups based on the categories they consider meaningful. Both age-dependent classification skills and the number of experiences with people who fall under a particularly meaningful category affect the extent to which the classification process functions. Third, children ascribe meaning (by way of stereotypes and prejudices) to these prominent groups. Four factors affect how children develop stereotypes and prejudices: (a) believing that members of groups share perceptually distinguishable characteristics that in turn denote other shared hidden and intrinsic qualities, (b) assuming that their own group (i.e., in-group) is better than another group (i.e., out-group), (c) exposure to overt and explicit declarations linking groups to particular traits or behaviours (e.g., "women like to cook food and clean the house"), and (d) exposure to subtle and implicit correlations in the environment (e.g., seeing that 9 out of 10 pilots are male, children deduce that there is a correlation between gender and flying a plane). Last, when children meet new people who are stereotypic, they use the information concerning the newly encountered individuals to reinforce their pre-existing beliefs and prejudices. Conversely, when children meet new people who are not stereotypic, they forget or misrepresent the information concerning the newly encountered individuals in order to conform to their pre-existing stereotypes and prejudices, or instead develop a more fitting stereotype.

There has been an extensive amount of research on the development of intergroup processes during each stage of life. Interestingly, there is evidence that individuals are able to categorise others on the basis of a specific characteristic during the first year of life. For instance, Mahajan and Wynn (2012) investigated the origins of social preferences for those who are similar to the self versus those who are unlike the self in pre-linguistic infants. Depending on the condition they were assigned to, 11-month-olds were taken through three phases: they were first asked to choose either one of two different kinds of foods (e.g., graham crackers versus green beans) or one of two different-coloured hand mittens (e.g., orange versus yellow hand mittens). Infants were then shown one of two stuffed animal puppets displaying either a positive or negative reaction towards one of the two different kinds of foods or one of the two different-coloured hand mittens, and then displaying an opposite reaction towards the other food or mitten. The second stuffed animal puppet then repeated the same actions, but its preferences were the opposite of the first puppet. Finally, infants were presented with both of the stuffed animal puppets, whereby the first puppet they touched was noted as their preferred choice. In a separate but similar condition, infants were also asked to indicate their preferred puppet after both they and the puppets were randomly assigned a mitten by the experimenter. Results indicated that 11-month-olds favoured the puppet that chose the same object that he or she chose. Infants in their first year of life preferred those who carried similar tastes as themselves, aligning with people who went for things that they too desired. However, infants did not prefer one puppet over another when both the infant and puppets were randomly designated a coloured hand mitten. That is, infants' social preferences seem to be based on characteristics that are similar to them, but not when these similar

characteristics are randomly assigned, arbitrary, and solely perceptual similarities not based on actual attitude preferences.

In an effort to understand whether infants' social preferences are motivated by an affinity towards in-group members, distaste for out-group members, or a combination of both, Pun, Ferera, Diesendruck, Hamlin, and Baron (2017) conducted a series of experiments in which they would repeatedly show infants as old as 16 months of age an English speaker (i.e., speaking the familiar language) and a French speaker (i.e., speaking an unfamiliar language) engaging in either a prosocial act (i.e., returning a dropped ball) or an antisocial act (i.e., running away with a dropped ball), or an English speaker and a French speaker alternating with either a positive stimuli (i.e., images of different kinds of fruits, images of different-coloured smiling faces) or a negative stimuli (i.e., images of different kinds of spiders, images of broken dishes). Pun et al. recorded the number of repeated trials it took for infants to reach habituation for each positive or negative behaviour or stimuli (i.e., matched a given behaviour or stimuli with their own already existing mental representation), or until a total of 30 repeated trials had been conducted. Habituation was reached if and when young children's average looking time for the final 3 (or in some cases 4) trials was equal to or less than half of the average looking time for the first 3 (or in some cases 4) trials. Pun et al. found that infants were quicker to habituate to familiar speakers paired with positive behaviour or stimuli than to unfamiliar speakers paired with positive behaviour or stimuli. Also, infants habituated more quickly to familiar speakers paired with positive behaviour or stimuli than to familiar speakers paired with negative behaviour or stimuli. Conversely, infants habituated to familiar speakers paired with negative behaviour or stimuli at the same rate as unfamiliar speakers paired with negative behaviour or stimuli. Equally, infants habituated to unfamiliar

speakers paired with positive behaviour or stimuli at the same rate as unfamiliar speakers paired with negative behaviour or stimuli. Thus, children's willingness to associate positivity with a familiar social group develops independently of and earlier than their willingness to associate negativity with a foreign social group.

Intergroup bias has also been observed in preschool-aged children. For instance, Patterson and Bigler (2006) allocated children between the ages of 3 and 5 to either a control daycare classroom or experimental daycare classroom. Children in each room were randomly designated a red or blue t-shirt; teachers in the control classroom did not make any reference to t-shirt colour, while teachers in the experimental classroom utilised t-shirt colour when speaking to children or arranging the room (e.g., "Good morning, Blues and Reds", red and blue labels were used to adorn children's cubbies). Results showed that preschool-aged children from both classroom types developed a preference for the in-group. However, there was some evidence suggesting that children's intergroup attitudes were also affected by teachers' mentioning of t-shirt colour in the classroom, but only on a couple of dimensions: specifically, children in the experimental classroom rated their group membership as more important, rated themselves as happier with their group membership, and enjoyed to play or wanted to interact with members of their own group more than children did in the control classroom. Overall, it may be that the sheer existence of visually discernible groups is enough to produce in-group bias among preschool-aged children. It could also be that preschool-aged children are more easily influenced by the use of verbal group labels when study administrators are asking them questions (i.e., when several of the study measures explicitly use the labels "reds" and "blues"). The tendency to form in-group bias based solely on visually prominent groups or verbal group labels seems to wear off as children

become older, since they also come to rely on adults' functional use of groups in order to develop in-group bias (e.g., Bigler, Brown, & Markell, 2001; Bigler, Jones, & Lobliner, 1997).

In an effort to investigate the effects of minimal groups (i.e., group members have no prior knowledge of the groups' importance, groups are categorised using neutral-value features, groups are equal in status, in-group or out-group members have not interacted with one another) in children, Dunham, Baron, and Carey (2011) first asked 5-year-old children to choose either a red or blue coin that had been hidden and shuffled behind an experimenter's back; depending on the colour of the coin chosen, children were allocated to a red or blue group and asked to wear a t-shirt of that same colour. Children then looked at a series of pictures showing 8 other boys and girls wearing red or blue t-shirts (i.e., different variations of 2 girls and 2 boys wearing red and 2 girls and 2 boys wearing blue). Results showed that children explicitly liked members of the in-group more than members of the out-group, and also implicitly preferred the in-group to the out-group (i.e., they were quicker to respond when in-group members were paired with positive adjectives than when in-group members were paired with negative adjectives). Moreover, children preferred to give coins to the in-group rather than to the out-group. In a second study, 5-year-old children were not told that they belonged to a specific colour group, and instead were only asked to wear an orange or green t-shirt. They were then shown a series of pictures of 12 other boys and girls wearing orange or green t-shirts (i.e., 3 girls and 3 boys wearing orange and 3 girls and 3 boys wearing green). Results indicated that children attributed more positive actions and events (e.g., "helped a friend with her homework") to the in-group than to the out-group, and attributed negative actions and events (e.g., "took some money without asking") evenly to the in-group and to the out-

group. They also expected more preferential treatment and sharing behaviours (e.g., “who would definitely share their lunch with you”) from members of the in-group than from members of the out-group. As was the case in the first study, children implicitly preferred the in-group to the out-group. Minimal group effects were shown in both the first and second studies, albeit the effects were generally weaker in the second study. In a third study, 5- and 6-year-old children were allocated to an orange or green group and asked to wear a t-shirt of that same colour (i.e., similar to the first study, children were told that they belonged to a specific colour group). Children were then read two group-relevant stories: one story was about an orange t-shirt wearing protagonist that participated in both positive and negative behaviours, while another story was about a green t-shirt wearing protagonist that participated in both positive and negative behaviours. Results indicated that positive actions were remembered for in-group protagonists more often than for out-group protagonists; negative actions were remembered equally as often for both in-group and out-group protagonists. Even further, children preferred to play with an in-group member rather than with an out-group member.

An extensive body of research has also examined how certain environments can elicit stereotyping and prejudice among children and early adolescents. For example, Bigler et al. (1997) conducted a study with children between the ages of 6 and 9 in which two classrooms were assigned to each condition, namely a biological condition, a random condition, and a control condition. Half of the children in each classroom were provided blue t-shirts, and the other half were provided yellow t-shirts; children in the random and control conditions were randomly assigned a t-shirt colour, whereas children in the biological condition were assigned a t-shirt colour based on their hair colour. Also, teachers in the biological and random conditions

were instructed to engage in activities or dialogue that involved t-shirt colour (e.g., arranging the children's seats based on t-shirt colour, asking the children to line up at the door for recess based on t-shirt colour), while teachers in the control condition did not utilise t-shirt colour during classroom activities. Results indicated that children in the biological and random conditions judged their own group more approvingly than the out-group on traits, particularly on positive traits (e.g., friendly, pretty, smart), than did children in the control condition. Even further, children in the biological and random conditions were especially more willing to assign positive traits to all of their own group members and negative traits (e.g., mean, selfish, dirty) to none of their own group members than were children in the control condition. Children assigned to the biological condition were just as strongly biased towards their own group as children assigned to the random condition, suggesting that the functional use of a social category (e.g., teachers employing t-shirt colour when speaking to the children), regardless of its justification, lends to intergroup bias.

Similarly, Bigler et al. (2001) tested the effects of group status on intergroup biases in children between ages 7 and 12. Children were allocated to one of three conditions: a posters-only condition (i.e., six posters portrayed a majority of contest winners wearing yellow t-shirts, but teachers did not mention t-shirt colour in the classroom), a posters plus functional use condition (i.e., six posters portrayed a majority of contest winners wearing yellow t-shirts, and teachers spoke about t-shirt colour in the classroom), and a no-posters control condition (i.e., posters were not displayed in the classroom, but teachers spoke about t-shirt colour). Half of the children in each classroom were asked to wear yellow t-shirts, while the other half were asked to wear blue t-shirts. Results showed that high status children (i.e., yellow t-shirt children) in the posters plus functional use condition demonstrated a bias

towards their own group, and offered more positive evaluations of the in-group than of the out-group (i.e., they thought more of the in-group than of the out-group could be described using positive traits, such as pretty and smart), while children in the posters-only condition did not exhibit any such bias. This finding suggests that children avoid forming social stereotypes based on environmental cues (in this case, posters in the classroom) without figures of authority endorsing those beliefs. Also, high status children in the posters plus functional use condition and children in the no posters control condition both reported in-group biases. That is, children demonstrated in-group favouritism when there was the presence of both a perceptually salient group and teacher utilisation of t-shirt colour in the classroom.

Moreover, bias towards one's own group has also developed in a different kind of context, namely when group size has been manipulated experimentally. For instance, Brown and Bigler (2002) conducted a series of studies looking at the effects of minority versus majority groups on intergroup bias in children. They first assigned children between the ages of 5 and 11 to either a majority (i.e., bigger), minority (i.e., smaller), or equal-sized group by wearing red or yellow t-shirts, and teachers were asked to use t-shirt colour in a functional way. Results showed that children were biased towards their own group, regardless of their group size (i.e., children in a majority, minority, or equal-sized group all attributed more favorable traits to members of their own group). In a second study, Brown and Bigler assigned children between the ages of 5 and 10 to either an even smaller minority (i.e., instead of 4 members, the minority group was made up of only 2 members in this second study) or majority group by wearing blue or yellow t-shirts, and teachers were asked this time not to mention t-shirt colour in the classroom. In contrast to the first study, results indicated that children belonging to the minority group credited more favorable traits

to members of their own group, while children belonging to the majority group showed no such bias. Thus, when teachers were instructed to ignore t-shirt colour, group salience was felt differently for minority and majority group members. In a third study, Brown and Bigler assigned children between the ages of 5 and 11 to either a minority (i.e., made up of 3 members) or majority group by wearing blue or red t-shirts, and while teachers did not speak about t-shirt colour in the classroom, six posters describing high status traits about majority group members and low status traits about minority group members were placed in the classroom (e.g., an image depicting a majority child as a spelling bee winner). Among older children, results indicated that when asked about actual group differences and status discrepancy (e.g., “most blue/red group kids really are better at spelling than red/blue group kids”), high status majority children were more biased towards their own group compared to low status minority children; however, when not directly asked about status discrepancy (e.g., assigning positive or negative traits to each group), low status minority children were more biased towards their own group compared to high status majority children. Thus, when questions were aimed at group status discrepancy, low status minority children more readily incorporated the implicit idea that they were indeed less than the other more respected and esteemed group.

While there is evidence for the materialisation of intergroup bias across different stages of development, little is known about the ontogenetic origins of identity fusion. This thesis proposed that via autobiographical memories of shared life-changing events, a variety of post-event processes – in addition to autobiographical reasoning – work to produce powerful social bonds in the form of identity fusion.

1.6 Post-event processes after childbirth

This thesis aimed to investigate whether post-event processes – from how a life event is perceived (e.g., perceived significance of the event, extent of perceived event dysphoria), to event-related thought and psychological health outcomes with respect to the event (e.g., posttraumatic stress disorder, posttraumatic growth) – could be important to the social psychology of first-time mothers. First-time mothers were addressed for two reasons: this population permitted us to build on the exploration of developmental considerations with another key lifespan phase; this population allowed for a novel perspective into the shared experience pathway to identity fusion as previous studies have addressed primarily male or mixed populations without taking into account gender differences. The present context discusses the characteristics, prevalence, predictors, and outcomes of traumatic childbirth experiences, as well as the kinds of post-event processes associated with traumatic experiences beyond the scope of childbirth.

Researchers have taken a qualitative approach to understand the nature of a traumatic childbirth experience and the ensuing physical and mental well-being of a woman. For instance, Ballard, Stanley, and Brockington (1995) illustrated the nature of postpartum PTSD through 4 case studies of women who suffered from intense nightmares, repetitive thoughts, and debilitating anxiety. Each woman experienced an emotionally distressing labour: one woman underwent anesthesia failure, one woman's baby suffered from cardiac arrest, and two women described unbearable pain. They all expressed feeling powerless during the long and difficult labour. Fones (1996) conducted a case study about a woman who suffered chronic PTSD 9 years after the birth of her son. She referred to her childbirth experience as a “long, horrifying torture,” and described how over the years she had recurring and invasive

recollections of the labour. She came to fear having a second pregnancy, and eventually sought tubal ligation in order to eliminate any chance of childbearing.

Allen (1998) had 145 women in the United Kingdom who gave birth to their children 8 months prior complete a screening questionnaire that included a measure of intrusion and avoidance symptoms using the Impact of Event Scale (IES; Horowitz et al., 1979). After this screening stage, 20 women were identified as experiencing a very distressing labour and agreed to participate in a semi-structured interview. Analysis of the interviews revealed that women experienced strong feelings of helplessness during their labour, and that certain kinds of beliefs and experiences, such as the belief that their babies would be harmed in some way, the experience of prolonged and severe pain, and previous traumatic life experiences (e.g., losing a baby during a previous traumatic labour experience), led to this feeling of not being in control of their labour or their own behaviour. Women also tried to attain medical and emotional support from hospital staff and their partners in order to alleviate their feelings of powerlessness. Because these attempts were futile, some women illustrated thoughts and actions that either reduced their level of distress after their labour (e.g., focused more on the joyful aspects of their child's birth) or preserved their level of distress after their labour (e.g., avoided talking about their experiences for fear of others finding out that they were having a difficult time with motherhood). Interestingly, women who scored higher on the IES reported changes in their own thoughts (e.g., intrusive recollections of their labour), feelings (e.g., panic), and behaviours (e.g., crying), as well as changes in their relationships (e.g., anger towards their partner) and attitudes towards a future pregnancy (e.g., fearful of having more children).

Beck (2004a) recruited women by primarily contacting members of a charitable trust called Trauma and Birth Stress (TABS). Women were asked to write about their traumatic childbirth experiences. In the end, there were 40 birth trauma narratives collected via the internet and mail from women who had experienced labour anywhere between 5 weeks to 14 years prior; 32 out of the 40 women had PTSD as a result of their labour, while 8 out of the 40 women experienced PTSD symptoms even though they had not yet sought mental health services since their labour. Birth trauma narratives revealed four major themes: women did not feel enough empathy from hospital staff; women did not feel that there was clear and open communication with hospital staff; women did not feel that there was safe and protective care provided by hospital staff; and women did not feel that hospital staff were mindful of their comfort and safety, instead investing all attention and resources on the arrival of a healthy newborn. That is, women felt that medical staff minimised their intensely distressing experiences as merely ordinary and unremarkable. Similar to this study, Beck (2004b) collected 38 narratives about women's experiences with PTSD after childbirth. Narratives indicated that women with postpartum PTSD were overwhelmed by flashbacks and nightmares of their labour, felt numb and disconnected from their previous self, were fixated on trying to understand what exactly happened during their labour, felt intense flashes of anger, anxiety, and depression, and distanced themselves from their baby, other mothers, and the optimism of having more children in their future.

Only in recent history have studies been conducted to assess the incidence of postpartum post-traumatic stress disorder in women. For example, Wijma, Söderquist, and Wijma (1997) approached 2,083 Swedish women who had given birth over a one-year time period to complete a measure of PTSD, namely the Traumatic Event Scale

(TES), as well as a measure of their fear of childbirth and specifically their thoughts on the overall labour and delivery experience, namely the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ version B; Wijma, Wijma, & Zar, 1998). In the end, 1,640 participants were included in the study (i.e., although 1,679 questionnaires were returned, some of them had to be excluded from the study because they were incomplete or from women who had given birth to their child less than 1 month prior). Results indicated that 1.7% of the women (28 out of 1,640 women) fulfilled the criteria for PTSD. The PTSD group consisted of more first-time mothers and past recipients of psychiatric or psychological counseling than the rest of the sample, and rated their interactions with labour and delivery hospital workers as more negative than the rest of the sample. Women with PTSD also scored higher on the W-DEQ, indicating that they perceived their labour and delivery experience as more negative than the rest of the sample. Moreover, the amount of time that had passed since a child's birth (anywhere between 1 month to more than 13 months) did not differ between the PTSD group and the non-PTSD group (Wijma et al., 1997).

Moreover, Soet, Brack, and Dilorio (2003) approached 112 women in the United States who were in late pregnancy to first complete a pre-birth questionnaire, which would then be followed by a post-birth phone interview 4 weeks after their child's birth. The pre-birth questionnaire included the following measures: the Pregnancy Attitude Index (PAI; O'Connell, 1983), which measures how much a woman attributes control to doctors and hospital staff (external control) versus herself (internal control); the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ version A; Wijma, et al., 1998), which measures a woman's fear of childbirth; the Childbirth Self-Efficacy Inventory (CBSEI; Lowe, 1993), which measures a woman's confidence in her ability to use certain coping behaviours that she believes

will help her manage labour and delivery; the Medical Outcomes Study (MOS) Social Support Survey (Sherbourne & Stewart, 1991), which measures the availability of support systems (e.g., close friends, close relatives); the State-Trait Anxiety Inventory (STAI; Spielberger, 1983; Spielberger, Gorsuch, & Lushene, 1970), which measures how a woman feels in the current moment as well as in general; and the Sense of Coherence Scale (SOC; Antonovsky, 1979; Antonovsky, 1987), which measures a woman's ability to cope with life stressors. The post-birth phone interview included the Traumatic Event Scale (TES; Wijma et al., 1997) as well as the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ version B; Wijma et al., 1998). In the end, 103 women participated in the phone interview. Results indicated that while 34% (35 out of 103 women) indicated experiencing a traumatic childbirth, 30.1% (31 out of 103 women) reported fulfilling some but not all of the PTSD symptom criteria and 1.9% (2 out of 103 women) reported meeting all of the PTSD symptom criteria (i.e., met the criteria for a PTSD diagnosis). Greater pain during labour, greater feelings of powerlessness, a history of sexual trauma, actual labour experience being worse than expected, lack of support systems, greater medical intervention, lack of adequate information, greater expectations of pain, and a longer labour were significantly linked to women's perceptions of the childbirth as a traumatic experience. Additionally, lack of support systems, a low-income background, and greater pain during labour were significantly linked to the development of PTSD symptoms (Soet et al., 2003).

Interestingly, some studies have found incidence rates for postpartum PTSD closer to 3%. For example, Ayers, Harris, Sawyer, Parfitt, and Ford (2009) analysed data from 1,297 women by using two different recruitment strategies: 379 women were recruited from a series of longitudinal community studies based in the United

Kingdom, and 918 women were recruited from a series of cross-sectional internet studies using UK-based websites (e.g., <http://www.birthtraumaassociation.org.uk>). PTSD was measured in the first 12 months postpartum for the community studies; although an exact time frame was not specified for the internet studies, the mean amount of time since giving birth was similar for both the community and internet studies, $M = 10.18$ months, $SD = 3.87$ and $M = 12.79$ months, $SD = 8.59$, respectively. Questionnaire items included a measure of PTSD, namely the Posttraumatic Diagnostic Scale (PDS; Foa, Cashman, Jaycox, & Perry, 1997). Results showed that 2.5% (4 out of 160 women) fulfilled the criteria for PTSD in the community samples, while 21% (179 out of 852 women) fulfilled the criteria for PTSD in the internet samples. Internet samples demonstrated inflated incidence rates; this could have been due to the use of specific websites tailor-made for women who had undergone traumatic childbirth experiences. Parity (having a firstborn), delivery type (having an assisted delivery or having a caesarean delivery), PTSD symptoms (numbing and arousal, re-experiencing and avoidance), and the interaction between past experiences of sexual trauma and delivery type were significant predictors of PTSD (Ayers et al., 2009).

Moreover, Czarnocka and Slade (2000) recruited 298 women in the United Kingdom within 72 hours of their labour to complete a questionnaire booklet, followed by another questionnaire 6 weeks later in the mail. The initial questionnaire booklet included measures that looked at trait anxiety and perceived control in a hospital environment, namely the State-Trait Anxiety Inventory (STAI; Spielberger, 1983; Spielberger et al., 1970) and the Perceived Control Scale (PCON; Wallston, 1989), respectively. The follow-up questionnaire included the PTSD Interview (PTSD-I; Watson, Juba, Manifold, Kucala, & Anderson, 1991), the Impact of Event

Scale (IES; Horowitz et al., 1979), the Edinburgh Postnatal Depression Scale (EDPS; Cox, Holden, & Sagovsky, 1987), and a measure of state anxiety using the State-Trait Anxiety Inventory (STAI; Spielberger, 1983; Spielberger et al., 1970). In the end, 265 women completed the follow-up questionnaire. Results from the PTSD-I revealed that while 24.2% (64 out of 265 women) met some of the PTSD symptom criteria, only 3% (8 out of 265 women) met all of the PTSD symptom criteria (i.e., met the criteria for a PTSD diagnosis). Of these 8 women, 3 of them also demonstrated clinically significant levels of intrusion or avoidance on the IES, and 6 of them also exhibited clinically significant levels of depressive symptoms. Also, trait anxiety, placing blame on hospital staff, the absence of one's partner during the labour, fear for oneself during the labour, and a history of previous mental health problems were significantly linked to PTSD symptoms (Czarnocka & Slade, 2000).

Even further, Söderquist, Wijma, and Wijma (2006) had 1,224 women take part in the first of six assessments, with slightly lower numbers of women participating over time (e.g., 951 women participated in the second assessment, 908 women participated in the third assessment). Women were 16-20 weeks and 32 weeks pregnant during the first and second assessments, respectively, and 1, 4, 7, and 11 months postpartum during the third, fourth, fifth, and sixth assessments, respectively. In the first assessment, women were provided with the trait version of the State-Trait Anxiety Inventory (STAI; Spielberger, 1983; Spielberger et al., 1970), the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), a measure of a woman's ability to manage stressful situations using the Stress Coping Inventory (SCI; Ryding, Wijma, Wijma, & Rydhström, 1998), and a measure of a woman's perception of social support from her family, friends, and partner using the Social Contact Questionnaire (SCQ); in the second assessment, women were provided

with the Traumatic Event Scale (TES; Wijma et al., 1997), referencing their upcoming deliveries, as well as the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ version A; Wijma, et al., 1998); in the third and all subsequent assessments, women were provided with the TES (Wijma et al., 1997), the BDI (Beck et al., 1961), and the SCQ. The third assessment also included the Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ version B; Wijma, et al., 1998). Results indicated that while 5.8% (55 out of 941 women) fulfilled the criteria for PTSD in pregnancy, 1.3% (12 out of 908 women), 1.7% (14 out of 823 women), 1.7% (14 out of 813), and 0.9% (7 out of 763 women) fulfilled the criteria for PTSD after 1, 4, 7, and 11 months postpartum, respectively. In total, 37 out of 1,224 women had postpartum PTSD at some point over the span of 11 months, giving an overall incidence rate of 3%. Also, total scores on the TES did not decrease over time among these 37 women. Previous exposure to counseling, previous psychological issues, depression in pregnancy, PTSD in pregnancy, and a fear of childbirth all increased the odds of having postpartum PTSD at some point over the 11-month period. In addition, there was a significant relationship between having postpartum PTSD at some point over the 11-month period and having depression at some point over the 11-month period: 65% of the 37 women who had postpartum PTSD at some point over the 11-month period also had depression at some point over the 11-month period, and 22% of the 108 women who had depression at some point over the 11-month period also had postpartum PTSD at some point over the 11-month period. Women who had postpartum PTSD at some point over the span of 11 months demonstrated a decrease in perception of social support from their family, friends, and partner over time, while women who did not have postpartum PTSD indicated an increase in perception over time (Söderquist et al., 2006).

Ayers and Pickering (2001) conducted a more streamlined study in which they recruited 289 pregnant women in the United Kingdom to complete various questionnaires at three time points: 36 weeks pregnant (i.e., 9 months pregnant), 6 weeks postpartum, and 6 months postpartum. The MMPI-2 PTSD scale (Lyons & Keane, 1992) was administered during a woman's pregnancy and did not refer to any particular experience, while the PTSD Symptom Scale (PSS; Foa, Riggs, Dancu, & Rothbaum, 1993) was administered postpartum and explicitly referred to a woman's childbirth experience. Depression was measured using the General Health Questionnaire (GHQ; Goldberg, 1972; Goldberg & Hillier, 1979). Questionnaires were mailed out to the women, and not all of them sent back their questionnaires at each time point (e.g., 222 women responded in pregnancy, 218 women responded at 6 weeks postpartum). Results indicated that 8.1% (18 out of 222 women) demonstrated PTSD in pregnancy, 6.9% (15 out of 218 women) demonstrated PTSD at 6 weeks postpartum, and 3.5% (7 out of 201 women) demonstrated PTSD at 6 months postpartum. Interestingly, results also showed that there were indeed new cases of women who developed post-traumatic stress disorder after childbirth; that is, the incidence rates of new postpartum PTSD (i.e., not including women who had PTSD or depression during their pregnancies) were 2.8% (6 out of 218 women) after 6 weeks and 1.5% (3 out of 201 women) after 6 months. While there was a decrease in postpartum PTSD rates between 6 weeks and 6 months, spontaneous recovery was predicted to drop after the first 6 months, signifying the presence of chronic PTSD and the need for treatment and rehabilitation (Ayers & Pickering, 2001).

Additionally, other studies have uncovered even higher incidence rates. For instance, Menage (1993) recruited 500 volunteers by way of UK-based newspapers and magazines and asked them to complete an anonymous questionnaire on their

experiences and perceptions of past obstetric and gynaecological procedures. The PTSD Interview (PTSD-I; Watson et al., 1991) was then distributed to only 102 of the volunteers who described their previous experiences as “very distressing”, “out of the ordinary”, “terrifying”, “still affecting them now”, and happening over a month ago. Of the total sample of volunteers, 6% (30 out of 500 women) met the criteria for PTSD. When these 30 women were compared with 30 other women who described their previous experiences as “very good” to “slightly distressing”, “not out of the ordinary”, and “not affecting them now”, it was noted that factors such as the loss of a baby, feeling more physically hurt, feeling more helpless, feeling more neglected, sensing more hostility from the doctor, or feeling less in control or less informed during the obstetric or gynaecological procedure could have contributed to the development of PTSD (Menage, 1993).

Furthermore, Creedy, Shochet, and Horsfall (2000) approached 592 women in Australia who were in the final trimester of their pregnancy to complete a questionnaire that included the State-Trait Anxiety Inventory (STAI; Spielberger, 1983; Spielberger et al., 1970), as well as participate in a phone interview 4 to 6 weeks after their child’s birth. During the phone interview, participants were provided with the Perception of Care Questionnaire (PCQ; Fisher, 1994; e.g., questions referencing the nominated staff member’s technical knowledge and emotional attentiveness) and asked to describe both the “best” and “worst” parts of their labour. Only participants who referred to a traumatic experience were provided with the PTSD Symptom Scale (PSS; Foa et al., 1993). In the end, 499 women participated in the phone interview. Results indicated that while 33% (164 out of 499 women) reported having a distressing labour and delivery and 3 or more trauma symptoms (i.e., not the minimum 6 trauma symptoms required to meet the criteria for PTSD),

only 5.6% (28 out of 499 women) met the criteria for PTSD. Antenatal factors (e.g., state anxiety, anxiety in anticipation of childbirth, preparedness for childbirth, obstetric history, probability of labour and delivery complications, partner encouragement) did not significantly predict the development of postpartum trauma symptoms; conversely, the extent of obstetric intervention (e.g., experiencing an emergency C-section, a forceps delivery, a vacuum delivery, pain after delivering the child, fear for the baby's life) and the extent of dissatisfaction with labour and delivery care (e.g., a more negative perception of partner response/need to talk about the childbirth, a more negative perception of technical proficiency of hospital staff), were strong predictors of postpartum trauma symptoms (Creedy et al., 2000). In summary, while studies have demonstrated that PTSD can develop among women after enduring a very stressful childbirth experience, its exact course and prevalence over time seems to still be indeterminate. This may be due to the use of different methodological approaches and sampling techniques across studies.

A recent review by Ayers, Bond, Bertullies, and Wijma (2016) aimed to identify the origins of postpartum PTSD, such as the kinds of vulnerability factors and risk factors that can play a role in pregnancy, during labour and delivery, and after childbirth. They found that vulnerability factors in pregnancy, namely previous experience with PTSD, previous experience with counselling for issues related to pregnancy and childbirth, poor physical health or complications during pregnancy, a fear of childbirth, and depression during pregnancy, were the most strongly associated with postpartum PTSD. Risk factors during labour and delivery, namely a negative subjective childbirth experience (e.g., negative emotions during childbirth, loss of agency), an operative childbirth (i.e., assisted vaginal or C-section), lack of support from medical staff during childbirth, and dissociation (e.g., depersonalisation,

disengagement), were the most strongly associated with postpartum PTSD. Risk factors after childbirth, namely postpartum depression and poor coping skills and stress, were the most strongly associated with postpartum PTSD. Moreover, methodological factors such as clinical status of the sample (e.g., a high-risk sample more prone to experience complications during pregnancy, like an emergency C-section), quality of the PTSD questionnaire (e.g., the PTSD interview used full diagnostic criteria, the PTSD interview only considered PTSD symptoms), and number of months between measuring risk factors and postpartum PTSD, were shown to moderate the relationships between vulnerability and risk factors and postpartum PTSD. For example, high-risk samples were more likely to indicate an association between poor physical health/complications during pregnancy and postpartum PTSD.

Many have argued that life-changing experiences can lead to different kinds of mental health outcomes. That is, as a consequence of positive or maladaptive evaluation and reflection, traumatic childbirth experiences have the potential to lead to both positive and negative consequences. For instance, Sawyer and Ayers (2009) investigated the possibility of positive psychological outcomes following traumatic childbirth experiences, namely of posttraumatic growth. They recruited a sample of 219 women who had given birth no more than 36 months prior via appropriate websites (e.g., www.netmums.com), and asked them to complete the following measures: Nicholls and Ayers' (2007) questionnaire on demographic and birth-related information (e.g., number of children they had), the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) to assess positive psychological growth (e.g., "Putting effort into my relationships", "I established a new path for my life", "Being able to accept the way things work out", "A better understanding of spiritual matters", "An appreciation for the value of my own life"), the PDS (Foa et al., 1997), the

Coping Responses Inventory (CRI; e.g., Moos, Brennan, Fondacaro, & Moos, 1990) to measure approach coping (e.g., “I reminded myself how much worse things could be”) and avoidance coping (e.g., “I accepted it; nothing could be done”), and the Support and Control in Birth Questionnaire (SCBQ; Ford, Ayers, & Wright, 2009) to measure internal control (e.g., “I was able to control my reactions to the pain”), external control (e.g., “I had control over when procedures happened”), and support (e.g., “The staff helped me find energy to continue when I wanted to give up”). Results demonstrated that 50.23% of the women conveyed at least a moderate degree of positive psychological growth (i.e., a score of > 62 out of a maximum score of 105), and 12.4% of the women met the criteria for PTSD (the total number of women who completed each questionnaire was not provided in the paper). Positive psychological growth symptoms were not associated with PTSD symptoms. Age was the only predictor of positive psychological growth, whereby younger women demonstrated greater growth; avoidant coping, external control, and internal control were predictors of PTSD, whereby greater avoidant coping and weaker perceptions of external and internal control elicited greater PTSD. All together, postpartum PTG and postpartum PTSD were designated as two independent processes: the former may be influenced by one’s developmental stage in life, while the latter may be influenced by factors surrounding the event (Sawyer & Ayers, 2009).

Interestingly, Boals and Schuettler (2011) investigated how a negative and positive outcome can coexist after experiencing a traumatic event that is perceived as a core component of one’s life story. They recruited 929 participants to complete the following measures: an adapted version of the Traumatic Events Questionnaire (TEQ; Vrana & Lauterbach, 1994) to assess participants’ most traumatic life experience, the A1 (“Did you experience, witness or confront an event that involved actual or

threatened death or serious injury, or threat to [your] physical integrity or that of others?") and A2 ("Did your response include fear, helplessness or horror?") criteria (American Psychiatric Association, 2000), the Brief COPE (BCOPE; Carver, 1997) to measure problem-focused, emotion-focused, and avoidant coping responses (e.g., "I've been thinking hard about what steps to take", "I've been getting emotional support from others", "I've been refusing to believe that it has happened", respectively), the short version of the Centrality of Event Scale (CES; Berntsen & Rubin, 2006) to measure the degree to which a traumatic event becomes a reference point for one's personal identity (e.g., "I feel that this event has become part of my identity", "This event has become a reference point for the way I understand myself and the world", "I feel that this event has become a central part of my life story", "This event has colored the way I think and feel about other experiences", "This event permanently changed my life", "I often think about the effects this event will have on my future", and "This event was a turning point in my life"), the Cognitive Processing of Trauma Scale (CPOTS; Williams, Davis, & Millsap, 2002) to examine different aspects of cognitive processing, or meaning-making, of a traumatic event (e.g., denial – "I pretend this didn't really happen", positive cognitive restructuring – "There is ultimately more good than bad in this event/situation", resolution/acceptance – "I have figured out how to cope", regret – "I often think 'if only I had done something different'", and downward comparison – "Other people have had worse experiences than mine"), the PTGI (Tedeschi & Calhoun, 1996), the PTSD Checklist (PCL-Specific; Weathers, Litz, Huska, & Keane, 1994), and the Quick Inventory of Depressive Symptomatology-Self Report (QIDS-SR; Rush et al., 2003). Results indicated that centrality of an event was positively associated with both posttraumatic stress and depression symptoms, as well as with psychological growth levels. That is,

the more an individual perceived an event as an essential part of their personal identity, the greater their PTSD symptoms, depression symptoms, and PTG levels. In addition, perceived centrality of an event, PTSD symptoms, problem-focused coping, positive cognitive restructuring, downward comparisons, depression symptoms, and resolution/acceptance were significant predictors of PTG levels: specifically, the more an event was perceived as central to one's sense of self, the greater one's PTSD symptoms, problem-focused coping, positive cognitive restructuring, and resolution/acceptance, and the lower one's downward comparisons and depression symptoms, the greater one's PTG levels. A2 criteria, perceived centrality of an event, PTG levels, depression symptoms, regret, resolution/acceptance, positive cognitive restructuring, downward comparisons, avoidant coping, problem-focused coping, and denial were significant predictors of PTSD symptoms: namely, when one's response to the event included fear, helplessness, and horror, the more an event was perceived as central to one's sense of self, the greater one's PTG levels, depression symptoms, regret, downward comparisons, avoidant coping, problem-focused coping, and denial, and the lower one's resolution/acceptance and positive cognitive restructuring, the greater one's PTSD symptoms (Boals & Schuettler, 2011).

Moreover, Allbaugh, Wright, and Folger (2016) also addressed the unique adaptive and maladaptive forms of repetitive thought that contribute to the development of PTSD and PTG. They recruited 1,514 participants; only 163 of them who reported experiencing a traumatic or stressful event that involved interpersonal violence (e.g., experienced an attack or assault, mistreated during childhood) were included in the study. The following measures were provided to the participants: the full version of the Centrality of Event Scale (CES; Berntsen & Rubin, 2006), the Ruminative Responses Scale (RRS; Nolen-Hoeksema & Morrow, 1991; Treynor,

Gonzalez, & Nolen-Hoeksema, 2003) used to measure trait-like repetitive thought in two forms, namely reflecting (e.g., “Analyze recent events to try to understand why you are depressed”, “Go away by yourself and think about why you feel this way”, “Write down what you are thinking and analyze it”, “Analyze your personality to try to understand why you are depressed”, and “Go someplace alone to think about your feelings”) and brooding (e.g., “Think ‘What am I doing to deserve this?’”, “Think ‘Why do I always react this way?’”, “Think about a recent situation, wishing it had gone better”, “Think ‘Why do I have problems other people don’t have?’”, and “Think ‘Why can’t I handle things better?’”), the Event-Related Rumination Inventory (ERRI; Cann et al., 2011) used to measure event-related repetitive thought in two forms, specifically deliberate repetitive thought (e.g., “I thought about whether I could find meaning from my experience”, “I forced myself to think about my feelings about my experience”, “I thought about whether the experience has changed my beliefs about the world”, “I thought about whether my relationships with others have changed following my experience”, “I deliberately thought about how the event had affected me”) and intrusive repetitive thought (e.g., “I thought about the event when I did not mean to”, “Thoughts about the event distracted me or kept me from being able to concentrate”, “Thoughts, memories, or images of the event came to mind even when I did not want them”, “Reminders of the event brought back thoughts about my experience”, “Other things kept leading me to think about my experience”), the Center for Epidemiological Studies Depression scale (CES-D; Radloff, 1977), the Zung Self-Rating Anxiety Scale (SAS; Zung, 1971), the PTSD Checklist (PCL-Civilian; Weathers et al., 1994), and the Paired Format Posttraumatic Growth Inventory (PTGI-42; Baker, Kelly, Calhoun, Cann, & Tedeschi, 2008; Cann, Calhoun, Tedeschi, & Solomon, 2010) to measure both PTG and posttraumatic depreciation

(PTD; e.g., “I am less willing to express my emotions”, “I have a weaker religious faith”). In concurrence with Boals and Schuettler’s (2011) study, PTSD symptoms and PTG were positively correlated. Notably, event centrality and trait-like brooding were significant positive predictors of depressive symptoms; trait-like brooding was a significant positive predictor of anxiety symptoms; event centrality, trait-like brooding, and trait-like reflecting were significant positive predictors of PTSD symptoms and PTD; event centrality and event-related deliberate repetitive thought were significant positive predictors of PTG (Allbaugh et al., 2016).

The link between a PTSD diagnosis and coherence of a personal narrative about that particular traumatic experience is also an interesting one. Notably, Rubin (2011) recruited 30 participants, half of which had met the criteria for PTSD using the Clinician Administered PTSD Scale – Version 1 (CAPS-1; e.g., Blake et al., 1995). All participants were asked to provide a one-page description of three different kinds of event memories: “The most stressful or traumatic event in your life that now bothers you the most, with the restriction that it occurred 1 month or longer ago”; “The most positive memory that occurred within 1 year before or after the most stressful event you listed”; and “The most important event that occurred within 1 year before or after the most stressful event you listed”. The following measures were then administered: questions about each event memory’s coherence in the life story (e.g., “The event in my memory is a central part of my life story”) and coherence inherent to each event memory (e.g., “It comes to me in words or in pictures as a coherent story or episode and not as an isolated fact, observation, or scene”) from the Autobiographical Memory Questionnaire (AMQ; Rubin, Schrauf, & Greenberg, 2003, 2004), the short version of the CES (Berntsen & Rubin, 2006) in reference to each kind of event memory, the PCL (Weathers et al., 1994), the Beck Depression

Inventory-II (BDI-II; Beck, Steer, & Brown, 1996), and the Dissociative Experiences Scale (DES; Bernstein & Putnam, 1986; see Carlson & Putnam, 1993, for the DES-II that is easier to score) to measure a lack of integration of experiences, behaviours, and thoughts into one's personal identity (note that the study did not specify if the PCL-S or PCL-C was used, or if the DES or DES-II was used). In addition, each event narrative was scored by three coders for comprehension (e.g., "Do you understand more about who the narrator is, how they deal with the world, and how they must have felt?"), disorganisation ("How much of the text is disorganised – that is, how much of the writing does not add to the development of the narrative and our understanding of the narrator?"; adapted from Halligan, Michael, Clark, & Ehlers, 2003), and a more specialised form of coherence looking at context (i.e., time and location of the event are specified), chronology (i.e., the actions within an event are ordered along a timeline), and theme (i.e., the topic is developed through actions that are elaborated, evaluated, interpreted; the story is resolved and has closure) using the Narrative Coherence Coding Scheme (NaCCS; Reese et al., 2011). Results indicated that participants with PTSD had greater scores on the PCL, BDI-II, and DES. In addition, there were no differences between the PTSD/non-PTSD groups or between the three different kinds of event narratives on comprehension, the NaCCS, or the participants' self-ratings of inherent coherence. Interestingly, individuals with PTSD scored higher on disorganisation for all three event narratives; however, these results were interpreted as unremarkable as the means for all participants were very low and did not translate as being disorganised. Across all participants, trauma event narratives scored higher on participants' self-rated event centrality (CES) and life story coherence. On the whole, event narratives after a diagnosis of PTSD or event

narratives about traumatic event memories were no more prone to being less coherent (Rubin, 2011).

1.7 Empirical studies of this thesis

Three empirical studies were conducted in order to examine how identity fusion emerges as a consequence of shared transformative life experiences.¹ The central aim was to understand the underlying mechanisms of the shared experience pathway to identity fusion, whether it is in children, adolescents, or first-time mothers. Following from the literature review, it is evident that little has been undertaken in fusion literature with respect to the processes that give rise to identity fusion in these particular populations or at these different stages of the lifespan. This thesis proposed that unlike other developmental approaches to intergroup bias, the shared experience pathway to identity fusion fully emerges in adolescence in part as an after-effect of changes in autobiographical memory. Ultimately, autobiographical reasoning via critical event narratives (e.g., children's and adolescent's turning point narratives, first-time mothers' birth narratives) could play an important role in the shared experience pathway to identity fusion, whereby the individual connects past experiences to the present self. Even further, this thesis proposed that apart from autobiographical reasoning, certain post-event processes are linked to the manifestation of identity fusion. Specifically, processes such as perceived event dysphoria (e.g., the pain endured during childbirth irrespective of other mothers' pain), perceived significance of the event (e.g., centrality of the child's birth), event-related thought (e.g., ruminative thought, reflective thought), and psychological health outcomes with reference to the event (e.g., PTSD with reference to the childbirth

¹ The first empirical study (Chapter 2) is currently in preparation to submit to *Self and Identity*. The second empirical study (Chapter 3) is currently in preparation to submit to PLoS ONE. It has not yet been decided where to submit the third empirical study (Chapter 4).

experience, postpartum depression, postpartum PTG) could be fueling identity fusion with other mothers.

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Chapter 2. The development of identity fusion in adolescence via shared experiences (Authors: Tara Tasuji, Elaine Reese, David Henderson, Joanna Chan, Harvey Whitehouse)

Abstract

Recent research in group psychology suggests that narrative processes (autobiographical reasoning about one's personal experiences) play an important role in identity fusion (a visceral sense of oneness with the group), but little is known about the development of fusion. Adapted measures of fusion, identification, and life event narratives (whole-life stories and critical event narratives) were administered via interviews in a sample of 63 New Zealand children and adolescents of predominantly European ethnicity: study 1a with children (9-10 years; $n = 24$) and mid-adolescents (16-17 years; $n = 18$); study 1b with young adolescents (11-12 years; $n = 21$). Critical event narratives were coded for autobiographical reasoning. Results indicated that although fusion could be reliably measured from age 11, autobiographical reasoning was positively correlated with fusion only for mid-adolescents. These findings extend current fusion theory by shedding light on the role of autobiographical memory processes in the emergence of fusion.

2.1 Introduction

Identity fusion is a particularly intense form of social cohesion involving a visceral feeling of ‘oneness’ with a group (Gómez & Vázquez, 2015; Swann & Buhrmester, 2015; cf. Swann, Jetten, Gómez, Whitehouse, & Bastian, 2012). Previous fusion studies have explored the nature, causes, and consequences of identity fusion and group identification, respectively, suggesting that they are contrasting forms of group alignment resulting from distinct mechanisms (see Gómez, Brooks et al., 2011; Swann et al., 2012; Whitehouse & Lanman, 2014). Numerous studies have shown that fused individuals are more likely to endorse pro-group behaviors and extreme sacrifices for their group than individuals whose group alignments are based on identification (e.g., Bortolini, Newson, Natividade, Vázquez, & Gómez, 2018; Gómez, Brooks et al., 2011; Swann, Gómez, Dovidio, Hart, & Jetten, 2010; Whitehouse, 2018). A growing number of studies suggest that identity fusion can result from at least two distinct pathways: shared experience and shared biology (Buhrmester et al., 2018; Buhrmester, Fraser, Lanman, Whitehouse, & Swann, 2015; Carnes & Lickel, 2018; Jong, Whitehouse, Kavanagh, & Lane, 2015; Kapitány, Kavanagh, Buhrmester, Newson, & Whitehouse, 2019; Kavanagh, Jong, McKay, & Whitehouse, 2018; Newson, Buhrmester, & Whitehouse, 2016; Páez, Rimé, Basabe, Włodarczyk, & Zumeta, 2015; Segal, Jong, & Halberstadt, 2018; Swann, Buhrmester et al., 2014; Swann et al., 2012; Vázquez, Gómez, Ordoñana, & Paredes, 2015; Vázquez, Gómez, Ordoñana, Swann, & Whitehouse, 2017; Vezzali, Drury, Versari, & Cadamuro, 2015; Whitehouse, 2018; Whitehouse et al., 2017; Whitehouse & Lanman, 2014; Whitehouse, McQuinn, Buhrmester, & Swann, 2014; Zumeta, Basabe, Włodarczyk, Bobowik, & Páez, 2016; cf. e.g., Misch, Fergusson, & Dunham, 2018; Vázquez, Gómez, & Swann, 2017). The main objective of this study was to focus on

one of the two pathways – shared experience – and specifically the role that autobiographical memory plays in the shared experience pathway to identity fusion.

Whitehouse and Lanman (2014) proposed that two psychological processes inspire identity fusion and its power to motivate costly pro-group behavior, namely the belief that one shares personally defining experiences with others and/or the perception of shared biology. Episodic memories of significant life experiences (e.g., the loss of a home in a natural disaster) can become essential elements of individual self-concepts, and thus, of autobiographical memory. The perception that these elements of one's personal self-concept are shared with another individual can trigger feelings of psychological kinship (Bailey, 1988) and fusion (Vázquez et al., 2017).

Nevertheless, little is known about how fusion emerges over the course of development. Only one study to date has explored the emergence of fusion in childhood and early adolescence (Gaviria, Ferreira, Martínez, & Whitehouse, 2015). In this study, researchers conducted focus groups and individual interviews in which children and young adolescents were asked about their sense of self and belonging with groups. Based on the children's responses, Gaviria et al. proposed that 6- to 12-year-olds are only capable of experiencing so-called "protofusion" – a precursor to identity fusion in its mature form. Prior to fusion, protofusion embodies a feeling of connectedness based only on common bonds (e.g., interpersonal relationships and one-on-one groups) rather than a collective group identity (e.g., people of a nation). The term refers to a still developing personal identity, whereby children and young adolescents do not yet have a fully materialised sense of agency to believe that they can singlehandedly protect and aid their group. The current study expanded on the findings of Gaviria et al. by gathering fusion ratings and life event narratives from children (9-10 years), young adolescents (11-12 years), and mid-adolescents (16-17

years).

We examined the emergence of identity fusion in children and adolescents in concert with the emergence of autobiographical reasoning about shared significant experiences with a group or individual. Autobiographical reasoning, which is the process by which people establish links between their past experiences and their current selves through narrative (Habermas & Bluck, 2000), is not evident until mid-adolescence (Habermas & Reese, 2015). However, from middle childhood, children are capable of chunking life story events into lifetime periods, which could be a precursor to autobiographical reasoning (e.g., Chen, McAnally, & Reese, 2013). We aimed to understand the distinct role of autobiographical reasoning and its precursors in the emergence of identity fusion in childhood and adolescence. We were especially interested in whether identity fusion emerges in part as a consequence of changes in autobiographical memory in adolescence.

2.1.1 Theory of identity fusion

Identity fusion and identification have been described as distinct forms of group alignment (Gómez, Brooks et al., 2011). Identification has been analyzed through the lens of both social identity theory (e.g., Tajfel & Turner, 1979) and self-categorization theory (e.g., Turner, Oakes, Haslam, & McGarty, 1994), according to which merely categorizing individuals into social groups can lead to individuals favoring members of their own group as opposed to members of the other group (Tajfel, Billig, Bundy, & Flament, 1971). Identification entails a hydraulic relationship between personal and group identity, such that making one salient makes the other less so (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). By contrast, activating or challenging the personal identities of fused individuals strengthens their endorsement of extreme behaviors on behalf of their group. Fused individuals are

particularly inclined to fight and die for their group when they receive positive feedback that challenges their negative personality traits. Activating the social identities of fused individuals (e.g., asking fused individuals how willing they are to defend their group) also increases their confidence in their negative personality traits (Swann, Gómez, Seyle, Morales, & Huici, 2009). This finding suggests that personal and social identities can be complementary and reinforcing rather than competitive (Gómez, Brooks et al., 2011; Gómez, Morales, Hart, Vázquez, & Swann, 2011; Swann, Gómez et al., 2014; Swann, Gómez, Dovidio et al., 2010; Swann, Gómez, Huici, Morales, & Hixon, 2010; Swann et al., 2009). Fusion assumes a synergistic relationship between personal and social identities (Gómez & Vázquez, 2015; Swann & Buhrmester, 2015; cf. Swann et al., 2012). Furthermore, while identification reflects people's inclination to ally themselves with the group as well as see their fellow group members as categorically interchangeable and indistinguishable (e.g., Tajfel & Turner, 1979; Turner et al., 1987), fusion can lead to strong feelings of connectedness where group members are all seen as functionally equivalent. Fusion can also generate the perception of reciprocal strength where members believe that they as well as their peers will do anything for the group (Gómez, Brooks et al., 2011; Swann et al., 2012).

Fusion can occur in relational groups characterized by strong personal bonds (e.g., families, intimate friends, small units of soldiers, or sports fans). Individuals can also become fused with collective groups where they are not acquainted with most of their fellow group members (e.g., one's country or political party) (Swann et al., 2009). When fusion is local and based on interpersonal ties, fellow group members build relational bonds through one-on-one contact and mutual experiences. When fusion is extended to a group category (e.g., nation, world religion), individuals may

project the same relational bonds onto sizeable groups even though group members have very little or no personal interaction and common experiences with their individual peers. These extended bonds are more metaphorical in nature (Gómez & Vázquez, 2015; Swann & Buhrmester, 2015; cf. Swann et al., 2012).

2.1.2 Causes of identity fusion

Some of the most comprehensive efforts to understand the causes of identity fusion stem from research into the way collective rituals generate social cohesion. Key to this research has been a distinction between imagistic and doctrinal “modes of religiosity” (e.g., Atkinson & Whitehouse, 2011; Whitehouse, 1995, 2000, 2004; Whitehouse & Laidlaw, 2004; Whitehouse & Martin, 2004; Whitehouse & McCauley, 2005; Whitehouse & McQuinn, 2012). ‘Imagistic’ rituals and practices (Whitehouse, 1995, 2000, 2004) are infrequently occurring, causally opaque actions, with high levels of dysphoria and high consequentiality; these elements work together to generate fusion among group members. Ritual dysphoria produces fusion through the perceived sharing of personally significant experiences (Whitehouse & Lanman, 2014). The combination of shared negatively valenced events that affect the formation of autobiographical self-concepts (e.g., “self-defining memories”; Singer & Salovey, 1993) with causally opaque actions produces a feeling Bailey (1988) coined as “psychological kinship” (Whitehouse, 2004; Whitehouse & Lanman, 2014). Past research has shown how shared dysphoric experiences can foster fusion among group members, such as Libyan revolutionaries fighting on the front lines (Whitehouse et al., 2014), victims of sectarian violence (Jong et al., 2015, Study 1), and witnesses to terrorist attacks (Jong et al., 2015, Study 2 and 3). On the other end of the spectrum lie ‘doctrinal’ rituals and practices (Whitehouse, 1995, 2000, 2004): these routinized actions occur very frequently and regularly and entail very low arousal and

consequentiality as individual experiences. Repetition of rituals facilitates remembering them with better accuracy; these rituals and beliefs can then make up the semantic memory of participants rather than their memory for specific episodic events. Partaking in these collective rituals becomes familiar and routine, and participants are not inclined to reflect on their meaning and importance. Instead they are provided with a body of orthodox teachings specifying the beliefs and practices that should be observed by devoted adherents. The doctrinal ritual package produces identification and cooperation among strangers, based on the sharing of socially learned identity markers stored in semantic memory, but does not tap into personal agency based on self-defining experiences stored in episodic memory (Whitehouse, 2004; Whitehouse & Lanman, 2014).

2.1.3 Developmental course of narrative identity

Narrative identity is an individual's unique and dynamic way of finding meaning and purpose through life stories (McAdams & Pals, 2006). Children are unable to narrate a coherent story about their whole lives, but they are able to produce coherent stories about single events (Bohn & Berntsen, 2008). A coherent, integrated life story does not appear to be possible until mid-adolescence (Habermas & de Silveira, 2008; see Habermas & Reese, 2015). A key development is the advent of autobiographical reasoning, a process by which individuals establish links between their past experiences and their current selves through narrative. Autobiographical reasoning involves the interpretation of life events to promote integration between one's experiences and one's self-concept (Habermas, 2011; Habermas & Bluck, 2000). One important type of autobiographical reasoning is causal coherence, in which individuals create causal links between past experiences and their current aspirations and personalities (Habermas & Bluck, 2000; Habermas & de Silveira,

2008). Mid-adolescence marks the time that individuals link their past experiences to their personal development (Habermas & Reese, 2015), both in stories of their whole lives (Habermas & de Silveira, 2008; Habermas & Paha, 2001), and in stories of critical events such as turning points (e.g., Chen, McAnally, Wang, & Reese, 2012). Autobiographical reasoning occurs across cultures, albeit with some differences in the types of events that elicit it (Reese et al., 2014; Reese, Fivush, Merrill, Wang, & McAnally, 2017).

The Self-Memory System (SMS; Conway, 2005; Conway, 2009; Conway & Pleydell-Pearce, 2000; Conway, Singer, & Tagini, 2004) proposes that autobiographical memories exist at different levels of specificity. Event-specific knowledge (specific event memories; for example, the day of college graduation) is the most fundamental level of the hierarchy, followed by general events (e.g., going to college) and lifetime periods (e.g., college days). Specific event memories are part of general events, general events are part of lifetime periods, and different lifetime periods create the life story. Chen et al. (2013) demonstrated that the ability to organize autobiographical memories in the form of lifetime periods is grasped in early adolescence (i.e., before age 14), and ultimately all older teenagers in that New Zealand sample organized their life stories using lifetime periods (i.e., by the age of 18). Chen et al. suggested that the chunking of life story events into lifetime periods may be a precursor to autobiographical reasoning, thereby laying the groundwork for establishing connections between episodic memories and the self in adolescence. Habermas and Reese (2015) went on to argue that the temporal segmentation of the life story into lifetime periods is part of its temporal macrostructure, and that the temporal macrostructure is acquired before the onset of autobiographical reasoning.

2.1.4 The present study

The main objective of this study was to establish one underlying mechanism of identity fusion over the course of development. We aimed to extend the findings of Gaviria et al. (2015), which suggested that 6- to 12-year-olds are not yet capable of identity fusion. Given the hypothesis proposed by Whitehouse and Lanman (2014), we focused on if and how identity fusion emerges in children and adolescents via autobiographical memories of shared significant life experiences with others. Specifically, we wanted to explore the role of autobiographical reasoning and its precursors in the development of identity fusion in children and adolescents. In the first round of data collection, children (9-10 years) and mid-adolescents (16-17 years) were asked to nominate two target groups that exemplified local fusion: a group they belonged to as well as groups of people or a particular individual they were especially close to, whereupon fusion and identification measures were administered for each nominated group and individual. Participants were also asked to tell their whole life story via a chapter task and to narrate two turning points. They rated the vividness and centrality of the events after each narrative. Because fusion and identification measures were not reliable for children, a second wave of data collection was then conducted for the next age group, namely young adolescents (11-12 years).

Our main predictions were the following: First, we predicted that there would be age-related changes in narrative identity, including chapter measures of whole-life stories, and autobiographical reasoning and centrality measures of critical event narratives. That is, narrative identity would increase over the course of development. Second, there would be age-related changes in identity fusion, but not in group identification. That is, we predicted that identity fusion would increase over the course of development and reach adult levels by mid-adolescence. We hypothesized that identification is an earlier form of group alignment that would have already

developed by age 9 (e.g., Bigler, Brown, & Markell, 2001; Bigler, Jones, & Lobliner, 1997; Brown & Bigler, 2002). Third, we predicted that autobiographical reasoning and its precursors would be positively associated with identity fusion, but not with identification.

2.2 Method

This study followed protocols that were approved by both the University of Otago Human Ethics Committee and the School of Anthropology and Museum Ethnography Departmental Research Ethics Committee (SAME DREC) at the University of Oxford.

2.2.1 Participants

A total of 63 New Zealand parents of children and adolescents responded to an advertisement in a free local newspaper distributed weekly to all households.

Participants were from three age groups: children (9-10 years; $n = 24$); young adolescents (11-12 years; $n = 21$); and mid-adolescents (16-17 years; $n = 18$). The first wave of data collection was for children and mid-adolescents. These age groups were selected as children were within Gaviria et al.'s (2015) period of "protofusion" and had not yet achieved autobiographical reasoning, while mid-adolescents were outside of Gaviria et al.'s age range and had realized the expected age of autobiographical reasoning (Habermas & Reese, 2015). After preliminary data analysis was conducted for these two age groups, we found that children were not reliable on fusion and identification measures and decided to pursue a second round of data collection for young adolescents six months later, using the same recruitment strategy. Parents and adolescents aged 16 years or older completed a demographic questionnaire on the parents' education levels and the child's/adolescent's main ethnicity. Parents' highest education levels were coded on a 6-point scale (1 =

primary school; 2 = intermediate; 3 = high school qualification; 4 = polytechnic qualification; 5 = undergraduate qualification; 6 = postgraduate qualification). Maternal education was used as a proxy for participants' socioeconomic status. Almost all mothers within each age group had a high school qualification or beyond, and the median education level within each age group was a polytechnic qualification. Within each age group, there was the following distribution of gender and parent-identified ethnicity (for children and young adolescents) and self-identified ethnicity (for mid-adolescents): children (15 boys and 9 girls; 11 NZ European; 7 Māori; 4 Other; 2 Unspecified), young adolescents (11 boys and 10 girls; 16 NZ European; 1 Māori; 1 Asian; 3 Other), and mid-adolescents (6 boys and 12 girls; 9 NZ European; 1 Māori; 4 Other; 4 Unspecified). Participants provided written consent, along with additional parental consent for children and adolescents under age 16, before each interview session began. All participants received a gift voucher at the end of the session; children also received a small gift eraser.

2.2.2 Procedure

Children and young adolescents and their parents, and mid-adolescents on their own, were invited to come to the university lab for one interview session. The interviews with children and mid-adolescents were conducted by the first author, a female interviewer. The interviews with young adolescents were allocated between the third and fourth authors, a male interviewer and a female interviewer. After providing written consent, parents of children and young adolescents were brought to an adjoining room, and children and adolescents remained in the main room of the lab for the interview to take place. Each interview session lasted an average of 45 minutes and was audiotaped. The measures provided during each interview session are outlined below (see Appendix A for the full interview script on p. 128).

2.2.2.1 Identity fusion and group identification

Participants were first asked to nominate a formal group to which they belonged (e.g., clubs, teams, or church). This target group was to draw on relational bonds built through face-to-face experiences. Identity fusion was measured using adapted versions of Swann et al.'s (2009) pictorial measure of fusion and Gómez, Brooks et al.'s (2011) verbal measure of fusion. The original pictorial measure of fusion (Swann et al., 2009) asks participants to choose one of five pictures that best represents the way they perceive their relationship with a group. The pictures consist of five symmetrical degrees of overlap between a smaller “self” circle and a larger “group” circle. The pictorial measure was adapted to include verbal descriptors in our study to help children and adolescents understand what the measure signifies (see Appendix B on p. 136). Fusion was measured as a continuous variable, where no overlap between the two circles was designated a score of 1 (not fused) and complete overlap between the two circles was designated a score of 5 (highly fused). The original verbal measure of fusion (Gómez, Brooks et al., 2011) asks participants to indicate to what extent they agree or disagree with seven statements that reflect their relationship with a group using a 7-point scale (0 = strongly disagree to 6 = strongly agree). The seven statements were adapted into five simpler statements in our study in order for children and adolescents to more easily understand the content, and participants were asked to say to what extent they agreed or disagreed with the five statements using a 5-point scale (1 = totally disagree to 5 = totally agree) (see Appendix B). An average verbal fusion score across the five items was attained, with higher scores indicating higher fusion with the nominated group.

Group identification was measured using an adapted version of Mael and Ashforth's (1992) identification scale. The original identification scale asks

participants to indicate how strongly they agree or disagree with six statements using a 5-point scale (1 = strongly agree to 5 = strongly disagree). The sixth statement (“If a story in the media (you know, on TV or in the newspaper) criticized the (group/person/pet), I would feel embarrassed”) was slightly adapted in our study, where the word “media” was expanded on using the phrase “you know, on TV or in the newspaper”. Participants were asked to say to what extent they agreed or disagreed with the six statements using the same 5-point scale as for the adapted verbal measure of fusion. An average identification score across the six items was attained, with higher scores indicating higher identification with the nominated group.

Participants were then asked to nominate a second group of people (e.g., their family unit or circle of friends) or a particular individual (e.g., their dad, sister, best friend, neighbor, or pet) they were close to, talked to when they had a problem, or spent the most time with. This target group was to maximize relational bonds fostered through shared life experiences or shared biology. Identity fusion and identification measures were then completed again for this second group or individual. The terms club/church group and family/friend group are used throughout this paper to indicate the first nominated group and the second nominated group, respectively.

2.2.2.2 Life story interview

Participants were requested to tell the story of their life and each of the main chapters in it as if it were a story in a book, starting with the chapter that they were currently in and narrating backwards until they reached the first chapter in the story (see Chen et al., 2013; adapted from McAdams, 2008). Participants were asked to provide a title for each chapter and describe some of the events that had happened in each chapter. The interviewer suggested that they provide a minimum of 2 or 3 chapters and a maximum of 7 chapters. The interviewer took note of the title and

subject matter of each chapter on a separate sheet. After the participant finished narrating the life story, the interviewer provided an overview of each of the chapters starting with the earliest chapter, allowing the participant to make corrections or changes to the story.

2.2.2.2.1 Chapter coding

Once the life stories were transcribed, we coded the number of chapters in the life story as well as chapter type (Chen et al., 2013; see Appendix C for coding guidelines and examples on p. 137). We coded each chapter as life period or event specific. Life period chapters described any lifetime period (e.g., Conway, 2009) that contained several repeated or unrelated events. The proportion of life period chapters was noted for each participant. Each chapter was also coded for coherence with the larger life story on a 4-point scale (see Appendix D for scale points and examples on p. 138; Bohn & Berntsen's (2008) scale was used as a guide). Average chapter coherence was calculated across all chapters for each participant since each participant had varying numbers of chapters.

Reliability coding on chapter measures was conducted by the first and third authors. A supervising coder independently trained each of the two coders before reliability coding began. The supervising coder was blind to the hypotheses and checked all final codes. The two coders scored 25% of the chapters from children and mid-adolescents, followed by 25% of the chapters from young adolescents, to achieve reliability on chapter measures. For the number of life period chapters, percentage agreement was 98% for children and mid-adolescents and 94% for young adolescents. For average chapter coherence, the intraclass correlation was .91 for children and mid-adolescents and .82 for young adolescents. Discrepancies were discussed and settled between the two coders. After reliability was attained, each coder went on to

score 50% of the remaining chapters from children and mid-adolescents, followed by 50% of the remaining chapters from young adolescents.

2.2.2.3 Turning point narratives

Participants were instructed to provide two turning point narratives. The first turning point narrative was from any time of their life, in which they were asked to tell the interviewer about “an event that has changed your life or the kind of person you are” (see Reese, Myftari et al., 2017). Once participants offered exhaustive free-recall of the event, they were prompted to answer some specific questions about their age at the time of the event, how they felt, other people who were there, how the other people felt, how the event changed their life, if their perspective on the event was the same or different now, if there was anything they wish they had done differently, if the event was going to affect them in the future, and how often they talked about the event with other people.

After participants finished narrating the turning point, they were asked a series of questions about the event: affective intensity generated by recall of the event (both then and now), current affective state using an adapted version of the children’s feeling scale and children’s felt arousal scale (Hulley et al., 2008), centrality of the event using an adapted version of the centrality of event scale (Berntsen & Rubin, 2006), uniqueness of the event, memory vividness of the event, confidence in memory accuracy of the event, intensity of the event, and degree of perceived sharedness of the event (see Appendix E for the event-related questions on p. 140). Current analyses focused on event centrality as it was considered the most important to the theory. The original short version of the centrality of event scale (Berntsen & Rubin, 2006) asks participants to indicate to what extent they agree or disagree with seven statements that reflect the significance of the most stressful or traumatic event in their life using a

5-point scale (1 = totally disagree to 5 = totally agree). The original seven items were adapted into eight simpler statements in order to help children and adolescents more readily understand the content, and participants were asked to say to what extent they agreed or disagreed with the eight statements using the same 5-point scale as for the adapted verbal measure of fusion (see Appendix E). An average event centrality score across the eight items was attained, with higher scores indicating higher event centrality.

Then, participants were asked to provide a second turning point narrative, this time specifically involving one of the two groups they had nominated earlier in the interview session. After participants finished narrating the second turning point, they were asked the same set of event-related questions, but this time about this second event.

2.2.2.3.1 Causal coherence coding

After the turning point narratives were transcribed, we coded autobiographical reasoning in the form of causal coherence on both of the turning point narratives using a 4-point scale (see Appendix F for scale points and examples on p. 142; Reese Myftari et al., 2017; adapted from Habermas & de Silveira, 2008). Causal coherence captures the degree to which people recognize in what way their past experiences have influenced their current selves.

Reliability coding on the turning point narratives was performed by the first and fourth authors. As mentioned earlier, the same supervising coder independently trained each of the two coders before reliability coding began. The supervising coder was blind to the hypotheses and reviewed all final codes. The two coders conducted reliability on both of the turning point narratives from 25% of children and mid-adolescents, followed by both of the turning point narratives from 25% of young

adolescents. The intraclass correlations for causal coherence for the first turning point narrative/second turning point narrative were .82/.89 for children and mid-adolescents and .80/.87 for young adolescents. Differences were discussed and settled between the two coders. After reliability was achieved, each coder scored both of the turning point narratives from 50% of the remaining children and mid-adolescents, followed by both of the turning point narratives from 50% of the remaining young adolescents.

2.3 Results

Some of the fusion, identification, or centrality questions were skipped, and some of the participants were not able to nominate a family/friend group or provide a second turning point narrative. Two fusion and identification scores were excluded because the nominated groups were unclassifiable. One participant's turning point narratives were missing due to a malfunctioning audio recorder. Therefore, analyses were conducted on reduced sample sizes as necessary, and Ns ranged from 20 to 24 for children, 19 to 21 for young adolescents, and 16 to 18 for mid-adolescents.

2.3.1 Preliminary analyses

2.3.1.1 Study 1a

Table 2.1 shows Cronbach's alphas for each administration of the verbal measure of fusion, identification scale, and centrality of event scale for each of the three age groups. We could not conduct a reliability analysis on the pictorial measure of fusion as it consists of only a single item. For children, Cronbach's alphas were unacceptably low for each administration of the verbal measure of fusion and identification scale. Children were reliable on the centrality of event scale only for the second turning point narrative, suggesting that there was a practice effect where they understood the centrality questions only on the second attempt. Thus, all further analyses excluded children's fusion, identification, and centrality scores, and we

chose to carry out a second wave of data collection for the next age band – young adolescents.

Mid-adolescents were reliable on the verbal measure of fusion, identification scale, and centrality of event scale (see Table 2.1). There were significant positive links between pictorial fusion, verbal fusion, and identification with the same groups for mid-adolescents (see Table 2.2 for a list of correlations among pictorial fusion, verbal fusion, and identification with each nominated group for mid-adolescents).

2.3.1.2 Study 1b

For young adolescents, Cronbach's alphas were acceptable for the identification scale and centrality of event scale, but they were unacceptably low for each administration of the verbal measure of fusion (see Table 2.1). There was a significant positive link between pictorial fusion with the club/church group and identification with that same group for young adolescents, $r = .46$, $p = .035$ (see Table 2.3 for a list of correlations among pictorial fusion and identification with each nominated group for young adolescents). Thus, all further analyses focused on young adolescents' pictorial fusion, identification, and centrality scores, and mid-adolescents' pictorial fusion, verbal fusion, identification, and centrality scores.

Table 2.1
Cronbach's alphas for each administration of the verbal measure of fusion, identification scale, and centrality of event scale for the three age groups

Measure	Children	Young adolescents	Mid-adolescents
Verbal measure of fusion for the club/church group	.47	.45	.80
Verbal measure of fusion for the family/friend group	.02	.14	.75
Identification scale for the club/church group	.46	.74	.81
Identification scale for the family/friend group	.53	.73	.74
Centrality of event scale for the first turning point narrative	.58	.88	.85

Centrality of event scale for the second turning point narrative	.86	.90	.63

Table 2.2

Correlations among pictorial fusion with each nominated group, verbal fusion with each nominated group, and identification with each nominated group for mid-adolescents (Study 1a)

	1	2	3	4	5	6
1. PF1	–	-.17	.50*	-.25	.60**	-.06
2. PF2		–	-.42	.64**	-.38	.64**
3. VF1			–	-.38	.69**	-.17
4. VF2				–	-.23	.75**
5. ID1					–	.04
6. ID2						–

Note. PF1 = pictorial fusion with the club/church group; PF2 = pictorial fusion with the family/friend group; VF1 = verbal fusion with the club/church group; VF2 = verbal fusion with the family/friend group; ID1 = identification with the club/church group; ID2 = identification with the family/friend group. * $p < .05$. ** $p < .01$.

Table 2.3

Correlations among pictorial fusion with each nominated group and identification with each nominated group for young adolescents (Study 1b)

	1	2	3	4
1. PF1	–	.18	.46*	.25
2. PF2		–	.40	.40
3. ID1			–	.59**
4. ID2				–

Note. PF1 = pictorial fusion with the club/church group; PF2 = pictorial fusion with the family/friend group; ID1 = identification with the club/church group; ID2 = identification with the family/friend group. * $p < .05$. ** $p < .01$.

2.3.2 Main analyses

Our analyses aimed to address three major questions: 1) Were there age-related changes in narrative identity, with chapter measures, autobiographical reasoning, and event centrality increasing over the course of development? 2) Were there age-related changes in identity fusion, but not in group identification, with identity fusion reaching adult levels by mid-adolescence? 3) As this study's main objective, were autobiographical reasoning and its precursors positively associated with identity fusion, but not with identification?

2.3.2.1 Age-related differences in narrative identity

To address our first prediction that there would be age-related changes in narrative identity, one-way analyses of variance (ANOVAs) were conducted to test age-related changes in the proportion of life period chapters, average chapter coherence, causal coherence for each turning point narrative, and centrality of the event for each turning point narrative. When homogeneity of variance was violated (for the proportion of life period chapters, causal coherence for the second turning point narrative, and centrality of the event for the second turning point narrative), the Welch statistic followed by Games-Howell post hoc tests when needed was used. Otherwise, ANOVAs were followed by Tukey's HSD post hoc tests when needed. There were no significant age differences for the proportion of life period chapters. There was a main effect of age on average chapter coherence ($F(2, 60) = 17.68, p < .001, \eta_p^2 = .37$); children and young adolescents were significantly lower in average chapter coherence than mid-adolescents. There was a main effect of age on causal coherence for the first turning point narrative ($F(2, 59) = 8.47, p = .001, \eta_p^2 = .22$); children and young adolescents were significantly lower in causal coherence for the first turning point narrative than mid-adolescents. There was a main effect of age on causal coherence for the second turning point narrative ($F(2, 28.96) = 9.97, p = .001, \eta_p^2 = .30$); children and young adolescents were significantly lower in causal coherence for the second turning point narrative than mid-adolescents. There were no significant age differences for centrality of the event for the first or second turning point narratives. Table 2.4 contains descriptive information for the narrative identity measures as a function of age.

Table 2.4

Means (and SDs) for narrative identity measures as a function of age

Narrative identity measures	Children	Young adolescents	Mid-adolescents
	<i>n</i> = 24	<i>n</i> = 21	<i>n</i> = 18
Proportion of LP chapters	.73 (.38)	.77 (.28)	.93 (.17)

Average CC	1.59 (.84) <i>n</i> = 24	1.05 (.61) <i>n</i> = 20	2.44 (.71) <i>n</i> = 18
Causal coherence 1	0.92 (.88) <i>n</i> = 21	0.95 (.76) <i>n</i> = 19	2.00 (1.14) <i>n</i> = 16
Causal coherence 2	0.14 (.48) –	0.58 (.69) <i>n</i> = 21	1.50 (1.21) <i>n</i> = 18
Event centrality 1	– –	3.84 (.98) <i>n</i> = 19	4.27 (.62) <i>n</i> = 16
Event centrality 2	–	3.13 (1.16)	3.67 (.48)

Note. Proportion of LP chapters = the proportion of life period chapters; Average CC = average chapter coherence; Causal coherence 1 = causal coherence for the first turning point narrative; Causal coherence 2 = causal coherence for the second turning point narrative; Event centrality 1 = centrality of the event for the first turning point narrative; Event centrality 2 = centrality of the event for the second turning point narrative.

2.3.2.2 Age-related differences in identity fusion and identification

To address our second prediction that there would be age-related changes in identity fusion, but not in group identification, one-way multivariate analyses of variance (MANOVAs) were conducted to test the effect of age on pictorial fusion and identification with the nominated groups. Significant multivariate effects were followed up by univariate ANOVAs. A main effect of age was found for pictorial fusion with the family/friend group ($F(1, 35) = 5.29, p = .028, \eta_p^2 = .13$); young adolescents scored significantly higher on fusion with the family/friend group than did mid-adolescents. There were no significant age differences for identification. Table 2.5 contains descriptive information for pictorial fusion and identification with each nominated group as a function of age.

Table 2.5

Means (and SDs) for pictorial fusion and identification with each nominated group as a function of age

Measure	Young adolescents <i>n</i> = 20	Mid-adolescents <i>n</i> = 17
Pictorial fusion with the club/church group	4.05 (.83)	3.56 (.90)
Pictorial fusion with the family/friend group	4.60 (.50)	4.09 (.83)
Identification with the club/church group	3.88 (.76)	3.62 (.84)
Identification with the family/friend group	3.84 (.89)	3.79 (.75)

2.3.2.3 Relationship between autobiographical reasoning and its precursors, identity fusion, and identification

To address our third prediction that autobiographical reasoning and its precursors would be positively associated with identity fusion, but not with identification, a series of bivariate correlations were conducted between the proportion of life period chapters, average chapter coherence, or causal coherence for each turning point narrative and identity fusion with each nominated group, and identification with each nominated group, separately for each age group, using one-tailed tests (see Table 2.6 for a list of correlations for young and mid-adolescents). Correlations with pictorial fusion revealed a significant positive link between average chapter coherence and pictorial fusion with the family/friend group for both young and mid-adolescents, and a significant positive link between causal coherence for the second turning point narrative and pictorial fusion with the family/friend group for mid-adolescents only. There were no significant links between any of the autobiographical reasoning measures and verbal fusion for mid-adolescents. Correlations with identification revealed only a single significant negative link between causal coherence for the second turning point narrative and identification with the family/friend group for young adolescents.

Table 2.6
Pearson correlations between autobiographical reasoning measures and identity fusion and identification with each nominated group as a function of age (young adolescents/mid-adolescents)

Autobiographical reasoning measures	Club/church group			Family/friend group		
	PF	VF	ID	PF	VF	ID
Proportion of LP chapters	-.12/.17	-/-.08	-.08/-.22	-.09/.11	-/-.21	.14/-.03
Average CC	.15/.15	-/-.19	.11/-.10	.42*/.43*	-/-.10	.06/-.13
Causal coherence 1	-.16/-.06	-/-.06	-.21/-.08	-.20/-.19	-/-.17	-.27/-.32

Causal coherence 2	-.24/-.31	-/-.15	-.26/-.30	-.02/.62**	-.29	-.44*/.11

Note. PF = pictorial fusion; VF = verbal fusion; ID = identification; Proportion of LP chapters = the proportion of life period chapters; Average CC = average chapter coherence; Causal coherence 1 = causal coherence for the first turning point narrative; Causal coherence 2 = causal coherence for the second turning point narrative. * $p < .05$. ** $p < .01$.

Next, because adolescents' turning point narratives were occasionally about groups other than those nominated, we addressed whether causal coherence for a turning point narrative about a particular group was related to identity fusion with that same group. A total of 14 narratives from young adolescents, and 14 narratives from mid-adolescents, could be included in these analyses. There was a significant positive link between causal coherence for a turning point narrative about a particular group and pictorial fusion with that same group for mid-adolescents only ($r = .50, p = .036$; for young adolescents, $r = -.26, ns$). There was also a significant positive link between causal coherence for a turning point narrative about a particular group and verbal fusion with that same group for mid-adolescents ($r = .66, p = .005$). In contrast, there was no significant link between causal coherence for a turning point narrative about a particular group and identification with that same group for either young or mid-adolescents ($r = -.17, ns$ and $r = .13, ns$, respectively).

2.3.3 Exploratory analyses

2.3.3.1 Age-related differences in the fusion target

Prior research has found increasing dependency on friendship and companionship in adolescence (e.g., Furman & Buhrmester, 1992). To address the question of a shift from family as the primary fusion target during early adolescence to friends during middle adolescence, a chi-square analysis was conducted for family versus friends as the second fusion target as a function of age. There was a significant difference by age, $\chi^2(1) = 5.57, p = .018$, with young adolescents more likely to

nominate family as their second fusion target and mid-adolescents more likely to nominate friends as their second fusion target. To address the question of mid-adolescents showing stronger fusion with friends than with family, we used non-parametric Mann-Whitney U tests because of the small sample sizes and the exploratory nature of the analyses. These tests revealed there were no significant differences for mid-adolescents between pictorial fusion with the nominated family and pictorial fusion with the nominated friends, or between verbal fusion with the nominated family and verbal fusion with the nominated friends ($U = 23.00$, $z = -1.33$, ns and $U = 27.00$, $z = -.88$, ns , respectively). Table 2.7 contains descriptive information for the second fusion target as a function of age.

Table 2.7

Number of participants who nominated family versus friends as their second fusion target and corresponding means (and SDs) for pictorial fusion and verbal fusion as a function of age

	Young adolescents	Mid-adolescents
Number of participants who nominated family	16	8
Number of participants who nominated friends	3	9
Pictorial fusion with the nominated family	4.56 (.51)	4.38 (.74)
Pictorial fusion with the nominated friends	4.67 (.58)	3.83 (.87)
Verbal fusion with the nominated family	–	4.54 (.38)
Verbal fusion with the nominated friends	–	4.27 (.63)

2.4 Discussion

Our study is one of the first to investigate the developmental pathways to identity fusion (cf. Gaviria et al., 2015). Our main finding was that we were able to reliably measure fusion from age 11. We found expected age-related increases in some of the narrative identity measures, with children and young adolescents being lower in average chapter coherence and causal coherence for both the turning point narratives than mid-adolescents. There was only a slight age-related change in fusion in adolescence, and not in the hypothesized direction, with young adolescents scoring higher on pictorial fusion with the family/friend group than mid-adolescents. In

contrast, there were no age differences for identification with the nominated groups in adolescence. In an effort to understand the role of autobiographical reasoning and its precursors in the emergence of identity fusion over the course of development, we discovered a positive link between average chapter coherence and pictorial fusion with the family/friend group for both young and mid-adolescents, and a positive link between causal coherence for the second turning point narrative and pictorial fusion with the family/friend group for mid-adolescents.

2.4.1 Development of narrative identity

In addressing age-related differences in narrative identity, whole-life stories and critical event narratives were assessed. Although we were able to show that the use of lifetime periods emerges in childhood, we did not find age-related increases in the proportion of life period chapters as previous research has shown, especially between the ages of 8-14 (Chen et al., 2013). Notably, children and young adolescents in our sample reported higher proportions of life period chapters ($>.70$) than did the corresponding groups in Chen et al.'s sample (8-10 year olds: $M = .33$, $SD = .34$; and 11-12 year olds: $M = .48$, $SD = .38$); nonetheless, mid-adolescents in our sample reported similar proportions of life period chapters (.93) to the corresponding New Zealand European age groups in Chen et al.'s sample (15-17 year olds: $M = .95$, $SD = .13$). There were, however, age-related increases as predicted in average chapter coherence and causal coherence. These results suggest that the ability to self-reflect and connect themes, events, ideas, and concepts in a whole-life story and in critical event narratives increases in adolescence. Similar to previous research (e.g., Reese et al., 2014; Reese, Myftari et al., 2017) and as theorized (Habermas & Bluck, 2000; Habermas & Reese, 2015), our findings indicate that autobiographical reasoning develops rapidly between the ages of 12 and 16.

Young and mid-adolescents, but not children, were reliable on the adapted version of the centrality of event scale (Berntsen & Rubin, 2006), yet there were no age-related differences for event centrality across adolescence. Given the age differences we found in autobiographical reasoning measures, this stability in event centrality from an earlier age suggests that identifying life events as significant may precede – and perhaps support – autobiographical reasoning processes about *why* the event is significant for the self.

2.4.2 Mapping the course of identity fusion and identification in childhood and adolescence

We found a positive link between pictorial fusion and identification for young adolescents, and positive links between pictorial fusion, verbal fusion, and identification for mid-adolescents. These findings are consistent with patterns observed for older adolescents and adults in previous fusion studies, where fusion measures were moderately to strongly correlated with one another and with Mael and Ashforth's (1992) identification scale (e.g., Gómez, Brooks et al., 2011; Swann et al., 2009). Notably, the link between pictorial fusion and identification for young adolescents indicated that the adapted version of the pictorial measure of fusion (Swann et al., 2009) was reliable from age 11. However, children and young adolescents were not reliable on the adapted verbal measure of fusion. Gaviria et al. (2015) proposed that 6- to 12-year-olds are not yet capable of fusion but instead have a sense of "protofusion". Protofusion signifies a connection to the group, whereby children and adolescents are certain that being part of the group makes them stronger. Nevertheless, the notion that they themselves can strengthen the group seems alien to them, and their willingness to act on behalf of the group is based on shared responsibility rather than personal agency, suggesting that they do not yet have a

strong sense of self. Although we used a pictorial measure of fusion and an identification scale in conjunction with a verbal measure of fusion, Gaviria et al. solely used an adapted verbal measure that was different from the version we used in our study. Contrary to protofusion being at work here, the verbal measure may demand verbal skills that are not yet developed in both children and young adolescents, given we did find some expected results for young adolescents with the pictorial measure in our study. Equally so, attempts to make the original verbal measure of fusion (Gómez, Brooks et al., 2011) more accessible to children and adolescents could have distorted the meaning of the individual statements, thus reducing the integrity of the measure. It is also possible that the ideas inherent in fusion, such as “oneness” (e.g., Swann, Gómez, Dovidio et al., 2010; Swann, Gómez, Huici et al., 2010; Swann et al., 2009), have yet to be conceptualized by children before they reach adolescence.

Young adolescents scored higher on pictorial fusion with the combined family/friend group than did mid-adolescents, yet there was a shift in the type of local fusion target that was nominated by young and mid-adolescents. Although we did not find strong age-related changes in fusion, we acknowledge that identity fusion could be occurring via different pathways – shared genes versus shared experiences – for young and mid-adolescents in the same way that it occurs later in life (e.g., Newson et al., 2016; Vázquez et al., 2017). Counter to our prediction, this finding suggests that identity fusion does not increase in adolescence, at least for typically developing middle-income adolescents. We speculate that this developmental change is related to the kind of local fusion target that is nominated. When asked to nominate a second fusion target, young adolescents were more likely to nominate family members, and mid-adolescents were more likely to nominate friends. There is thus a developmental

shift from family as the primary fusion target during early adolescence to friends during middle adolescence. In line with prior research (e.g., Furman & Buhrmester, 1992; Erdley & Day, 2016; Rawlins, 1992), adolescents increasingly seek connection in their peers and depend on their friendships to provide emotional support. However, counter to our prediction, mid-adolescents do not fuse more strongly with friends than with family, even though they nominate their peers more frequently. We predict that fusion would be equally as strong, possibly even stronger, with friends than with family by late adolescence because adolescents' perception of friendship quality improves over the course of middle and late adolescence (e.g., De Goede, Branje, Delsing, & Meeus, 2009; De Goede, Branje, & Meeus, 2009; Way & Greene, 2006). It is also possible that we would find different age-related patterns of identity fusion with extended fusion targets – that is, when not focusing exclusively on local fusion targets.

Young and mid-adolescents, but not children, were reliable on the adapted version of Mael and Ashforth's (1992) identification scale. Previous research on social identity development theory (SIDT; Nesdale, 2004) has shown that favoritism for the in-group over other groups emerges over the course of childhood, markedly by school-age (e.g., Nesdale, Durkin, Maass, Kiesner, & Griffiths, 2008; Nesdale, Maass, Durkin, & Griffiths, 2005; Nesdale, Maass, Griffiths, & Durkin, 2003). In contrast, we were not able to show that identification was present in children aged 9-10 years as we had hypothesized. It is possible that they had difficulty understanding the wording of the adapted version of Mael and Ashforth's (1992) identification scale, and words like "criticizes", "insult", or "successes" were problematic. Consequently, children's identification with the nominated groups could not be captured. There were no age differences for identification with the nominated groups in adolescence,

suggesting that identification is stable by early adolescence, and that identification and identity fusion are distinct forms of social cohesion (e.g., Whitehouse & Lanman, 2014).

2.4.3 Links between autobiographical reasoning and its precursors, identity fusion, and identification in adolescence

For both young and mid-adolescents, average chapter coherence in the whole-life story was positively linked to identity fusion using the pictorial measure. We suggest that the ability to elaborate and reflect on themes, ideas, and concepts across events in a life story is important to identity fusion. We propose that coherence in whole-life narratives may set the stage for autobiographical reasoning in critical event narratives, which we see as a key mechanism of identity fusion in mid-adolescence. Yet, the proportion of life period chapters was not linked to identity fusion for either young or mid-adolescents. Unlike chapter coherence, the ability to simply organize life story chapters based on life periods does not seem to be involved in identity fusion. It could also be that the lack of a correlation is due to ceiling effects in our study. Although life period organization does not involve autobiographical reasoning per se, Chen et al. (2013) argued that it may be one precursor to autobiographical reasoning skills later in adolescence (see also Habermas & Reese, 2015).

Only for mid-adolescents was autobiographical reasoning – in the form of causal coherence for turning point narratives – positively linked to identity fusion using the pictorial measure. When correlations were conducted only for narratives about the specific group nominated, this association was even stronger for mid-adolescents, and was apparent for both the pictorial and verbal fusion measures, suggesting that the link between autobiographical reasoning and fusion is specific to that group. Causal coherence for critical events is developmentally a more advanced

process than chapter coherence. Whereas chapter coherence merely involves collecting related events together, causal coherence in a critical event narrative involves deeper processing of the connections between the past event and the present self. Not surprisingly, causal coherence is similar to the intense meaning making and soul-searching that occurs in individuals following a highly dysphoric experience – a phenomenon theorized to create identity fusion in adults (Jong et al., 2015; Richert, Whitehouse, & Stewart, 2005; Swann et al., 2012; Whitehouse, 2018; Whitehouse et al., 2017; Whitehouse & Lanman, 2014). Notably, we did not find a link between autobiographical reasoning and identity fusion for young adolescents. It is possible that the memory-driven fusion mechanism begins developing in early adolescence, indicated by the association between chapter coherence and pictorial fusion. However, young adolescents' ability to reflect on past life events and derive causal links has not fully developed to the extent that identity fusion requires.

Only for young adolescents was autobiographical reasoning linked to group identification, and the association was negative. This result was unexpected. It is at present unclear why this link occurred, especially given the low levels of causal coherence for young adolescents.

Taken together, we propose that group identification develops before identity fusion, and that autobiographical memory processes are important for the emergence of identity fusion, but not for identification. Our findings highlight the distinction between identity fusion and identification as two distinct forms of social cohesion (e.g., Whitehouse & Lanman, 2014), and the specific role of autobiographical memory as a mechanism of fusion.

2.4.4 Limitations and future research

A limitation in our study was the lack of reliable measures for identification and verbal fusion for the children and young adolescents in our sample. We suggest that future research is needed to construct a reliable verbal measure of fusion for younger participants that could then be used across all developmental fusion studies. It may be that fusion is not possible before reaching adolescence. In order to address this question, we recommend that future studies also explore gender groups as another possible early-developing fusion target in childhood. In addition, the current correlational results do not specify the direction of causality between narrative identity and identity fusion; indeed, identity fusion processes could be supporting narrative identity in adolescence. Future longitudinal studies could address the development of identity fusion by focusing on children and adolescents who have experienced the same dysphoric event and tracking their autobiographical reasoning and fusion levels over time. Future analyses could also obtain critical event narratives about family, friends, community groups, and extended groups and matching fusion ratings in order to compare autobiographical reasoning and fusion levels across different social categories. It would be interesting to explore the dimension of event valence in order to examine the shared experience pathway across dysphoric and euphoric life experiences over the course of development. Positive affective experiences have been shown to be associated with identity fusion among adults, albeit without consideration of narrative identity (see Kavanaugh et al., 2018; Newson et al., 2016 for examples).

2.4.5 Conclusions

This exploratory cross-sectional study offers a first glance at the relationship between identity fusion and autobiographical reasoning and its precursors in adolescence. We have shown how identity fusion emerges in concert with advances in

autobiographical memory from early adolescence, reaching adequate capacity by mid-adolescence. A developmental perspective on identity fusion is critical in understanding the underlying mechanics of pro-group behaviors that can benefit society at large.

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Appendix A

Full Interview Script

Which groups do you belong to?

Wait for response (count to three, slowly, silently).

Okay, that's great. Some kids say they belong to clubs or teams, or to church. You also mentioned _____.

If they could not name any groups, then say only "Some kids say they belong to clubs or teams, or to church."

Do you belong to any groups like those in addition to the ones you mentioned?

Okay, so let me get this right. You said you're close to x, y, and z. So if you had to choose the one you're closest to, which one group would it be?

Place the pictorial measure of fusion (as shown below) in front of the participant, then say

In this picture, pretend that you're the little circle, and the groups/people you just told me about are the big circle.

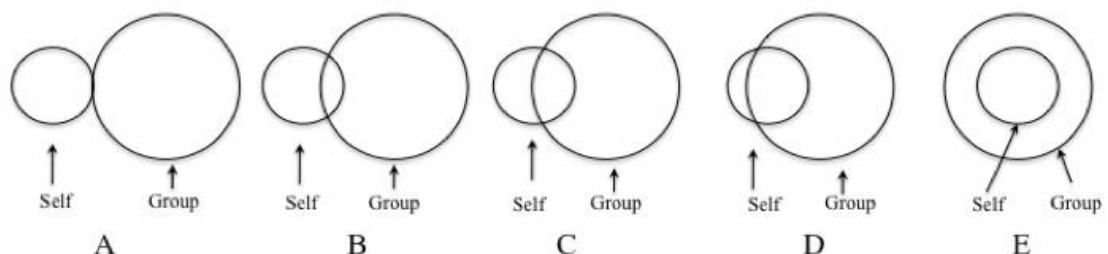
This is you (*point to small circle*) and this is the group/person/pet (*point to big circle*).

Are you like this (*point to A*), where you're beside the group/person/pet?

Or are you more like this, where you're inside the group/person/pet? (*point to E*)

Or are you somewhere in between? (*point to B, C, D*)

Point to the one that you're most like.



To what extent/how much do you agree with the following statements/sentences?

On a scale of 1 to 5, with 5 being totally agree, and 1 being totally disagree, what # are you?

The first time the child deals with the numbers, you will need to repeat the label: e.g., so, one, that means you totally disagree that you are one with your soccer team. Is that right?

I am one with my (group/person/pet).

I would do anything for my (group/person/pet).

I make my (group/person/pet) strong.

I love my (group/person/pet).

If I didn't have that (group/person/pet) in my life, I would be an entirely different person.

When someone criticizes (group/person/pet), it feels like a personal insult.
 I am very interested in what others think about (group/person/pet).
 When I talk about this (group/person/pet), I usually say 'we' rather than 'they'.
 This (group's/person's/pet's) successes are my successes.
 When someone praises this (group/person/pet), it feels like a personal compliment.
 If a story in the media (you know, on TV or in the newspaper) criticized the
 (group/person/pet), I would feel embarrassed.

Some kids say they are really close to groups of people, like their families, friends, or
 a particular person, like their brother and sister, best friend, neighbor, or their pet.

Who are you close to?

Who do you talk to when you have a problem?

Who do you spend the most time with?

Is there any other group or anyone else?

(ask this if they have named only one)

Okay, so let me get this right. You said you're close to x, y, and z. So if you had to
 choose the one you're closest to, which one group/person/pet would it be?

*Place the pictorial measure of fusion (as shown below) in front of the participant,
 then say*

In this picture, pretend that you're the little circle, and the groups/people you just told
 me about are the big circle.

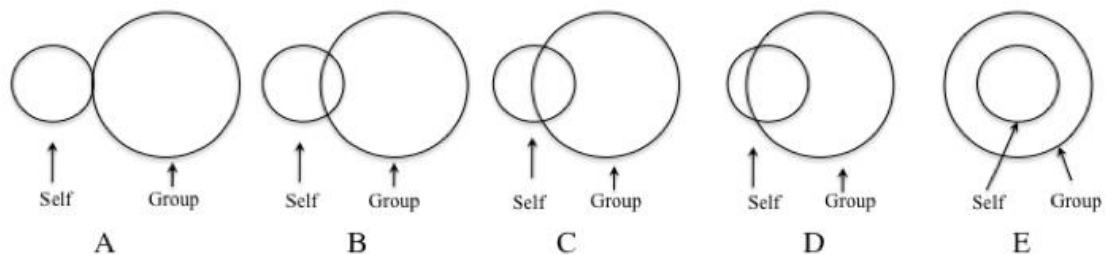
This is you (*point to small circle*) and this is the group/person/pet (*point to big circle*).

Are you like this (*point to A*), where you're beside the group/person/pet?

Or are you more like this, where you're inside the group/person/pet? (*point to E*)

Or are you somewhere in between? (*point to B, C, D*)

Point to the one that you're most like.



To what extent/how much do you agree with the following statements/sentences?

On a scale of 1 to 5, with 5 being totally agree, and 1 being totally disagree, what #
 are you?

*The first time the child deals with the numbers, you will need to repeat the label: e.g.,
 so, one, that means you totally disagree that you are one with your soccer team. Is
 that right?*

I am one with my (group/person/pet).

I would do anything for my (group/person/pet).

I make my (group/person/pet) strong.
I love my (group/person/pet).
If I didn't have that (group/person/pet) in my life, I would be an entirely different person.

When someone criticizes (group/person/pet), it feels like a personal insult.
I am very interested in what others think about (group/person/pet).
When I talk about this (group/person/pet), I usually say 'we' rather than 'they'.
This (group's/person's/pet's) successes are my successes.
When someone praises this (group/person/pet), it feels like a personal compliment.
If a story in the media (you know, on TV or in the newspaper) criticized the (group/person/pet), I would feel embarrassed.

I would like you to begin by thinking about your life as a story. Think about how your whole life could be divided into different chapters. What might those chapters be? I would like you to describe for me each of the main chapters of your life story. You may have as many or as few chapters as you like, but I would suggest dividing your story into at least 2 or 3 chapters and at most about 7. If you can, give each chapter a name and describe some of the things that happened in that chapter. While we talk, I'll make some notes about what the chapters are and what would be in them

Let's start with your life right now. What would be the chapter that you're in now? (PAUSE)
What would you call that chapter? What are some things that would be in that chapter? *[list the names of the chapters and things that happened in them on the chapter task form]*

Now tell me about the chapter that comes before that. What would that chapter be? What would you call that chapter? What are some things that would be in that chapter?...

[The interviewer may wish to ask for clarifications and elaborations at any point in this section, though there is a significant danger of interrupting too much. We are quite interested in how the subject organizes the response on his or her own. Be careful not to organize it for the subject.]

[If the participant is going into too much detail, try to limit the amount of detail they are giving about the content of each chapter, rather than influencing the number or structure of chapters.]

[If they have given very fine-grained chapters, e.g., gone backwards through each day of the week, or if they can't give a chapter at all, or get stuck after just one or two chapters, remind them that you want to know the story of their whole life. You can also use the prompts: Would you have any chapters from earlier parts of your life? or Would you have any chapters from parts of your life before this?]

[Continue until the participant doesn't give any earlier chapters. (If you get up to 6 or 7 chapters, tell the participant that you will only do a couple more.)]

So is that the first chapter in the book about your life? Let's go forward through your chapters now. I'll read what I've written down and you tell me if I've got anything wrong, or if you want to add anything or make any changes.

The first turning point below is open-ended (it may or may not involve one of the two groups they had nominated during the earlier part of the interview).

Great, now that you have told me about some early memories and other events in your life, what I'd like you to tell me about next is an event that has changed your life or the kind of person you are. It can be from any time in your life and it can be something from any area of your life – your relationships with other people, your work and school, your outside interests, and so forth. Please identify a particular episode in your life story that you now see as a turning point in what your life is like or what you are like as a person.

[If the participant is having trouble, a further prompt can be: “it can be something that has changed how you think about things or even just made you change your opinion on something, can you think of anything like that?”]

[If participant doesn't select a specific event: “Can you come up with a specific event? Something that happened on a particular day”]

[When the participant has selected an event, prompt for exhaustive recall using open-ended prompts, e.g.:]

Uh huh, What else? Yeah? Anything else that you want to tell me about that? What else can you remember about that?

[until the participant has told you all he or she can recall. Then ask these specific questions about the turning-point event:]

When did this happen? How old were you? *[prompt for one year of age if necessary]*

How did you feel?

Were there any other people there? *[don't need to ask this if it's already obvious that there were]*

How did the other people feel?

Can you just recap for me how this event changed your life?

Is your perspective on this event the same as right after it happened, or do you have a different perspective on this event now? *[If they answer yes, then ask]*

How is your perspective different now?

[if participant is having trouble with this question: “Is there anything you think about that event now that you probably didn't think when it happened?”]

You may have already addressed this, but is there anything you wish you had done differently?

[If yes/no answer] can you tell me a bit more about that?

Is this event going to affect you in the future? If so, how?

On a scale of 1 to 5, 1 being never, 2 = almost never, 3 = occasionally, 4 = often and 5 being all of the time, how often do you talk about this event with other people?

Now that you've told me about this, *(say the event/say the event involving the group/person/pet)*, on a scale of 1 to 5, with 5 being extremely, and 1 being not at all, what # are you?

How strong are your feelings RIGHT NOW about (your event)?
 When (your event FIRST happened), how strong were your feelings about that?

Place the children's feeling scale and children's felt arousal scale (as shown below) in front of the participant, then say

In this picture (*point to the first picture on top*), how do you feel right now, now that you have talked about (your event)? Would you say Very Bad, Bad, Fairly Bad, Ok, Fairly Good, Good or Very Good, or somewhere in between?

In this picture (*point to the second picture on bottom*), how awake do you feel right now, now that you have talked about (your event)? Would you say Very Sleepy, Sleepy, A Bit Sleepy, A Bit Awake, Awake, Very Awake?

How do you feel right now? Circle a number.

Very bad		Bad		Fairly bad	OK	Fairly good		Good		Very good
										
-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

How awake do you feel right now? Circle a number.

Very sleepy	Sleepy	A bit sleepy	A bit awake	Awake	Very awake
 zzzzz	 zzz	 zz			
1	2	3	4	5	6

To what extent/how much do you agree with the following statements/sentences?
 On a scale of 1 to 5, with 5 being totally agree, and 1 being totally disagree, what # are you?

I feel that this event has become part of who I am.
 This event has become a way I understand myself and the world.
 I feel that this event has become a central part of my life story.
 This event has changed the way I think and feel about other experiences.
 This event changed my life.
 I often think about the effects this event will have on my future.
 This event was a turning point in my life.
 If this event had not happened to me, I would be an entirely different person.

On a scale of 1 to 5, with 5 being extremely, and 1 being not at all, what # are you?

How unique (truly different, one of a kind) was this event?
 How vividly/how well do you remember this event?
 How confident/sure are you in correctly remembering this memory?

On a scale of 1 to 5, with 5 being extremely intense/strong (*try intense first*), and 1 being not intense/strong, what # are you?

How intense was this event for you?

For the next 3 questions: If this first turning point is not an event that involves one of the two groups they had nominated during the earlier part of the interview, then you would say 'with other people/with others' or 'other people/others'. If this first turning point is an event that involves one of the two groups they had nominated during the earlier part of the interview, then you would say 'as a group member/with person/with pet' or 'rest of your group/person/pet'.

On a scale of 1 to 5, with 5 being very much, and 1 being not at all, what # are you?

To what extent/how much is (this event) one that you had (with other people/with others/as a group member/with person/with pet)?

When (this event happened), do you think that was life-changing for the (other people/others/rest of your group/person/pet)?

When (this event happened), do you think the (other people/others/rest of your group/person/pet) felt the same way you did?

This second turning point involves one of the two groups they had nominated during the earlier part of the interview (they get to choose which group). If they had already provided a first turning point involving one of these two groups, then ask for a second turning point involving the other group.

Great, now that you have told me about some early memories and other events in your life, what I'd like you to tell me about next is an event that has changed your life or the kind of person you are, this time involving one of the two groups you have named, x and y. Please identify a particular episode in your life story that you now see as a turning point in what your life is like or what you are like as a person.

[If the participant is having trouble, a further prompt can be: "it can be something that has changed how you think about things or even just made you change your opinion on something, can you think of anything like that?"]

[If participant doesn't select a specific event: "Can you come up with a specific event? Something that happened on a particular day"]

[When the participant has selected an event, prompt for exhaustive recall using open-ended prompts, e.g.:]

Uh huh, What else? Yeah? Anything else that you want to tell me about that? What else can you remember about that?

[until the participant has told you all he or she can recall. Then ask these specific questions about the turning-point event:]

When did this happen? How old were you? *[prompt for one year of age if necessary]*

How did you feel?

Were there any other people there? *[don't need to ask this if it's already obvious that there were]*

How did the other people feel?

Can you just recap for me how this event changed your life?

Is your perspective on this event the same as right after it happened, or do you have a different perspective on this event now? *[If they answer yes, then ask]*
How is your perspective different now?

[if participant is having trouble with this question: "Is there anything you think about that event now that you probably didn't think when it happened?"]

You may have already addressed this, but is there anything you wish you had done differently?

[If yes/no answer] can you tell me a bit more about that?

Is this event going to affect you in the future? If so, how?

On a scale of 1 to 5, 1 being never, 2 = almost never, 3 = occasionally, 4 = often and 5 being all of the time, how often do you talk about this event with other people?

Now that you've told me about this, *(say the event involving the group/person/pet)*, on a scale of 1 to 5, with 5 being extremely, and 1 being not at all, what # are you?

How strong are your feelings RIGHT NOW about (your event)?

When (your event FIRST happened), how strong were your feelings about that?

Place the children's feeling scale and children's felt arousal scale (as shown below) in front of the participant, then say

In this picture *(point to the first picture on top)*, how do you feel right now, now that you have talked about (your event)? Would you say Very Bad, Bad, Fairly Bad, Ok, Fairly Good, Good or Very Good, or somewhere in between?

In this picture *(point to the second picture on bottom)*, how awake do you feel right now, now that you have talked about (your event)? Would you say Very Sleepy, Sleepy, A Bit Sleepy, A Bit Awake, Awake, Very Awake?

How do you feel right now? Circle a number.

Very bad		Bad		Fairly bad	OK	Fairly good		Good		Very good
										
-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

How awake do you feel right now? Circle a number.

Very sleepy	Sleepy	A bit sleepy	A bit awake	Awake	Very awake
 zzzzz	 zzz	 zz			
1	2	3	4	5	6

To what extent/how much do you agree with the following statements/sentences?
On a scale of 1 to 5, with 5 being totally agree, and 1 being totally disagree, what # are you?

I feel that this event has become part of who I am.
This event has become a way I understand myself and the world.
I feel that this event has become a central part of my life story.
This event has changed the way I think and feel about other experiences.
This event changed my life.
I often think about the effects this event will have on my future.
This event was a turning point in my life.
If this event had not happened to me, I would be an entirely different person.

On a scale of 1 to 5, with 5 being extremely, and 1 being not at all, what # are you?

How unique (truly different, one of a kind) was this event?
How vividly/how well do you remember this event?
How confident/sure are you in correctly remembering this memory?

On a scale of 1 to 5, with 5 being extremely intense/strong (*try intense first*), and 1 being not intense/strong, what # are you?

How intense was this event for you?

On a scale of 1 to 5, with 5 being very much, and 1 being not at all, what # are you?

To what extent/how much is (this event) one that you had (as a group member/with person/with pet)?
When (this event happened), do you think that was life-changing for the (rest of your group/person/pet)?
When (this event happened), do you think the (rest of your group/person/pet) felt the same way you did?

Appendix B

Adapted Versions of the Pictorial Measure of Fusion (Swann et al., 2009) and the

Verbal Measure of Fusion (Gómez, Brooks et al., 2011)

In this picture, pretend that you're the little circle, and the groups/people you just told me about are the big circle.

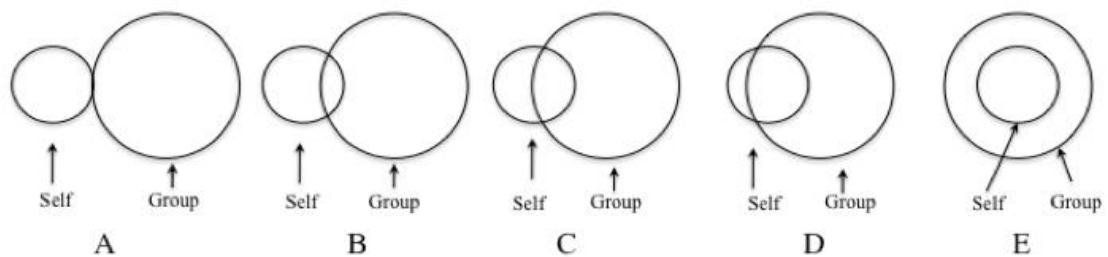
This is you (*point to small circle*) and this is the group/person/pet (*point to big circle*).

Are you like this (*point to A*), where you're beside the group/person/pet?

Or are you more like this, where you're inside the group/person/pet? (*point to E*)

Or are you somewhere in between? (*point to B, C, D*)

Point to the one that you're most like.



To what extent/how much do you agree with the following statements/sentences?
On a scale of 1 to 5, with 5 being totally agree, and 1 being totally disagree, what # are you?

I am one with my (group/person/pet).

I would do anything for my (group/person/pet).

I make my (group/person/pet) strong.

I love my (group/person/pet).

If I didn't have that (group/person/pet) in my life, I would be an entirely different person.

Appendix C

Life Period vs Event Specific Coding Guidelines and Examples

Life Period (vs Event Specific)

- Proportion of Chapters that relate to a life time period, rather than a specific event (see examples below). A life period is defined as any period of life the participant refers to that encompasses several events (either repeated or unrelated).
 - 1=Life period, 0= Event Specific
 - e.g.: *“On, well, right now, I have been a bit bullied by my friends and everything but I have, I’m having a good life right now and I’m really excited with what’s going on, it’s, what’s going to be going on in the future, because, I, I love what I do, and I want to do something that I enjoy when I’m older... Yeah. Mm. Um. And I’m doing lots of stuff right now that I love and, yeah.” = 1* vs
 - e.g.: *“...when I went to Sydney, I was, I went to Sydney for a Science Conference, um, me and five other kids from New Zealand and a lot of people from Australia and kids from all over the world. And, yeah, I, I loved it there, I felt really at one with the people I was with um, and definitely formed a really good friendship group there and so I’m still in touch with them now and almost about to go off to Australia to meet them now but um, I guess so when I got from that, I was really different because I, now saw the world as a bigger thing, like before that I sort of just wanted to xxxx my own school and that sort of thing. But now, I saw like different things to strive for and different things to um, that like I c, I will feel xxxx at some point and that, that happened, and so it will happen again sort of thing. At university or whatever so, yeah I guess that’s where this chapter starts and ends I guess. But yeah.” = 0*

Appendix D

Coding for Chapter Coherence

	Definition	Chapter title and contents
Chapter coherence		
0 point	Concepts, ideas, themes, and events are unconnected or have no details.	Outside. <i>Fishing. Um you fish for fish.</i>
1 point	Concepts, ideas, themes, and events are loosely organized. But there are no clear episodes mentioned or details provided that don't clearly link into episodes. Episodes are not elaborated on.	The new change. <i>A few months ago it was my birthday. And me and my friend baked a cake and iced it and stuff and um then we had Stars on the Stage. It's dancing. It's like a show. At the [Name] Theatre. And I made a new best, a new friend. His name's [Name] and I did a reading thing at, for a guy, we have to read in front of other people, this sheet. I um read, I read for the 10 year old version of the [Name]. And yeah, oh I started with futsal and ripper rugby and at least I scored a try at least every second time, I think, yeah.</i>
2 points	Concepts, ideas, themes, and events are elaborated on. Details and events are specific to the concepts, ideas, and themes mentioned. There is no emotional evaluation or reflection on the events narrated.	Start to Media. <i>That was probably when I was young, that young, I probably, that's when I started getting into all of my media stuff, I would write my, make cd's and things and I would show them off to cla-, my class, and things like that...</i>
3 points	Concepts, ideas, themes, and events are tied together. There is self-reflection or emotional content. There are elements of the past or future mentioned in relation to an episode, or complex biographical elements present.	Finishing high school. <i>Um, thinking about the future, like going off to university, although I'm not going off to university, having a gap year, going off travelling, um, so that's like, the big one at the moment, I'd probably consider, like if you say this chapter, [year] has been quite, different, to the other years, like, I don't know if it's because I'm in my final year of high school, or because I've just changed or something and like different friends and stuff, but um it's definitely been a really cool year this year, and it's been really different compared to other years, like I'm kinda, not taking a step back from school, well I have, but like just gone into, kinda just grown up, I feel,</i>

*maybe, a little bit, yeah, yeah, so
that's kinda what's happening in my
life at the moment, yeah.*

Appendix E

Event-Related Questions

Then-Now Affective Intensity

Now that you've told me about this, (*say the event/say the event involving the group/person/pet*), on a scale of 1 to 5, with 5 being extremely, and 1 being not at all, what # are you?

How strong are your feelings RIGHT NOW about (your event)?

When (your event FIRST happened), how strong were your feelings about that?

Adapted Version of the Children's Feeling Scale and Children's Felt Arousal Scale (Hulley et al., 2008)

In this picture (*point to the first picture on top*), how do you feel right now, now that you have talked about (your event)? Would you say Very Bad, Bad, Fairly Bad, Ok, Fairly Good, Good or Very Good, or somewhere in between?

In this picture (*point to the second picture on bottom*), how awake do you feel right now, now that you have talked about (your event)? Would you say Very Sleepy, Sleepy, A Bit Sleepy, A Bit Awake, Awake, Very Awake?

How do you feel right now? Circle a number.

Very bad		Bad		Fairly bad	OK	Fairly good		Good		Very good
										
-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

How awake do you feel right now? Circle a number.

Very sleepy	Sleepy	A bit sleepy	A bit awake	Awake	Very awake
					
1	2	3	4	5	6

Adapted Version of the Centrality of Event Scale (Berntsen & Rubin, 2006)

To what extent/how much do you agree with the following statements/sentences?
On a scale of 1 to 5, with 5 being totally agree, and 1 being totally disagree, what # are you?

I feel that this event has become part of who I am.

This event has become a way I understand myself and the world.

I feel that this event has become a central part of my life story.

This event has changed the way I think and feel about other experiences.

This event changed my life.

I often think about the effects this event will have on my future.

This event was a turning point in my life.

If this event had not happened to me, I would be an entirely different person.

Uniqueness of the Event

On a scale of 1 to 5, with 5 being extremely, and 1 being not at all, what # are you?

How unique (truly different, one of a kind) was this event?

Memory Vividness of the Event

How vividly/how well do you remember this event?

Confidence in Memory Accuracy of the Event

How confident/sure are you in correctly remembering this memory?

Intensity of the Event

On a scale of 1 to 5, with 5 being extremely intense/strong (*try intense first*), and 1 being not intense/strong, what # are you?

How intense was this event for you?

Degree of Perceived Sharedness of the Event

On a scale of 1 to 5, with 5 being very much, and 1 being not at all, what # are you?

To what extent/how much is (this event) one that you had (with other people/with others/as a group member/with person/with pet)?

When (this event happened), do you think that was life-changing for the (other people/others/rest of your group/person/pet)?

When (this event happened), do you think the (other people/others/rest of your group/person/pet) felt the same way you did?

Appendix F

Coding for Causal Coherence in Turning Point Narratives

	Definition	Example
Causal coherence		
0 point	The narrative did not provide any reference to personality change or the realization of personal development	Moving. ...it was a while from hearing that we were going to move and, then watching everything getting boxed up and then playing with the um box carrying things and with the truck, and um, being in the airport, the very big one. And saying goodbye, the awesome plane rides here and then living here...I had chicken noodle soup on one of the planes. And pasta on another one...at first, like oh cool and a new adventure...then later on it kind of got, oh, there's no friends to play, there's no, where are my friends and, yeah.
1 point	The narrative merely implied but did not state a change in personality	Mum got re-married. ...my mum got re-married when I was 8. So she was separated a long time then she finally decided to get divorced and then married again another year later. So that had a major impact because um he had a 2 year old so all of a sudden he had an 8 year old daughter and an 11 year old son and he was like 'what am I doing?' So that was quite hard for him to transition to and us to get used to as well because we had been with our mum since we were like 5. So it's quite different to have another like man in the house who is able to tell you what to do...So at the start I was very like, what do I call him? What am I doing? What about my dad?...So that took a while to get used and I'm now really glad that he's my dad but it took a lot of adjusting.
2 points	The narrative explicitly states changes in personality but does not detail those changes	House fire. ...I was in a house fire when I was little so I was only a baby, but that affected my mum and my brother so they both had brain

		<i>injuries so that's really impacted on my life. 'Cos it's made me more passionate towards people who have disabilities um so I have a great love for like autistic children and um, everything like that, so that um really impacted me...I was very little so no I don't remember it. But it was all like on the TV and everything...my mum and brother have burns and all of that so there was a lot of like growing up with my brother like being judged and so like all my friends would be like 'ahh your brother has burns' and I would be like 'cool, I didn't know that' um, so yeah, I pretty much remember the aftermath...</i>
3 points	The narrative explicitly describes the changes in personality as a result of the event	Meeting group of friends. <i>...they're quite accepting people, and so I absolutely love that, because I, I have had quite a few people in my life...not letting me express who I am...but um, so they're quite accepting...that's almost a life-changing event in itself, knowing that you're accepted and knowing that you're...wanted to spend time with and socialized with via a group of people...boost of self-esteem I suppose...keeping connections and, having accepting people around you that'll let you speak your mind and will tell you if you're out of line...rather than just keep it quiet and keep it to themselves and gossip about it, that's...life-changing enough, I would say, um 'cause I really haven't had that, I really haven't had a group of people that stuck around me and will stay with me, um, no matter what will happen actually...it's a boost of confidence and a boost of self-esteem to have that...it's just lovely...</i>

Chapter 3. Band of Mothers: Childbirth as a Female Bonding Experience
(Authors: Tara Tasuji, Elaine Reese, Valerie van Mulukom, Harvey Whitehouse)

Abstract

Does the experience of childbirth create social bonds among first-time mothers? Previous research suggests that sharing emotionally intense or painful experiences with others leads to ‘identity fusion’, a visceral feeling of oneness with a group that predicts strong forms of prosocial action and self-sacrifice for other group members. This study compared identity fusion with other mothers during pregnancy versus after childbirth in a sample of 164 women in the US. Eighty-nine mothers in our sample were pregnant with their firstborn, and 75 mothers had given birth to their firstborn up to 6 months prior to the time of data collection. Results demonstrated that identity fusion with other mothers was higher for postpartum mothers than for antenatal mothers. Among postpartum mothers, those who thought that their childbirth was more painful than a typical childbirth experience reported greater identity fusion with mothers who have had a very difficult birth, and those who were younger in age and thought that their childbirth was less painful than a typical childbirth experience reported greater identity fusion with mothers who have had an easy birth. Postpartum mothers’ ruminative thought about the birth mediated the association between level of dysphoria and identity fusion, and identity fusion moderated the association between postpartum mothers’ ruminative and reflective thought about the birth and their posttraumatic growth in complex ways. These findings provide evidence that perceived sharedness of the childbirth experience and thoughts about the birth are important to the process of identity fusion with other mothers, and highlight the importance of post-event processing for psychological health.

3.1 Introduction

Mothers may experience real or threatened injury or death to themselves or their child during the labor and delivery process. Birthing mothers who experience terror, distress, and powerlessness oftentimes feel that hospital staff dismiss their experience as normal and unexceptional (Beck, 2004). In addition, a meta-analysis of 28 studies found evidence of posttraumatic stress disorder (PTSD) in a small but significant proportion of mothers in the postpartum period. On average, prevalence of PTSD with respect to childbirth is 4.0% in low-risk or general community samples (e.g., women who are recruited from antenatal clinics) and 18.5% in groups of women who are at high risk of physical or mental health complications (e.g., women who experience an emergency caesarean section or have a severe fear of childbirth; Dikmen-Yildiz, Ayers, & Phillips, 2017). Many women instead experience positive psychological outcomes after the event of childbirth, with 44.0% to 50.2% of women reporting moderate degrees of postpartum psychological growth (Sawyer & Ayers, 2009; Sawyer, Nakić Radoš, Ayers, & Burn, 2015). Yet little is known about whether or how the experience of childbirth affects the social psychology of mothers.

Research on ‘identity fusion’ – a visceral sense of ‘oneness’ with the group – suggests that sharing painful experiences with others creates a porous boundary between personal and group identities (see Swann, Jetten, Gómez, Whitehouse, & Bastian, 2012; Whitehouse, 2018; Whitehouse & Lanman, 2014 for details). Could perceptions of shared experience among first-time mothers serve to fuse them to other mothers in this way? Previous studies, conducted in a wide range of special populations – ranging from victims of terrorist attacks (e.g., Jong, Whitehouse, Kavanagh, & Lane, 2015) or football clubs enduring painful defeats (Newson, Buhrmester, & Whitehouse, 2016), to survivors of natural disasters (Segal, Jong, &

Halberstadt, 2018) – have shown that sharing of traumatic experiences can produce powerful social bonds associated with personally enhancing outcomes. Here we investigate whether analogous processes are at work in first-time mothers who have shared similar childbirth experiences with other mothers, whether the delivery of the child is excruciatingly distressing or relatively stress-free, by measuring first-time mothers' perceptions of the childbirth experience, childbirth-related thought, and postpartum psychological health outcomes. Do shared experiences of childbirth bond women to one another in much the same way as 'bands of brothers' are forged on the battlefield (Whitehouse, McQuinn, Buhrmester, & Swann, 2014)? While frontline fighters serve shoulder to shoulder with other members of their battalion, childbirth is an individual event that is not physically shared with other mothers who are simultaneously experiencing labor. Can mothers rely on 'indirect evidence of shared experience' (Whitehouse, 2018, p. 11)? And if so, what are the potential implications of this phenomenon for female solidarity, emancipation, and prosocial action in society at large?

3.1.1 Identity fusion and its underlying mechanisms

Identity fusion is a form of group alignment that motivates costly pro-group behaviors (e.g., Gómez et al., 2011; Swann, Buhrmester et al., 2014; Swann, Gómez et al., 2014; Swann, Gómez, Dovidio, Hart, & Jetten, 2010; Swann, Gómez, Huici, Morales, & Hixon, 2010; Swann, Gómez, Seyle, Morales, & Huici, 2009).

Whitehouse (2018) proposed that identity fusion emerges from perceptions of shared group essence by way of two pathways: on the one hand, identity fusion arises as a result of perceived kinship based on phenotypic cues (e.g., Vázquez, Gómez, Ordoñana, Swann, & Whitehouse, 2017); on the other hand, identity fusion develops as a result of vividly recalled emotional experiences triggering meaning-making

cognitive processes that become a defining feature of one's narrative self but are also felt to be shared with fellow group members (e.g., Whitehouse, 1992; Whitehouse et al., 2017).

Specific to the shared life experience pathway, Whitehouse and Lanman (2014) argued that the underlying mechanisms of identity fusion consist of two distinct processes: the formation of the autobiographical self via episodic memories, and kin recognition via phenotypic matching. That is, an episodic memory becomes a central component of one's autobiographical self; perceiving this core aspect in another individual then elicits kin detection, ultimately leading to 'psychological kinship' (Bailey, 1988). Previous studies have shown that shared negative experiences are associated with stronger levels of identity fusion among group members (cf. e.g., Newson et al., 2016). For example, Whitehouse et al. (2014) demonstrated that a greater proportion of frontline battalion fighters than non-fighters in the 2011 revolutionary war in Libya were most fused with their own battalion than family, suggesting that intense fighting experiences that are perceived as shared cultivate identity fusion among battalion members. While thought processes have been shown to play a key role in the relationship between shared negative life experiences and identity fusion (Jong et al., 2015), little is known about their exact nature (e.g., reflection, rumination), or whether psychological health outcomes (e.g., depression, PTSD, PTG) are related to identity fusion.

3.1.2 Factors linked to postpartum outcomes

In a meta-ethnography examining women's perceptions of traumatic birth experiences, Elmir, Schmied, Wilkes, and Jackson (2010) found that mothers felt callously treated during the labor and delivery process, and they recounted not receiving adequate compassion, support, or reassurance from hospital staff. Mothers

viewed healthcare professionals as unapproachable and unwilling to openly share information with them during the labor, leaving mothers to feel invisible and ignored. Rather than being in control of the situation and involved in informed decision-making about their care, mothers felt powerless, without agency, and vulnerable.

A meta-analysis of 50 studies identified vulnerability factors before childbirth (antenatal depression, ill health or complications during pregnancy, a fear of childbirth, a history of PTSD, past counseling for pregnancy or childbirth-related reasons), risk factors during childbirth (lack of staff support, subjective childbirth experience including lack of agency and negative emotions during childbirth, detachment from one's body or mind, an assisted vaginal or caesarean childbirth), and postpartum maintaining factors (postpartum depression, poor coping and stress) that place women at special risk of experiencing postpartum traumatic stress responses (Ayers, Bond, Bertullies, & Wijma, 2016). Factors that strengthen resiliency and lessen risk in pregnancy, during childbirth, and postpartum can take on a shielding role, whereby women are empowered to acclimate and prosper after living through such a challenging life experience (Ayers, 2017). Greater posttraumatic growth (PTG) with respect to childbirth is associated with a range of factors that vary across a number of studies, such as greater use of approach-based coping (asking for guidance and support, taking problem-solving action), greater use of avoidance-based coping (pursuing alternative rewards; i.e., engaging in alternative activities and fostering new sources of fulfillment), higher PTSD symptoms during pregnancy, greater general distress after childbirth, an assisted vaginal or caesarean childbirth, a pre-term childbirth, greater perceived social support from family, friends, and partner, higher challenge appraisal (e.g., extent to which a woman believes that motherhood will help her know herself better), lower threat appraisal (e.g., extent to which a woman

believes that motherhood will cause economic strain), and younger age (e.g., Sawyer & Ayers, 2009; Sawyer, Ayers, Young, Bradley, & Smith, 2012; Sawyer et al., 2015; Spielman & Taubman – Ben-Ari, 2009; Taubman – Ben-Ari, Ben Shlomo, & Findler, 2012; Taubman – Ben-Ari, Findler, & Kuint, 2010).

3.1.3 Post-event processes

Spanning across an array of potentially traumatic life experiences, previous research has demonstrated a variety of relationships between perception of an event, coping styles, and positive and negative psychological health outcomes. Wolfe and Ray (2015) showed that PTG positively correlated with event centrality, mastery (e.g., “I can do just about anything I really set my mind to do”), problem-focused coping (e.g., “I’ve been thinking hard about what steps to take”), emotion-focused coping (e.g., “I’ve been trying to see it in a different light, to make it seem more positive”), and social support; PTG was not linked to ineffective coping (e.g., “I’ve been doing something to think about it less such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping”). In a meta-analysis of 87 studies, Helgeson, Reynolds, and Tomich (2006) demonstrated that psychological growth was positively linked to positive affect and intrusive and avoidant thoughts, and negatively linked to depression. Interestingly, when examining only traumatic life events that were rated high in centrality, Boals, Steward, and Schuettler (2010) found that the relationship between psychological growth and health outcomes were magnified: PTG was positively linked to quality of life (i.e., extent of enjoyment and satisfaction) in addition to positive affect, and negatively linked to trait anxiety, global distress (i.e., extent to which life situations were seen as stressful in the last month), and physical health symptoms (e.g., “bleeding nose”, “coughing”) in addition to depression; conversely, PTG was no longer linked to intrusive and avoidant thoughts. Markedly,

PTG was positively linked to intrusive and avoidant thoughts only when considering traumatic life experiences that were rated low in centrality.

Akin to a “double-edged sword” that sanctions simultaneous debilitation and growth, the more a traumatic event was construed as central to one’s identity and life story, the greater the likelihood of PTSD symptoms (i.e., intrusive and avoidant thoughts), depression, and PTG. Strikingly, event centrality was the strongest unique predictor of PTG and PTSD symptoms, even after controlling for depression, cognitive processing of the traumatic event (e.g., “I pretend this didn’t really happen”, “I have moved on and left this event in the past”), coping styles, DSM-IV-TR A1 and A2 status of the event (“Did you experience, witness or confront an event that involved actual or threatened death or serious injury, or threat to [your] physical integrity or that of others?” and “Did your response include fear, helplessness or horror?”, respectively; American Psychiatric Association, 2000), and either PTSD symptoms or PTG (Boals & Schuettler, 2011). Schuettler and Boals (2011) demonstrated that event centrality, problem-focused coping, and a positive outlook on the event uniquely predicted PTG, where the more an individual perceived the event as central to their identity, the more they thought about doing something to solve the problem at hand or change the source of stress, and the more positively they viewed the event, they experienced greater PTG. Conversely, event centrality, avoidant coping, a negative outlook on the event, and deeply emotional reactions to the event uniquely predicted PTSD symptoms, where the more an individual perceived the event as central to their identity, the more they refused to believe that the event did occur, the more negatively they viewed the event, they exhibited a more sweaty and clammy reaction when recalling the event, as well as – counter-intuitively – they endured less knots, cramps, or butterflies when recalling the event, they experienced

greater PTSD symptoms. Notably, Wolfe and Ray (2015) found that among women only, emotion-focused coping and social support were unique predictors of PTG, where the more a woman thought about minimizing or controlling her emotional suffering and she perceived greater social encouragement, she experienced greater PTG.

Interestingly, previous research has demonstrated that different forms of repetitive thought, whether they are trait-like (see Nolen-Hoeksema, 2000; Nolen-Hoeksema & Morrow, 1991; Nolen-Hoeksema, Morrow, & Fredrickson, 1993 for details; e.g., a general predisposition to engage in reflection (intentionally engage in problem-solving) versus brooding (passively engage in moody contemplation) when feeling sad; Treynor, Gonzalez, & Nolen-Hoeksema, 2003; a general predisposition to engage in reflection (intellective self-attentiveness) versus rumination (neurotic self-attentiveness); Trapnell & Campbell, 1999) or event-related (deliberate (controlled) repetitive thinking versus intrusive (unsolicited) repetitive thinking triggered by a highly distressing life event; see Calhoun, Cann, & Tedeschi, 2010; Calhoun, Cann, Tedeschi, & McMillan, 2000 for details), are linked to positive and negative psychological health outcomes in noteworthy ways. For example, when comparing trait-like repetitive thought (reflecting versus brooding) with event-related repetitive thought (deliberate versus intrusive), Allbaugh, Wright, and Folger (2016) found that deliberate repetitive thought and event centrality were unique predictors of PTG, where the more an individual voluntarily tried to understand the meaning of the event and the more they viewed the event as important to their identity, they experienced greater PTG; brooding and event centrality were unique predictors of depressive symptoms, where the more an individual passively engaged in thinking about what is negative in their life and the more they perceived the event as important to their

identity, they experienced greater depressive symptoms; and brooding, event centrality, and reflecting were unique predictors of PTSD symptoms, where the more an individual reflexively engaged in contemplating about what is bad in their life, the more they viewed the event as important to their identity, and – counter-intuitively – the more they purposefully engaged in finding a solution to a problem, they experienced greater PTSD symptoms.

When examining intrusive and deliberate repetitive thought either retrospectively or recently (i.e., one sample reported their thoughts in “the weeks immediately after the event”, and a second sample reported their thoughts “during the last couple of weeks”), trait-like tendencies (i.e., both samples reported reflective versus ruminative thinking), and the perceived impact of the event (i.e., both samples reported extent to which the event defied their core beliefs about the world), Cann et al. (2011) found that deliberate repetitive thought, ruminative thinking, and core beliefs were unique predictors of PTG for both the retrospective and recent samples, where the more an individual consciously thought about the significance of the event, the less they engaged in neurotic self-focus that had been provoked by perceived personal losses in the past, and the more they believed that the event called into question their core beliefs about the world, they experienced greater PTG. Conversely, intrusive repetitive thought was a unique predictor of distress symptoms for both the retrospective and recent samples, where the more an individual uncontrollably thought about the event, they experienced greater distress symptoms. Notably, intrusive repetitive thought was the strongest unique predictor of deliberate repetitive thought for both samples, where the more an individual involuntarily thought about the event, they experienced greater problem-solving and understanding of the event. It is possible that intrusive repetitive thoughts propel an individual to

then deliberately and constructively find meaning after going through a traumatic experience. Cross-culturally, Taku, Cann, Tedeschi, and Calhoun (2009) found that intrusive repetitive thought soon after a traumatic experience (i.e., retrospectively), deliberate repetitive thought in recent weeks (i.e., recently), and time since the event were unique predictors of PTG for both the US and Japanese samples, where the more an individual inadvertently thought about the event in retrospect, the more they voluntarily tried to engage in meaning-making of the event in recent time, and the more time that had passed since the event, they experienced greater PTG. For the Japanese sample only, deliberate repetitive thought soon after a traumatic experience was also a unique predictor of PTG, where the more an individual willfully tried to uncover the meaning of the event in retrospect, they experienced greater PTG.

3.1.4 The current study

The central aim of the current study was to investigate whether the experience of childbirth was related to identity fusion among first-time mothers. A secondary aim was to determine if perception of the childbirth event with respect to its personal significance and level of dysphoria, as well as childbirth-related thought and positive and negative psychological health outcomes of childbirth, could act as potential identity fusion mechanisms. A third aim was to replicate and expand on Jong et al.'s (2015) claim that shared dysphoria is linked to identity fusion via thought processes. A fourth aim was to understand whether first-time mothers who experience greater identity fusion through the event of childbirth enjoy psychological health benefits, such as a reduced risk of PTSD and postpartum depression, or a boost in PTG. Participants included first-time mothers aged 18 years and older who were either pregnant or had a child who was 6 months of age or younger. In line with the shared life experience pathway to identity fusion (Whitehouse, 2018; Whitehouse & Lanman,

2014), we examined first-time mothers within the first 6 months of their child's birth for two reasons: 1) to magnify the significance and novelty of the life experience, and 2) to set a limit on the amount of time that has passed since the occurrence of the life experience so as to restrict the extent of childbirth-related thought. Identity fusion measures using three different target groups ("all mothers", "mothers who have had a very difficult birth", and "mothers who have had an easy birth") were administered to all participants in order to examine how potential mechanisms of identity fusion may be founded on perceived sharedness. Measures of potential identity fusion mechanisms were provided to all participants, adapted for each mother group: pregnant first-time mothers were given measures of expected dysphoria of childbirth, past trauma exposure, and antenatal depression; first-time mothers who had given birth to their child were given measures of trauma with respect to the childbirth experience, postpartum depression, levels of pain of childbirth, posttraumatic growth after childbirth, perceived sharedness of childbirth, ruminative and reflective thought, extent of thought about childbirth, and centrality of child's birth.

The main predictions of the current study were the following: 1) Based on identity fusion theory, we predicted that first-time mothers needed to experience the event of childbirth to feel more strongly fused with other mothers. That is, identity fusion with all mothers, identity fusion with mothers who have had a very difficult birth, and identity fusion with mothers who have had an easy birth would be higher after giving birth than before giving birth; 2) Among postpartum mothers, we predicted that potential identity fusion mechanisms would be positively associated with identity fusion with mothers who have had a very difficult birth and negatively associated with identity fusion with mothers who have had an easy birth; 3) Among postpartum mothers, we predicted that potential identity fusion mechanisms would

uniquely predict identity fusion with mothers who have had a very difficult birth and identity fusion with mothers who have had an easy birth; 4) Among postpartum mothers, we predicted that greater childbirth dysphoria would be associated with more ruminative and reflective thought, which in turn would be associated with greater identity fusion with mothers who have had a very difficult birth. Lower childbirth dysphoria would be associated with less ruminative and reflective thought, which in turn would be associated with greater identity fusion with mothers who have had an easy birth; 5) Among postpartum mothers, we predicted that identity fusion would moderate the relationship between ruminative thought, reflective thought, or centrality of child's birth and PTSD symptom frequency and severity, depression symptom severity, or PTG. That is, higher levels of identity fusion might inoculate against PTSD symptom frequency and severity and depression symptom severity; conversely, higher levels of identity fusion might enhance PTG.

3.2 Method

The study was conducted in accordance with and approved by the School of Anthropology and Museum Ethnography Departmental Research Ethics Committee (SAME DREC) at the University of Oxford.

3.2.1 Participants

A total of 164 first-time mothers who were at least 18 years of age and living in the United States were recruited either via advertisements that were posted on various parenting and childbirth-related websites (e.g., www.bundoo.com, www.reddit.com; $n = 64$) or Qualtrics Panel Services ($n = 100$). First-time mothers were either pregnant (i.e., antenatal mothers; age range from 18 to 39 years; $n = 89$), and anywhere between 4 to 40 weeks along in their pregnancy ($M = 26.47$ weeks, $SD = 8.82$); or they had a child (i.e., postpartum mothers; age range from 18 to 45 years;

$n = 75$) who was 6 months of age or younger (i.e., anywhere between 1 to 28 weeks old; $M = 15.16$ weeks, $SD = 6.97$). A slightly greater number of antenatal mothers than postpartum mothers were recruited via parenting and childbirth-related websites (antenatal mothers; $n = 39$; postpartum mothers; $n = 25$), while an equal number of antenatal and postpartum mothers were recruited via Qualtrics Panel Services (antenatal mothers; $n = 50$; postpartum mothers; $n = 50$).

3.2.2 Procedure

Two online questionnaires were constructed using Qualtrics Online Survey Software; one questionnaire was designed for antenatal mothers and another questionnaire was designed for postpartum mothers. In an effort to make the two online questionnaires equal in subject matter, both antenatal and postpartum mothers were provided with trauma and depression measures. All questionnaire responses were anonymous.

3.2.2.1 Antenatal questionnaire

The antenatal questionnaire took participants anywhere between 5 to 255 minutes to complete ($M = 16.83$ minutes, $SD = 29.57$). Participants who did not indicate past trauma exposure were not provided with a large portion of the antenatal questionnaire that related to trauma; consequently, the time it took them to complete the questionnaire was drastically shortened. In order to ensure that only pregnant first-time mothers completed the antenatal questionnaire, participants were first provided with a screening question. They were asked “What describes your life stage best?”, whereby antenatal mothers had to choose the option “Currently pregnant with first child”. The other options included “Not pregnant and never have given birth to a child”, “Not currently pregnant, but have given birth to one child”, “Not currently pregnant, but have given birth to multiple children”, and “Currently pregnant with

second or later child”. In order to make sure that participants were carefully reading the questionnaire, they were provided with an attention check question halfway through the questionnaire (“What color is the sky? Make sure to select orange for this answer so that we know you are reading the instructions of this survey”). If the correct answer was not chosen, respondents were not able to complete the questionnaire and their answers were not included in the study. After giving informed consent, participants provided demographic information that included their ethnicity, education level, marital status, and how far along they were in their pregnancy. The questionnaire items were presented in the order outlined below.

3.2.2.1.1 Identity fusion

Identity fusion was measured using the pictorial measure of fusion (Swann et al., 2009) with three different target groups, namely “all mothers”, “mothers who have had a very difficult birth”, and “mothers who have had an easy birth”. The pictorial measure is comprised of five pictures, and each picture is designated a letter (A, B, C, D, and E) and consists of symmetrical degrees of overlap (0%, 25%, 50%, 75%, and 100%) between a smaller “self” circle and a larger “group” circle. Participants were asked to select one of the five pictures that best represented their relationship with the specified target group. Identity fusion was measured as a continuous variable (see Buhrmester et al., 2018 for an example of this), whereby 0% overlap between the two circles was assigned a score of 1 (not fused) and 100% overlap between the two circles was assigned a score of 5 (strongly fused). An example of a fusion item includes: “Looking at the diagram above, please choose one of the letters (A, B, C, D, or E) shown below the picture that best represents your relationship with the Group, in this case the Group being All Mothers”.

3.2.2.1.2 Expected levels of dysphoria of childbirth

Participants were asked to rate expected levels of dysphoria of childbirth using two items developed for this study: “How painful do you expect your childbirth to be?” was measured on a 10-point scale (1 = not painful at all, 10 = very painful), and “How difficult do you expect your childbirth to be?” was measured on a 10-point scale (1 = not difficult at all, 10 = very difficult).

3.2.2.1.3 Past trauma exposure

PTSD symptom frequency and severity in the last month was measured using the 24-item Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5 (PDS-5; Foa et al., 2016). Participants were first provided with two trauma screening questions from the PDS-5, whereby only those who indicated past exposure to different traumatic experiences (e.g., physical assault, child abuse, natural disaster) and identified a single traumatic experience that was on their mind and currently bothered them were provided with twenty symptom items. The symptom items of the PDS-5 assess the frequency and severity of PTSD symptoms with respect to the single identified traumatic experience, and are based on the four DSM-5 symptom clusters, namely re-experiencing symptoms (items 1-5; e.g., “Unwanted upsetting memories about the trauma”), avoidance (items 6-7; e.g., “Trying to avoid thoughts or feelings related to the trauma”), changes in cognition and mood (items 8-14; e.g., “Not being able to remember important parts of the trauma”), and increased arousal and reactivity (items 15-20; e.g., “Acting more irritable or aggressive with others”). The symptom items were rated on a 5-point scale of frequency and severity (0 = not at all, 4 = 6 or more times a week/severe). Internal reliability was good, Cronbach’s $\alpha = .96$. Participants were also provided with four additional questions from the PDS-5 that relate to distress and interference caused by symptoms as well as symptom onset and duration. These four questions were not included in our analyses as PTSD symptom

frequency and severity is measured by totalling the twenty PDS-5 symptom ratings (Foa et al., 2016).

3.2.2.1.4 Antenatal depression

Antenatal depression symptom severity was measured using a slightly adapted version of the 10-item Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987). Previous studies have used the EPDS in order to screen for depression during a woman's pregnancy (Murray & Cox, 1990; cf. Kozinszky & Dudas, 2015). The EPDS includes instructions that begin with the phrase "As you have recently had a baby"; in its place, our antenatal version included the phrase "As you are in the first, second, or third trimester of your pregnancy". Participants were then provided with the 10-item EPDS using a 4-point scale (0, 1, 2, and 3 according to increasing severity of symptom; e.g., 0 = no, not at all, 3 = yes, quite a lot). Internal reliability was acceptable, Cronbach's $\alpha = .87$. Examples of items include: "I have been able to laugh and see the funny side of things" and "I have felt scared or panicky for no very good reason". Refer to Appendix A for the full adapted version of the 10-item EPDS (p. 203).

3.2.2.2 Postpartum questionnaire

The postpartum questionnaire took participants anywhere between 14 to 324 minutes to complete ($M = 38.40$ minutes, $SD = 37.50$). In order to ensure that only first-time mothers with babies 6 months of age or younger completed the postpartum questionnaire, participants were first provided with two screening questions. They were asked "What describes your life stage best?" (same question as described above) and "What age group does your firstborn child fall under?", whereby postpartum mothers had to choose the options "Not currently pregnant, but have given birth to one child" and "0-6 months", respectively. The other options for the age group

question included “7 months-1 year”, “2-5 years”, and “6 years and above”. In order to ensure that participants were attentive to each questionnaire item, they were provided with two attention check questions embedded in the questionnaire (“What color is the sky? Make sure to select orange for this answer so that we know you are reading the instructions of this survey” and “To show that you have read the instructions, please ignore the question below about how you are feeling and instead choose the ‘none of the above’ option as your answer”). If the appropriate answers were not selected, respondents were not able to finish the questionnaire and their answers were not included in the study. After giving informed consent, participants provided demographic information that included their ethnicity, education level, marital status, and the age of their child. The questionnaire items were presented in the order outlined below.

3.2.2.2.1 Identity fusion

Identity fusion was measured in the same format as in the antenatal questionnaire described above.

3.2.2.2.2 Childbirth narrative

Participants were asked to provide a childbirth narrative: “Describe your childbirth experience in as much detail as you can”. This item was considered to be outside of the scope of the current paper and thus was not included in our analyses.

3.2.2.2.3 Traumatic childbirth experience

PTSD symptom frequency and severity in the last month with respect to the participant’s childbirth experience was measured using a slightly adapted version of the 24-item Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5 (PDS-5; Foa et al., 2016). The instructions as well as the twenty symptom items of the PDS-5 include phrases like “the trauma” or “the traumatic event”; in their places, our version

used the phrase “your childbirth experience”. The symptom items were rated on a 5-point scale of frequency and severity (0 = not at all, 4 = 6 or more times a week/severe). Internal reliability was good, Cronbach’s $\alpha = .92$. Examples of symptom items include: “Unwanted upsetting memories about your childbirth experience”, “Trying to avoid thoughts or feelings related to your childbirth experience”, “Not being able to remember important parts of your childbirth experience”, and “Blaming yourself or others (besides those involved in your childbirth experience) for what happened”. The four additional questions from the PDS-5 that relate to distress and interference caused by symptoms as well as symptom onset and duration were not included in our analyses (Foa et al., 2016). Refer to Appendix B for the full adapted version of the 24-item PDS-5 (p. 206).

3.2.2.2.4 Postpartum depression

Postpartum depression symptom severity was measured using the 10-item Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987). The EPDS items were rated on a 4-point scale (0, 1, 2, and 3 according to increasing severity of symptom; e.g., 0 = no, not at all, 3 = yes, quite a lot). Internal reliability was good, Cronbach’s $\alpha = .90$.

3.2.2.2.5 Levels of pain of childbirth

Participants were asked to rate levels of pain of childbirth using four items developed for this study: “Overall, how intense was the pain of childbirth?” was measured on a 10-point scale (1 = not intense at all, 10 = very intense), “Overall, how unpleasant was the pain of childbirth?” was measured on a 10-point scale (1 = not unpleasant at all, 10 = very unpleasant), “At the peak of the pain, how intense was the pain of childbirth?” was measured on a 10-point scale (1 = not intense at all, 10 = very intense), and “At the peak of the pain, how unpleasant was the pain of

childbirth?” was measured on a 10-point scale (1 = not unpleasant at all, 10 = very unpleasant). These items displayed moderate to very strong correlations with one another, ranging from $r = .68, p < .001$ to $r = .88, p < .001$. Internal reliability was good, Cronbach’s $\alpha = .94$. Consequently, the four pain items were combined to provide an average pain score.

3.2.2.2.6 Posttraumatic growth following childbirth

PTG after childbirth was measured using a slightly adapted version of the 21-item Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996). The PTGI includes instructions as well as a 6-point Likert response format that use the word “crisis” (e.g., “Indicate for each of the statements below the degree to which this change occurred in your life as a result of your crisis”); in their places, our version used the phrase “experience of childbirth” in the instructions and the word “experience” in the response choices. The PTGI items were rated on a 6-point scale (0 = I did not experience this change as a result of my experience, 5 = I experienced this change to a very great degree as a result of my experience). Internal reliability was good, Cronbach’s $\alpha = .93$. Examples of items include: “An appreciation for the value of my own life” and “Knowing that I can count on people in times of trouble”. Refer to Appendix C for the full adapted version of the 21-item PTGI (p. 213).

3.2.2.2.7 Perceived sharedness of childbirth

Perceived sharedness of childbirth was measured using two items developed for this study: “How painful do you think childbirth has been for most other mothers?” was measured on a 10-point scale (1 = not painful at all, 10 = very painful), and “Do you think your childbirth has been more or less painful than what you think to be a typical childbirth experience?” was measured on a 10-point scale (1 = a lot less painful, 10 = a lot more painful).

3.2.2.2.8 Ruminative and reflective thought

Ruminative and reflective thought was measured using a slightly adapted version of the 20-item Event Related Rumination Inventory (ERRI; Cann et al., 2011). The ERRI consists of two 10-item subscales – one subscale measures intrusive repetitive thinking about a highly distressing event, and the other subscale measures deliberate repetitive thinking about a highly distressing event. The ERRI is analogous to other measures that distinguish between different forms of repetitive thought (e.g., reflection versus brooding; Ruminative Responses Scale (RRS); Treynor et al., 2003; reflection versus rumination; Rumination-Reflection Questionnaire (RRQ); Trapnell & Campbell, 1999); nevertheless, the ERRI is uniquely tailored to examine specific event-related repetitive thought with respect to a highly distressing life experience. In an effort to clarify the distinction, the current study utilizes the intrusive subscale to measure what is typically thought of as rumination and the deliberate subscale to measure what is typically thought of as reflection. The instructions for both the intrusive and deliberate items of the ERRI begin with the phrase “After an experience like the one you reported”, and end with the phrase “during the weeks immediately after the event”; in our version, the instructions for both the intrusive and deliberate items began with the phrase “After an experience like the one you reported (your experience of childbirth)”, and ended with the phrase “during the weeks immediately after your experience of childbirth”. The intrusive and deliberate items of the ERRI were rated on a 4-point scale (0 = not at all, 3 = often). Internal reliability was good for both the intrusive and deliberate subscales, Cronbach’s $\alpha = .95$ and $.91$, respectively. Examples of items include: “I thought about the event when I did not mean to” and “I could not keep images or thoughts about the event from entering my mind” for the intrusive subscale; “I thought about whether I could find meaning from

my experience” and “I thought about whether the experience has changed my beliefs about the world” for the deliberate subscale. Refer to Appendix D for the full adapted version of the 20-item ERRI (p. 220).

3.2.2.2.9 Extent of thought about childbirth

Extent of thought about childbirth was measured using two items developed for this study: “How much do you think about the meaning of your childbirth?” and “How much do you think about how your childbirth could have turned out differently (e.g., how it could have been easier, or how it could have been worse)?”. Both items were measured on a 6-point scale (0 = I have only thought about it a bit, 5 = it is always on my mind).

3.2.2.2.10 Centrality of child’s birth

Centrality of child’s birth was measured using a slightly adapted version of the short 7-item Centrality of Event Scale (CES; Berntsen & Rubin, 2006). The CES includes instructions that begin with the phrase “Please think back upon the most stressful or traumatic event in your life”, as well as individual items that use the phrase “this event” (e.g., “I feel that this event has become a central part of my life story”); in their places, our version included the phrase “Please think back upon your child’s birth” in the instructions, as well as the phrase “my child’s birth” in the individual items. The CES items were rated on a 5-point scale (1 = totally disagree, 5 = totally agree). Internal reliability was acceptable, Cronbach’s $\alpha = .89$. Examples of items include: “I feel that my child’s birth has become part of my identity” and “My child’s birth has colored the way I think and feel about other experiences”. Refer to Appendix E for the full adapted version of the short 7-item CES (p. 225).

3.3 Results

No data were missing as participants were required to complete all of the questionnaire items. For the antenatal group, 46 out of 89 first-time mothers (51.7%) indicated past exposure to traumatic experiences and completed the PDS-5. Table 3.1 contains descriptive information for the potential identity fusion mechanism variables by mother group.

Table 3.1
Means (and SDs) for potential identity fusion mechanisms as a function of mother group

Potential identity fusion mechanisms	Antenatal mothers <i>n</i> = 89	Postpartum mothers <i>n</i> = 75
PDS-5 [†]	17.74 (16.64) [‡]	11.17 (11.02)
EPDS	9.10 (5.19)	8.04 (5.73)
Expected levels of dysphoria of childbirth		
“How painful do you expect your childbirth to be?”	8.00 (1.86)	—
“How difficult do you expect your childbirth to be?”	6.74 (2.18)	—
Pain of childbirth (an average of the four pain items)	—	7.05 (2.77)
PTGI	—	57.44 (22.48)
Perceived sharedness of childbirth		
“How painful do you think childbirth has been for most other mothers?”	—	7.92 (2.03)
“Do you think your childbirth has been more or less painful than what you think to be a typical childbirth experience?”	—	4.73 (2.77)
ERRI-I	—	9.20 (8.33)
ERRI-D	—	11.24 (8.01)
Extent of thought about childbirth		

“How much do you think about the meaning of your childbirth?”	—	2.08 (1.58)
“How much do you think about how your childbirth could have turned out differently (e.g., how it could have been easier, or how it could have been worse)?”	—	2.20 (1.69)
CES	—	26.44 (7.09)

Note. PDS-5 = Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5; EPDS = Edinburgh Postnatal Depression Scale; PTGI = Posttraumatic Growth Inventory; ERRI-I = Event Related Rumination Inventory – Intrusive (ruminative thought); ERRI-D = Event Related Rumination Inventory – Deliberate (reflective thought); CES = Centrality of Event Scale. [†] With respect to a past traumatic experience for antenatal mothers and with respect to the childbirth experience for postpartum mothers. [‡]*N* = 46 for antenatal mothers.

3.3.1 Preliminary analyses

3.3.1.1 Sample characteristics

Table 3.2 contains analyses of differences between antenatal mothers and postpartum mothers for demographic characteristics. There were no significant differences for age, level of education, ethnicity, or marital status.

Table 3.2

Differences in demographic characteristics of antenatal and postpartum mothers

Demographic characteristics	Antenatal mothers (<i>n</i> = 89) Means (and SDs) or frequency	Postpartum mothers (<i>n</i> = 75) Means (and SDs) or frequency	Statistics
Age in years	28.11 (5.19)	27.96 (5.67)	$t(162) = .18, p = .86$
Highest level of education completed			$\chi^2(1) = 2.31, p = .13$
Less than a Bachelor's Degree	33.7%	45.3%	
Bachelor's Degree and higher	66.3%	54.7%	

Ethnicity of the participant			$\chi^2(1) = .01, p = .93$
White Caucasian – non Hispanic	75.3%	74.7%	
Not White Caucasian – non Hispanic	24.7%	25.3%	
Marital status of the participant			$L\chi^2(4) = 3.41, p = .49$
Single	10.1%	6.7%	
Living with their partner	16.9%	17.3%	
Married	71.9%	74.7%	
Divorced	1.1%	0.0%	
Widowed	0.0%	1.3%	

3.3.1.2 Intercorrelations among potential identity fusion mechanisms

Intercorrelations among the potential identity fusion mechanism variables for antenatal and postpartum mothers are listed in Table 3.3 and Table 3.4, respectively. As demonstrated in previous research (e.g., Foa et al., 2016; Iles, Slade, & Spiby, 2011), there were significant positive links between PTSD symptom frequency and severity and depression symptom severity. That is, antenatal mothers who reported higher levels of PTSD symptom frequency and severity with reference to a past traumatic experience had higher levels of antenatal depression symptom severity, and postpartum mothers who reported higher levels of PTSD symptom frequency and severity with respect to their childbirth experience had higher levels of postpartum depression symptom severity. Depression symptom severity was positively correlated with expected level of pain of childbirth and expected level of difficulty of childbirth for the antenatal group, suggesting that antenatal mothers who reported higher levels of antenatal depression symptom severity were foreseeing a more painful and difficult

childbirth experience. In line with previous studies (e.g., Sawyer & Ayers, 2009; Boals et al., 2010; cf. Allbaugh et al., 2016; Barton, Boals, & Knowles, 2013; Boals & Schuettler, 2011; Sawyer et al., 2015 Croatian sample only, for examples of a significant positive link), there was no link between PTSD symptom frequency and severity and PTG for the postpartum group. As shown in past research (e.g., Allbaugh et al., 2016; Boals & Schuettler, 2011), event centrality was positively correlated with PTSD symptom frequency and severity, depression symptom severity, and PTG for the postpartum group, indicating that postpartum mothers who reported their child's birth as more central to their identity and life story had higher levels of PTSD symptom frequency and severity with respect to their childbirth experience, postpartum depression symptom severity, and PTG.

Table 3.3

Correlations among potential identity fusion mechanisms for antenatal mothers

	1	2	3	4
1. PDS-5	—	.55***	.24	.22
2. EPDS		—	.31**	.28**
3. Expect1			—	.55***
4. Expect2				—

Note. PDS-5 = Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5 with respect to a past traumatic experience; EPDS = Edinburgh Postnatal Depression Scale; Expect1 = Expected levels of dysphoria of childbirth (“How painful do you expect your childbirth to be?”); Expect2 = Expected levels of dysphoria of childbirth (“How difficult do you expect your childbirth to be?”). * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3.4

Correlations among potential identity fusion mechanisms for postpartum mothers

	1	2	3	4	5	6	7	8	9	10	11
1. PDS-5	—	.78***	.12	.15	-.05	.24*	.52***	.45***	.18	.53***	.34**
2. EPDS		—	-.02	.06	-.13	.18	.50***	.41***	.16	.42***	.38***
3. Pain			—	.07	.28*	.65***	.26*	.18	.07	.21	.06
4. PTGI				—	.09	.16	.13	.52***	.47***	.20	.52***
5. Shared1					—	-.14	-.05	.15	.11	.01	.06
6. Shared2						—	.27*	.33**	.19	.25*	.09
7. ERRI-I							—	.54***	.31**	.55***	.27*
8. ERRI-D								—	.56***	.50***	.46***
9. Thought1									—	.38***	.48***
10. Thought2										—	.29*
11. CES											—

Note. PDS-5 = Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5 with respect to the childbirth experience; EPDS = Edinburgh Postnatal Depression

Scale; Pain = Pain of childbirth (an average of the four pain items); PTGI = Posttraumatic Growth Inventory; Shared1 = Perceived sharedness of childbirth (“How painful do you think childbirth has been for most other mothers?”); Shared2 = Perceived sharedness of childbirth (“Do you think your childbirth has been more or less painful than what you think to be a typical childbirth experience?”); ERRI-I = Event Related Rumination Inventory – Intrusive (ruminative thought); ERRI-D = Event Related Rumination Inventory – Deliberate (reflective thought); Thought1 = Extent of thought about childbirth (“How much do you think about the meaning of your childbirth?”); Thought2 = Extent of thought about childbirth (“How much do you think about how your childbirth could have turned out differently (e.g., how it could have been easier, or how it could have been worse)?”); CES = Centrality of Event Scale. $*p < .05$. $**p < .01$. $***p < .001$.

3.3.2 Main analyses

3.3.2.1 Identity fusion among antenatal and postpartum mothers

Our first research question was the following: Would first-time mothers who had already given birth feel more strongly fused with all mothers, mothers who have had a very difficult birth, and mothers who have had an easy birth than first-time mothers who had not yet given birth? To address research question 1, we conducted one-way analyses of variance (ANOVAs) to test the effect of mother group on identity fusion with all mothers, identity fusion with mothers who have had a very difficult birth, and identity fusion with mothers who have had an easy birth. When homogeneity of variance was violated (for identity fusion with mothers who have had a very difficult birth), the Welch statistic was used. There was a main effect of mother group on identity fusion with all mothers ($F(1, 162) = 10.60, p = .001, \eta_p^2 = .06$); postpartum mothers fused significantly higher with all mothers than antenatal mothers. There was a main effect of mother group on identity fusion with mothers who have had a very difficult birth ($F(1, 140.40) = 7.07, p = .009, \eta_p^2 = .04, \omega^2 = .04$); postpartum mothers fused significantly higher with mothers who have had a very difficult birth than antenatal mothers. There was a main effect of mother group on identity fusion with mothers who have had an easy birth ($F(1, 162) = 10.23, p = .002$,

$\eta_p^2 = .06$); postpartum mothers fused significantly higher with mothers who have had an easy birth than antenatal mothers.

A one-way repeated measures ANOVA followed up by post-hoc tests using the Bonferroni correction showed that there was a main effect of identity fusion target on identity fusion scores for the antenatal group ($F(2, 176) = 35.82, p < .001, \eta_p^2 = .29$); antenatal mothers fused significantly higher with all mothers compared to mothers who have had a very difficult birth ($p < .001$), fused significantly higher with all mothers compared to mothers who have had an easy birth ($p < .001$), and fused significantly higher with mothers who have had an easy birth compared to mothers who have had a very difficult birth ($p = .002$). A one-way repeated measures ANOVA with a Greenhouse-Geisser correction followed up by post-hoc tests using the Bonferroni correction revealed that there was a main effect of identity fusion target on identity fusion scores for the postpartum group ($F(1.50, 111.24) = 18.60, p < .001, \eta_p^2 = .20$); postpartum mothers fused significantly higher with all mothers compared to mothers who have had a very difficult birth ($p < .001$), and fused significantly higher with all mothers compared to mothers who have had an easy birth ($p = .002$). However, postpartum mothers did not significantly differ between identity fusion with mothers who have had an easy birth and identity fusion with mothers who have had a very difficult birth ($p = .058$). Table 3.5 contains descriptive information for identity fusion with the three targets by mother group.

Table 3.5

Means (and SDs) for identity fusion with all mothers, identity fusion with mothers who have had a very difficult birth, and identity fusion with mothers who have had an easy birth as a function of mother group

Identity fusion target	Antenatal mothers <i>n</i> = 89	Postpartum mothers <i>n</i> = 75
All mothers	3.18 (1.37)	3.84 (1.20)
Mothers who have had a very difficult birth	1.75 (1.13)	2.29 (1.42)
Mothers who have had an easy birth	2.30 (1.45)	3.05 (1.55)

For antenatal mothers, there was no link between how far along they were in their pregnancy and identity fusion with all mothers, identity fusion with mothers who have had a very difficult birth, or identity fusion with mothers who have had an easy birth ($r = .11, p = .31$; $r < -.01, p = .99$; $r = -.05, p = .64$, respectively). For postpartum mothers, there was no link between the age of their child and identity fusion with all mothers, identity fusion with mothers who have had a very difficult birth, or identity fusion with mothers who have had an easy birth ($r = .04, p = .76$; $r = .11, p = .34$; $r = -.09, p = .46$, respectively).

3.3.2.2 Links between identity fusion and its potential mechanisms among postpartum mothers

Our second research question was the following: Among postpartum mothers, would there be a positive association between potential identity fusion mechanisms and identity fusion with mothers who have had a very difficult birth, or a negative association between potential identity fusion mechanisms and identity fusion with mothers who have had an easy birth? To address research question 2, we conducted a series of bivariate correlations between PTSD symptom frequency and severity, depression symptom severity, pain/perceived sharedness of childbirth, PTG, ruminative and reflective thought, extent of thought about childbirth, or centrality of the child's birth and identity fusion with mothers who have had a very difficult birth, identity fusion with mothers who have had an easy birth, or identity fusion with all mothers (see Table 3.6 for a list of correlations). As a general pattern, higher identity fusion with mothers who have had a very difficult birth was associated with higher PTSD symptom frequency and severity, depression symptom severity, perceived sharedness of childbirth, ruminative and reflective thought, and extent of thought

about childbirth, whereas identity fusion with mothers who have had an easy birth showed the inverse pattern for most of these same mechanisms.

Table 3.6

Pearson correlations between potential identity fusion mechanisms and identity fusion with mothers who have had a very difficult birth ('Difficult'), identity fusion with mothers who have had an easy birth ('Easy'), or identity fusion with all mothers ('All') for postpartum mothers

Potential identity fusion mechanisms	Difficult	Easy	All
PDS-5	.34**	-.23*	-.23
EPDS	.35**	-.18	-.15
Pain	.14	-.27*	-.08
PTGI	-.03	.01	.01
Shared1	-.22	.01	.11
Shared2	.48***	-.54***	.04
ERRI-I	.46***	-.29*	-.15
ERRI-D	.24*	-.07	.03
Thought1	.10	-.07	.11
Thought2	.37***	-.24*	-.02
CES	.09	-.12	-.05

Note. PDS-5 = Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5 with respect to the childbirth experience; EPDS = Edinburgh Postnatal Depression Scale; Pain = Pain of childbirth (an average of the four pain items); PTGI = Posttraumatic Growth Inventory; Shared1 = Perceived sharedness of childbirth (“How painful do you think childbirth has been for most other mothers?”); Shared2 = Perceived sharedness of childbirth (“Do you think your childbirth has been more or less painful than what you think to be a typical childbirth experience?”); ERRI-I = Event Related Rumination Inventory – Intrusive (ruminative thought); ERRI-D = Event Related Rumination Inventory – Deliberate (reflective thought); Thought1 = Extent of thought about childbirth (“How much do you think about the meaning of your childbirth?”); Thought2 = Extent of thought about childbirth (“How much do you think about how your childbirth could have turned out differently (e.g., how it could have been easier, or how it could have been worse?)”); CES = Centrality of Event Scale. * $p < .05$. ** $p < .01$. *** $p < .001$.

3.3.2.3 Predictors of identity fusion among postpartum mothers

Our third research question was the following: Among postpartum mothers, would potential identity fusion mechanisms uniquely predict identity fusion with mothers who have had a very difficult birth or identity fusion with mothers who have had an easy birth? To address research question 3, we conducted linear regression analyses with each of the two identity fusion targets, namely “mothers who have had a very difficult birth” and “mothers who have had an easy birth”. A linear regression

analysis was not conducted with the identity fusion target “all mothers” because it was not associated with any of the potential identity fusion mechanisms (see previous section). A two-step process was used for the hierarchical multiple linear regression analysis with mothers who have had a very difficult birth: potentially confounding demographic variables were identified using correlation analyses and entered in the first step of the model; in the second step of the model, PTSD symptom frequency and severity, depression symptom severity, perceived sharedness of childbirth (item 2), ruminative and reflective thought, and extent of thought about childbirth (item 2) were entered. Only item 2 of perceived sharedness of childbirth was a significant unique predictor (see Table 3.7), such that thinking that your childbirth was more painful than a typical childbirth experience was associated with greater identity fusion with mothers who have had a very difficult birth.

Table 3.7
Hierarchical multiple linear regression model on identity fusion with mothers who have had a very difficult birth for postpartum mothers

Variable	B	SE	β	Difficult					
				R^2 (Adj. R^2)	R^2 change	F	df	F change	df
Step 1				.08 (.05)	—	3.04	2, 72	—	—
Constant	0.95	0.86	—						
Age in years	0.04	0.03	.16						
Highest level of education	0.46	0.38	.16						
Step 2				.46 (.40)	.38	7.04***	8, 66	7.80***	6, 66
Constant	-1.22	0.86	—						
Age in years	0.06	0.03	.22						
Highest level of education	0.35	0.31	.12						
PDS-5	-0.02	0.02	-.12						
EPDS	0.06	0.04	.24						
Shared2	0.18	0.05	.35***						
ERRI-I	0.04	0.02	.24						
ERRI-D	-0.01	0.02	-.04						
Thought2	0.15	0.10	.18						

Note. PDS-5 = Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5 with respect to the childbirth experience; EPDS = Edinburgh Postnatal Depression Scale; Shared2 = Perceived sharedness of childbirth (“Do you think your childbirth has been more or less painful than what you think to be a typical childbirth experience?”); ERRI-I = Event Related Rumination Inventory – Intrusive (ruminative thought); ERRI-D = Event Related Rumination Inventory – Deliberate (reflective thought); Thought2 = Extent of thought about childbirth (“How much do you think about how your childbirth could have turned out differently (e.g., how it could have been easier, or how it could have been worse)?”). * $p < .05$. ** $p < .01$. *** $p < .001$.

A two-step process was also used for the hierarchical multiple linear regression analysis with mothers who have had an easy birth: potentially confounding demographic variables were found through correlation analyses and entered in the first step of the model; in the second step of the model, PTSD symptom frequency and severity, pain/perceived sharedness of childbirth (item 2 of perceived sharedness), ruminative thought, and extent of thought about childbirth (item 2) were entered. Item 2 of perceived sharedness of childbirth and age were both significant unique predictors (see Table 3.8), such that thinking that your childbirth was less painful than a typical childbirth experience and younger age were associated with greater identity fusion with mothers who have had an easy birth.

Table 3.8
Hierarchical multiple linear regression model on identity fusion with mothers who have had an easy birth for postpartum mothers

Variable	B	SE	β	Easy					
				R^2 (Adj. R^2)	R^2 change	F	df	F change	df
Step 1				.17 (.15)	—	7.51**	2, 72	—	—
Constant	5.74	0.89	—						
Age in years	-0.09	0.04	-.32*						
Highest level of education	-0.45	0.39	-.15						
Step 2				.50 (.44)	.32	9.40***	7, 67	8.57***	5, 67
Constant	7.18	0.89	—						
Age in years	-0.09	0.03	-.34**						
Highest level of education	-0.34	0.33	-.11						
PDS-5	-0.00	0.02	.00						
Pain	0.08	0.07	.15						
Shared2	-0.31	0.07	-.56***						
ERRI-I	-0.02	0.02	-.13						
Thought2	-0.10	0.10	-.11						

Note. PDS-5 = Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5 with respect to the childbirth experience; Pain = Pain of childbirth (an average of the four pain items); Shared2 = Perceived sharedness of childbirth (“Do you think your childbirth has been more or less painful than what you think to be a typical childbirth experience?”); ERRI-I = Event Related Rumination Inventory – Intrusive (ruminative thought); Thought2 = Extent of thought about childbirth (“How much do you think about how your childbirth could have turned out differently (e.g., how it could have been easier, or how it could have been worse)?”). * $p < .05$. ** $p < .01$. *** $p < .001$.

3.3.2.4 Repetitive thought about childbirth mediates the relationship between dysphoria and identity fusion among postpartum mothers

Our fourth research question was the following: Among postpartum mothers, would greater childbirth dysphoria be associated with more ruminative and reflective thought, which in turn would be associated with greater identity fusion with mothers who have had a very difficult birth? Would lower childbirth dysphoria be associated with less ruminative and reflective thought, which in turn would be associated with greater identity fusion with mothers who have had an easy birth? To address research question 4, we conducted mediation analyses using ordinary least squares path analysis in Hayes' (2018) PROCESS macro (Model 4) for SPSS. Bias-corrected bootstrap analyses based on 10,000 bootstrap samples were run. Pain of childbirth and item 2 of perceived sharedness were used as the indexes of childbirth dysphoria. We found that greater pain of childbirth was associated with more ruminative thought (denoted by the "a path" in Figure 3.1), $b = 0.78$, $t(73) = 2.31$, $p = .02$, and more ruminative thought was associated with greater identity fusion with mothers who have had a very difficult birth (denoted by the "b path" in Figure 3.1), $b = 0.08$, $t(72) = 4.20$, $p < .001$. There was no evidence that pain of childbirth was linked to identity fusion with mothers who have had a very difficult birth when controlling for ruminative thought (denoted by the "c' path" in Figure 3.1), $b = 0.01$, $t(72) = 0.20$, $p = .84$.

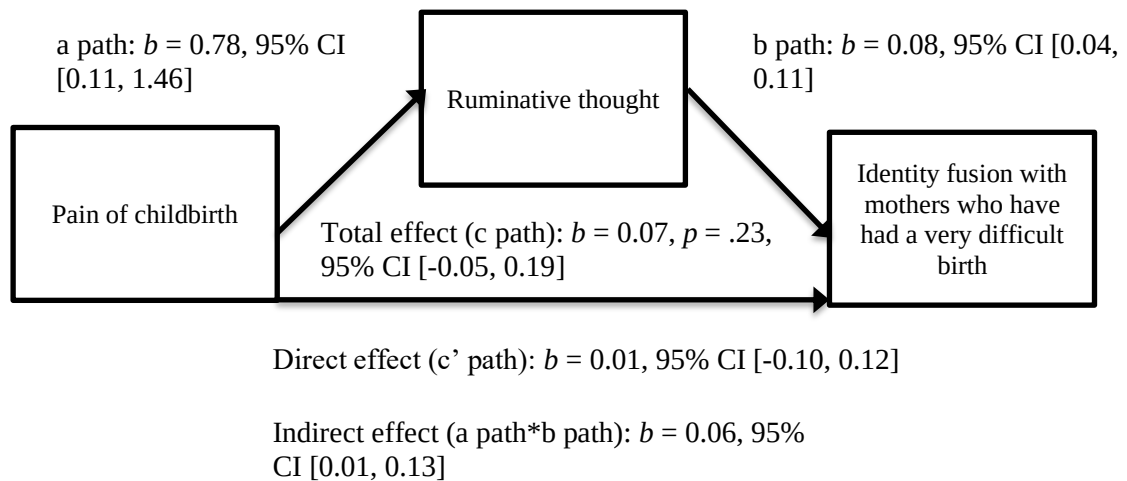


Figure 3.1. Mediation model showing ruminative thought mediates the relationship between pain of childbirth and identity fusion with mothers who have had a very difficult birth.

We found that lower pain of childbirth was associated with less ruminative thought (denoted by the “a path” in Figure 3.2), $b = 0.78$, $t(73) = 2.31$, $p = .02$, and less ruminative thought was associated with greater identity fusion with mothers who have had an easy birth (denoted by the “b path” in Figure 3.2), $b = -0.04$, $t(72) = -2.07$, $p = .04$. There was no evidence that pain of childbirth was linked to identity fusion with mothers who have had an easy birth when controlling for ruminative thought (denoted by the “c’ path” in Figure 3.2), $b = -0.12$, $t(72) = -1.82$, $p = .07$.

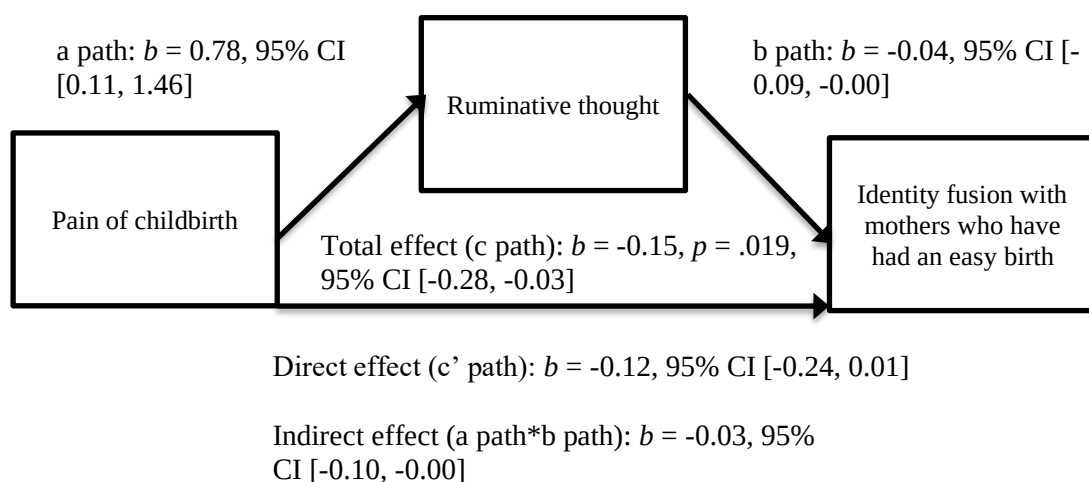


Figure 3.2. Mediation model showing ruminative thought mediates the relationship between pain of childbirth and identity fusion with mothers who have had an easy birth.

We found that thinking that your childbirth was more painful than a typical childbirth experience was associated with more ruminative thought (denoted by the “a path” in Figure 3.3), $b = 0.80$, $t(73) = 2.37$, $p = .02$, and more ruminative thought was associated with greater identity fusion with mothers who have had a very difficult birth (denoted by the “b path” in Figure 3.3), $b = 0.06$, $t(72) = 3.63$, $p < .001$. There was also evidence that the extent to which you thought that your childbirth was more or less painful than a typical childbirth experience was linked to identity fusion with mothers who have had a very difficult birth when controlling for ruminative thought (denoted by the “c’ path” in Figure 3.3), $b = 0.20$, $t(72) = 3.84$, $p < .001$. There were no other significant mediation models with pain of childbirth/item 2 of perceived sharedness as the independent variables, ruminative/reflective thought as the mediators, and identity fusion with any of the three target groups as the dependent variables.

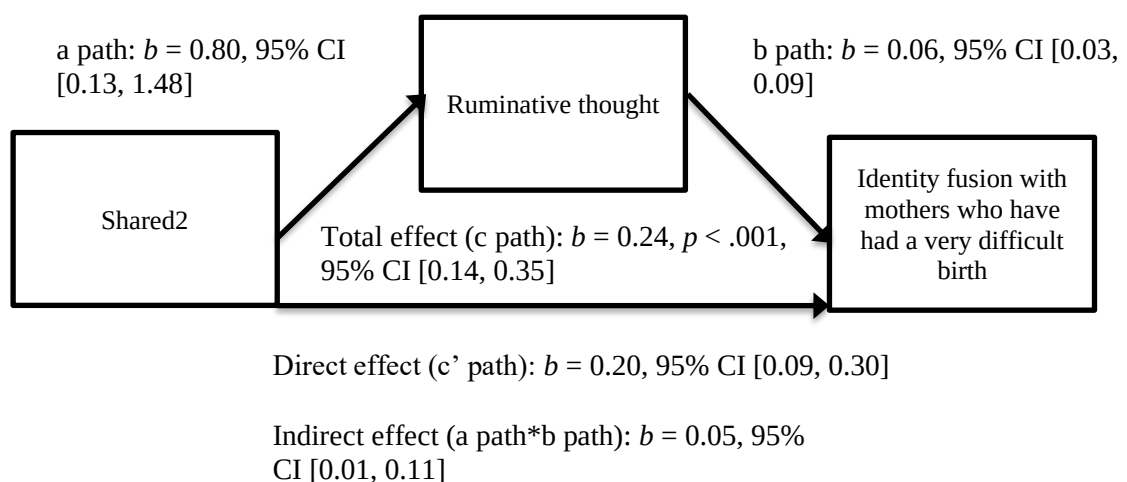


Figure 3.3. Mediation model showing ruminative thought mediates the relationship between the extent to which postpartum mothers thought that their childbirth was more or less painful than a typical childbirth experience (‘Shared2’) and identity fusion with mothers who have had a very difficult birth.

3.3.2.5 Identity fusion as a moderator of PTSD, depression, and PTG after childbirth

Our fifth research question was exploratory: Among postpartum mothers, would identity fusion moderate the relationship between ruminative thought, reflective thought, or centrality of child's birth and PTSD symptom frequency and severity, depression symptom severity, or PTG? That is, would higher levels of identity fusion inoculate against PTSD symptom frequency and severity or depression symptom severity? Or, would higher levels of identity fusion enhance PTG? To address research question 5, we conducted moderation analyses using Hayes' (2018) PROCESS macro (Model 1) for SPSS. The interaction between ruminative thought and identity fusion with all mothers was significant, $b = 0.47$, $t(71) = 2.07$, $p = .04$, indicating that the relationship between ruminative thought and PTG was moderated by identity fusion with all mothers (see Figure 3.4). When identity fusion with all mothers was low, there was no relationship between ruminative thought and PTG, $b = -0.04$, $t(71) = -0.09$, $p = .93$. When identity fusion with all mothers was average, there was no relationship between ruminative thought and PTG, $b = 0.52$, $t(71) = 1.63$, $p = .11$. When identity fusion with all mothers was high, there was a relationship between ruminative thought and PTG, $b = 1.07$, $t(71) = 2.58$, $p = .012$. That is, when postpartum mothers reported high identity fusion with all mothers, a 1-point increase in ruminative thought gave a 1.07-point increase in PTG.

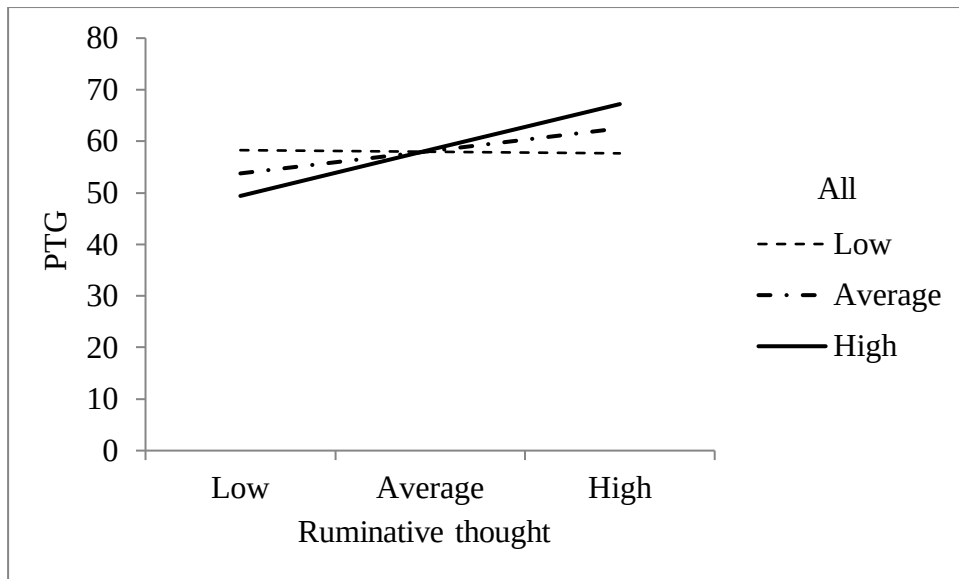


Figure 3.4. Simple slopes of ruminative thought predicting PTG for 1 SD below the mean of identity fusion with all mothers, the mean of identity fusion with all mothers, and 1 SD above the mean of identity fusion with all mothers.

The interaction between reflective thought and identity fusion with mothers who have had a very difficult birth was also significant, $b = 0.40$, $t(71) = 2.48$, $p = .016$, suggesting that the relationship between reflective thought and PTG was moderated by identity fusion with mothers who have had a very difficult birth (see Figure 3.5). When identity fusion with mothers who have had a very difficult birth was low, average, and high, there was a relationship between reflective thought and PTG, $b = 1.03$, $t(71) = 2.70$, $p = .009$, $b = 1.55$, $t(71) = 5.07$, $p < .001$, and $b = 2.12$, $t(71) = 5.72$, $p < .001$, respectively. That is, when postpartum mothers reported low identity fusion with mothers who have had a very difficult birth, a 1-point increase in reflective thought gave a 1.03-point increase in PTG; when postpartum mothers reported average identity fusion with mothers who have had a very difficult birth, a 1-point increase in reflective thought gave a 1.55-point increase in PTG; when postpartum mothers reported high identity fusion with mothers who have had a very

difficult birth, a 1-point increase in reflective thought gave a 2.12-point increase in PTG. There were no other significant moderator effects of identity fusion.

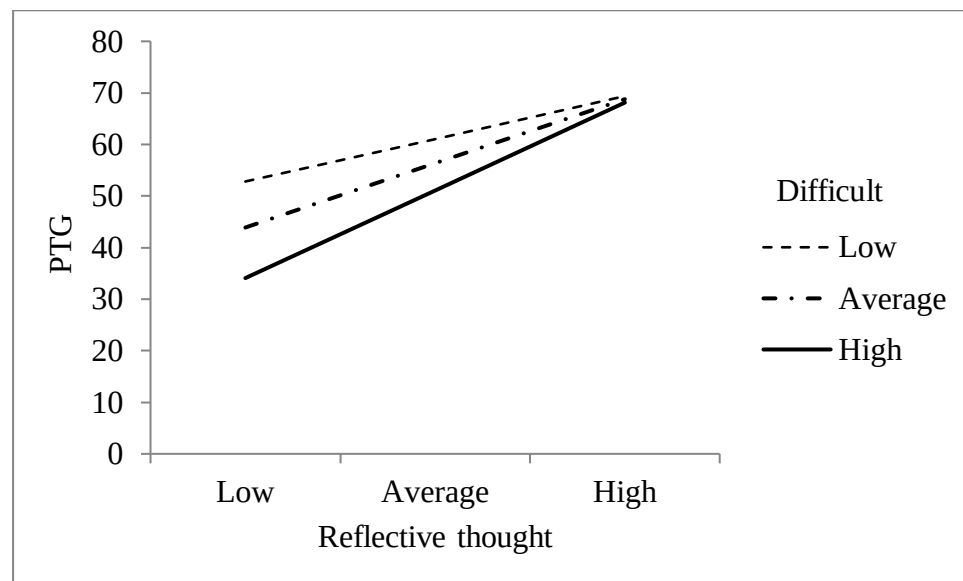


Figure 3.5. Simple slopes of reflective thought predicting PTG for 1 *SD* below the mean of identity fusion with mothers who have had a very difficult birth, the mean of identity fusion with mothers who have had a very difficult birth, and 1 *SD* above the mean of identity fusion with mothers who have had a very difficult birth.

3.4 Discussion

The current study investigated levels of identity fusion in women who were either pregnant with their firstborn or had experienced childbirth for the first time in their lives. Our findings indicated that after giving birth, first-time mothers reported feeling more strongly fused with all mothers, mothers who have had a very difficult birth, and mothers who have had an easy birth than first-time mothers who had not yet given birth. Notably, the extent to which postpartum mothers thought that their childbirth was more or less painful than a typical childbirth experience was a unique predictor of both identity fusion with mothers who have had a very difficult birth and identity fusion with mothers who have had an easy birth: postpartum mothers who believed that their childbirth was more painful than a typical childbirth experience fused more strongly with mothers who have had a very difficult birth and less strongly

with mothers who have had an easy birth. Younger postpartum mothers also reported more identity fusion with mothers who have had an easy birth, whereby older postpartum mothers fused less strongly with mothers who have had an easy birth. Among postpartum mothers, ruminative thought mediated the relationship between childbirth dysphoria and identity fusion with other mothers. In effect, postpartum mothers who reported greater pain of childbirth engaged in more ruminative thought, and postpartum mothers who engaged in more ruminative thought fused more strongly with mothers who have had a very difficult birth and less strongly with mothers who have had an easy birth. Comparably, postpartum mothers who reported that their childbirth was more painful than a typical childbirth experience engaged in more ruminative thought, and postpartum mothers who engaged in more ruminative thought fused more strongly with mothers who have had a very difficult birth. Lastly, among postpartum mothers, the relationship between ruminative thought and PTG was moderated by identity fusion with all mothers, and the relationship between reflective thought and PTG was moderated by identity fusion with mothers who have had a very difficult birth. That is, postpartum mothers who reported higher levels of both ruminative and reflective thought experienced greater post-traumatic growth, but only when they reported higher levels of identity fusion with other mothers.

3.4.1 Identity fusion before and after childbirth

We found as predicted that identity fusion with other mothers was stronger in women who had experienced the event of childbirth for the first time in their lives. While antenatal mothers draw upon their expectations and hopes for the upcoming novel event, postpartum mothers capitalize on their firsthand childbirth experience. That is, postpartum mothers have access to a detailed autobiographical memory that consists of the exact minutes, hours, or days in which their firstborn arrived into the

world, and they belong to a symbolic sisterhood of women who have gone through similar childbirth experiences. These results are in line with previous research that has suggested that identity fusion can result from highly emotional events that are perceived as shared with other group members (e.g., Buhrmester et al., 2018; Buhrmester, Fraser, Lanman, Whitehouse, & Swann, 2015; Jong et al., 2015; Kavanagh, Jong, McKay, & Whitehouse, 2018; Newson et al., 2016; Páez, Rimé, Basabe, Wlodarczyk, & Zumeta, 2015; Swann et al., 2012; Whitehouse, 2018; Whitehouse et al., 2017; Whitehouse & Lanman, 2014; Whitehouse et al., 2014; Zumeta, Basabe, Wlodarczyk, Bobowik, & Páez, 2016). Nevertheless, it is important to consider that the magnitude of the effects was small to medium, suggesting that perhaps there is a distinction to be made between the strength of extended fusion and local fusion. While indirect forms of sharedness can trigger extended fusion, in this case being the individualistic experience of childbirth, local fusion may be cultivated by equally poignant life events that are instead experienced side-by-side with other group members. Consequently, local fusion could be a more potent form and driving greater prosocial outcomes (see also Swann et al., 2012; Whitehouse, 2018).

Notably, both antenatal and postpartum mothers fused most strongly with all mothers compared to mothers who have had an easy birth and mothers who have had a very difficult birth. It is possible that because our questionnaires targeted antenatal and postpartum mothers at large, the majority of the mothers in the sample felt that their experience of pregnancy or childbirth most closely aligned with mothers as a whole, rather than mothers who have had a specifically stress-free or distressing birth experience. Interestingly, our sample did not include a sizeable proportion of women who had experienced a traumatic childbirth (i.e., 9.3% (7 out of 75 postpartum mothers) of our sample demonstrated a probable diagnosis of PTSD at a cutoff score

of ≥ 28 , Foa et al., 2016). While this ratio is well above the prevalence rate of postpartum PTSD found in general community samples (see Dikmen-Yildiz et al., 2017), it is comparably lower than rates demonstrated in online samples (i.e., a self-selection bias; e.g., Ayers, Harris, Sawyer, Parfitt, & Ford, 2009; Ayers, Wright, & Ford, 2015). This could be because the current study recruited first-time mothers via Qualtrics Panel Services in addition to parenting and childbirth-related websites. We were not able to show that identity fusion increases or decreases in strength at different stages of pregnancy or as more time has passed since the childbirth event, and this is in concurrence with previous literature showing that identity fusion is relatively temporally stable once it occurs (Gómez et al., 2011; Swann et al., 2012).

3.4.2 Mechanisms of identity fusion

The current study offered three unique variations of a single identity fusion target: mothers. By comparing identity fusion with all mothers, mothers who have had a very difficult birth, and mothers who have had an easy birth, our aim was to identify the effects of shared experience on identity fusion with other mothers who have faced a momentous life event akin to their own with varying degrees of intensity and overlap. The extent to which postpartum mothers thought that their childbirth was more or less painful than a typical childbirth experience was a unique predictor of identity fusion with mothers who have had a very difficult birth. This result suggests that postpartum mothers who feel that they have endured pain and discomfort that is greater than what an average mother experiences perceive their childbirth as shared with other mothers who have undergone a particularly stressful and demanding childbirth. Although these findings are in line with previous identity fusion studies, where either highly emotional negative experiences (e.g., Jong et al., 2015) or highly emotional positive experiences (e.g., Newson et al., 2016) have been linked to identity

fusion, we found that the extent to which postpartum mothers thought that their childbirth was more or less painful than a typical childbirth experience was also a unique predictor of identity fusion with mothers who have had an easy birth. That is, postpartum mothers who feel that they have suffered pain and discomfort that is less than what an average mother experiences perceive their childbirth as shared with other mothers who have gone through a straightforward and undemanding childbirth. Therefore, the absence of painful experiences, and not necessarily the presence of positive events, is associated with greater identity fusion. Interestingly, pain of childbirth was not linked to identity fusion, suggesting that one's pain in relation to the pain of others plays a more significant role in the shared life experience pathway to identity fusion than just individual pain alone.

Additionally, we discovered that younger age predicted identity fusion with mothers who have had an easy birth for postpartum mothers. This finding suggests that younger postpartum mothers perceive their experience of childbirth as shared with other mothers who have gone through a trouble-free and uncomplicated childbirth. Previous research has shown that regular fetal screening tests during pregnancy and a history of infertility or pregnancy loss can contribute to older mothers (i.e., women in their mid 30s and early 40s) having a higher perception of pregnancy risk than younger mothers (e.g., Bayrampour, Heaman, Duncan, & Tough, 2012a; Bayrampour, Heaman, Duncan, & Tough, 2012b), and that this feeling has sometimes translated to older mothers reporting more difficulties during and after childbirth than younger mothers (e.g., Carolan, 2005; Henderson & Redshaw, 2003; Zasloff, Schytt, & Waldenström, 2007; cf. Windridge & Berryman, 1999). Older mothers are also more likely than younger mothers to indicate difficulties adapting to

life after the arrival of their newborn, whereby they find their loss of independence and new lifestyle challenging (e.g., Corkin et al., 2018b).

We also demonstrated that postpartum mothers who endured greater pain during childbirth engaged in more ruminative thought, and postpartum mothers who engaged in more ruminative thought fused more strongly with mothers who have had a very difficult birth. In like manner, postpartum mothers who believed that their childbirth was more painful than a typical childbirth experience engaged in more ruminative thought, and postpartum mothers who engaged in more ruminative thought fused more strongly with mothers who have had a very difficult birth. These results replicated and built on Jong et al.'s (2015) assertion that shared dysphoria is associated with identity fusion via thought processes by illuminating the precise nature of these thought processes: that is, childbirth dysphoria is associated with identity fusion with other mothers via ruminative thought, but not reflective thought. It may be that unsought and negatively focused thoughts about an event (e.g., Cann et al., 2011) drive identity fusion because they compel the individual to fixate on the feeling of distress that was originally cast by the experience. This preoccupation of the mind with the event can then give rise to the perception that there are others in the world that have endured a life-altering experience similar to their own, thus mentally demarcating those who have shared the experience from those who have not shared the experience. Moreover, we found that postpartum mothers who endured less pain during childbirth engaged in less ruminative thought, and postpartum mothers who engaged in less ruminative thought fused more strongly with mothers who have had an easy birth. As alluded to earlier, a deficiency in dysphoria is linked to greater identity fusion, this time via an absence in ruminative thought. Overall, these findings suggest that pain on an individual level can indeed play a part in the shared life

experience pathway to identity fusion, but only if ruminative thought is also taken into account. Interestingly, the extent to which postpartum mothers believed that their childbirth was more or less painful than a typical childbirth experience still had a significant effect on identity fusion even when controlling for ruminative thought, while pain of childbirth did not have a significant effect on identity fusion when controlling for ruminative thought.

3.4.3 Is identity fusion associated with psychological health benefits?

For postpartum mothers, identity fusion was a moderator of PTG: identity fusion with all mothers moderated the relationship between ruminative thought and PTG, and identity fusion with mothers who have had a very difficult birth moderated the relationship between reflective thought and PTG. These exploratory analyses revealed that under certain conditions, PTG can be bolstered after childbirth. It is possible that the process of identity fusion, whereby mothers feel a sense of oneness with other mothers who have also brought new life into the world and endured intense pain, encourages mothers to better adapt to life after childbirth and take notice of the maternal highlights of raising a newborn (i.e., finding a new purpose in life, bonding with the child; e.g., Corkin et al., 2018a).

It may be that identity fusion has the potential to maximize the relationship between event-related thought and PTG, allowing for more “adversarial growth” that can drive an individual towards an improved level of functioning in life (Linley & Joseph, 2004). That is, growth is a process by which an individual comes to terms with a revised version of reality in the aftermath of trauma; in order to make sense of this altered reality, they have to cognitively rebuild their understanding of the world. Survivors of trauma try to draw out value and meaning from their painful experiences: growth is therefore an individual’s shot at psychological survival when they realize

that previous goals, philosophies, or beliefs are no longer possible, true, or achievable (Tedeschi & Calhoun, 2004). Perhaps the shared life experience pathway to identity fusion provides an environment that is optimal for growth to be cultivated. We propose that mothers who are strongly fused with other mothers feel less isolated and alone in the aftermath of their childbirth event, and are able to find solace and motivation in their knowing that other mothers have gone through a similar juncture in life, allowing for the facilitation of their growth process.

Janoff-Bulman (2004) proposed three unique pathways to PTG, namely strength through suffering, psychological preparedness, and existential reevaluation. Although these pathways are not mutually exclusive, they are each distinct psychological processes. Strength through suffering occurs when individuals acknowledge that they have come out of an agonizing life experience with previously uncharted personal strengths and newfound skills and opportunities; psychological preparedness takes place when coping successfully with a distressing experience compels individuals to accept their vulnerabilities and incorporate the tragedy into their internal world, building themselves to be psychologically safeguarded against future life tragedies; existential reevaluation occurs when a confrontation with adversity drives individuals towards a sort of re-awakening where they have a newborn gratitude for their life, their relationships with others, and their spiritual beliefs. Perhaps for highly fused mothers, these distinct psychological processes are accelerated: belonging to a symbolic coalition of mothers, they may be in a more apt position to recognize their own resilience, reinforce themselves against ensuing troubles, and discover a new outlook on life.

3.4.4 Limitations and future research

The current study was a cross-sectional study. Future longitudinal studies could follow the course of identity fusion as well as track first-time mothers' perception of the childbirth event, childbirth-related thought, and psychological health over the antenatal and postpartum periods. In a longitudinal sample, it would be interesting to compare the perception of pain before and after childbirth, and if this changes with the passing of time since childbirth, the relief that comes from the birth of a healthy baby, the use of an epidural (e.g., Karlsdottir, Sveinsdottir, Kristjansdottir, Aspelund, & Olafsdottir, 2018), endogenous oxytocin levels and exposure to synthetic oxytocin such as Pitocin (e.g., Bell, Erickson, & Carter, 2014; Farley, Piszczek, & Babel, 2019), and stress hormone levels such as cortisol (e.g., Alehagen, Wijma, Lundberg, & Wijma, 2005). Prospective studies could further explore our hypothesis that identity fusion with different groups of mothers can be predicated on first-time mothers' judgment of indirect sharedness in experience. These studies could explore if first-time mothers are indeed fusing with hypothetical groups of women, or if they are instead relying on their real-life interactions with other mothers who have gone through similar experiences (e.g., a friend or family member comes to mind, reflecting on conversations they have had with other mothers in their postpartum support group). It would be interesting to provide first-time mothers with vignettes – impressionistic accounts of childbirth that illustrate a specific moment in another mother's life – in order to conjure meaning and capture sensory details surrounding an experience that is unequivocally about someone they do not know.

Because not all childbirth experiences may be perceived as traumatic, we recommend that future research compares the trajectories of first-time mothers who report experiencing a traumatic childbirth with those of first-time mothers who do not.

In conjunction with levels of dysphoria, prospective analyses could also explore the degree of joy and happiness experienced by first-time mothers during childbirth. Additionally, childbirth narratives from first-time mothers could be analyzed in order to test the contribution of autobiographical reasoning (Habermas & Bluck, 2000) and redemption themes (see McAdams, Reynolds, Lewis, Pattern, & Bowman, 2001; Pals, 2006; Pals & McAdams, 2004) to identity fusion, event-related thought, and posttraumatic growth.

Interestingly, perceptions of indirectly shared experiences could be driving homophily. This concept claims that similarity produces connection by way of common status (e.g., ethnicity, race, age, sex) or common values (e.g., attitudes, beliefs; McPherson, Smith-Lovin, & Cook, 2001; see also Lazarsfeld & Merton, 1954). We propose that future studies examine how the underlying mechanisms of the shared experience pathway to identity fusion compare to the processes that give rise to homophily across different kinds of life experiences and target groups.

3.4.5 Conclusions

This study provides a novel perspective on group bonding among a population that has been particularly understudied in identity fusion research – women. Identity fusion is strengthened in women after experiencing a naturally occurring and significant life event that can sometimes feel like an isolating and physically and emotionally demanding experience – the birth of their first child. Manifestation of social bonds in the form of identity fusion brings to the fore how women can feel a sense of solidarity and camaraderie with other women who have experienced similar life events with varying degrees of intensity and overlap. While such camaraderie may historically have helped to motivate cooperation among women in domestic settings it could also have wider implications for feelings of sisterhood and female

emancipation in public life. Moreover, the potential for identity fusion to be harnessed for psychological health gains as well as for prosocial action, after following shared life-altering experiences, should be further investigated.

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Appendix A

Adapted Version of the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987) for the Antenatal Questionnaire

As you are in the first, second, or third trimester of your pregnancy, we would like to know how you are feeling. Please choose the answer which comes closest to how you have felt in the past 7 days, not just how you feel today.

First, here is an example: if you have felt happy most of the time in the past 7 days, then you would choose **Yes, most of the time**, as is also highlighted in light blue below.

I have felt happy:

Yes, all the time

Yes, most of the time

No, not very often

No, not at all

This would mean: “I have felt happy most of the time” during the past week. Please complete the other questions in the same way.

In the past 7 days:

1. I have been able to laugh and see the funny side of things

As much as I always could

Not quite so much now

Definitely not so much now

Not at all

2. I have looked forward with enjoyment to things

As much as I ever did

Rather less than I used to

Definitely less than I used to

Hardly at all

3. I have blamed myself unnecessarily when things went wrong

Yes, most of the time

Yes, some of the time

Not very often

No, never

4. I have been anxious or worried for no good reason

No, not at all

Hardly ever

Yes, sometimes

Yes, very often

5. I have felt scared or panicky for no very good reason

Yes, quite a lot

Yes, sometimes

No, not much

No, not at all

6. Things have been getting on top of me

Yes, most of the time I haven't been able to cope at all

Yes, sometimes I haven't been coping as well as usual

No, most of the time I have coped quite well

No, I have been coping as well as ever

7. I have been so unhappy that I have had difficulty sleeping

Yes, most of the time

Yes, sometimes

Not very often

No, not at all

8. I have felt sad or miserable

Yes, most of the time

Yes, quite often

Not very often

No, not at all

9. I have been so unhappy that I have been crying

Yes, most of the time

Yes, quite often

Only occasionally

No, never

10. The thought of harming myself has occurred to me

Yes, quite often

Sometimes

Hardly ever

Never

Appendix B

Adapted Version of the Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5 (PDS-5; Foa et al., 2016) for the Postpartum Questionnaire

Below is a list of problems that people sometimes have after experiencing a traumatic event.

Please read each statement carefully and choose the number that best describes how often that problem has been happening and how much it upset you over THE LAST MONTH. Rate each problem with respect to *your childbirth experience*.

First, here is an example: if you've talked to a friend about *your childbirth experience* one time in the past month, you would choose **1 – Once a week or less/a little**, as is also highlighted in light blue below (because one time in the past month is less than once a week)

Talking to other people about *your childbirth experience*

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

1. Unwanted upsetting memories about your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

2. Bad dreams or nightmares related to your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

3. Reliving your childbirth experience or feeling as if it were actually happening again

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

4. Feeling very EMOTIONALLY upset when reminded of your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

5. Having PHYSICAL reactions when reminded of your childbirth experience (for example, sweating, heart racing)

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

6. Trying to avoid thoughts or feelings related to your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

7. Trying to avoid activities, situations, or places that remind you of your childbirth experience or that feel more dangerous since your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

8. Not being able to remember important parts of your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

9. Seeing yourself, others, or the world in a more negative way (for example “I can’t trust people,” “I’m a weak person”)

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

10. Blaming yourself or others (besides those involved in your childbirth experience)

for what happened

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

11. Having intense negative feelings like fear, horror, anger, guilt or shame

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

12. Losing interest or not participating in activities you used to do

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

13. Feeling distant or cut off from others

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

14. Having difficulty experiencing positive feelings

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

15. Acting more irritable or aggressive with others

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

16. Taking more risks or doing things that might cause you or others harm (for example, driving recklessly, taking drugs, having unprotected sex)

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

17. Being overly alert or on-guard (for example, checking to see who is around you, being uncomfortable with your back to a door)

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

18. Being jumpy or more easily startled (for example when someone walks up behind you)

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

19. Having trouble concentrating

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

20. Having trouble falling or staying asleep

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

DISTRESS AND INTERFERENCE

21. How much have these difficulties been bothering you?

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

22. How much have these difficulties been interfering with your everyday life (for example relationships, work, or other important activities)?

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

SYMPTOM ONSET AND DURATION

23. How long after your childbirth experience did these difficulties begin? [choose one]

a. Less than 6 months

b. More than 6 months

24. How long have you had these childbirth experience-related difficulties? [choose one]

a. Less than 1 month

b. More than 1 month

Appendix C

Adapted Version of the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) for the Postpartum Questionnaire

Please indicate for each of the statements below the degree to which change occurred in your life as a result of your experience of childbirth, using the following scale.

(Scale of **0** – **5**, **0** being “I did not experience this change as a result of my experience” and **5** being “I experienced this change to a very great degree as a result of my experience”. Intermediate scores being **1** “a very small degree”, **2** “a small degree”, **3** “a moderate degree”, and **4** “a great degree”.)

1. My priorities about what is important in life.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

2. An appreciation for the value of my own life.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

3. I developed new interests.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

4. A feeling of self-reliance.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

5. A better understanding of spiritual matters.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

6. Knowing that I can count on people in times of trouble.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

7. I established a new path for my life.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

8. A sense of closeness with others.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

9. A willingness to express my emotions.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

10. Knowing I can handle difficulties.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

11. I'm able to do better things with my life.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

12. Being able to accept the way things work out.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

13. Appreciating each day.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

14. New opportunities are available which wouldn't have been otherwise.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

15. Having compassion for others.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

16. Putting effort into my relationships.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

17. I'm more likely to try to change things which need changing.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

18. I have a stronger religious faith.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

19. I discovered that I'm stronger than I thought I was.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

20. I learned a great deal about how wonderful people are.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

21. I accept needing others.

- 0** I did not experience this change as a result of my experience
- 1** A very small degree
- 2** A small degree
- 3** A moderate degree
- 4** A great degree
- 5** I experienced this change to a very great degree as a result of my experience

Appendix D

Adapted Version of the Event Related Rumination Inventory (ERRI; Cann et al., 2011) for the Postpartum Questionnaire

After an experience like the one you reported (*your experience of childbirth*), people sometimes, but not always, find themselves having thoughts about their experience even though they don't try to think about it. Indicate for the following items how often, if at all, you had the experiences described during the weeks immediately after your experience of childbirth. Scale of **0 – 3**, **0** = not at all to **3** = often.

I thought about the event when I did not mean to.

0 Not at all

1

2

3 Often

Thoughts about the event came to mind and I could not stop thinking about them.

0 Not at all

1

2

3 Often

Thoughts about the event distracted me or kept me from being able to concentrate.

0 Not at all

1

2

3 Often

I could not keep images or thoughts about the event from entering my mind.

0 Not at all

1

2

3 Often

Thoughts, memories, or images of the event came to mind even when I did not want them.

0 Not at all

1

2

3 Often

Thoughts about the event caused me to relive my experience.

0 Not at all

1

2

3 Often

Reminders of the event brought back thoughts about my experience.

0 Not at all

1

2

3 Often

I found myself automatically thinking about what had happened.

0 Not at all

1

2

3 Often

Other things kept leading me to think about my experience.

0 Not at all

1

2

3 Often

I tried not to think about the event, but could not keep the thoughts from my mind.

0 Not at all

1

2

3 Often

After an experience like the one you reported (*your experience of childbirth*), people sometimes, but not always, deliberately and intentionally spend time thinking about their experience. Indicate for the following items how often, if at all, you deliberately spent time thinking about the issues indicated during the weeks immediately after your experience of childbirth. Scale of **0 – 3**, **0** = not at all to **3** = often.

I thought about whether I could find meaning from my experience.

0 Not at all

1

2

3 Often

I thought about whether changes in my life have come from dealing with my experience.

0 Not at all

1

2

3 Often

I forced myself to think about my feelings about my experience.

0 Not at all

1

2

3 Often

I thought about whether I have learned anything as a result of my experience.

0 Not at all

1

2

3 Often

I thought about whether the experience has changed my beliefs about the world.

0 Not at all

1

2

3 Often

I thought about what the experience might mean for my future.

0 Not at all

1

2

3 Often

I thought about whether my relationships with others have changed following my experience.

0 Not at all

1

2

3 Often

I forced myself to deal with my feelings about the event.

0 Not at all

1

2

3 Often

I deliberately thought about how the event had affected me.

0 Not at all

1

2

3 Often

I thought about the event and tried to understand what happened.

0 Not at all

1

2

3 Often

Appendix E

Adapted Version of the Centrality of Event Scale (CES; Berntsen & Rubin, 2006) for the Postpartum Questionnaire

Please think back upon your child's birth and answer the following questions in an honest and sincere way, by choosing a number from **1 to 5**.

I feel that my child's birth has become part of my identity.

1 Totally disagree

2

3

4

5 Totally agree

My child's birth has become a reference point for the way I understand myself and the world.

1 Totally disagree

2

3

4

5 Totally agree

I feel that my child's birth has become a central part of my life story.

1 Totally disagree

2

3

4

5 Totally agree

My child's birth has colored the way I think and feel about other experiences.

1 Totally disagree

2

3

4

5 Totally agree

My child's birth permanently changed my life.

1 Totally disagree

2

3

4

5 Totally agree

I often think about the effects my child's birth will have on my future.

1 Totally disagree

2

3

4

5 Totally agree

My child's birth was a turning point in my life.

1 Totally disagree

2

3

4

5 Totally agree

Chapter 4. Pathways to identity fusion among first-time mothers (Authors: Tara Tasuji, Elaine Reese, Valerie van Mulukom, Harvey Whitehouse)

Abstract

How does childbirth affect levels of identity fusion among first-time mothers? Does postnatal fusion play a role in enhancing or minimizing positive psychological health outcomes (e.g., PTG after childbirth) or negative psychological health outcomes (e.g., PTSD with respect to the childbirth event, postpartum depression)? This study examined the underlying mechanisms of identity fusion with other mothers after childbirth in a sample of 50 women in the US who had given birth to their firstborn less than 6 months prior to data collection. We found that shared transformative experience was a remarkably reliable predictor of identity fusion. Mothers who believed that their childbirth was more painful (emotionally and/or physically) than a typical childbirth experience and reported the emotional and/or physical pain of childbirth as more intense indicated greater identity fusion with mothers who have had a painful birth, emotionally and/or physically. Conversely, mothers who believed that their childbirth was less painful (emotionally and/or physically) than a typical childbirth experience and reported lower PTSD symptom frequency and severity with respect to their childbirth experience indicated greater identity fusion with mothers who have had a relatively pain-free birth, emotionally and/or physically.

Autobiographical reasoning (causal coherence of birth narrative) mediated the relationship between centrality of child's birth and identity fusion with mothers who have had a relatively pain-free birth, and this association was moderated by childbirth dysphoria. The relationship between either reflective thought or ruminative thought and PTG was moderated by identity fusion with mothers who have had a painful birth, emotionally and/or physically. The relationship between ruminative thought and either PTG or PTSD was moderated by identity fusion with mothers who have had a

relatively pain-free birth, emotionally and/or physically. These findings contribute to identity fusion theory by providing evidence that childbirth dysphoria, perceived sharedness of the childbirth experience, and autobiographical reasoning with respect to the childbirth experience each play a key role in the pathway to identity fusion with other mothers. The implications of these findings for the long-term psychological impact of childbirth are suggestive but require further investigation.

4.1 Introduction

Mothers can experience emotional distress after undergoing a difficult childbirth experience. Feelings of powerlessness, being ignored or neglected, and self-blame for failing to meet expectations, are among the responses commonly reported (e.g., Coates, Ayers, & de Visser, 2014; Murphy & Strong, 2018). Many factors can prevent a mother from obtaining professional help in these circumstances: they underestimate their need for help, lack confidence in their healthcare providers, or fear the stigma associated with postnatal depression or inability to cope (Button, Thornton, Lee, Shakespeare, & Ayers, 2017). Here we focus on the possible implications of childbirth experiences for more positive psychological outcomes, in particular for feelings of sisterhood and bonding with other mothers.

Identity fusion, a visceral feeling of ‘oneness’ with a group of people, has been shown to emerge from highly emotional shared experiences in predominantly male groups such as frontline fighters in non-state armed groups (Whitehouse, McQuinn, Buhrmester, & Swann, 2014) and conventional armies (Whitehouse et al., 2017) and in football fans (e.g., Newson, Buhrmester, & Whitehouse, 2016) and violent hooligans (Newson et al., 2018). While the effects of shared experience on ‘brothers in arms’ are therefore well established, little is known about whether the same processes serve to bond women into fused sisterhoods. Here, we examine this question with first-time mothers who have dealt with a childbirth event that is akin to other mothers in emotional and physical pain, even if these shared experiences are undergone independently rather than as a group (see Swann, Jetten, Gómez, Whitehouse, & Bastian, 2012; Whitehouse, 2018).

4.1.1 Identity fusion and the shared experience pathway

Identity fusion motivates individuals to endorse personal sacrifices for the group, whether it is donating blood and money to victims of a terrorist attack (Buhrmester, Fraser, Lanman, Whitehouse, & Swann, 2015), a willingness to fight and die for the group (e.g., “Hurting other people is acceptable if it means protecting the group”, “I would sacrifice my life if it saved another group member’s life”; e.g., Gómez et al., 2011; Swann, Gómez, Seyle, Morales, & Huici, 2009), or a readiness to self-sacrifice in front of a runaway trolley to save the lives of fellow group members (e.g., Swann, Gómez et al., 2014; Swann, Gómez, Dovidio, Hart, & Jetten, 2010).

Identity fusion has been associated with “perceptions of shared essence” via two different pathways: one pathway is founded on the perceived sharing of significant experiences with fellow group members, while another pathway is based on the perceived sharing of biological features by way of phenotypic matching (Whitehouse, 2018; see also Swann, Buhrmester et al., 2014; Swann et al., 2012). Research on the shared experience pathway has long-established roots in the anthropological study of painful rituals and the way subsequent memory and reflection impacts group bonding (Whitehouse, 1992, 1995, 2000, 2004). An example of the shared experience pathway has been demonstrated among victims of sectarian violence in Northern Ireland, whereby Republican and Unionist members who endured more shared negative experiences (e.g., public humiliation, a physical attack) or who suffered more frequently and severely as a Republican or Unionist member spent more time thinking about these shared negative experiences. Members who spent more time thinking about these shared negative experiences were more strongly fused with their group (Jong, Whitehouse, Kavanagh, & Lane, 2015). Life-altering, shared, and in particular dysphoric experiences are associated with identity fusion through two psychological mechanisms: episodic memories become indispensable

aspects of one's self-concept through reflection, and the perception of these vital aspects of one's personal identity in another individual prompts kin recognition via phenotypic matching. That is, experiencing crucial events with others acts as a relatively dependable indicator of biological relatedness (Whitehouse & Lanman, 2014).

4.1.2 Childbirth memories and psychological health

Foley, Crawley, Wilkie, and Ayers (2014) found that the memory characteristics of women in the first year after childbirth are affected by psychological distress. Women with a probable diagnosis of depression or PTSD report more negative or mixed emotions at the time of childbirth and throughout recall (e.g., "My emotions at the time were extremely negative"), more involuntary, voluntary, and cued recall of the childbirth experience (e.g., "Things that happen now can unexpectedly bring up memories of the birth (or parts of memories)"), and the childbirth experience as more central to their personal identity and life story (e.g., "The experience of birth was a turning point in my life") than women without a probable diagnosis of depression or PTSD. Women with a probable diagnosis of depression also relive the childbirth experience (e.g., "While remembering the birth now, I relive visual impressions I had during the birth") more than women without a probable diagnosis of depression. Contrary to previous findings (e.g., Berntsen, Willert, & Rubin, 2003), women with a probable diagnosis of PTSD indicate less coherent memories of the childbirth experience (e.g., "My memory for the birth comes to me as a logical, coherent series of events with no major gaps") and less detailed sensory memory of the childbirth experience ("As I recall the birth, I can remember smells") than women without a probable diagnosis of PTSD. Crawley et al. (2018) went on to find that women who endure a traumatic childbirth, but do not

demonstrate a probable PTSD diagnosis, report more negative or mixed emotions at the time of childbirth and during recall, report more involuntary, voluntary, and cued recall of the childbirth experience, and relive the childbirth experience more than women who do not experience childbirth as traumatic. Conversely, they do not differ on centrality of memory, sensory memory, or coherence of memory: women who undergo a traumatic childbirth or not both indicate highly coherent memories of the childbirth experience, the childbirth experience as highly central to their personal identity and life story, and moderately detailed sensory memory of the childbirth experience.

Interestingly, women's traumatic childbirth experiences have also been analyzed in narrative form for content and coherence. Ayers, Radoš, and Balouch (2015) found that women who have high symptoms of posttraumatic stress with respect to their childbirth experience express more negative emotions (i.e., emotions other than fear, horror, and helplessness), use less speech fillers (e.g., "you know", "um"), and use less tentative words (e.g., guess, might) and more causal words (e.g., lead, reason) than women who have either no or very low posttraumatic stress symptoms. Also, women with high posttraumatic stress symptoms remember their childbirth event more frequently, are more often provoked to describe isolated parts of their childbirth memory, and more frequently repeat parts of their childbirth memory (e.g., "No one came to see me. There was no nurse or no doctor, nobody came to see me.") than women with either no or very low posttraumatic stress symptoms. Markedly, Santoro, Stagni-Brenca, Olivari, Confalonieri, and Di Blasio (2018) demonstrated that women who have high posttraumatic stress symptoms express more negative emotions and fear (e.g., "I was discouraged, angry, intolerant", "I felt full of terror, fear and restlessness") and less positive emotions (e.g., happiness, love),

describe more disturbing images with respect to their labor and delivery (e.g., “I thought they were pulling an alien out of me”), use more sensory words (e.g., “the distressing and at the same time exciting vision of that dirty, wet, and bloody little bundle”), and use more causal words than women who have low posttraumatic stress symptoms. Instead, women who have low posttraumatic stress symptoms indicate more active engagement in their labor and delivery (e.g., “I was reassured and participated in the labor in a more serene way”), more frequently refer to their labor and delivery, and use more future tense words than women with high levels of posttraumatic stress symptoms. Although childbirth narratives have been examined for emotional and cognitive processing, little is known about autobiographical reasoning (the process by which individuals make connections between their past experiences and their present self; Habermas & Bluck, 2000) about the childbirth experience and its role in the pathway to identity fusion.

4.1.3 Thoughts and psychological health

Outside of the realm of childbirth, event-related thoughts can be linked to psychological health outcomes in unique ways. For example, interpersonal trauma (e.g., physical assault, imprisonment), number of traumatic event types, and childhood trauma (i.e., a traumatic event that occurs below the age of 18 years) each elicit greater intrusive symptoms (i.e., automatic thoughts), and greater intrusive symptoms elicit more PTG. Interpersonal trauma, number of traumatic event types, and childhood trauma each elicit lower social support (e.g., “When I am feeling down there is someone I can lean on”), and lower social support elicits less PTG. Number of traumatic event types and childhood trauma each elicit greater avoidant coping (i.e., demonstrating indirect ways of dealing with distress, such as drug abuse), and greater avoidant coping elicits less PTG (Brooks, Graham-Kevan, Robinson, & Lowe, 2019).

Moreover, re-evaluation of beliefs about oneself and the world is linked to both greater PTSD symptoms and greater PTG. Interestingly, intrusive and deliberate repetitive thoughts each play a unique role in the pathway to PTSD and PTG: re-evaluation of beliefs about oneself and the world triggers greater intrusive repetitive thoughts, and greater intrusive repetitive thoughts trigger greater PTSD symptoms. Re-evaluation of beliefs about oneself and the world also triggers greater deliberate repetitive thoughts, which in turn trigger greater PTG (Zhou, Wu, Fu, & An, 2015).

4.1.4 The current study

The main goal of the present study was to replicate and build on previous findings showing that childbirth dysphoria relative to the dysphoria of other mothers plays an essential role in the pathway to identity fusion among first-time mothers (see Chapter 3). That is, we aimed to determine whether a mother's childbirth pain in relation to the pain of other mothers is what is driving identity fusion, or if other potential identity fusion mechanisms such as a mother's childbirth pain irrespective of other mothers' pain, autobiographical reasoning, personal significance of childbirth, childbirth-related thought, and positive and negative psychological health outcomes also have a hand in the emergence of identity fusion. A second goal was to examine whether personal significance of childbirth is linked to identity fusion via autobiographical reasoning or thought processes, and if this relationship is predicated on the extent of childbirth dysphoria. A third goal was to investigate whether identity fusion moderates the link between personal significance of childbirth or thought processes and positive and negative psychological health outcomes. Namely, would first-time mothers who experience stronger identity fusion after childbirth benefit from psychological health improvements – lower PTSD and depression, or greater PTG?

In keeping with Chapter 3, participants were mothers aged 18 years and older who had given birth to their firstborn child within the last 6 months. In an effort to refine Chapter 3's study protocol, the measures were slightly adapted for the current study in four significant ways: (1) The childbirth narrative prompt was expanded into a two-part question in order to elicit thoughtful responses from mothers; (2) In order to maximally tap into how potential mechanisms of identity fusion can be grounded on the idea of perceived sharedness of experience, two of the three identity fusion target groups were changed – “mothers who have had a very difficult birth” was changed to “mothers who have had a painful birth, emotionally and/or physically”, and “mothers who have had an easy birth” was changed to “mothers who have had a relatively pain-free birth, emotionally and/or physically” (the third identity fusion target group – “all mothers” – remained the same); (3) The four items measuring pain of childbirth were fine-tuned to two items; (4) The phrase “emotionally and/or physically” was added to the items measuring pain of childbirth and perceived sharedness of childbirth in order to include both manifestations of pain.

The central predictions of this study were the following:

- (1) In line with Chapter 3, we predicted that there would be differences in identity fusion across the different target groups, with mothers fusing more strongly with all mothers than with mothers who have had a relatively pain-free birth, emotionally and/or physically, or with mothers who have had a painful birth, emotionally and/or physically;
- (2) We predicted that potential identity fusion mechanisms would be positively associated with identity fusion with mothers who have had a painful birth, emotionally and/or physically, and negatively associated with identity fusion with mothers who have had a relatively pain-free birth, emotionally and/or physically;

(3) We predicted that potential identity fusion mechanisms would uniquely predict identity fusion with mothers who have had a painful birth, emotionally and/or physically, and identity fusion with mothers who have had a relatively pain-free birth, emotionally and/or physically. In light of Chapter 3's findings, we expected pain of childbirth relative to the pain of other mothers to be what is triggering identity fusion;

(4) We predicted that greater centrality of child's birth would be linked to greater ruminative thought, reflective thought, or autobiographical reasoning, which in turn would be linked to greater identity fusion with mothers who have had a painful birth, emotionally and/or physically. Lower centrality of child's birth would be linked to lower ruminative thought, reflective thought, or autobiographical reasoning, which in turn would be linked to greater identity fusion with mothers who have had a relatively pain-free birth, emotionally and/or physically. These relationships would be contingent on the extent of childbirth dysphoria;

(5) We predicted that identity fusion would moderate the link between ruminative thought, reflective thought, or centrality of child's birth and psychological health outcomes of the childbirth experience such as PTSD symptom frequency and severity with respect to the childbirth experience, postpartum depression symptom severity, or PTG after childbirth.

4.2 Method

4.2.1 Participants

A total of 50 first-time mothers who were at least 18 years of age (age range from 18 to 36 years; $M = 25.02$ years, $SD = 4.53$) and living in the United States were recruited via Qualtrics Online Sample. First-time mothers had a child who was 6 months of age or younger (i.e., anywhere between 1 to 26 weeks old; $M = 14.32$ weeks, $SD = 6.79$). The majority of first-time mothers identified as White Caucasian –

non Hispanic ethnicity ($n = 38$; 76.0%). Eighteen first-time mothers (36.0%) had completed a bachelor's degree or higher. Forty-four first-time mothers (88.0%) were either living with or married to their partner, and 6 first-time mothers (12.0%) were single.

4.2.2 Procedure

The online questionnaire was designed using Qualtrics Online Survey Software (adapted from Chapter 3). Participants' responses were anonymous. The questionnaire took participants anywhere between 18 to 632 minutes to complete ($M = 59.50$ minutes, $SD = 89.88$). Two screening questions were first provided to participants: "What describes your life stage best?" and "What age group does your firstborn child fall under", in which participants had to select the options "Not currently pregnant, but have given birth to one child" and "0-6 months", respectively. The other options for the life stage question included "Not pregnant and never have given birth to a child", "Not currently pregnant, but have given birth to multiple children", "Currently pregnant with first child", and "Currently pregnant with second or later child". The other options for the age group question included "7 months-1 year", "2-5 years", and "6 years and above". Two attention check questions were also inserted in the questionnaire: "What color is the sky? Make sure to select orange for this answer so that we know you are reading the instructions of this survey" and "To show that you have read the instructions, please ignore the question below about how you are feeling and instead choose the 'none of the above' option as your answer". Individuals who did not choose the correct answer choices were not able to complete the questionnaire and consequently were excluded from the study. Upon providing informed consent, participants were asked to complete a portion of the questionnaire

that included demographic information such as their age, ethnicity, child's age, highest level of education, and marital status.

4.2.2.1 Childbirth narrative

Participants were provided with a two-part question asking them to write a childbirth narrative: (1) "Please tell us about the birth of your child. First, describe in detail what happened, including where you were and who else was there. What were you thinking and feeling during the birth of your child? Please write approximately two paragraphs in the space provided below. Feel free to write more if you like.", and (2) "Second, how did the birth of your child change your life or what you are like as a person?"

Autobiographical reasoning in the form of causal coherence was coded on the overall childbirth narrative using a 4-point scale (see Appendix A on p. 275 for scale points and examples; Reese et al., 2017; adapted from Habermas & de Silveira, 2008). Causal coherence identifies the degree to which a person explicitly connects a past experience to changes in their present self.

Childbirth narrative reliability coding was performed by the first author and another female coder who was blind to the hypotheses of the study. A supervising coder independently trained each of the two coders before reliability coding began. The supervising coder was not aware of the hypotheses of the study and checked all final codes. The two coders conducted reliability on 25% of the childbirth narratives. The intraclass correlation for causal coherence for the childbirth narratives was .72. The two coders discussed and resolved any disagreements. After reliability was reached, the first author scored the remaining childbirth narratives.

4.2.2.2 Identity fusion

Identity fusion was measured using the pictorial measure of fusion (Swann et al., 2009) with three different target groups: (1) “All Mothers”, (2) “Mothers who have had a painful birth, emotionally and/or physically”, and (3) “Mothers who have had a relatively pain-free birth, emotionally and/or physically”. The pictorial measure is made up of five symmetrical degrees of overlap between a smaller “self” circle and a bigger “group” circle (0%, 25%, 50%, 75%, and 100%), whereby each of the five pictures is labeled with a letter (A, B, C, D, and E). Participants were instructed to choose one of the five letters that corresponded with the picture that best represented their relationship with the designated target group. Identity fusion was measured as a continuous variable (i.e., 0% overlap between the “self” circle and the “group” circle was given a score of 1 (not fused), and 100% overlap between the “self” circle and the “group” circle was given a score of 5 (strongly fused)). An example of an identity fusion item includes the following: “Looking at the diagram above, please choose one of the letters (A, B, C, D, or E) shown below the picture that best represents your relationship with the Group, in this case the Group being Mothers who have had a painful birth, emotionally and/or physically”. Throughout the rest of the paper, the target groups “mothers who have had a painful birth, emotionally and/or physically” and “mothers who have had a relatively pain-free birth, emotionally and/or physically” will be referred to in more succinct form as “mothers who have had a painful birth” and “mothers who have had a relatively pain-free birth”, respectively.

4.2.2.3 Childbirth trauma

An adapted version of the 24-item Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5 (PDS-5; Foa et al., 2016) was used to measure PTSD symptom frequency and severity in the last month with respect to the participant’s childbirth experience. Instead of the phrases “the trauma”, “the traumatic event”, and

“trauma-related difficulties” in the instructions of the PDS-5 and the individual items of the PDS-5, the phrases “your childbirth experience” and “childbirth experience-related difficulties” were used. The symptom items of the PDS-5 are based on the four DSM-5 symptom clusters: re-experiencing symptoms (items 1-5; e.g., “Bad dreams or nightmares related to your childbirth experience”), avoidance (items 6-7; e.g., “Trying to avoid activities, situations, or places that remind you of your childbirth experience or that feel more dangerous since your childbirth experience”), changes in cognition and mood (items 8-14; e.g., “Blaming yourself or others (besides those involved in your childbirth experience) for what happened”), and increased arousal and reactivity (items 15-20; e.g., “Being overly alert or on-guard (for example, checking to see who is around you, being uncomfortable with your back to a door)”). The symptom items were rated on a 5-point scale of frequency and severity (0 = Not at all, 4 = 6 or more times a week/severe). In the current study, Cronbach’s alpha was .90 for the PDS-5. Participants were also given four additional items from the PDS-5 that assess symptom distress and interference and symptom onset and duration; these four items were excluded from our analyses as PTSD symptom frequency and severity is measured by totaling the twenty symptom ratings (Foa et al., 2016). See Appendix B for the full adapted version of the 24-item PDS-5 (p. 278).

4.2.2.4 Postpartum depression

The 10-item Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987) was used to measure postpartum depression symptom severity. The EPDS items were rated on a 4-point scale (0, 1, 2, and 3 according to increasing symptom severity; e.g., 0 = No, never, 3 = Yes, most of the time). In the current study, Cronbach’s alpha was .90 for the EPDS. Examples of the EPDS items include

the following: “I have looked forward with enjoyment to things” and “I have been anxious or worried for no good reason”.

4.2.2.5 Pain of childbirth

Participants were asked to rate pain of childbirth using two items: “Overall, how intense was the emotional and/or physical pain of childbirth?” and “At the peak of the pain, how intense was the emotional and/or physical pain of childbirth?”. Both items were measured on a 10-point scale (1 = Not intense at all, 10 = Very intense). The two items were strongly correlated with one another ($r = .72, p < .001, r_s = .72, p < .001$). Cronbach’s alpha was .84 for the two items. Accordingly, the two pain items were combined to provide an average pain score.

4.2.2.6 Posttraumatic growth after childbirth

An adapted version of the 21-item Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) was used to measure PTG after childbirth. Instead of the word “crisis”, the phrase “experience of childbirth” was used in the instructions of the PTGI and the word “experience” was used in the Likert response choices of the PTGI. The PTGI items were rated on a 6-point scale (0 = I did not experience this change as a result of my experience, 5 = I experienced this change to a very great degree as a result of my experience). In the current study, Cronbach’s alpha was .92 for the PTGI. Examples of the PTGI items include the following: “I learned a great deal about how wonderful people are.” and “I established a new path for my life.” See Appendix C for the full adapted version of the 21-item PTGI (p. 285).

4.2.2.7 Perceived sharedness of childbirth

Participants were asked to rate perceived sharedness of childbirth using two items: “How painful (emotionally and/or physically) do you think a typical childbirth experience is for other mothers?” was measured on a 10-point scale (1 = Not

emotionally and/or physically painful at all, 10 = Very emotionally and/or physically painful), and “Do you think your childbirth has been more or less painful (emotionally and/or physically) than what you think to be a typical childbirth experience?” was measured on a 10-point scale (1 = A lot less emotionally and/or physically painful, 10 = A lot more emotionally and/or physically painful).

4.2.2.8 Ruminative and reflective thought

An adapted version of the 20-item Event Related Rumination Inventory (ERRI; Cann et al., 2011) was used to measure ruminative and reflective thought. The ERRI is comprised of two 10-item subscales: a subscale for intrusive repetitive thinking and a subscale for deliberate repetitive thinking. Comparable to other measures that differentiate between stable kinds of repetitive thought – such as the Ruminative Responses Scale (RRS; Treynor, Gonzalez, & Nolen-Hoeksema, 2003) that discerns between brooding and reflection, or the Rumination-Reflection Questionnaire (RRQ; Trapnell & Campbell, 1999) that separates rumination from reflection – the ERRI is designed to discriminate between two forms of transient, event-triggered repetitive thought about a specific traumatic life event. To connect to this other research, the present study uses the intrusive subscale to assess what is commonly referred to as ruminative thought and the deliberate subscale to assess what is commonly referred to as reflective thought. Instead of the phrases “After an experience like the one you reported” and “during the weeks immediately after the event” in the instructions of both of the intrusive and deliberate subscales of the ERRI, the phrases “After an experience like the one you reported (your experience of childbirth)” and “during the weeks after your experience of childbirth” were used. The intrusive and deliberate subscales of the ERRI were rated on a 4-point scale (0 = Not at all, 3 = Often). In the current study, Cronbach’s alpha was .90 for the intrusive

subscale of the ERRI, and .91 for the deliberate subscale of the ERRI. Examples of the items from the intrusive subscale of the ERRI include the following: “Thoughts, memories, or images of the event came to mind even when I did not want them.” and “Other things kept leading me to think about my experience.” Examples of the items from the deliberate subscale of the ERRI include the following: “I thought about what the experience might mean for my future.” and “I thought about the event and tried to understand what happened.” See Appendix D for the full adapted version of the 20-item ERRI (p. 292).

4.2.2.9 Extent of thought about childbirth

Participants were asked to rate extent of thought about childbirth using two items: “How much do you think about the meaning of your childbirth?” and “How much do you think about how your childbirth could have turned out differently (e.g., how it could have been easier, or how it could have been worse)?”. The two items were measured on a 6-point scale (0 = I have only thought about it a bit, 5 = It is always on my mind).

4.2.2.10 Centrality of child’s birth

An adapted version of the short 7-item Centrality of Event Scale (CES; Berntsen & Rubin, 2006) was used to measure centrality of child’s birth. Instead of the phrase “Please think back upon the most stressful or traumatic event in your life” in the instructions of the CES or the phrase “this event” in individual items of the CES, the phrase “Please think back upon your child’s birth” was used in the instructions and the phrase “my child’s birth” was used in the individual items. The CES items were rated on a 5-point scale (1 = Totally disagree, 5 = Totally agree). In the current study, Cronbach’s alpha was .89 for the CES. Examples of the CES items include the following: “My child’s birth has become a reference point for the way I

understand myself and the world.” and “My child’s birth permanently changed my life.” See Appendix E for the full adapted version of the short 7-item CES (p. 297).

4.3 Results

No data were missing as participants were required to complete each item of the questionnaire. Descriptive information for the potential identity fusion mechanism variables is presented in Table 4.1.

Table 4.1
Descriptive information for potential identity fusion mechanisms

Potential identity fusion mechanisms	<i>M</i>	<i>SD</i>
Causal coherence of birth narrative	1.48	.79
PDS-5	11.26	10.80
EPDS	7.54	5.81
Pain of childbirth (an average of the two pain items)	6.88	2.40
PTGI	69.46	19.57
Perceived sharedness of childbirth		
“How painful (emotionally and/or physically) do you think a typical childbirth experience is for other mothers?”	7.86	1.67
“Do you think your childbirth has been more or less painful (emotionally and/or physically) than what you think to be a typical childbirth experience?”	4.78	3.07
ERRI-I	7.70	6.81
ERRI-D	12.00	8.15
Extent of thought about childbirth		
“How much do you think about the meaning of your childbirth?”	2.50	1.67
“How much do you think	2.22	1.61

about how your childbirth
could have turned out
differently (e.g., how it could
have been easier, or how it
could have been worse)?”

CES	26.98	7.08

Note. PDS-5 = Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5; EPDS = Edinburgh Postnatal Depression Scale; PTGI = Posttraumatic Growth Inventory; ERRI-I = Event Related Rumination Inventory – Intrusive (ruminative thought); ERRI-D = Event Related Rumination Inventory – Deliberate (reflective thought); CES = Centrality of Event Scale.

4.3.1 Main analyses

4.3.1.1 Identity fusion with different target groups

Our first objective was to test for differences in identity fusion across the different target groups. We conducted a one-way repeated measures analysis of variance (ANOVA) to test the effect of target group on identity fusion scores. As Mauchly’s test showed that the assumption of sphericity was violated, the Greenhouse-Geisser correction was used. Identity fusion scores were not significantly different across target groups ($F(1.55, 75.94) = 1.06, p = .38$). Table 4.2 displays descriptive information for identity fusion with the three target groups.

Table 4.2

Means and standard deviations for identity fusion with all mothers, identity fusion with mothers who have had a painful birth, and identity fusion with mothers who have had a relatively pain-free birth

Target group	<i>M</i>	<i>SD</i>
All mothers	2.94	1.25
Mothers who have had a painful birth	2.56	1.51
Mothers who have had a relatively pain-free birth	2.94	1.57

Nor was there a link between the age of the participant’s child and identity fusion with all mothers, identity fusion with mothers who have had a painful birth, or identity fusion with mothers who have had a relatively pain-free birth ($r = -.02, p = .89$; $r = -.05, p = .72$; $r = .08, p = .58$, respectively).

4.3.1.2 Correlations between identity fusion and its potential mechanisms

Our second objective was to test for a positive association between potential identity fusion mechanisms and identity fusion with mothers who have had a painful birth, or a negative association between potential identity fusion mechanisms and identity fusion with mothers who have had a relatively pain-free birth. Table 4.3 displays intercorrelations among the potential identity fusion mechanism variables. We conducted a series of correlations between causal coherence of birth narrative, PTSD symptom frequency and severity with respect to the childbirth experience, postpartum depression symptom severity, pain/perceived sharedness of childbirth, PTG after childbirth, ruminative and reflective thought, extent of thought about childbirth, or centrality of child's birth and identity fusion with the three target groups (see Table 4.4). Greater identity fusion with mothers who have had a painful birth was associated with greater pain of childbirth and greater perceived sharedness of childbirth (item 2 only), while greater identity fusion with mothers who have had a relatively pain-free birth was associated with lower causal coherence of birth narrative, lower PTSD symptom frequency and severity with reference to the childbirth experience, and lower perceived sharedness of childbirth (item 2). Greater identity fusion with mothers who have had a relatively pain-free birth was also associated with greater perceived sharedness of childbirth (item 1). In brief, childbirth pain (emotionally and/or physically) compared to a typical childbirth experience was linked to intensity of the emotional and/or physical pain of childbirth and identity fusion. Causal coherence of birth narrative was linked to identity fusion, but only for mothers who have had a relatively pain-free birth.

Table 4.3

Zero-order correlations among potential identity fusion mechanisms

	1	2	3	4	5	6	7	8	9	10	11	12
1. CC	—	.17	.17	.14	.23	-.18	.26	.10	.26	.23	.22	.32*
2. PDS-5		—	.80***	.11	-.26	-.09	.15	.56***	.34*	-.04	.50***	.24
3. EPDS			—	.08	-.20	-.04	.03	.25	.22	-.02	.41**	.08
4. Pain				—	.29*	.13	.59***	.02	.04	-.03	.03	.14
5. PTGI					—	.20	.03	-.01	.12	.31*	-.00	.10

6. Shared1	—	-.17	.05	.12	.22	-.00	-.03
7. Shared2		—	.06	-.02	.01	-.02	.06
8. ERRI-I			—	.54***	.13	.67***	.39**
9. ERRI-D				—	.61***	.54***	.56***
10. Thought1					—	.20	.43**
11. Thought2						—	.33*
12. CES							—

Note. CC = Causal coherence of birth narrative; PDS-5 = Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5; EPDS = Edinburgh Postnatal Depression Scale; Pain = Pain of childbirth (an average of the two pain items); PTGI = Posttraumatic Growth Inventory; Shared1 = Perceived sharedness of childbirth (“How painful (emotionally and/or physically) do you think a typical childbirth experience is for other mothers?”); Shared2 = Perceived sharedness of childbirth (“Do you think your childbirth has been more or less painful (emotionally and/or physically) than what you think to be a typical childbirth experience?”); ERRI-I = Event Related Rumination Inventory – Intrusive (ruminative thought); ERRI-D = Event Related Rumination Inventory – Deliberate (reflective thought); Thought1 = Extent of thought about childbirth (“How much do you think about the meaning of your childbirth?”); Thought2 = Extent of thought about childbirth (“How much do you think about how your childbirth could have turned out differently (e.g., how it could have been easier, or how it could have been worse?)”); CES = Centrality of Event Scale. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4.4

Zero-order correlations between potential identity fusion mechanisms and identity fusion with three target groups

Potential identity fusion mechanisms	Identity fusion with mothers who have had a painful birth	Identity fusion with mothers who have had a relatively pain-free birth	Identity fusion with all mothers
CC	.23	-.32*	.22
PDS-5	.18	-.34*	-.09
EPDS	.04	-.15	-.20
Pain	.63***	-.25	.21
PTGI	.03	.20	.26
Shared1	.04	.34*	.14
Shared2	.72***	-.55***	-.12
ERRI-I	.00	.06	.20
ERRI-D	-.05	-.08	.15
Thought1	-.06	-.04	.18
Thought2	-.01	-.13	.07
CES	.05	-.12	.18

Note. CC = Causal coherence of birth narrative; PDS-5 = Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5; EPDS = Edinburgh Postnatal Depression Scale; Pain = Pain of childbirth (an average of the two pain items); PTGI = Posttraumatic Growth Inventory; Shared1 = Perceived sharedness of childbirth (“How painful (emotionally and/or physically) do you think a typical childbirth experience is for other mothers?”); Shared2 = Perceived sharedness of childbirth (“Do you think your childbirth has been more or less painful (emotionally and/or physically) than what you think to be a typical childbirth experience?”); ERRI-I = Event Related Rumination Inventory – Intrusive (ruminative thought); ERRI-D = Event Related Rumination Inventory – Deliberate (reflective thought); Thought1 = Extent of thought about childbirth (“How much do you think about the meaning of your childbirth?”);

Thought2 = Extent of thought about childbirth (“How much do you think about how your childbirth could have turned out differently (e.g., how it could have been easier, or how it could have been worse)?”); CES = Centrality of Event Scale.* $p < .05$. ** $p < .01$. *** $p < .001$.

4.3.1.3 Predictors of identity fusion

Our third objective was to test whether potential identity fusion mechanisms would uniquely predict identity fusion with mothers who have had a painful birth or identity fusion with mothers who have had a relatively pain-free birth. We conducted a linear regression analysis with each of the two target groups. As shown in the earlier section, the target group “all mothers” was not linked to any of the potential identity fusion mechanisms; consequently, a linear regression analysis was not conducted with this target group.

A multiple linear regression analysis was run to predict identity fusion with mothers who have had a painful birth from pain of childbirth and perceived sharedness of childbirth (item 2 only). These variables significantly predicted identity fusion with mothers who have had a painful birth, $F(2, 47) = 32.25$, $p < .001$, $R^2 = .58$ (adjusted $R^2 = .56$). Pain of childbirth and item 2 of perceived sharedness of childbirth were both significant unique predictors (see Table 4.5), whereby indicating the emotional and/or physical pain of childbirth as more intense and thinking that your childbirth was more painful (emotionally and/or physically) than a typical childbirth experience were linked to greater identity fusion with mothers who have had a painful birth.

Table 4.5
Multiple linear regression for identity fusion with mothers who have had a painful birth

Variable	<i>B</i>	95% CI	<i>SE B</i>	β	<i>t</i>	<i>p</i>
Constant	-0.06	[-0.94, 0.81]	0.44	—	-0.14	.887
Pain	0.20	[0.05, 0.35]	0.07	.32	2.71	.009
Shared2	0.26	[0.15, 0.38]	0.06	.53	4.54	< .001

Note. Pain = Pain of childbirth (an average of the two pain items); Shared2 = Perceived sharedness of childbirth (“Do you think your childbirth has been more or

less painful (emotionally and/or physically) than what you think to be a typical childbirth experience?”); CI = confidence interval for *B*.

A multiple linear regression analysis was run to predict identity fusion with mothers who have had a relatively pain-free birth from causal coherence of birth narrative, PTSD symptom frequency and severity with respect to the childbirth experience, and perceived sharedness of childbirth (both items 1 and 2). These variables significantly predicted identity fusion with mothers who have had a relatively pain-free birth, $F(4, 45) = 8.81$, $p < .001$, $R^2 = .44$ (adjusted $R^2 = .39$). Only PTSD symptom frequency and severity with reference to the childbirth experience and item 2 of perceived sharedness of childbirth were significant unique predictors (see Table 4.6), whereby indicating lower PTSD symptom frequency and severity with respect to your childbirth experience and thinking that your childbirth was less painful (emotionally and/or physically) than a typical childbirth experience were linked to greater identity fusion with mothers who have had a relatively pain-free birth.

Table 4.6

Multiple linear regression for identity fusion with mothers who have had a relatively pain-free birth

Variable	<i>B</i>	95% CI	<i>SE B</i>	β	<i>t</i>	<i>p</i>
Constant	3.12	[1.04, 5.20]	1.03	—	3.02	.004
CC	-0.25	[-0.72, 0.22]	0.24	-.13	-1.07	.293
PDS-5	-0.03	[-0.07, -0.00]	0.02	-.23	-2.05	.047
Shared1	0.21	[-0.01, 0.43]	0.11	.22	1.95	.058
Shared2	-0.23	[-0.35, -0.11]	0.06	-.44	-3.78	< .001

Note. CC = Causal coherence of birth narrative; PDS-5 = Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5; Shared1 = Perceived sharedness of childbirth (“How painful (emotionally and/or physically) do you think a typical childbirth experience is for other mothers?”); Shared2 = Perceived sharedness of childbirth (“Do you think your childbirth has been more or less painful (emotionally and/or physically) than what you think to be a typical childbirth experience?”); CI = confidence interval for *B*.

4.3.1.4 Autobiographical reasoning as a mechanism in the pathway to identity

fusion

Our fourth objective was to test whether greater centrality of child's birth would be linked to greater ruminative thought, reflective thought, or causal coherence of birth narrative, which in turn would be linked to greater identity fusion with mothers who have had a painful birth, or whether lower centrality of child's birth would be linked to lower ruminative thought, reflective thought, or causal coherence of birth narrative, which in turn would be linked to greater identity fusion with mothers who have had a relatively pain-free birth. We ran a series of mediation analyses using ordinary least squares path analysis in Hayes' (2018) PROCESS macro (Model 4) for SPSS. Bias-corrected bootstrap analyses based on 10,000 bootstrap samples were conducted. Lower centrality of child's birth was linked to lower causal coherence of birth narrative (represented by the "a path" in Figure 4.1), $b = 0.04$, $t(48) = 2.37$, $p = .02$, and lower causal coherence of birth narrative was linked to greater identity fusion with mothers who have had a relatively pain-free birth (represented by the "b path" in Figure 4.1), $b = -0.63$, $t(47) = -2.18$, $p = .03$. There was no evidence that centrality of child's birth was associated with identity fusion with mothers who have had a relatively pain-free birth when controlling for causal coherence of birth narrative (represented by the "c' path" in Figure 4.1), $b = -0.00$, $t(47) = -0.09$, $p = .93$. There were no other significant mediation models with centrality of child's birth as the independent variable, ruminative thought, reflective thought, or causal coherence of birth narrative as the mediators, and identity fusion with any of the three target groups as the dependent variables.

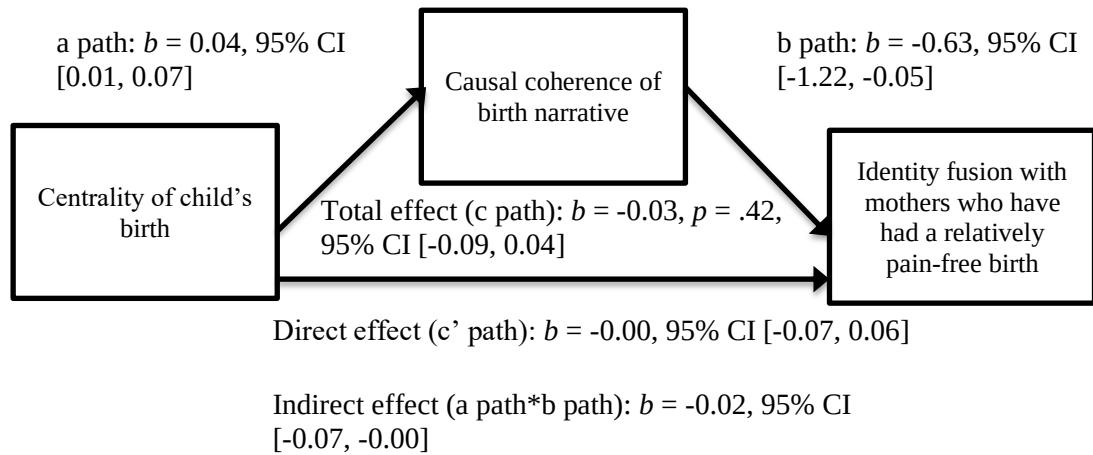


Figure 4.1. Mediation model showing causal coherence of birth narrative mediates the relationship between centrality of child's birth and identity fusion with mothers who have had a relatively pain-free birth.

The mediating effect of causal coherence of birth narrative on the relationship between centrality of child's birth and identity fusion with mothers who have had a relatively pain-free birth was contingent on childbirth dysphoria (see Figure 4.2 for the conceptual moderated mediation model). Pain of childbirth and item 2 of perceived sharedness of childbirth were used as indexes of childbirth dysphoria. The indirect effect of centrality of child's birth on identity fusion with mothers who have had a relatively pain-free birth through causal coherence of birth narrative was negative among mothers who reported low and average (i.e., moderate) intensity of the emotional and/or physical pain of childbirth, $b = -0.05$, 95% CI: -0.12 to -0.01 and $b = -0.02$, 95% CI: -0.07 to -0.00, respectively. Conversely, the indirect effect was not significantly different from zero among mothers who indicated high intensity of the emotional and/or physical pain of childbirth, $b = -0.00$, 95% CI: -0.03 to 0.02.

The indirect effect of centrality of child's birth on identity fusion with mothers who have had a relatively pain-free birth through causal coherence of birth narrative was negative among mothers who reported low and average childbirth pain (emotionally and/or physically) compared to a typical childbirth experience, $b = -$

0.05, 95% CI: -0.10 to -0.00 and $b = -0.02$, 95% CI: -0.05 to -0.00, respectively.

However, the indirect effect was not significantly different from zero among mothers who indicated high childbirth pain (emotionally and/or physically) compared to a typical childbirth experience, $b = 0.01$, 95% CI: -0.01 to 0.04 (see Table 4.7).

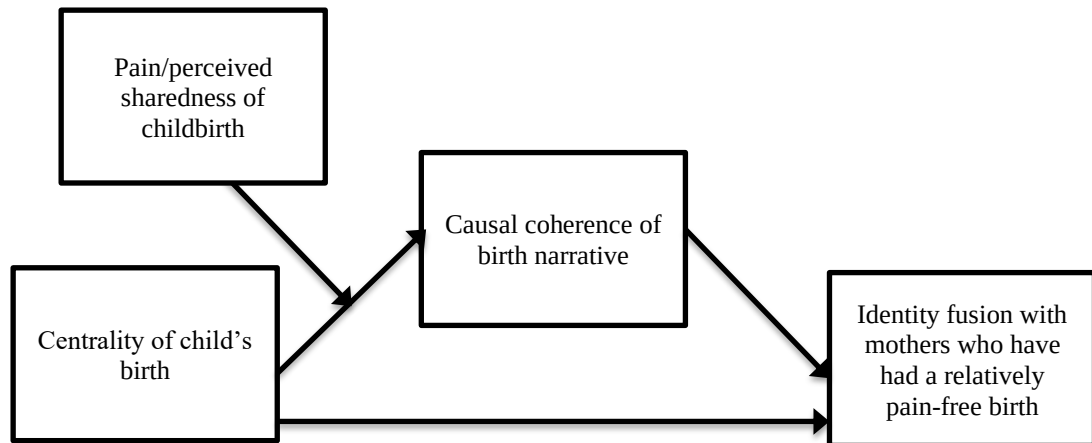


Figure 4.2. Conceptual moderated mediation model showing how the mediating role of causal coherence of birth narrative varies as a function of pain of childbirth (an average of the two pain items) and perceived sharedness of childbirth (“Do you think your childbirth has been more or less painful (emotionally and/or physically) than what you think to be a typical childbirth experience?”).

Table 4.7

Conditional indirect effect of centrality of child’s birth on identity fusion with mothers who have had a relatively pain-free birth through causal coherence of birth narrative at levels of pain of childbirth and perceived sharedness of childbirth

Levels of moderator	Effect	95% bias-corrected bootstrap confidence interval
Pain		
Low (-2.40)	-0.05	-0.12 to -0.01
Average (0)	-0.02	-0.07 to -0.00
High (2.40)	-0.00	-0.03 to 0.02
Shared2		
Low (-3.07)	-0.05	-0.10 to -0.00
Average (0)	-0.02	-0.05 to -0.00
High (3.07)	0.01	-0.01 to 0.04

Note. Pain = Pain of childbirth (an average of the two pain items); Shared2 = Perceived sharedness of childbirth (“Do you think your childbirth has been more or less painful (emotionally and/or physically) than what you think to be a typical childbirth experience?”); 10,000 bootstrap samples.

4.3.1.5 Moderating role of identity fusion

Our fifth objective was test whether identity fusion would moderate the link between ruminative thought, reflective thought, or centrality of child's birth and psychological health outcomes of the childbirth experience such as PTSD symptom frequency and severity with respect to the childbirth experience, postpartum depression symptom severity, or PTG after childbirth. We conducted a series of moderation analyses using Hayes' (2018) PROCESS macro (Model 1) for SPSS. The interaction between reflective thought and identity fusion with mothers who have had a painful birth was significant, $b = -0.49$, $t(46) = -2.23$, $p = .03$, suggesting that the link between reflective thought and PTG after childbirth was moderated by identity fusion with mothers who have had a painful birth (see Figure 4.3). As displayed in Table 4.8, when identity fusion with mothers who have had a painful birth was low, there was a link between reflective thought and PTG after childbirth, $b = 0.98$, $t(46) = 2.36$, $p = .02$. Namely, when mothers indicated low identity fusion with mothers who have had a painful birth, a 1-point increase in reflective thought gave a .98-point increase in PTG after childbirth. When identity fusion with mothers who have had a painful birth was average and high, there was no link between reflective thought and PTG after childbirth, $b = 0.24$, $t(46) = 0.82$, $p = .41$ and $b = -0.49$, $t(46) = -1.05$, $p = .30$, respectively.

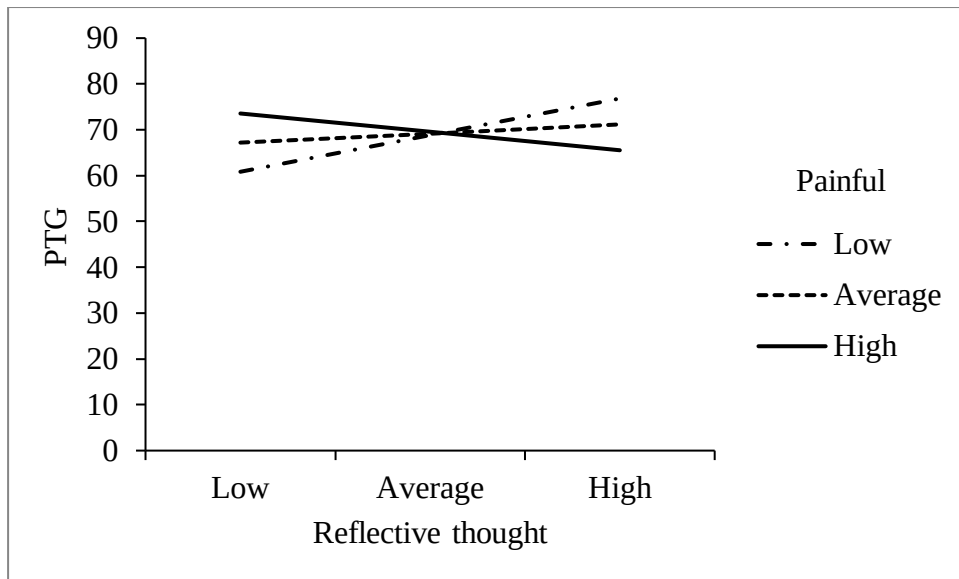


Figure 4.3. Simple slopes of reflective thought predicting PTG after childbirth for 1 SD below the mean of identity fusion with mothers who have had a painful birth, the mean of identity fusion with mothers who have had a painful birth, and 1 SD above the mean of identity fusion with mothers who have had a painful birth.

Table 4.8

Conditional effect of reflective thought on PTG after childbirth at levels of identity fusion with mothers who have had a painful birth

Levels of identity fusion with mothers who have had a painful birth	Effect	95% CI
Low (-1.51)	0.98	0.14 to 1.82
Average (0)	0.24	-0.35 to 0.84
High (1.51)	-0.49	-1.44 to 0.45

The interaction between ruminative thought and identity fusion with mothers who have had a painful birth was significant, $b = -0.69$, $t(46) = -3.76$, $p < .001$, suggesting that the link between ruminative thought and PTG after childbirth was moderated by identity fusion with mothers who have had a painful birth (see Figure 4.4). As shown in Table 4.9, when identity fusion with mothers who have had a painful birth was low and average, there was no link between ruminative thought and PTG after childbirth, $b = 1.09$, $t(46) = 1.97$, $p = .055$ and $b = 0.05$, $t(46) = 0.15$, $p = .88$, respectively. When identity fusion with mothers who have had a painful birth was high, there was a link between ruminative thought and PTG after childbirth, $b = -0.99$,

$t(46) = -4.19, p < .001$. Namely, when mothers revealed high identity fusion with mothers who have had a painful birth, a 1-point increase in ruminative thought gave a .99-point decrease in PTG after childbirth.

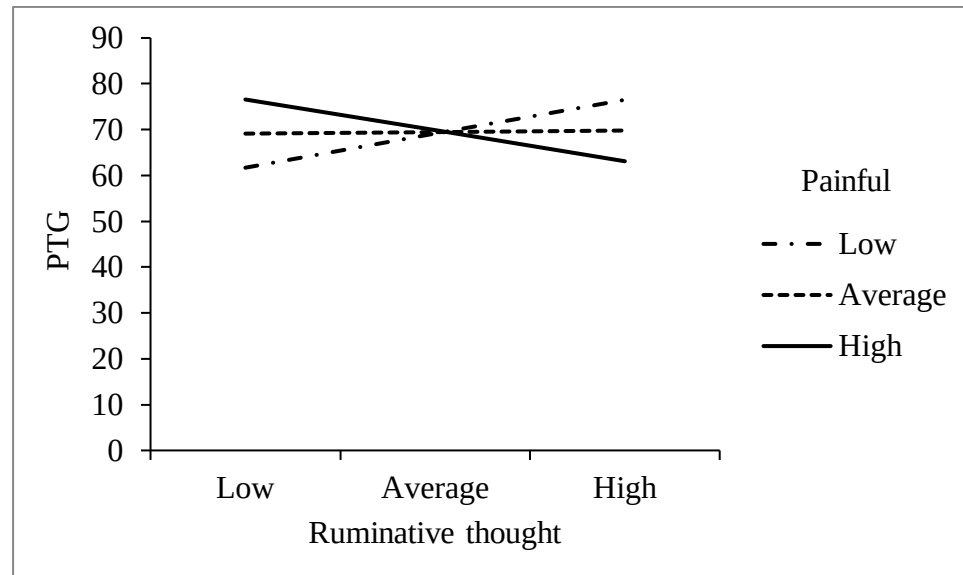


Figure 4.4. Simple slopes of ruminative thought predicting PTG after childbirth for 1 SD below the mean of identity fusion with mothers who have had a painful birth, the mean of identity fusion with mothers who have had a painful birth, and 1 SD above the mean of identity fusion with mothers who have had a painful birth.

Table 4.9

Conditional effect of ruminative thought on PTG after childbirth at levels of identity fusion with mothers who have had a painful birth

Levels of identity fusion with mothers who have had a painful birth	Effect	95% CI
Low (-1.51)	1.09	-0.03 to 2.20
Average (0)	0.05	-0.60 to 0.70
High (1.51)	-0.99	-1.46 to -0.51

The interaction between ruminative thought and identity fusion with mothers who have had a relatively pain-free birth was significant, $b = 0.59, t(46) = 2.18, p = .03$, suggesting that the link between ruminative thought and PTG after childbirth was moderated by identity fusion with mothers who have had a relatively pain-free birth (see Figure 4.5). As displayed in Table 4.10, when identity fusion with mothers who have had a relatively pain-free birth was low, there was a link between ruminative

thought and PTG after childbirth, $b = -0.99$, $t(46) = -2.41$, $p = .02$. Namely, when mothers indicated low identity fusion with mothers who have had a relatively pain-free birth, a 1-point increase in ruminative thought gave a .99-point decrease in PTG after childbirth. When identity fusion with mothers who have had a relatively pain-free birth was average and high, there was no link between ruminative thought and PTG after childbirth, $b = -0.06$, $t(46) = -0.19$, $p = .85$ and $b = 0.86$, $t(46) = 1.35$, $p = .18$, respectively.

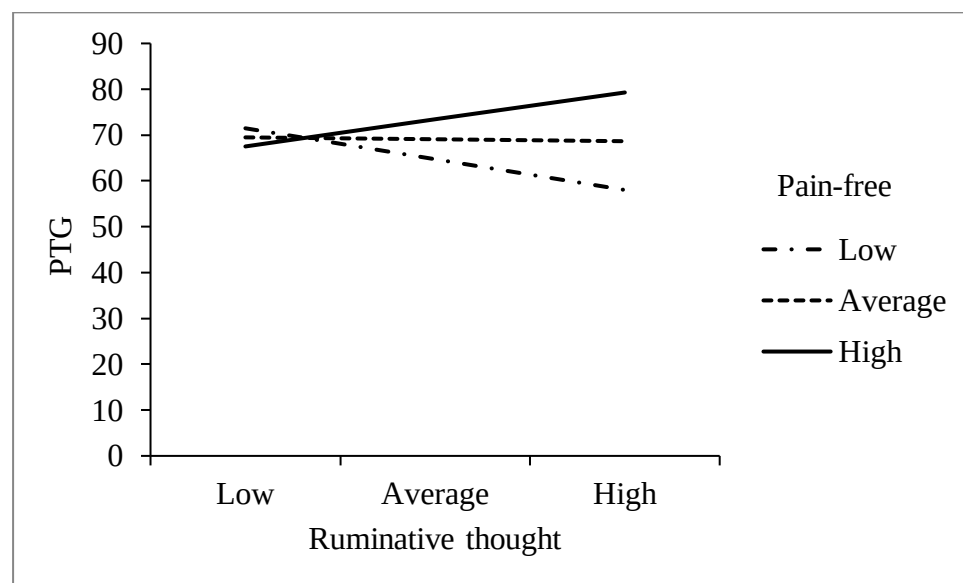


Figure 4.5. Simple slopes of ruminative thought predicting PTG after childbirth for 1 SD below the mean of identity fusion with mothers who have had a relatively pain-free birth, the mean of identity fusion with mothers who have had a relatively pain-free birth, and 1 SD above the mean of identity fusion with mothers who have had a relatively pain-free birth.

Table 4.10

Conditional effect of ruminative thought on PTG after childbirth at levels of identity fusion with mothers who have had a relatively pain-free birth

Levels of identity fusion with mothers who have had a relatively pain-free birth	Effect	95% CI
Low (-1.57)	-0.99	-1.81 to -0.16
Average (0)	-0.06	-0.73 to 0.60
High (1.57)	0.86	-0.42 to 2.15

The interaction between ruminative thought and identity fusion with mothers who have had a relatively pain-free birth was significant, $b = -0.30$, $t(46) = -2.49$, $p =$

.016, suggesting that the link between ruminative thought and PTSD symptom frequency and severity with respect to the childbirth experience was moderated by identity fusion with mothers who have had a relatively pain-free birth (see Figure 4.6). As shown in Table 4.11, when identity fusion with mothers who have had a relatively pain-free birth was low, average, and high, there was a link between ruminative thought and PTSD symptom frequency and severity with respect to the childbirth experience, $b = 1.39$, $t(46) = 4.85$, $p < .001$, $b = 0.93$, $t(46) = 5.37$, $p < .001$, and $b = 0.46$, $t(46) = 2.12$, $p = .039$, respectively. Namely, when mothers revealed low identity fusion with mothers who have had a relatively pain-free birth, a 1-point increase in ruminative thought gave a 1.39-point increase in PTSD symptom frequency and severity with respect to the childbirth experience; when mothers revealed average identity fusion with mothers who have had a relatively pain-free birth, a 1-point increase in ruminative thought gave a .93-point increase in PTSD symptom frequency and severity with respect to the childbirth experience; when mothers revealed high identity fusion with mothers who have had a relatively pain-free birth, a 1-point increase in ruminative thought gave a .46-point increase in PTSD symptom frequency and severity with respect to the childbirth experience. There were no other significant moderator effects of identity fusion with any of the three target groups.

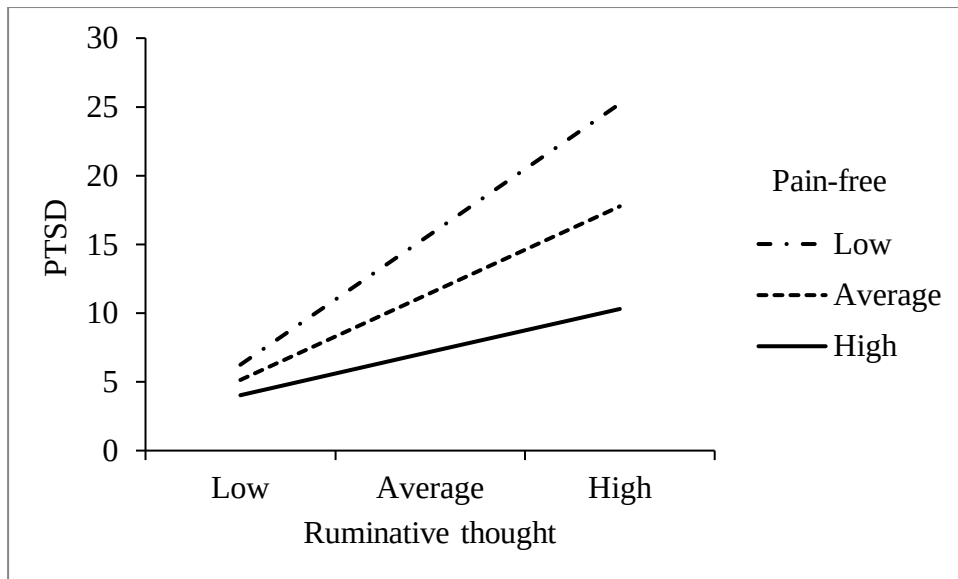


Figure 4.6. Simple slopes of ruminative thought predicting PTSD symptom frequency and severity with respect to the childbirth experience for 1 *SD* below the mean of identity fusion with mothers who have had a relatively pain-free birth, the mean of identity fusion with mothers who have had a relatively pain-free birth, and 1 *SD* above the mean of identity fusion with mothers who have had a relatively pain-free birth.

Table 4.11

Conditional effect of ruminative thought on PTSD symptom frequency and severity with reference to the childbirth experience at levels of identity fusion with mothers who have had a relatively pain-free birth

Levels of identity fusion with mothers who have had a relatively pain-free birth	Effect	95% CI
Low (-1.57)	1.39	0.82 to 1.97
Average (0)	0.93	0.58 to 1.27
High (1.57)	0.46	0.02 to 0.90

4.4 Discussion

The present study examined identity fusion in mothers after they had experienced childbirth for the first time in their lives. This study aimed to replicate and expand on an earlier study (Chapter 3). Counter to the previous study, our findings demonstrated that identity fusion did not differ across the three target groups, “mothers who have had a painful birth”, “mothers who have had a relatively pain-free birth”, and “all mothers”. Interestingly, the extent to which mothers thought that their childbirth was more or less painful (emotionally and/or physically) than a typical

childbirth experience was a unique predictor of both identity fusion with mothers who have had a painful birth and identity fusion with mothers who have had a relatively pain-free birth. That is, mothers who believed that their childbirth was more painful (emotionally and/or physically) than a typical childbirth experience fused more strongly with mothers who have had a painful birth and less strongly with mothers who have had a relatively pain-free birth. Additionally, mothers who reported the emotional and/or physical pain of childbirth as more intense fused more strongly with mothers who have had a painful birth, while mothers who reported lower PTSD symptom frequency and severity with respect to their childbirth experience fused more strongly with mothers who have had a relatively pain-free birth. Causal coherence of birth narrative mediated the link between centrality of child's birth and identity fusion with mothers who have had a relatively pain-free birth. Specifically, mothers who indicated lower centrality of their child's birth demonstrated lower causal coherence of their birth narrative, and mothers who demonstrated lower causal coherence of their birth narrative fused more strongly with mothers who have had a relatively pain-free birth. This relationship was moderated by childbirth dysphoria: this causal chain occurred only when mothers reported low and moderate intensity of their emotional and/or physical pain of childbirth, or low and moderate childbirth pain (emotionally and/or physically) compared to a typical childbirth experience. Finally, identity fusion with mothers who have had a painful birth moderated the link between either reflective thought or ruminative thought and PTG, while identity fusion with mothers who have had a relatively pain-free birth moderated the link between ruminative thought and either PTG or PTSD.

4.4.1 Identity fusion across different groups

Contrary to our predictions, we found that there were no differences in identity fusion across the three target groups. Unlike Chapter 3, where postpartum mothers were shown to fuse more strongly with all mothers than with mothers who have had an easy birth or with mothers who have had a very difficult birth, the current study did not find a parallel trend with the corresponding target groups. This discrepancy could be because two of the three target groups were altered for this study. Nevertheless, for identity fusion with all mothers, the current sample ($M = 2.94$, $SD = 1.25$) scored significantly lower than Chapter 3's postpartum sample ($M = 3.84$, $SD = 1.20$), but the two samples did not differ on identity fusion with the two altered target groups, "mothers who have had a very difficult birth" / "mothers who have had a painful birth, emotionally and/or physically" ($M = 2.29$, $SD = 1.42$ / $M = 2.56$, $SD = 1.51$) or "mothers who have had an easy birth" / "mothers who have had a relatively pain-free birth, emotionally and/or physically" ($M = 3.05$, $SD = 1.55$ / $M = 2.94$, $SD = 1.57$). Further inspection of the demographic characteristics revealed that Chapter 3's postpartum sample had completed higher levels of education than the current sample (54.7% had a bachelor's degree and higher versus 36.0%). The previous sample was comprised of fewer postpartum mothers who were either single or living with their partner than the current sample (6.7% single versus 12.0%, 17.3% living with their partner versus 36.0%). Also, the earlier sample was made up of more postpartum mothers who were married than the current sample (74.0% married versus 52.0%). It is possible that these demographic differences contributed to the inconsistency in identity fusion scores across the two samples. For example, while the percentage of adults living in the United States currently married has declined from 58% in 1995 to 53% in 2019, the percentage of adults living with an unmarried partner has increased from 3% to 7%. Even so, 53% of adults believe that society is better off if couples

who hope to stay together long-term eventually get married (versus 46% of adults believe that society is just as well off if couples who hope to stay together long-term choose not to get married; Pew Research Center, 2019; see also Cherlin, 2020; Sassler & Lichter, 2020). It could be that cohabiting first-time mothers living in the United States feel distinct from the majority of other mothers since their living arrangement, albeit acceptable, is still relatively uncommon.

In line with Chapter 3, we found that identity fusion with any of the three target groups was not associated with the age of the mother's firstborn, suggesting that identity fusion does not gain or lose strength as time passes since the childbirth experience. This pattern is in line with literature asserting that identity fusion is steady over time, albeit this has been demonstrated via a stability index (i.e., test-retest correlation) from the same participants after a period of time had passed (see Gómez et al., 2011; Swann et al., 2012; Vázquez, Gómez, & Swann, 2017; cf. Buhrmester et al., 2018).

4.4.2 Pathway to identity fusion among mothers

In order to detect the underlying mechanisms of identity fusion with other mothers and understand how these mechanisms can be founded on perceived sharedness of experience, we adapted two of the three target groups to explicitly take into account both the emotional and physical dysphoria of childbirth. In support of Chapter 3, the extent to which mothers believed that their childbirth was more or less painful (emotionally and/or physically) than a typical childbirth experience was the strongest unique predictor of identity fusion with mothers who have had a painful birth. That is, pain of childbirth relative to the pain of other mothers is what is powering identity fusion, whereby mothers who feel that they have withstood emotional and physical pain that is greater than what is routinely experienced during

labor perceive their childbirth as shared with other mothers who have endured an emotionally and physically demanding childbirth. Interestingly, childbirth pain irrespective of other mothers' pain was also a unique predictor of identity fusion with mothers who have had a painful birth, wherein mothers who have endured more intense emotional and physical pain perceive their childbirth as shared with other mothers who have weathered an emotionally and physically stressful childbirth. It may be that pain without regard to other mothers' pain (i.e., on an individual level only) can indeed be linked to identity fusion when unambiguously considering pain in its comprehensive form – that is, both the emotional and physical manifestations of pain. These findings are consistent with previous research suggesting that highly emotional dysphoric events that are perceived as shared with others are linked to identity fusion (e.g., Buhrmester et al., 2018; Jong et al., 2015; Newson et al., 2016; Segal, Jong, & Halberstadt, 2018; Swann et al., 2012; Whitehouse, 2018; Whitehouse et al., 2017; Whitehouse & Lanman, 2014; Whitehouse et al., 2014).

In line with Chapter 3, the extent to which mothers believed that their childbirth was more or less painful (emotionally and/or physically) than a typical childbirth experience was also the strongest unique predictor of identity fusion with mothers who have had a relatively pain-free birth. That is, mothers who feel that they have undergone emotional and physical pain that is less than what is normally experienced during labor perceive their childbirth as shared with other mothers who have dealt with a relatively emotionally and physically unchallenging childbirth. Even further, PTSD symptom frequency and severity with respect to the childbirth experience was a unique predictor of identity fusion with mothers who have had a relatively pain-free birth: mothers who have exhibited lower PTSD symptom frequency and severity perceive their childbirth as shared with other mothers who

have undergone a fairly emotionally and physically undemanding childbirth. On the whole, when first-time mothers' labor event is characterized by a relative lack of emotional and physical pain or trauma, they feel bound to other mothers who have experienced a labor that is absent of emotional and physical pain. Perhaps this sense of sisterhood is because first-time motherhood is such a daunting transition on its own, whereby women describe feeling disoriented and disengaged from their old self (e.g., Darvill, Skirton, & Farrand, 2010; Miller, 2007), that there is a fundamental need to unify among other mothers who have also made the transition from pregnancy and birth to motherhood in a similar fashion as them. Notably, Vezzali, Drury, Versari, and Cadamuro (2015) demonstrated that for children between the ages of 9 and 12 who had survived two major earthquakes in Italy, PTSD symptoms were positively linked to psychological closeness using the Inclusion of Other in the Self (IOS) Scale (Aron, Aron, & Smollan, 1992). Unlike the current study, Vezzali et al. (2015) used a single target individual rather than group (i.e., children were asked to report their psychological closeness to an unidentified child who attended the same school and had also experienced the earthquakes). Perhaps the association between PTSD and identity fusion varies across different ages, life events, and target groups or individuals.

Depending on levels of childbirth dysphoria, we found that autobiographical reasoning played a mediating role in the pathway to identity fusion. When intensity of a mother's emotional and physical pain is low and moderate, or when a mother's emotional and physical pain relative to a routine childbirth is low and moderate, mothers who feel that their child's birth is not very central to their identity or life story acknowledge how their experience of childbirth has changed their current self to a lesser extent, and mothers who acknowledge how their experience of childbirth has

changed their current self to a lesser extent perceive their childbirth as shared with other mothers who have dealt with a relatively emotionally and physically straightforward childbirth. It is possible that when mothers experience high levels of childbirth dysphoria, whether their pain is irrespective of other mothers' pain or is in comparison to other mothers' pain, they no longer can view their child's birth as inconsequential to their personal identity. Alternatively, when a childbirth event is harmful, unexpected, and highly distressing, it can become a significant turning point in a mother's life story and affect how a mother attributes meaning to and forms expectations for prospective life experiences (Berntsen & Rubin, 2006). This is in line with previous research showing higher event centrality in individuals experiencing trauma symptoms (e.g., Berntsen et al., 2003; Foley et al., 2014; Rubin, Dennis, & Beckham, 2011).

4.4.3 Identity fusion and its complex relationship with PTG and PTSD

We found that identity fusion with mothers who have had a painful birth moderated the relationship between either reflective thought or ruminative thought and PTG. When identity fusion with mothers who have had a painful birth was low, more reflective thought was linked to greater PTG among first-time mothers. Conversely, when identity fusion with mothers who have had a painful birth was high, more ruminative thought was linked to lower PTG among first-time mothers. That is, weaker identity fusion in this particular form harnesses thoughts about the birth for psychological benefit, while stronger identity fusion in this particular form harnesses thoughts about the birth for psychological hindrance. Moreover, we found that identity fusion with mothers who have had a relatively pain-free birth moderated the relationship between ruminative thought and either PTG or PTSD. When identity fusion with mothers who have had a relatively pain-free birth was low, more

ruminative thought was linked to lower PTG among first-time mothers. When identity fusion with mothers who have had a relatively pain-free birth was low, moderate, and high, more ruminative thought was linked to steadily decreasing levels of PTSD symptom frequency and severity among first-time mothers. That is, weaker identity fusion in this particular form harnesses thoughts about the birth for psychological hindrance, and stronger identity fusion in this particular form harnesses thoughts about the birth for psychological benefit. Perhaps when the childbirth event is highly stressful and perceived as shared with other mothers who have endured similar circumstances, first-time mothers are caught in a web of collective despair. On the other hand, when the childbirth event is fairly unchallenging and perceived as shared with other mothers who have dealt with conditions akin to their own, first-time mothers are not beholden to the anguish and can potentially experience communal growth. Unlike Chapter 3, we were able to show that identity fusion has the potential to mobilize reflective and ruminative thoughts in different ways, depending on the target group and nature of experience.

4.4.4 Limitations and future studies

We suggest that future research is needed to track a single group of first-time mothers through the pregnancy, labor and childbirth, and postpartum phase. This would allow us to monitor the trajectory of identity fusion with the three target groups, as well as childbirth dysphoria, autobiographical reasoning with respect to the childbirth event, personal significance of the childbirth event, childbirth-related thought, and psychological health over time. Future studies could also draw a comparison between the orientation of first-time mothers who indicate having a traumatic childbirth experience and are diagnosed with PTSD after childbirth and the orientation of first-time mothers who do not indicate having a traumatic childbirth

experience and are not diagnosed with PTSD after childbirth. It would be interesting to capture the kinds of emotions first-time mothers experience during a positively-valenced childbirth event or a negatively-valenced childbirth event – to what degree do they experience joy, love, peace, exhilaration, fear, anger, disgust, or anxiety?

It is also important to recognize the overall low levels of causal coherence in the current sample. Interestingly, Grysman (2015) demonstrated that while Amazon's Mechanical Turk participants wrote substantially shorter narratives about stressful life events compared to college students who were either asked to verbally describe the narrative to an experimenter in a college setting or to type the narrative on a computer with the experimenter present in the room or from their home, they wrote about more difficult life events and used more negative emotion words than other college groups. Although there is a trade-off between anonymity and building rapport, we recommend that future studies explore different methods of data collection outside of Qualtrics Online Sample (e.g., in-person interviews at home or in hospital settings) in order to form a more personal connection with participants. It is possible that one-on-one settings would create more opportunities for first-time mothers to identify how their childbirth experience changed their current self.

As discussed in Chapter 3, prospective studies should investigate whether shared childbirth events that are experienced independently of other mothers could be giving rise to homophily. Marsden (1987, 1988) demonstrated that there is an affinity toward homophily, or so-called 'inbreeding', among Americans' core social networks. Built on sharing attributes with others, Marsden found that social networks are small, based on kin, and racially/ethnically homogenous in composition. In order to differentiate the shared experience pathway to identity fusion from homophily, it would be interesting to measure pro-group behaviors among first-time mothers – are

strongly fused first-time mothers endorsing personal sacrifices (for example, a willingness to fight and die; e.g., Swann et al., 2009) for their target groups? Are these pro-group behaviors related to agency, invulnerability, or a devotion to save fellow group members (e.g., Gómez, Brooks et al., 2011; Swann, Gómez et al., 2014)?

4.4.5 Conclusions

The current study attempted to replicate Chapter 3 and provided an even fuller account of the pathway to identity fusion following childbirth for the first time, including the way that autobiographical reasoning mediates identity fusion. The nature of their childbirth experience can bind first-time mothers to other women who have also transitioned into a life stage under circumstances similar to their own. Feelings of sisterhood and fellowship can have important health implications for women who are newly entering motherhood.

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Appendix A

Coding for Causal Coherence in Birth Narratives

	Definition	Example
Causal coherence		
0 point	The narrative did not provide any reference to personality change or the realization of personal development	<i>I had a planned c section with my baby. My husband and I woke up at 6 am to get ready to go to the hospital, when I got there I was extremely scared while being hooked up to everything. It took a couple hours to get everything ready but I finally had her at 11:40am. It was not nearly as bad as I thought it would be and I was very pleased with the whole experience.</i> <i>Along with my husband, my parents were there waiting in the waiting room. I got to see them as soon as they wheeled me out of the room... I do everything for my baby now. It's not about me anymore.</i>
1 point	The narrative merely implied but did not state a change in personality	<i>My husband and I were in the room. A nurse and the dr were also there. I had an epidural, but it was wearing off as I had the baby.</i> <i>It was a lot of painful pushing and within 15-20 minutes he finally came out. The doctor did have to help with some suction to get my little one out. Immediately after I got to hold him and he was so beautiful that I did almost immediately forget the pain. I was so glad he was here and nothing else mattered...</i> <i>Having an innocent life to take care of is very life changing. I think that this is what I was meant to do. I love being a mom and even when I don't get enough sleep or have to clean up another poopy diaper, he smiles and my heart melts. We don't go out as much but that will change as he gets bigger. He is our life.</i> <i>We go for daily walks to keep him moving and shaking. He loves the outside air. We visit my husband at</i>

2 points	The narrative explicitly states changes in personality but does not detail those changes	<i>his work and friends along he way. It is wonderful.</i> <i>I was ballooned on Sunday evening at 6 pm. Induced at 6 am. Given first epidural at 9 am that did not work, I was in hard labor until noon when they gave me a second epidural. I went into the final labor and she was born at 7 pm.</i> <i>My cousin, mom, aunt, my boyfriend, the Dr, and two nurses where present. I was terrified the whole time I was pushing that I would poop on the table but that didn't happen. I cried when I first met her. I have never been more in love...</i> <i>I'm way more cautious now. I'm nervous because I don't want people to get her sick. I'm scared to death of creepers and child molesters. I think about her all the time. Worry, wonder. I love her beyond words. My life has changed because I don't drink or party. I don't want to go out. I want to stay at home and read to her and watch her sleep.</i>
3 points	The narrative explicitly describes the changes in personality as a result of the event	<i>On September 22, I started to feel a slight pain in my vaginal area, but I pushed through it. Later that same night, I took a shower, I got out and was drying myself off and I felt a little trickle of water going down my leg, I didn't think it was my water breaking because it wasn't a gush of water as I've seen on TV, so I just said my prayers and got in the bed. The next morning my boyfriend called and I told him about the previous night, and he panicked and called in at work and told me I better not have his baby without him. I laughed and told him we weren't having a baby today. I ate tacos for breakfast and after eating I begin to feel pain, so I took a shower and started feeling more pain (contractions), and I got out and told my mom we needed to go to the hospital. We went and they admitted me because I was definitely in labor. they gave me pitocin in an IV to speed</i>

up my contractions. I opted for no epidural, and I made it for 4 hours and at that point, I couldn't take any more pain and the nurse checked me and she smiled and said you don't have to we're about to have a baby! I immediately got happy but overwhelmed at the same time it was so much pain that just happened all of a sudden, and the emotions of me getting ready to meet my daughter. Everything was happening so fast at this point, they propped my feet on the stirrups and I said I HAVE TO PUSSSSHHHHH and the dr said go ahead and I pushed once and then a couple seconds later I pushed again and there she was. My beautiful 7lb. 7oz baby girl, Ra'elle Aubree. She was born at 8:20 pm. I was only in labor for 5 hours and it really wasn't as bad as people make it out to be. I didn't tear or have any complications...

My child has given me so much hope for myself. At one point I was a very depressed person and just seeing her smile just gives me so much momentum. I don't have everything figured out, but with her I know I can make it because I have someone to make it for. I know that I have a purpose because God wouldn't have blessed me with that perfect baby if I wasn't capable of being a great mother to her. In the past, I really didn't care what happened or how it happened, I just kind of went with the flow from day to day, but now I find myself preparing for tomorrow or next week. I'm always thinking about what I can do to make her life better and give her a better life than I had. I spend every second I can loving her, talking to her, communicating with her and letting her know that everything is okay. Mommy is taking care of it.

Appendix B

Adapted Version of the Posttraumatic Diagnostic Scale – Self-Report Version for DSM-5 (PDS-5; Foa et al., 2016)

Below is a list of problems that people sometimes have after experiencing a traumatic event. Please read each statement carefully and choose the number that best describes how often that problem has been happening and how much it upset you over THE LAST MONTH. Rate each problem with respect to *your childbirth experience*.

First, here is an example: if you've talked to a friend about *your childbirth experience* one time in the past month, you would choose **1 – Once a week or less/a little**, as is also highlighted in light blue below (because one time in the past month is less than once a week)

Talking to other people about *your childbirth experience*

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

1. Unwanted upsetting memories about your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

2. Bad dreams or nightmares related to your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

3. Reliving your childbirth experience or feeling as if it were actually happening again

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

4. Feeling very EMOTIONALLY upset when reminded of your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

5. Having PHYSICAL reactions when reminded of your childbirth experience (for example, sweating, heart racing)

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

6. Trying to avoid thoughts or feelings related to your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

7. Trying to avoid activities, situations, or places that remind you of your childbirth experience or that feel more dangerous since your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

8. Not being able to remember important parts of your childbirth experience

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

9. Seeing yourself, others, or the world in a more negative way (for example “I can’t trust people,” “I’m a weak person”)

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

10. Blaming yourself or others (besides those involved in your childbirth experience)

for what happened

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

11. Having intense negative feelings like fear, horror, anger, guilt or shame

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

12. Losing interest or not participating in activities you used to do

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

13. Feeling distant or cut off from others

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

14. Having difficulty experiencing positive feelings

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

15. Acting more irritable or aggressive with others

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

16. Taking more risks or doing things that might cause you or others harm (for example, driving recklessly, taking drugs, having unprotected sex)

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

17. Being overly alert or on-guard (for example, checking to see who is around you, being uncomfortable with your back to a door)

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

18. Being jumpy or more easily startled (for example when someone walks up behind you)

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

19. Having trouble concentrating

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

20. Having trouble falling or staying asleep

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

DISTRESS AND INTERFERENCE

21. How much have these difficulties been bothering you?

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

22. How much have these difficulties been interfering with your everyday life (for example relationships, work, or other important activities)?

0 – Not at all

1 – Once a week or less/a little

2 – 2 to 3 times a week/somewhat

3 – 4 to 5 times a week/very much

4 – 6 or more times a week/severe

SYMPTOM ONSET AND DURATION

23. How long after your childbirth experience did these difficulties begin? [choose one]

a. Less than 6 months

b. More than 6 months

24. How long have you had these childbirth experience-related difficulties? [choose one]

a. Less than 1 month

b. More than 1 month

Appendix C

Adapted Version of the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996)

Please indicate for each of the statements below the degree to which change occurred in your life as a result of your experience of childbirth, using the following scale.

(Scale of **0** – **5**, **0** being “I did not experience this change as a result of my experience” and **5** being “I experienced this change to a very great degree as a result of my experience”. Intermediate scores being **1** “a very small degree”, **2** “a small degree”, **3** “a moderate degree”, and **4** “a great degree”.)

1. My priorities about what is important in life.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

2. An appreciation for the value of my own life.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

3. I developed new interests.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

4. A feeling of self-reliance.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

5. A better understanding of spiritual matters.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

6. Knowing that I can count on people in times of trouble.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

7. I established a new path for my life.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

8. A sense of closeness with others.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

9. A willingness to express my emotions.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

10. Knowing I can handle difficulties.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

11. I'm able to do better things with my life.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

12. Being able to accept the way things work out.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

13. Appreciating each day.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

14. New opportunities are available which wouldn't have been otherwise.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

15. Having compassion for others.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

16. Putting effort into my relationships.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

17. I'm more likely to try to change things which need changing.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

18. I have a stronger religious faith.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

19. I discovered that I'm stronger than I thought I was.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

20. I learned a great deal about how wonderful people are.

0 I did not experience this change as a result of my experience

1 A very small degree

2 A small degree

3 A moderate degree

4 A great degree

5 I experienced this change to a very great degree as a result of my experience

21. I accept needing others.

- 0** I did not experience this change as a result of my experience
- 1** A very small degree
- 2** A small degree
- 3** A moderate degree
- 4** A great degree
- 5** I experienced this change to a very great degree as a result of my experience

Appendix D

Adapted Version of the Event Related Rumination Inventory (ERRI; Cann et al., 2011)

After an experience like the one you reported (*your experience of childbirth*), people sometimes, but not always, find themselves having thoughts about their experience even though they don't try to think about it. Indicate for the following items how often, if at all, you had the experiences described during the weeks after your experience of childbirth. Scale of **0 – 3**, **0** = not at all to **3** = often.

I thought about the event when I did not mean to.

0 Not at all

1

2

3 Often

Thoughts about the event came to mind and I could not stop thinking about them.

0 Not at all

1

2

3 Often

Thoughts about the event distracted me or kept me from being able to concentrate.

0 Not at all

1

2

3 Often

I could not keep images or thoughts about the event from entering my mind.

0 Not at all

1

2

3 Often

Thoughts, memories, or images of the event came to mind even when I did not want them.

0 Not at all

1

2

3 Often

Thoughts about the event caused me to relive my experience.

0 Not at all

1

2

3 Often

Reminders of the event brought back thoughts about my experience.

0 Not at all

1

2

3 Often

I found myself automatically thinking about what had happened.

0 Not at all

1

2

3 Often

Other things kept leading me to think about my experience.

0 Not at all

1

2

3 Often

I tried not to think about the event, but could not keep the thoughts from my mind.

0 Not at all

1

2

3 Often

After an experience like the one you reported (*your experience of childbirth*), people sometimes, but not always, deliberately and intentionally spend time thinking about their experience. Indicate for the following items how often, if at all, you deliberately spent time thinking about the issues indicated during the weeks after your experience of childbirth. Scale of **0 – 3**, **0** = not at all to **3** = often.

I thought about whether I could find meaning from my experience.

0 Not at all

1

2

3 Often

I thought about whether changes in my life have come from dealing with my experience.

0 Not at all

1

2

3 Often

I forced myself to think about my feelings about my experience.

0 Not at all

1

2

3 Often

I thought about whether I have learned anything as a result of my experience.

0 Not at all

1

2

3 Often

I thought about whether the experience has changed my beliefs about the world.

0 Not at all

1

2

3 Often

I thought about what the experience might mean for my future.

0 Not at all

1

2

3 Often

I thought about whether my relationships with others have changed following my experience.

0 Not at all

1

2

3 Often

I forced myself to deal with my feelings about the event.

0 Not at all

1

2

3 Often

I deliberately thought about how the event had affected me.

0 Not at all

1

2

3 Often

I thought about the event and tried to understand what happened.

0 Not at all

1

2

3 Often

Appendix E

Adapted Version of the Centrality of Event Scale (CES; Berntsen & Rubin, 2006)

Please think back upon your child's birth and answer the following questions in an

honest and sincere way, by choosing a number from **1 to 5**.

I feel that my child's birth has become part of my identity.

1 Totally disagree

2

3

4

5 Totally agree

My child's birth has become a reference point for the way I understand myself and the world.

1 Totally disagree

2

3

4

5 Totally agree

I feel that my child's birth has become a central part of my life story.

1 Totally disagree

2

3

4

5 Totally agree

My child's birth has colored the way I think and feel about other experiences.

1 Totally disagree

2

3

4

5 Totally agree

My child's birth permanently changed my life.

1 Totally disagree

2

3

4

5 Totally agree

I often think about the effects my child's birth will have on my future.

1 Totally disagree

2

3

4

5 Totally agree

My child's birth was a turning point in my life.

1 Totally disagree

2

3

4

5 Totally agree

Chapter 5. General discussion

This thesis has examined how identity fusion develops across different stages of life, focusing on populations that have been largely understudied in previous fusion literature – children, adolescents, and women. The aim has been to understand how identity fusion emerges as a consequence of personally transformative events that are perceived as shared with others. The primary goal was to investigate the underlying mechanisms of the shared experience pathway to identity fusion in children, adolescents, and first-time mothers – what are the post-event processes at work that give rise to identity fusion via autobiographical memories of shared personal life experiences with a group or individual? In broad terms, it was hypothesised that autobiographical reasoning, a process by which an individual connects past events to their current personality (Habermas & Bluck, 2000), could be one of the mechanisms fueling identity fusion. Relatedly, it was hypothesised that how an individual perceives and copes with a self-defining life experience could affect the appearance of identity fusion.

5.1 Main predictions and findings

This thesis presents the results of three empirical studies, each examining the underlying mechanisms of the shared experience pathway to identity fusion. Chapter 2 investigated whether the shared experience pathway to identity fusion fully develops in adolescence in part as a by-product of changes in autobiographical memory. That is, the emergence of identity fusion is in concert with the emergence of autobiographical reasoning about shared significant experiences with others. The central predictions of Chapter 2 included the following:

1) With respect to a whole-life story and two critical event narratives, narrative identity (chapter measures of whole-life stories, and autobiographical reasoning – in

the form of causal coherence – and event centrality measures of critical event narratives) would increase over the course of development.

2) Identity fusion would increase over the course of development, reaching adult levels by mid-adolescence. Conversely, group identification is an earlier form of group alignment that would have already materialised by age 9 (e.g., Bigler, Jones, & Lobliner, 1997).

3) Autobiographical reasoning and its precursors would be positively linked to identity fusion, but not with group identification.

Notably, identity fusion could be reliably measured from age 11. Age-related increases in some of the narrative identity measures were shown – children and young adolescents were lower in average chapter coherence and causal coherence for both the turning point narratives than mid-adolescents. However, age-related increases in the proportion of life period chapters or event centrality were not shown. Contrary to the prediction, young adolescents were more strongly fused on pictorial fusion with the family/friend group than were mid-adolescents. There were no age-related changes in group identification. Average chapter coherence was positively associated with pictorial fusion with the family/friend group for both young and mid-adolescents, and causal coherence for the second turning point narrative was positively associated with pictorial fusion with the family/friend group for mid-adolescents only.

Interestingly, when considering only causal coherence for a turning point narrative about a particular nominated group and identity fusion with that same nominated group, causal coherence was positively associated with both the pictorial and verbal fusion measures for mid-adolescents. Overall, autobiographical reasoning was correlated with identity fusion as predicted.

Moreover, Chapter 3 and Chapter 4 explored whether, in addition to autobiographical reasoning, various kinds of post-event processes such as extent of perceived event dysphoria, perceived significance of the event, event-related thought, and psychological health outcomes with respect to the event could play a role in the pathway to identity fusion. In these studies, the focus was on first-time mothers, a population selected partly because it allowed us to extend the exploration of developmental considerations into another crucial lifespan phase and partly because previous studies of the shared experience pathway to identity fusion have tended to focus mainly on men (e.g., armed groups, football fans) or mixed populations but without a focus on gender comparisons. While Chapter 3 examined both women who were pregnant with their firstborn (antenatal mothers) and women who had given birth to their firstborn less than 6 months prior to the time of data collection (postpartum mothers), Chapter 4 examined only women who had given birth to their firstborn less than 6 months prior to the time of data collection (postpartum mothers only). The primary predictions of Chapter 3 included the following:

- 1) Mothers who had experienced the event of childbirth for the first time would feel more strongly fused with other mothers (“all mothers”, “mothers who have had a very difficult birth”, and “mothers who have had an easy birth”) than mothers who were still pregnant with their firstborn.
- 2) Among postpartum mothers, there would be a positive link between potential identity fusion mechanisms and identity fusion with mothers who have had a very difficult birth, and a negative link between potential identity fusion mechanisms and identity fusion with mothers who have had an easy birth.

- 3) Among postpartum mothers, potential identity fusion mechanisms would uniquely predict identity fusion with mothers who have had a very difficult birth and identity fusion with mothers who have had an easy birth.
- 4) Among postpartum mothers, greater childbirth dysphoria would be linked to more ruminative and reflective thought, which in turn would be linked to greater identity fusion with mothers who have had a very difficult birth. Lower childbirth dysphoria would be linked to less ruminative and reflective thought, which in turn would be linked to greater identity fusion with mothers who have had an easy birth.
- 5) Among postpartum mothers, the link between ruminative thought, reflective thought, or centrality of child's birth and PTSD symptom frequency and severity, depression symptom severity, or PTG would be moderated by identity fusion. Namely, higher levels of identity fusion would inoculate against PTSD and depression, and boost PTG.

The findings of Chapter 3 revealed that first-time mothers who had already given birth were more strongly fused with all mothers, mothers who have had a very difficult birth, and mothers who have had an easy birth than first-time mothers who had not yet given birth. Markedly, postpartum mothers who thought that their childbirth was more painful than a typical childbirth experience fused more strongly with mothers who have had a very difficult birth, and postpartum mothers who were younger in age and thought that their childbirth was less painful than a typical childbirth experience fused more strongly with mothers who have had an easy birth. Among postpartum mothers, ruminative but not reflective thought mediated the link between level of childbirth dysphoria and identity fusion with other mothers. Specifically, postpartum mothers who indicated greater pain of childbirth engaged in greater ruminative thought, and postpartum mothers who engaged in greater

ruminative thought fused more strongly with mothers who have had a very difficult birth and less strongly with mothers who have had an easy birth. Postpartum mothers who indicated that their childbirth was more painful than a typical childbirth experience engaged in greater ruminative thought, and postpartum mothers who engaged in greater ruminative thought fused more strongly with mothers who have had a very difficult birth. Finally, among postpartum mothers, identity fusion with other mothers moderated the link between either ruminative or reflective thought and PTG after childbirth. That is, postpartum mothers who engaged in greater ruminative thought experienced greater PTG, but only when they indicated higher levels of identity fusion with all mothers. Postpartum mothers who engaged in greater reflective thought experienced greater PTG, but only when they indicated higher levels of identity fusion with mothers who have had a very difficult birth. Therefore, these findings indicate that perceived sharedness of the childbirth experience and thoughts about the birth are key to the pathway to identity fusion with other mothers. Identity fusion may have the potential to be garnered for psychological health gain.

The central predictions of Chapter 4 included the following:

- 1) First-time mothers would fuse more strongly with all mothers than with mothers who have had a relatively pain-free birth, emotionally and/or physically, or with mothers who have had a painful birth, emotionally and/or physically.
- 2) There would be a positive link between potential identity fusion mechanisms and identity fusion with mothers who have had a painful birth, emotionally and/or physically, and a negative link between potential identity fusion mechanisms and identity fusion with mothers who have had a relatively pain-free birth, emotionally and/or physically.

3) Potential identity fusion mechanisms would uniquely predict identity fusion with mothers who have had a painful birth, emotionally and/or physically, and identity fusion with mothers who have had a relatively pain-free birth, emotionally and/or physically. Taking into consideration the findings of Chapter 3, pain of childbirth in relation to the pain of other mothers would be driving identity fusion.

4) Greater centrality of child's birth would be associated with greater ruminative thought, reflective thought, or autobiographical reasoning (in the form of causal coherence of birth narrative), which in turn would be associated with greater identity fusion with mothers who have had a painful birth, emotionally and/or physically.

Lower centrality of child's birth would be associated with lower ruminative thought, reflective thought, or autobiographical reasoning, which in turn would be associated with greater identity fusion with mothers who have had a relatively pain-free birth, emotionally and/or physically. These relationships would be dependent on the extent of childbirth dysphoria.

5) The link between ruminative thought, reflective thought, or centrality of child's birth and psychological health outcomes of the childbirth experience such as PTSD symptom frequency and severity with respect to the childbirth experience, postpartum depression symptom severity, or PTG after childbirth would be moderated by identity fusion.

Unlike the findings of Chapter 3, where postpartum mothers fused more strongly with all mothers than with mothers who have had an easy birth or with mothers who have had a very difficult birth, Chapter 4 did not show a similar trend with the corresponding target groups (i.e., identity fusion did not differ across the three target groups "all mothers", "mothers who have had a painful birth, emotionally and/or physically", and "mothers who have had a relatively pain-free birth,

emotionally and/or physically”). Notably, mothers who thought that their childbirth was more painful (emotionally and/or physically) than a typical childbirth experience and indicated the emotional and/or physical pain of childbirth as more intense fused more strongly with mothers who have had a painful birth, emotionally and/or physically. Mothers who thought that their childbirth was less painful (emotionally and/or physically) than a typical childbirth experience and indicated lower PTSD symptom frequency and severity with reference to their childbirth experience fused more strongly with mothers who have had a relatively pain-free birth, emotionally and/or physically.

Interestingly, the link between centrality of child’s birth and identity fusion with mothers who have had a relatively pain-free birth, emotionally and/or physically, was mediated by causal coherence of birth narrative. In effect, mothers who reported lower centrality of their child’s birth showed lower causal coherence of their birth narrative, and mothers who showed lower causal coherence of their birth narrative fused more strongly with mothers who have had a relatively pain-free birth. This association was moderated by the extent of childbirth dysphoria. That is, this relationship transpired only when mothers indicated low and moderate intensity of their emotional and/or physical pain of childbirth, or low and moderate childbirth pain (emotionally and/or physically) compared to a typical childbirth experience. Lastly, the link between either reflective thought or ruminative thought and PTG was moderated by identity fusion with mothers who have had a painful birth, emotionally and/or physically. The link between ruminative thought and either PTG or PTSD was moderated by identity fusion with mothers who have had a relatively pain-free birth, emotionally and/or physically. Contingent on the target group and nature of experience, identity fusion with other mothers had the potential to harness reflective

and ruminative thoughts about the childbirth experience for psychological benefit or psychological hindrance. All together, these findings demonstrate that childbirth dysphoria, perceived sharedness of the childbirth event, and autobiographical reasoning with reference to the childbirth event each work to give rise to identity fusion with other mothers. Identity fusion with other mothers may have an impact on the psychological health of first-time mothers.

5.2 Implications

The three studies each contributed to the primary goal of this thesis: to understand how autobiographical reasoning and other post-event processes generate identity fusion in children, adolescents, and first-time mothers via autobiographical memories of significant life experiences that are perceived as shared with a group or individual. Here we explore the broader implications of the findings of these three studies.

5.2.1 Autobiographical reasoning in the shared experience pathway

The current thesis investigated the role of autobiographical memory processes in the shared experience pathway to identity fusion within two different contexts: a developmental perspective on children and adolescents using in-person interviews in Chapter 2 versus an adult perspective on women using online survey data in Chapters 3 and 4. Chapter 2 was open-ended in nature and not exclusive to one life event or target group, examining life event narratives (whole-life stories and critical event narratives) of children, young adolescents, and mid-adolescents. In contrast, Chapters 3 and 4 focused on a single life event and specific target groups, examining how women perceived and coped with the experience of childbirth for the first time in their lives. Chapters 3 and 4 used three target groups; these target groups were intended to optimally capture how post-event processes could act as potential identity fusion

mechanisms based on the idea of perceived sharedness of experience. Building on Chapter 3, Chapter 4 also considered the role of autobiographical reasoning in narratives describing first-time mothers' childbirth experiences. These divergent approaches offered unique insights into the shared experience pathway.

Firstly, Chapter 2 looked at the emergence of identity fusion in children and adolescents within the scope of narrative identity – chapter measures of whole-life stories (i.e., proportion of life period chapters and average chapter coherence), and autobiographical reasoning (in the form of causal coherence) and event centrality measures of turning point narratives. Interestingly, event centrality was shown to be stable in adolescence, while average chapter coherence and causal coherence increased in adolescence. The ability to classify past life events as important to one's life story and personal identity (Berntsen & Rubin, 2006) appears to be an antecedent to the ability to self-contemplate and link together ideas, events, themes, and concepts in a whole-life story and in turning point narratives. Chapter coherence and causal coherence both exhibit developmental complexity as autobiographical reasoning processes. Nevertheless, the significant links between average chapter coherence and identity fusion for both young and mid-adolescents, and causal coherence and identity fusion for mid-adolescents only, suggest that these two processes have distinct roles in the shared experience pathway to identity fusion. Coherence in a whole-life story is part of the memory-driven fusion mechanism that begins to form early on in adolescence, and it acts as a precursor to later-developing autobiographical reasoning. Chapter coherence is a more primitive process than causal coherence: while chapter coherence requires events to be linked together with emotional content, causal coherence involves causal links between previous life events and current personality. Thus, coherence in a whole-life narrative is the basis on which autobiographical

reasoning takes on a major role in the emergence of identity fusion in mid-adolescence. In effect, the ability to link past experiences to the current self drastically increases between the ages of 12 and 16 (see also Habermas & Bluck, 2000; Habermas & Reese, 2015). By the age of 16, autobiographical reasoning reaches an adequate level that identity fusion requires.

Interestingly, the link between causal coherence and identity fusion was more pronounced for mid-adolescents when only including narratives about the nominated group. This suggests that the ability to recognise how a specific life event that occurred with a particular group or individual has changed the current self is potentially a driving force behind identity fusion with that particular group or individual. In mid-adolescence, the memory-driven mechanism becomes exclusive to the experience and the perceived co-participants.

In Chapter 4, autobiographical reasoning assumed a mediating role, with the extent of emotional and physical dysphoria endured during childbirth playing gatekeeper. That is, only when first-time mothers experience low and moderate levels of emotional and physical dysphoria – whether the emotional and physical pain is irrespective of other mothers' pain or relative to the pain of other mothers – do first-time mothers who feel that their child's birth is not very central to their personal identity or life story recognise how their experience of childbirth has changed their personality to a lesser degree, and first-time mothers who recognise how their experience of childbirth has changed their personality to a lesser degree perceive their childbirth as shared with other mothers who have undergone a fairly emotionally and physically undemanding childbirth. Perception of sharedness of experience serves to fuse first-time mothers with other mothers who have experienced a childbirth event akin to their own. It may be that when first-time mothers experience high levels of

emotional and physical dysphoria, they are inclined to view the childbirth event as a pivotal moment in their life with lasting consequences. They ascribe meaning to future life events with reference to the memory of the childbirth event (Berntsen & Rubin, 2006). Consequently, this particular pathway to identity fusion with mothers who have had a relatively pain-free birth is thwarted.

5.2.2 Post-event processes that drive identity fusion

Additionally, Chapters 3 and 4 examined the underlying mechanisms of the shared experience pathway to identity fusion by measuring post-event processes in first-time mothers after undergoing childbirth. Both studies aimed to determine if post-event processes such as a mother's childbirth pain irrespective of other mothers' pain, a mother's childbirth pain in relation to the pain of other mothers, personal significance of childbirth, childbirth-related thought, and positive and negative psychological health outcomes, could act as potential identity fusion mechanisms. Where applicable, Chapter 4 included both the emotional and physical manifestations of pain (i.e., the phrase "emotionally and/or physically" was integrated) in the identity fusion target groups and potential identity fusion mechanisms. Despite this slight modification in Chapter 4, childbirth pain with respect to the pain of other mothers was the strongest unique predictor of identity fusion with all of the corresponding target groups – "mothers who have had a very difficult birth" / "mothers who have had a painful birth, emotionally and/or physically", and "mothers who have had an easy birth" / "mothers who have had a relatively pain-free birth, emotionally and/or physically". That is, first-time mothers who believe that they have endured pain that is greater than what is routinely experienced during labour perceive their childbirth as shared with other mothers who have suffered a distressing and excruciating childbirth. Equally so, first-time mothers who believe that they have dealt with pain that is less

than what is normally experienced during labour perceive their childbirth as shared with other mothers who have undergone a fairly trouble-free and painless childbirth. Altogether, the underlying mechanism of identity fusion can be grounded on perceived sharedness of experience, whether the first-time mother's childbirth experience is more painful than the average childbirth experience or less painful than the average childbirth experience.

Nevertheless, Chapters 3 and 4 also detected dissimilar underlying mechanisms of identity fusion with other mothers. These discrepancies could have been due to the slight adaptation of the target groups and potential identity fusion mechanisms in Chapter 4. It is possible that the words used for the corresponding target groups – “difficult birth” / “painful birth, emotionally and/or physically”, and “easy birth” / “relatively pain-free birth, emotionally and/or physically” – appeal to different conditions across the spectrum of childbirth experiences (see p. 314 for a discussion on the potential identity fusion mechanisms). Differences between the demographic characteristics of the samples of Chapters 3 and 4 could have also contributed to these inconsistencies. The postpartum sample of Chapter 3 had completed higher levels of education than the sample of Chapter 4. Moreover, the postpartum sample of Chapter 3 was made up of fewer mothers who were either single or living with their partner and more mothers who were married than the sample of Chapter 4.

In addition to childbirth pain in relation to the pain of other mothers, Chapter 4 found that childbirth pain irrespective of other mothers' pain was also a unique predictor of identity fusion with mothers who have had a painful birth, emotionally and/or physically. Namely, first-time mothers who have suffered more intense emotional and physical pain perceive their childbirth as shared with other mothers

who have endured an emotionally and physically demanding childbirth. While this mechanism was not revealed in Chapter 3, it may be that when pain is measured in its complete form – with the addition of both the emotional and physical manifestations of pain – individual pain is then linked to feelings of sharedness with other mothers who have suffered similar circumstances. Overall, these results are in line with previous literature demonstrating that intensely dysphoric life experiences that are perceived as shared with others are associated with identity fusion (e.g., Buhrmester et al., 2018; Buhrmester, Fraser, Lanman, Whitehouse, & Swann, 2015; Carnes & Lickel, 2018; Jong, Whitehouse, Kavanagh, & Lane, 2015; Newson, Buhrmester, & Whitehouse, 2016; Segal, Jong, & Halberstadt, 2018; Whitehouse et al., 2017; Whitehouse, McQuinn, Buhrmester, & Swann, 2014).

Apart from childbirth pain in relation to the pain of other mothers, Chapters 3 and 4 detected additional underlying mechanisms of identity fusion with the corresponding target groups “mothers who have had an easy birth” and “mothers who have had a relatively pain-free birth, emotionally and/or physically”. Interestingly, these mechanisms were negatively linked to identity fusion with the corresponding target groups; as mentioned above, a parallel negative relationship between the same corresponding target groups and childbirth pain relative to the pain of other mothers was also shown. Chapter 4 revealed that PTSD symptom frequency and severity with respect to the childbirth event was also a unique predictor of identity fusion with mothers who have had a relatively pain-free birth, emotionally and/or physically. Put differently, first-time mothers who display lower PTSD symptom frequency and severity perceive their childbirth as shared with other mothers who have experienced a fairly emotionally and physically unproblematic childbirth. Perhaps the words “pain-free, emotionally and/or physically” in the target group of Chapter 4 more

successfully captured the PDS-5 symptom clusters (intrusion/re-experiencing, avoidance, changes in mood and cognition, and increased arousal and hyperactivity; Foa et al., 2016) than did the word “easy” in the target group of Chapter 3. Altogether, the absence of emotional and physical pain relative to the pain of other mothers or the absence of trauma with respect to a mother's first childbirth experience drives identity fusion with other mothers: this may be because the transition from pregnancy to labour and finally to motherhood can be especially disorienting and overwhelming for first-time mothers. They are learning to navigate life as a new mother, grappling with their sense of self and their changed bodies (e.g., Fox & Neiterman, 2015; Laney, Lewis Hall, Anderson, & Willingham, 2015; Lee, Vasileiou, & Barnett, 2019; Miller, 2007). First-time mothers feel compelled to unite with other mothers who have also undergone a childbirth experience similar to their own – with less pain but nonetheless a rite of passage into motherhood.

Chapter 3 demonstrated that age was also a unique predictor of identity fusion with mothers who have had an easy birth. Otherwise stated, younger first-time mothers perceive their experience of childbirth as shared with other mothers who have undergone a straightforward childbirth. This may be due to older mothers indicating higher pregnancy risk perception than younger mothers after experiencing a history of infertility and miscarriage, being placed on bed rest due to pregnancy complications, or becoming aware of increased risk of genetic abnormalities (e.g., Bayrampour, Heaman, Duncan, & Tough, 2012; Bayrampour, Heaman, Duncan, & Tough, 2013). Older mothers also undergo more complications during childbirth (e.g., De Stefano et al., 2013; Li et al., 2014), and report having difficulty adjusting to their new daily routines postpartum (e.g., Aldrighi, Wall, Souza, & Cancela, 2016; Corkin et al., 2018). It is possible that the word “easy” in the target group of Chapter 3 more

effectively tapped into older mothers' wide-ranging experiences of health anxieties, professional sacrifices, and societal pressures and judgment (e.g., Carolan, 2003; Carolan & Nelson, 2007; Shelton & Johnson, 2006) than did the word "pain-free" in the target group of Chapter 4.

Markedly, Chapter 3 was able to replicate Jong et al.'s (2015) claim that shared dysphoria is associated with identity fusion via thought processes. Overall, a mother's childbirth pain irrespective of other mothers' pain and a mother's childbirth pain in relation to the pain of other mothers were both shown to have a role in this pathway to identity fusion. That is, first-time mothers who have suffered more pain during childbirth engage in more ruminative thought, and first-time mothers who engage in more ruminative thought perceive their childbirth as shared with other mothers who have endured a distressing childbirth. Similarly, first-time mothers who believe that they have suffered pain that is greater than what is routinely experienced during labour engage in more ruminative thought, and first-time mothers who engage in more ruminative thought perceive their childbirth as shared with other mothers who have endured a distressing childbirth. Building on Jong et al.'s (2015) assertion, Chapter 3 was able to reveal that only ruminative thought, and not reflective thought, mediates the link between dysphoria and identity fusion. It is possible that repetitive thoughts or ponderings that are emotionally distressing and unsought influxes about the childbirth experience (e.g., Calhoun, Cann, & Tedeschi, 2010; Calhoun, Cann, Tedeschi, & McMillan, 2000; Cann et al., 2011) trigger identity fusion because first-time mothers are engrossed in their childbirth experience, even though they may not want to be consumed by it. First-time mothers are not able to move beyond the event's encumbrance; instead, they are inundated with images, thoughts, and reminders about their childbirth. These thought processes generate representations

that become part of first-time mothers' transformed personal identity. Perhaps these thought processes also embolden first-time mothers to believe that there are select others who have also suffered in a similar way as they have. Consequently, first-time mothers perceive the childbirth experience as indirectly shared with these other mothers. It may be that this perception of indirect sharedness is a coping mechanism: while first-time mothers have not experienced labour with these other mothers physically by their side, they recognise the commonality in order to manage and deal with their childbirth experience. Camaraderie is formed among these women.

Interestingly, Chapter 3 also demonstrated that first-time mothers who have undergone less pain during childbirth engage in less ruminative thought, and first-time mothers who engage in less ruminative thought perceive their childbirth as shared with other mothers who have dealt with a trouble-free childbirth. As discussed earlier, the absence of pain can drive identity fusion with other mothers who have also undergone a similar childbirth experience; nonetheless, this pathway reveals that the absence of pain that is irrespective of other mothers' pain can be associated with identity fusion, but via an absence of ruminative thought. This pathway is somewhat contradictory to fusion theory. For instance, Whitehouse (2018) proposed that a significant life experience elicits thought processes that in turn produce representations that become part of the autobiographical self; these representations are then perceived as shared with a group or individual, lending to identity fusion. Perhaps the pathway to identity fusion is complex, dependent on the nature of experience and target group. Chapter 4 was not able to show the mediating role of ruminative thought. It is possible that the slight modification of two of the potential identity fusion mechanisms – in which the phrase “emotionally and/or physically” was added to the items measuring a mother's childbirth pain irrespective of other

mothers' pain and a mother's childbirth pain in relation to the pain of other mothers – eliminated their association with ruminative and reflective thought. Even so, it is at present unclear why this pathway could not be shown.

5.2.3 Local versus extended identity fusion

Unexpectedly, young adolescents demonstrated stronger identity fusion than older adolescents in Chapter 2. One possibility for this developmental shift is the inclusion of only local fusion targets in that study. It may be that extended fusion targets (e.g., one's nation; see Gómez & Vázquez, 2015; Swann & Buhrmester, 2015; cf. Swann, Jetten, Gómez, Whitehouse, & Bastian, 2012) would lend to different patterns over the course of development. For example, a student marching in a climate change protest shares the emotional experience with other participants marching by their side in the actual demonstration; likewise, the student can perceive the experience as shared with other members of the activist group also marching in protest in different locations across the world, whereby the “sharedness is indirect” (Whitehouse, 2018). If extended fusion is also considered, the ambiguity of whether identity fusion has occurred via the shared genes pathway or shared experience pathway is removed. In contrast to Chapter 2, extended fusion targets can be examined irrespective of an adolescent's growing reliance on intimate friendships (e.g., Bagwell & Schmidt, 2011; Erdley & Day, 2016).

Moreover, Chapters 3 and 4 took a closer look at extended fusion targets within the context of childbirth. Both studies investigated whether perceptions of shared experience among first-time mothers could serve to fuse them to other mothers. Interestingly, Chapter 3 found that first-time mothers who had already given birth to their child indicated feeling more strongly fused with all three target groups of mothers than first-time mothers who had not yet given birth to their child. Even

though childbirth is experienced independently and not shoulder-to-shoulder with other women, postpartum mothers are able to think back on the arrival of their firstborn; they are not confined by the hopes and expectations of something that has yet to occur. Postpartum mothers acknowledge that they have become part of a metaphorical sisterhood of women who have withstood similar circumstances firsthand.

Quite possibly, the extended fusion targets could have evoked images of or thoughts about actual women in the lives of first-time mothers (e.g., their sister's childbirth experience, a best friend's childbirth experience) rather than conjured up hypothetical and abstract groups of women with whom they do not have a personal relationship (see p. 321 for a discussion on how future studies could address this issue).

5.2.4 Identity fusion and psychological health outcomes

Notably, Chapters 3 and 4 examined whether identity fusion is associated with psychological health outcomes of the childbirth experience, namely PTSD symptom frequency and severity with respect to the childbirth experience, postpartum depression symptom severity, or PTG after childbirth. Specifically, the aim was to investigate whether first-time mothers who experience stronger identity fusion through the experience of childbirth take advantage of psychological health benefits, such as a reduction in PTSD or depression, or an increase in PTG. Chapter 3 showed that when identity fusion with all mothers is high, more ruminative thought is linked to greater PTG after childbirth. Also, when identity fusion with mothers who have had a very difficult birth is low, moderate, and high, more reflective thought is linked to steadily increasing levels of PTG after childbirth. In broad terms, postpartum PTG

among first-time mothers can be amplified under certain conditions that inspire strong identity fusion with other mothers.

Unlike Chapter 3, Chapter 4 was able to demonstrate that identity fusion could potentially harness reflective and ruminative thoughts in specific ways. Interestingly, there are advantages and disadvantages to identity fusion, contingent on the target group and nature of experience. When identity fusion with mothers who have had a painful birth (emotionally and/or physically) is low, more reflective thought is linked to greater PTG after childbirth. On the other hand, when identity fusion with mothers who have had a painful birth (emotionally and/or physically) is high, more ruminative thought is linked to lower PTG after childbirth. Put together, weaker identity fusion with mothers who have had a painful birth (emotionally and/or physically) garners thoughts about the childbirth experience for psychological benefit, while stronger identity fusion with mothers who have had a painful birth (emotionally and/or physically) garners thoughts about the childbirth experience for psychological hindrance. Otherwise stated, first-time mothers who have suffered more emotional and physical pain during childbirth – irrespective of other mothers’ pain and with reference to the pain of other mothers – and perceive the experience as shared with other mothers who have endured an emotionally and physically demanding childbirth, experience less psychological growth. First-time mothers are potentially trapped in a web of collective anguish.

Additionally, when identity fusion with mothers who have had a relatively pain-free birth (emotionally and/or physically) is low, more ruminative thought is linked to lower PTG after childbirth. Interestingly, when identity fusion with mothers who have had a relatively pain-free birth is low, moderate, and high, more ruminative thought is linked to steadily decreasing levels of PTSD symptom frequency and

severity with respect to the childbirth experience. In sum, weaker identity fusion with mothers who have had a relatively pain-free birth (emotionally and/or physically) garners thoughts about the childbirth experience for psychological hindrance, while stronger identity fusion with mothers who have had a relatively pain-free birth (emotionally and/or physically) garners thoughts about the childbirth experience for psychological benefit. Put differently, first-time mothers who have undergone less emotional and physical pain relative to the pain of other mothers and a less traumatic childbirth experience, and perceive the experience as shared with other mothers who have dealt with an emotionally and physically unproblematic childbirth, experience less trauma symptoms. First-time mothers are not bound to the distress of childbirth, and they are potentially receptive to collective psychological growth. Although these studies offer a noteworthy introduction into the mobilising power of identity fusion, the psychological impact of childbirth in first-time mothers and its link to identity fusion with other mothers requires further research.

5.3 Limitations of this thesis and future research

Each of the three studies has unique limitations that need to be taken into consideration. Chapter 2 was an exploratory, cross-sectional study. To our knowledge, Chapter 2 was the first attempt to examine identity fusion in children and adolescents in the context of narrative identity. Nevertheless, the study was not able to utilise a reliable group identification measure for children, or a reliable verbal fusion measure for both children and young adolescents. As the pictorial fusion measure was reliable from early adolescence, it may be that the verbal fusion measure mandates verbal skills that have not yet developed in children and young adolescents. Prospective research is needed with younger age groups to explore the operationalisation of identity fusion. These studies could explore how identity fusion is conceptually

different from other constructs (see Bortolini, Newson, Natividade, Vázquez, & Gómez, 2018), such as identity centrality (e.g., Crane, Louis, Phillips, Amiot, & Steffens, 2018; see Leach et al., 2008), identity interference (e.g., Settles, 2004), and identity commitment (e.g., Soenens, Berzonsky, Dunkel, Papini, & Vansteenkiste, 2011). Different means of measuring identity fusion should be evaluated in order to pinpoint the first appearance of identity fusion over the course of development. Chapter 2 was also not able to find a link between the proportion of life period chapters and identity fusion for either young or mid-adolescents; future research could further examine this relationship.

Future studies could be longitudinal in nature, following the same group of children and adolescents over the course of their development before (if feasible) and after experiencing a single event (e.g., a hurricane hitting their island, marching in a climate change protest). At various time points, participants would provide a turning point narrative about both local and extended fusion targets (e.g., their family members versus their island community, their peers marching by their side versus the activist group on a global scale) and matching fusion levels. Additionally, prospective studies could collect turning point narratives about different groups or individuals (e.g., family members, circle of friends, classmates, town or city residents, country, religion) and matching fusion levels from children and adolescents. This study would offer an interesting perspective as to if and how autobiographical reasoning and identity fusion fluctuates across different life events, social groups, and ages. Moreover, how a child or adolescent perceives and copes with an emotional life experience (e.g., the extent of dysphoria or euphoria experienced during the event, the centrality of the event, psychological health outcomes with respect to the event) could

also be considered in conjunction with autobiographical reasoning when examining the shared experience pathway to identity fusion in childhood and adolescence.

In addition, Chapters 3 and 4 were both cross-sectional studies. Neither study was able to measure childbirth dysphoria, autobiographical reasoning, personal significance of childbirth, childbirth-related thought, positive and negative psychological health outcomes, and identity fusion with other mothers at different time points. Tracking identity fusion and its potential mechanisms during pregnancy, immediately after labour and delivery, and into the postpartum period could be an interesting avenue for future research. A longitudinal study would allow for the following insights into the shared experience pathway to identity fusion: 1) The trajectory of identity fusion with other mothers before and after childbirth; 2) The trajectory of potential identity fusion mechanisms before and after childbirth. In particular, whether the perception of pain may decrease or be misremembered over time due to oxytocin levels and its link to pain memory (e.g., Brett & Baxendale, 2001; Buckley, 2015; Niven & Murphy-Black, 2000); 3) Whether potential identity fusion mechanisms immediately after childbirth (e.g., within a week of childbirth) could uniquely predict identity fusion with other mothers after additional time had passed since childbirth (e.g., 6 weeks and 6 months postpartum); 4) Whether identity fusion with other mothers immediately after childbirth (e.g., within a week of childbirth) could moderate the link between thought processes and PTSD symptom frequency and severity with respect to the childbirth experience, postpartum depression, or postpartum PTG after additional time had passed since childbirth (e.g., 6 weeks and 6 months postpartum).

Moreover, prospective studies could compare the trajectory of first-time mothers who report enduring a traumatic childbirth and are diagnosed with PTSD

with the trajectory of first-time mothers who do not report enduring a traumatic childbirth and are not diagnosed with PTSD. In order to directly tap into how potential identity fusion mechanisms can be founded on perceived indirect sharedness, future studies could examine the relationship between childbirth dysphoria, intrusive thoughts about the childbirth experience, perceived indirect sharedness of the childbirth experience, and identity fusion with other mothers. That is, to investigate if intrusive thoughts among first-time mothers who have been through a particularly painful childbirth is linked to a perception of indirect sharedness with other mothers who have endured a childbirth experience akin to their own, and if this perception of indirect sharedness is linked to identity fusion with other mothers who have endured a childbirth experience akin to their own. It would be important to understand the reasons behind why first-time mothers come to perceive their experience as indirectly shared with other mothers – are they attempting to cope with and manage the feelings of distress cast by the experience of childbirth?

In order to address the issue of extended fusion targets, it would be interesting to provide first-time mothers with vignettes – short stories capturing a single moment in a hypothetical mother’s childbirth experience, offering sensory details and describing the emotional atmosphere in the delivery room. Similar to Chapters 3 and 4, the vignettes would vary in degree of difficulty: while one hypothetical mother experiences a relatively easy childbirth, another hypothetical mother endures a very difficult childbirth.

Notably, indirectly shared experiences could be lending to homophily – the degree to which individuals interact with others based on similar attributes (see Lazarsfeld & Merton, 1954). Fu, Nowak, Christakis, and Fowler (2012) argued that homophily can allow for group members to act together more efficiently; while

homophily gives rise to synergy, heterophily drives specialisation and an exchange of knowledge and craft. Prospective research is needed to differentiate the shared experience pathway to identity fusion from homophily. It is possible that unlike perceived homophily, where perceptions of similarity can be measured via an attitude dimension (e.g., another individual has thoughts and ideas that are similar to the self) and a background dimension (e.g., another individual is from an economic situation that is like the self; McCroskey, McCroskey, & Richmond, 2006), the mechanisms underlying the shared experience pathway draw on deeper “perceptions of shared essence” that can only be derived from transformative life experiences (Whitehouse, 2018). Arguably, homophily does not predict extreme pro-group behaviours in the same way that identity fusion has been shown to predict (e.g., Swann, Gómez, Dovidio, Hart, & Jetten, 2010). Nonetheless, future research is needed to explore this distinction.

5.4 Conclusions

The central objective of the current thesis was to examine how autobiographical reasoning and other post-event processes trigger identity fusion in children, adolescents, and first-time mothers via autobiographical memories of personally transformative life experiences that are perceived as shared with a group or individual. This thesis presented novel insight into the link between identity fusion and autobiographical reasoning and its precursors in adolescence. Beginning in early adolescence, identity fusion appears in concert with changes in autobiographical memory processes. By mid-adolescence, the memory-driven fusion mechanism has developed to the degree that identity fusion mandates. This thesis also offered a novel perspective on social bonding among women after experiencing childbirth for the first time in their lives. Identity fusion becomes stronger among first-time mothers after

undergoing this momentous, naturally occurring life experience. The pathway to identity fusion can take on different forms, whereby the nature of first-time mothers' childbirth experiences binds them to other mothers who have lived through similar experiences. This research reveals how a kind of rite of passage into motherhood can create a sense of sisterhood and camaraderie among women. Finally, this research brings to the fore the potential for identity fusion to contribute to the psychological health outcomes of women when becoming new mothers.

At a more general level, the current thesis speaks to the ontogenetic origins as well as the evolutionary history of identity fusion. Understanding how identity fusion materialises over the course of development offers a unique perspective into the possible functions of fusion from childhood to adulthood. A developmental benefit of the shared experience pathway to identity fusion could be its capacity to potentially improve resilience in childhood and adolescence. Previous literature has argued that resilience can play out on different levels of a so-called 'dynamic system' – whether it is the individual self (e.g., individual-level characteristics such as engaging in pro-social behaviours or meaning-making), their family unit (e.g., having supportive family members), their school (e.g., having fulfilling experiences with their school or finding a sense of belonging to their school), their community (being part of community sports or religious groups), or society at large (having a special connection with their culture) – in order for children and adolescents to endure and cope with life-altering disturbances (e.g., Masten, 2011; Pieloch, McCullough, & Marks, 2016). It is possible that identity fusion serves as an additional arm of this dynamic system that helps children and adolescents recover and thrive after undergoing a significant life experience that is perceived as shared with fellow members of their families or communities.

Identity fusion could also play a key role in social buffering – a process that takes place when a social partner lessens an individual’s perception of or physiological reaction to a potentially threatening situation, or when a social partner aids the individual to reach normal stress levels after experiencing a threatening situation (Gunnar, 2017). Interestingly, Adams, Santo, and Bukowski (2011) demonstrated that close relationships can have shielding effects on children aged 10 and 11 years. When a child’s best friend was with them during an experience, there was less change in cortisol levels and global self worth as the perceived negativity of the experience increased. Conversely, when a child’s best friend was not with them during an experience, there was an uptick in cortisol levels and a decline in global self worth as the perceived negativity of the experience increased. Lin, Woelfel, and Light (1985) also showed the buffering effect of strong social ties among adults. Support from stronger social ties (i.e., from strongest to weakest: an individual’s spouse and romantic partner, a close friend, a relative, or an acquaintance) during or after their most important life event was linked to lower levels of depressive symptoms. While these studies are not indicative of identity fusion, they provide clues into how fused individuals may be better equipped (i.e., by way of emotional care or physical protection from the individual or group) when meeting new challenges over the course of life.

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