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CONTENTS

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Editorial

Christiana Rebelle, PhD, Editor-in-Chief

This issue of the *Journal of Prenatal and Perinatal Psychology and Health* (*JOPPPAH*) offers a deeper understanding of the science and experiences of pregnancy, childbirth, and early parenting. Through these studies and reflections from contributors around the world, we continue to expand and illuminate the field of prenatal and perinatal psychology and health.

Our first article, "Attachment Styles in Romantic Relationships and Perceived Support in Postpartum Couples," by McLeod et al., examines the intricate dynamics of support within couples as they transition to parenthood. Their findings suggest that securely attached mothers tend to feel more aligned with the support they receive, highlighting the importance of attachment security in fostering a supportive environment for new parents.

In "Examination of the Effects of Physical Activity on Perceived Stress During Pregnancy," Marciniak et al. explore the relationship between physical activity and stress levels among pregnant women. Their study reveals nuanced insights into the different coping strategies employed by physically active versus inactive participants, emphasizing the need for specialized psychological assessments tailored to the unique context of pregnancy.

Astrid Sofie Saragosa's article, "Understanding the Impact of Childbirth: Postnatal Stress Symptoms in Psychologically Stable Mothers," delves into the emotional aftermath of childbirth. Her research underscores that even psychologically stable mothers can experience significant postnatal stress and depressive symptoms. Saragosa's work advocates for routine screening and early psychological intervention to mitigate the emotional toll of childbirth on maternal mental health.

In "A Story of Skin and Bones," Karlton Terry explores the profound impact of the birth process on newborns' physical and emotional experiences. Through introducing the Birth Mask Reveal (BMR) method, Terry challenges

us to recognize and empathize with the lasting imprints of birth trauma on infants, urging us to expand our understanding of the birth experience.

Antonio Madrid's article, "Bonding Treatment for Childhood Asthma," presents a compelling approach to treating childhood asthma by addressing disruptions in maternal-infant bonding. Through detailed case studies, Madrid demonstrates how Bonding Therapy can significantly improve or even resolve asthma symptoms, underscoring the critical role of early relational experiences in physical health.

In "Prenatal Memory Therapy—Wonder Baby Therapy: Dialogue with Wonder Baby," Kumiko Ito delves into the consciousness of the unborn child and the importance of healing prenatal memories. Ito's work invites us to reconsider the prenatal period as a critical time for nurturing and healing, with profound implications for both mother and child's lifelong health and happiness.

Stephanie Cloutman reviews Greer Kirshenbaum's book *The Nurture Revolution: Grow Your Baby's Brain and Transform Their Mental Health Through the Art of Nurtured Parenting*. Kirshenbaum's book underscores the transformative power of nurtured parenting, providing practical strategies rooted in neuroscience to establish a strong foundation for a child's mental health from the beginning of life.

In this issue, we also honor the life and legacy of Penny Simkin, a pioneer in the birthing community. Penny's tireless advocacy for emotional support during childbirth and her efforts to integrate doulas into the birthing team have forever changed the landscape of maternal care. Her work has left an indelible mark on how we understand and approach childbirth today.

As we reflect on the advancements in our field, it is with profound gratitude and utmost respect that we announce the retirement of our founding editor, Thomas Verny, MD, from *JOPPPAH's* editorial board. Dr. Verny has been a guiding force in its development for over four decades. His visionary leadership and dedication have helped to shape the journal into what it is today. We wish him the very best and are committed to continuing his legacy as we explore and expand the frontiers of prenatal and perinatal psychology and health.

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Attachment Styles in Romantic Relationships and Perceived Support in Postpartum Couples

Saul McLeod, PhD, MRes, Katherine Berry, ClinPsyD, PhD, Peter Taylor, ClinPsyD, PhD, Alison Wearden, CPsychol, PhD, Lucy Oakes, MSc Clinical and Health Psychology

The transition to parenthood is a significant life event that presents various challenges. Adequate support for both parents is crucial, as insufficient support can lead to negative outcomes. While insecure attachment has been identified as a risk factor during this period, there is limited research on how dyadic attachment styles influence perceptions of received support. This study investigates the relationship between momentary perceptions of support matching and attachment styles among parental dyads using the experience sampling method (ESM) to reduce retrospective bias. For seven days, 40 mothers of infants aged 3-12 months completed daily self-report measures relating to desired and received support from their romantic partner. Multilevel analyses revealed that securely attached mothers perceived greater support matching compared to those with insecure attachment styles. The attachment style of the support provider (father) did not significantly affect the mother's perceptions of support adequacy. These findings highlight the importance of attachment security in shaping support perceptions and suggest

The authors have no conflicts of interest to disclose. Dr Saul McLeod (ORCID: 0000-0001-7886-910X), Prof Alison Wearden (ORCID: 0000-0001-6074-6275), Dr Peter Taylor (ORCID: 0000-0003-1407-0985),), and Prof Katherine Berry (ORCID: 0000-0002-7399-5462) are affiliated with the University of Manchester. Lucy Oakes (ORCID:0009-0005-0930-5278) is affiliated with Pennine Care NHS Foundation Trust. Address all correspondence to saulmcleod@gmail.com

that attachment-based interventions could improve support experiences for new parents. Future research should explore the nuances of attachment pairings and their impact on support dynamics within couples. Interventions following childbirth should focus on improving maternal attachment security to enhance support matching and well-being for new parents.

Keywords: attachment style, romantic attachment, postpartum, support

The transition to parenthood is a significant, time-bound life event. Mothers and their partners experience similar challenges, including the demands of adapting to parenthood, learning new skills relating to infant care, and the emotional burden of deprived sleep and rest. Accordingly, there are numerous opportunities for both desired and received support. It is important to assess if a lack of adequate support can predict specific outcomes, such as postpartum depression and maternal efficacy (as these were under-addressed by previous studies). Approximately 25% of women experience elevated symptoms of depression postpartum (O'Hara & Swain, 1996), and 5% to 8% of mothers are estimated to meet diagnostic criteria for an anxiety disorder (Ross & McLean, 2006). Insecure attachment has been established as a risk factor for the well-being of mothers and their families during the transition to parenthood (Ikeda et al., 2014).

Attachment

Attachment behavior comprises a set of strategies activated during times of stress to achieve proximity and feel security with a person deemed better able to deal with the world (Ainsworth et al., 1978; Bowlby, 1988). Cutrona and Suhr (1992) propose that support needs are derived from the objective characteristics of a situation, such as stressor controllability. However, attachment theory posits that individual differences in attachment style are an important influence on support needs and the interpretations of support by a recipient (Collins & Feeney, 2004).

Attachment style is a persistent way of relating to significant others, known as attachment figures. During childhood, interactions with attachment figures

provide an individual with information that forms a set of expectations and beliefs regarding the self ("Am I worthy of love?") and others ("Will this person support me during times of distress?") in relationships. These internal working models of the self and others in relationships form the basis of an individual's attachment style, comprising mental and emotional representations that guide behavior and regulate affect during stress (Collins & Allard, 2001; Collins & Read, 1994). Individuals with a positive view of the self and others have a secure attachment style, and those with negative beliefs regarding the self or others hold an insecure attachment style. Early models are typically reinforced via interactions with others over time and become strengthened and resistant to change, operating mainly at an unconscious level of awareness (Rothbard & Shaver, 1994; Siegel, 1999). Although later experiences have the potential to modify attachment representations (Fearon & Roisman, 2017; Fraley & Roisman, 2019; Theisen et al., 2018), attachment styles formed in childhood can be carried forward to adulthood, with romantic partners becoming the primary attachment figure in adult close relationships (Fraley, 2002; Trinke & Bartholomew, 1997).

Previous literature indicates that attachment style can influence an individual's perception of received support (Kane et al., 2007; Mcleod et al., 2020; Moreira et al., 2003). Received support typically occurs when an individual acknowledges an act of support from another person. Support recipients with secure attachment styles tend to interpret social transactions more favorably and perceive their partners as better caregivers (Kane et al., 2007). Insecure adults tend to exhibit a negative bias in relation to perceptions of received support, perceiving ineffective support from their partners and often recalling a partner's helpful behavior more negatively (Brock & Lawrence, 2009; Collins & Feeney, 2004; Don & Hammond, 2017). Individuals with an insecure attachment style doubt whether they can rely on their partners for support. Therefore, during adversity, their working models can amplify distress and feelings of insecurity (Mikulincer & Shaver, 2003).

Romantic Attachment Dyads

Integrating a dyadic (interconnected) approach to attachment theory is useful for identifying whether the partner's attachment influences a support recipient's perceptions and if recipients in couples with specific attachment pairings (e.g., secure support provider and insecure recipient) are more likely

to perceive ineffective support from a romantic partner. For example, Conde et al. (2011) investigated how marital support and attachment style combinations predicted symptoms of depression and anxiety in both members of a couple expecting a baby. The Attachment Style Interview (ASI; Bifulco et al., 2002) was administered to assess a person's willingness to access and utilize emotional support and to provide a categorization of adult attachment style based on a summary score of three close relationships (partner and two others named as very close). In addition, measures of depression and state anxiety were recorded during the second trimester and three months postpartum. The findings showed no significant effects of interactions between caregivers and recipients' attachment styles (secure vs. insecure) and the occurrence of active emotional support (high vs. low) for the incidence of recipients' anxiety and depression symptoms. However, Conde et al. (2011) assessed active emotional support when an individual had confided a need for emotional care. This is problematic, as significant others can provide emotional support without explicit assistance requests (High & Scharp, 2015). A further limitation was that social support was measured cross-sectionally, whereby recollection of support experiences could be prone to retrospection bias (Fahrenberg et al., 2007).

Three studies have examined how attachment predicts perceptions of received support in relation to support adequacy, although due to different conceptualizations, it is difficult to make comparisons (Brock & Lawrence, 2014; Mcleod et al., 2021). Rini et al. (2006) distinguished between the different types of adequate support (e.g., emotional, informational) experienced by pregnant women but did not discriminate between over and under-support nor anxious or avoidant attachment styles (attachment was conceptualized as an index of security). Attachment security was found to be predictive of positive appraisals of adequate support, which in turn were associated with lower levels of prenatal anxiety. Brock and Lawrence (2014) asked married couples to report on global perceptions of over or under-support during five time points. Anxious attachment predicted under-provision of received support in both genders and avoidant attachment predicted overprovision of received support in men but under-provision of received support in women. Mcleod et al. (2021) examined how attachment styles predict perceptions of adequate and inadequate support (i.e., over or under) in first-time mothers. Both global measures and specific types of support (emotional, informational, physical, and tangible) were tested in relation to outcome variables, including depressive

symptoms, maternal efficacy, and relationship satisfaction. Findings revealed that both attachment anxiety and avoidance were associated with negative perceptions of global support adequacy. Symptoms of depression increased with perceptions of being under-supported, whereas adequate support predicted a decrease in depression symptoms. Being physically under-supported predicted a decrease in maternal efficacy, which suggests that new mothers need physical comfort (e.g., hugs and kisses), possibly to reassure them of their maternal competence. Neither adequate nor inadequate support was associated with perceptions of relationship satisfaction, although this study only measured support on a single occasion, and it may take time for the effects of support to become salient.

However, we must be cautious when interpreting these findings as these studies only measured the recipient's attachment style. This is limiting as support is an interpersonal process and should be studied at the dyadic level (Collins et al., 2006). The support provider is pertinent as attachment theory predicts individual differences in support provision. For example, secure attachment is associated with responsive and sensitive acts of caregiving behavior, and insecure individuals are prone to either excessive or dismissive acts of support (Collins & Feeney, 2000). There is debate in the literature as to whether the attachment style of the support provider influences the recipient's perception of support received.

Findings from a daily diary study indicate that the attachment style of the support provider (a romantic partner) does not influence the recipient's perception of receiving responsive support during a positive event (Gosnell & Gable, 2013). Alternatively, Kane et al. (2007) reported that support recipients with insecure partners were less satisfied in their relationships and perceived their partners to be less caring and supportive. However, this sample was comprised primarily of young adult couples, and these findings have not been replicated in studies exploring married couples. For example, Brock and Lawrence (2014) reported that wives of husbands with avoidant attachment perceived to receive too much support relative to what they desired (i.e., overprovision of support). This is surprising as attachment avoidance is associated with a dismissive caregiving style, which is a precursor for a support recipient to experience being under-supported. However, it is not clear if dismissive acts of caregiving that typically characterize avoidant attachment are related to support as a global construct or are specific to subtypes of support, such as emotional (e.g., providing reassurance and affection) or tangible (e.g.,

providing direct or indirect practical assistance to solving a problem; Feeney & Hohaus, 2001).

Support Adequacy

We propose that what constitutes support effectiveness (e.g., high vs. low) must extend beyond assessing the frequency at which recipients report receiving support. Attachment representations influence the perception of support, implicitly biasing preferences for the amount of support a person needs and how they interpret received support. This means that it is not enough to measure the frequency of support received; researchers must also consider the amount of support desired. For example, the optimal matching theory of social support (Cutrona & Russell, 1990) and research on support adequacy (Brock & Lawrence, 2009) posit that effective support occurs when individuals receive support that matches their needs. When there is a mismatch between an individual's preference for support and the amount of support they receive, a support recipient experiences a support gap.

The Present Research

The aim of this study is to address the gap in research concerning dyadic attachment and perceptions of support matching. Where previous research has explored perceptions of support cross-sectionally, our study is the first to examine momentary perceptions of support matching in relation to dyadic attachment style pairing. The experience sampling method (ESM) records how individuals think, feel, and behave during their daily lives, in which participants are prompted at random or preset intervals to answer brief questionnaires regarding their current experiences. Experience sampling is helpful as it provides the opportunity to detect processes of needing and receiving social support close to the time of the actual occurrence, thereby reducing retrospective bias associated with generalized measures of support (Fahrenberg et al., 2007).

This study will examine dyadic attachment style pairing in relation to momentary perceptions of support matching in a population of mothers. Mothers experience a period of significant interpersonal change during the transition to parenthood (Taubman-Ben-Ari, 2019), and lack of support has been identified as a risk factor for postpartum mothers (Leahy Warren, 2005).

In addition, we will test for partner effects to examine how the attachment of a caregiver (the father) influences momentary support perceptions of the recipient (the mother) within a romantic dyad. We have decided to investigate specific types of support, including emotional and tangible, which can provide a nuanced explanation of the association between attachment styles and support perceptions. Based on previous findings, we predict support recipients with an insecure attachment style are more likely to perceive that the support they receive does not match their needs, while securely attached recipients are more likely to report receiving matched support.

We expect the attachment style of a support provider to be related to the recipient's perceptions of received support; specifically, recipients partnered with a secure caregiver will be more likely to perceive receiving matching support, while those affiliated with an insecure partner are more at risk of a mismatch in support. We expect dyadic attachment pairings to provide a more nuanced picture of when the attachment style of the provider is more important. For example, by examining the attachment style of both partners, we hope to clarify if the attachment style of the mother or the partner is more important in determining whether the mother finds that support matches her needs. We expect support recipients in dual-secure relationships to report a match regarding the amount of support needed and that received.

We hypothesize that support recipients with an insecure attachment will experience a mismatch of support when partnered with a support provider who also holds an insecure attachment style. We expect the caregiving skills of support providers with secure attachment to be enough to attenuate the recipients' bias for perceiving negative support when they are insecurely attached. Therefore, a mixed secure/insecure couple will have better-matched support than an insecure/insecure couple.

Method

This paper used the same sample examined in Mcleod et al. (2021b), though the present investigation addressed different research objectives. Each mother and father dyad was assigned an ID number. Before the ESM procedure, mothers completed the ESM protocol, and both members of each parental dyad completed self-report measures.

Participants

Participants were 80 parents of babies between three and twelve months of age, recruited by convenience sampling of mother and baby groups on Facebook between June and August 2019. Prospective participants were asked to contact the principal investigator (Saul Mcleod), who emailed participant information sheets to mothers and fathers separately and answered questions relating to study participation. Potential participants were screened by phone or e-mail to determine whether they met the following inclusion criteria: 1) parent with a child between 3 - 12 months; 2) married or living together with their romantic partner; 3) at least 18 years of age; 4) English speaking, and the mother required; 5) use of a mobile phone with internet access. Although participation in the study was not restricted by sexuality, all couples comprised traditional heterosexual couples of a mother and father (n = 40 dyads).

Measures

Attachment Styles

Attachment styles were assessed using postal questionnaires completed before the ESM phase of the study. The Experiences in Close Relationships-Revised Inventory (ECR-S**;** Wei et al., 2007) is a 12-item self-report scale designed to assess attachment styles avoidance (six items) and anxiety (six items) in general experiences of romantic relationships. Attachment anxiety involves an excessive need for interpersonal approval and fear of rejection from significant others, and attachment avoidance is concerned with an excessive need for self-reliance and fear of emotional closeness or dependence (Brennan et al., 1998). The scale's reliability was good, with a Cronbach's alpha of .69 for anxiety, .76 for avoidance for mothers,.73 for anxiety, and .73 for avoidance for fathers. Following procedures outlined by Fraley (2012), the scores pertaining to the styles of attachment avoidance and anxiety were used to categorize participants into a specific attachment category. Individuals were classified as insecurely attached when either both or one of their attachment style scores were the same or higher than the median for their parental group, namely mothers or fathers. When both attachment avoidance and anxiety scores were below the median average, individuals were classified as securely attached.

ESM Items

Four items adapted from the Support in Intimate Relationships Rating Scale-Revised (SIRRS-R; Barry et al., 2009) assessed desired and received support. Participants were asked to rate how much support they had needed and received since the last ESM alert using a 5-point Likert scale, from not at all (1) to extremely (5).

Desired support. Two items were used to assess desired support: emotional, "I have needed someone to comfort me emotionally," and tangible, "I have needed someone to help me with the things I needed to do."

Received support. Two items were used to assess received support: emotional, "My partner has comforted me emotionally," and tangible, "My partner has helped me with the things I needed to do."

Procedure

ESM Briefing

All mothers were given a thorough briefing regarding the ESM sampling schedule, which included an email requesting them to log in to the ESM item website via their mobile phone using their ID number and a predetermined password. The purpose of this procedure was to check if the mobile phone's internet browser remembered the login details for subsequent attempts. Mothers were also asked to complete a practice session to familiarize themselves with the ESM procedure.

The experience sampling procedure was implemented using a web-based application (surveysignal.com; Hofmann & Patel, 2015), which used short message service (SMS) messages as signals and reminders. The ESM items were accessed by mothers online via a website hosted by the University, and access was restricted by ID number and password. Each SMS included the link to the website, and participants could only click on this link once. After that time, it was deactivated to prevent participants from completing ESM items beyond the signal time limits.

Seven-day ESM phase

Mothers were asked to choose a study week to represent their daily lives, excluding weeks that included holidays, visits, or other special events. During the study week, participants were randomly signaled six times a day for seven consecutive days, between 9 a.m. and 9 p.m., with at least one hour between receiving SMS signals. Therefore, each participant could provide up to 42 records throughout the experience-sampling period. After an SMS was received, each participant had up to 60 minutes to complete the ESM items, and an SMS reminder was sent after 30 minutes if a participant had not clicked on the study link in their original signal. After 60 minutes, the website link within the SMS was deactivated. Mothers were contacted on the first day of the ESM phase to check for compliance with the procedure and were encouraged to contact the researcher if they had any subsequent questions or were not receiving SMS on their phones. After the ESM phase, participants were debriefed, and couples received a £40 shopping voucher in exchange for their voluntary participation.

Statistical Analysis

Experience sampling data share cross-sectional time-series characteristics containing a hierarchal structure, whereby measures are clustered in three levels: Beeps are nested in days and nested within participants (Bolger et al., 2003). Therefore, multilevel models were used to test the hypotheses since these account for the hierarchical structure. A total of 1303 out of 1680 recordings were obtained, resulting in an overall 75.5% response rate to the beep. Only one participant responded to less than 50% of their signals, and this data was included in the analysis. This data indicated a high level of compliance with the protocol. Attachment styles were consolidated into a categorical variable (0 = *secure*, 1 = *insecure*). Two continuous support matching variables were created for each momentary beep, one for emotional support and the other for tangible support. When corresponding received support and desired support items were endorsed at the same point of the 5-point response scale, the support matching variable was labeled 1. When desired and received support were different values, it was labeled 0.

The XTMIXED command in Stata (version 10, Stata Corp., College Station, TX, USA) was used for all continuous outcome variables, with a random intercept for each participant and each day within participant;

regression coefficients for fixed effects, 95% CI, and *p*-values are reported for all associations between variables within each assessment point. XTMIXED uses all available data and can cope with missing data; mixed-model regression can minimize bias when missing data are random. Simple slopes were tested for all significant interactions at the $p < .05$ level using the margins command in Stata 10 (Dawson & Richter, 2006).

Results

Sample Characteristics

The most common attachment style pairing was between two insecure parent figures, and the least frequent pairing comprised insecure mothers partnered with secure fathers (see Table 1).

Table 1

Relationships Between Mothers' and Fathers' Attachment Styles

Mothers' Classifications	Fathers' Classifications	
	Secure	Insecure
Secure	8	12
Insecure	4	16

Preliminary Analysis

Table 2 contains descriptive statistics relating to the variables in the multilevel model analyses presented below.

Table 2

Descriptive Information for ESM Items Included Within the Multilevel Model Analyses

Variable	Number of observations	Min, Max	Mean (SD)
Need Emotional	1254	1, 5	1.68 (1.12)
Need Tangible	1254	1, 5	2.43 (1.50)
Received Emotional	1253	1, 5	1.66 (1.17)
Received Tangible	1252	1, 5	2.32 (1.17)
Matched Emotional	1251	0, 1	0.63 (0.48)
Matched Tangible	1252	0, 1	0.51 (0.50)

Multilevel Analyses

A multilevel model, or a hierarchical linear model, is a statistical approach used when data has a nested or hierarchical structure. In this study it allows us to analyze how variables at different levels (e.g., individual and group) relate to our outcomes of interest. We chose this method because it accounts for the non-independence of observations within groups.

The results of the multilevel model analyses for attachment styles and perceptions of support matching are presented in Table 3. As predicted, the extent to which mothers' perceptions of emotional and tangible support matched their needs on a momentary basis was associated with attachment security, and insecure attachment style was related to momentary instances of support mismatches. In addition to investigating associations between mother's attachment and support adequacy, we also examined partner effects. Specifically, if the attachment of the support provider (i.e., father) influenced perceptions of support adequacy of the recipient (i.e., mother). Results showed no significant main effects for the relationship between fathers' attachment style and mothers' perceptions of support matches or mismatches at the momentary assessment. Finally, we examined the relationship between dyad attachment pairings and the mothers' perception of support matching. Contrary

to study hypotheses, neither same (i.e., dual-secure or dual-insecure) nor different (i.e., insecure-secure or secure-insecure) mother and father attachment styles combinations predicted mothers' perceptions of support matching.

Table 3

Multilevel Model Analyses for Attachment Styles and Perceptions of Support Matching

	Emotional Support			Tangible Support		
Insecure Styles*	B	SE	*p*	B	SE	*p*
Mother	-.1843706	.0604582	.002	-.1306042	.0539823	. 016
Father	-.0342518	.0724147	. 636	-.0423622	.062344	.497
Dyad	-.0178	.1384348	.898	.089232	.1239019	.471

Note: *This is a comparison of insecure attachment against a reference category of secure attachment.
B is the unstandardized regression coefficient, indicating the change in the outcome variable for each unit increase in the predictor.
SE is the standard error, which measures the precision of the estimate.

Discussion

The primary aim of our study was to examine the relationship between momentary perceptions of support matching and attachment style at the individual, partner, and relational dyad levels in the context of the daily life of mothers. The findings revealed that mothers with a secure attachment style perceived that emotional and tangible support from their partners matched their needs. Those with an insecure attachment style experienced mismatches between the support needed from a romantic partner and the emotional and tangible support received. On an interpersonal level, the attachment style of the father was not associated with the mother's perceptions of support matching, either as a partner effect or when considered with the mother's attachment style as part of a dyad. Although attachment style can shape enacted support transactions, our findings suggest that attachment styles are a pertinent feature of appraising support transactions, implicitly biasing interpretations of received support. Therefore, the objective features of support transactions may be

construed differently depending on the attachment security of the support recipient (Collins & Feeney, 2004). Evidence shows that support recipients with an insecure attachment style may discount or attenuate acts of responsive support from their partner (Collins & Feeney, 2004). This could explain why the attachment style of the support provider did not influence the recipient's perception of support.

Limitations and Future Directions

It could be argued that categorizing attachment into secure and insecure patterns did not capture some subtleties in attachment pairings. For example, we only used two crude categories of secure versus insecure, ignoring the different insecure attachment styles identified in the literature. However, adopting a categorical measure of attachment was the most parsimonious way to examine the data, as examining hypotheses using continuous measures would have resulted in eight analyses and, therefore, increased the type 1 error. Due to a limited sample size, this study could only distinguish between secure and insecure attachment style dyad combinations. Dyadic attachment styles might still be important for support perceptions in intimate relationships, and future research would benefit from differentiating between the three types of insecure romantic attachment proposed by Bartholomew and Horowitz (1991). By conceptualizing attachment styles as a four-category model of secure, preoccupied, dismissive, and fearful, future studies can test additional attachment style pairings to provide a more accurate interpretation.

A further limitation of this study regards assessing the different types of support generally as a single ESM item, which each recipient might interpret differently. It would be useful for future research to capture a more nuanced measurement of emotional and tangible support, perhaps aggregating reports from several items. For example, desired and received emotional support could be operationalized based on findings from the psychotherapy literature, such as non-judgmental listening, responsive touch, and validating feelings (Shaddock, 2000). We expect support providers with a secure attachment to demonstrate adaptive support strategies, and it would be useful for future research to test how each strategy contributes to specific outcomes, such as depression symptoms or relationship satisfaction. Furthermore, because our data relied on self-reports, the support recipient's instances of received support were subjectively interpreted rather than objectively rated by an external observer.

Future studies would benefit from recording the support providers' momentary acts of support provision. This would allow us to test differences between secure and insecure support recipients regarding their acknowledgment of actual support from their partner to assess the degree of recipient bias.

Another limitation of this study was the failure to consider the effect of social context on the expression of attachment styles. For example, the association between attachment styles and perception of support matching may be moderated by social contact (e.g., alone vs. a romantic partner) or social closeness (feeling emotionally close vs. wanting to be alone) when support is received. Findings by Sheinbaum et al. (2015) imply that the emotional and cognitive expression of attachment styles in the moment is influenced by appraisals of interpersonal closeness rather than the presence of social interactions. Finally, although this study was interested in solicited and unsolicited support, future studies should make this distinction when operationalizing support transactions, as this will provide a gradated understanding of how help-seeking and support matching are related. Future research would also benefit from examining the context in which support was enacted.

Conclusion

The present investigation provided a novel contribution by using an experience sampling method to assess the extent to which dyadic attachment style combinations influence the perception of support matching in everyday life. Although there was a relationship between the attachment of the support recipient and their corresponding perceptions of support adequacy, there was limited evidence to suggest that the caregiver's attachment can influence the support perceptions of the recipient. These findings suggest that the attachment security of the support provider is less important than that of the support recipient and that perceptions of support may not be based on objective support transactions. Instead, recipients may selectively attend to information that corresponds to features of their internal model and attenuate information that does not support their beliefs in the worthiness of self and responsiveness of others (Baldwin, 1992). Therefore, interventions to improve support following childbirth should focus on improving maternal attachment security. For example, cognitive behavioral therapies may be beneficial. These therapies first help develop the mother's understanding of how earlier experiences and

attachment patterns impact thoughts and feelings in relationships with partners. Then, they assist in reappraising negative perceptions of support attempts.

Internal working models not only shape enacted support transactions; they also bias how care recipients subjectively interpret support experiences. Internal representations of the self and others are pertinent because they are automatically activated in response to stressful events and subsequently influence how individuals evaluate and appraise their interactions with significant others (Collins & Feeney, 2000; Pierce et al., 1998). As individual differences in attachment are based on working models, objective features of support transactions may be construed differently depending on the attachment security of the support recipient. Indeed, evidence suggests that provider and recipient accounts of support are, at best, only moderately correlated (Abbey et al., 1995; Antonucci & Israel, 1986; Coriell & Cohen, 1995).

Internal models may implicitly alter how individuals process information regarding social support by directing attention and memory systems to organize and filter incoming information (Collins & Allard, 2001; Collins & Read, 1994). Indeed, the literature indicates that many features of social perception are driven by top-down processing whereby existing schemas shape how new information is interpreted (Baldwin, 1992). However, it is also probable that support attempts could be guided by bottom-up data-driven processes embedded in the objective features of the support transactions.

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Examination of the Effects of Physical Activity on Perceived Stress During Pregnancy

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We investigated the relationship between physical activity and perceived stress levels among pregnant women. A total of 28 pregnant women participated in the study. All participants completed psychological tests to assess stress levels and coping strategies. The physically active (PA) group consisted of 15 women aged 26-40, engaging in moderate physical activity for up to 120 minutes per week across two training sessions. The inactive (NA) group included 13 women aged 24-39 who did not exercise. Unpaired T-test analysis revealed no significant differences in stress-coping strategies between exercising and non-exercising women. Two coping scales, problem-focused coping and emotion-focused coping, showed tendencies: physically active women leaned slightly more toward religious coping ($p = 0.15$), while non-physically active women favored restraint coping ($p = 0.17$). Overall, perceived stress levels did not differ significantly between the groups. The study highlights the importance of using specialized tests for pregnant women due to the unique context of pregnancy.

Keywords: physical activity, pregnant women, stress, prenatal maternal stress

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Health organizations and associations worldwide are increasingly promoting physical activity for pregnant women. Exercise, defined as planned, structured, and repetitive bodily movements done to improve one or more components of physical fitness, is an important part of a healthy lifestyle (American College of Obstetricians and Gynecologists [ACOG], 2018). Proper medical care, social support, and education about exercise, nutrition, and mental health are becoming standard in perinatal care to ensure the safety and support of expectant mothers. Ongoing education for medical personnel will help maintain a high level of care (Szumilewicz et al., 2013). The official recommendation of the American Association of Gynecologists and Obstetricians (ACOG, 2018) states that women with uncomplicated pregnancies should be encouraged to engage in aerobic and strength conditioning exercises before, during, and after pregnancy (ACOG, 2020). According to the U.S. Department of Health and Human Services (HHS) Physical Activity Guidelines for Americans, 150 minutes of moderate-intensity aerobic exercise should be spread throughout the week during pregnancy and the postpartum period (HHS, 2019).

Benefits of Physical Activity During Pregnancy

Staying active during pregnancy offers many benefits. Engaging in fitness activities can help reduce stress levels during pregnancy. Pregnancy is a unique time that brings about significant physical and emotional changes. While these changes are a source of joy, they can also be associated with feelings of fear or anxiety (Steuden et al., 2003). Targeted and cyclical physical activities positively affect physical and emotional well-being, the health of the baby, and the labor process. Studies have shown that people who were physically active during pregnancy had a reduced risk of excessive weight gain (Tedee et al., 2022; Wolfe et al., 2003) and a lower risk of gestational diabetes (Xie et al., 2024).

Physical activity during pregnancy has also been shown to improve mood and sleep quality (Alnawwar et al., 2023), cardiovascular function (Melzer et al., 2010), and reduce the risk for prenatal depression (Vargas-Terrones et al., 2019). Moderate-intensity physical activity during pregnancy reduces the risk of pre-eclampsia (Gascoigne et al., 2023; Spracklen et al., 2016) and gestational hypertension (Taliento et al., 2024). Systematic participation in a supervised exercise program during pregnancy is associated with a lower risk of preterm

labor and a lower rate of emergency cesarean deliveries (Perales et al., 2019). Studies indicate that adequate exercise during pregnancy promotes physiological fetal development (Newton & May, 2017).

Research Aims and Hypotheses

The aim of the study is to compare the level of perceived stress reported in psychological questionnaires between two groups of pregnant women. The first group regularly engages in fitness exercises, while the second group is physically inactive. We assume that physically active (PA) women are more likely to adopt active strategies for coping with stress as compared to those who do not exercise. We also hypothesize that physically active women will report lower levels of stress compared to those who are physically inactive (NA).

Methods

Participants

A total of 28 women participated in the study: 13 from the control group (25-39 years old) with an age median of 30.6 and 15 from the fit group (24-40 years old) with an age median of 30.7. These women completed at least two psychological questionnaires. All women completing tests were eligible for the study. This study was held in Poland in Pomeranian district. The primary study collection was stretched between March 2020-2021. Due to the COVID-19 pandemic, studies were interrupted once and resumed after four months. When the second study group was collected, most of the participants from the old group had given birth or chose not to participate in the study again. The pandemic situation resulted in fewer willing participants in the renewed study. As a result, two study groups were formed.

The recruitment of study participants was done through social media. Thirty women in different trimesters of pregnancy (gestational weeks 8-40) participated in the study. Two women were excluded from the study, one due to age and the other due to pregnancy complications. The criteria for participation in the study were as follows: age 25-40, single pregnancy, not consuming alcohol, not smoking cigarettes, pregnancy not at risk. All the respondents had a master's or bachelor's degree. Declared earnings were 3,000-5,000 thousand zlotys ($755-$1260) per month. The women declared maintaining a diet rich in unsaturated fatty acids, protein, fruits and vegetables,

and moderate carbohydrate intake. In addition, each subject presented a certificate from a gynecologist stating that there were no contraindications to fitness training. Each participant signed a consent form to participate in the study. The Bioethics Committee approved the study (KB-4/20).

Physical Activity and Control Groups

The PA group reported moderate physical activity up to 120 minutes per week in 2 training sessions, each lasting 60 minutes. Each session included a 10-minute fitness warm-up, 40 minutes of the main strength portion with strengthening exercises, and 10 minutes of cool-down with pelvic floor training and relaxation. The NA group did not exercise at all. All women receiving ongoing obstetric care and completing at least two questionnaires between March 2020 and March 2021 were eligible for inclusion in the study.

The women who agreed to participate in the research were asked to complete psychological tests to assess the level of stress they felt and to assess strategies for coping with stress. It was assumed that each woman would complete a questionnaire assessing her coping strategy in difficult and stressful situations and a sense of stress questionnaire, which assesses not only the overall stress level but also points to its potential sources. The questionnaires were to be completed once during pregnancy.

Psychological Assessments

Coping Orientations to Problems Experienced (COPE)

The COPE Inventory (Carver et al., 1989; in the adaptation of Juczyński & Ogińska-Bulik, 2009) is a multidimensional coping inventory that assesses how people respond to stress. The COPE Inventory contains 60 questions and is on a 15-scale scale. Five scales (of four items each) measure conceptually distinct aspects of problem-focused coping (active coping, planning, suppression of competing activities, restraint coping, seeking of instrumental social support), five scales measure aspects of what might be viewed as emotion-focused coping (seeking of emotional social support, positive reinterpretation, acceptance, denial, turning to religion), and three scales measure coping responses that arguably are less useful (focus on and venting of emotions, behavioral disengagement, mental disengagement).

Two additional scales assess the sense of humor, treated as a way of alleviating unpleasant emotions and a tendency to reach for stimulants (alcohol, drugs) as immediate measures to alleviate unpleasant emotions. Subsequent analysis divided the scale into three factors: (1) Problem-focused coping, (2) Emotion-focused coping, and (3) Avoidant coping. Each of the 60 statements had to be responded to on a 4-point scale, where (1) means "I usually don't do this at all," (2) "I usually do this a little bit," (3) "I usually do this a medium amount" and (4) "I usually do this a lot." The α coefficients for individual scales ranged from 0.48-0.94 and were weakest for behavioral disengagement and active coping strategies while highest for the turning to religion. Internal concordance was above 0.60 for all scales but behavioral disengagement (Juczyński & Ogińska-Bulik, 2009). In the presented research, the COPE Inventory was used to measure the frequency of use of strategies for coping with stress in the studied groups of women.

Perceived Stress Questionnaire (KPS)

The Perceived Stress Questionnaire (KPS) is a test developed by Polish researchers Mieczysław Plopa and Ryszard Makarowski (Plopa & Makarowki, 2010). The questionnaire was constructed based on the assumption of multidimensionality of stress experiences. In addition to measuring the generalized level of stress, KPS indicates and measures three additional indicators: intrapsychic stress, external stress, and emotional tension. The questionnaire also contains a Lie Scale. It consists of 27 statements concerning various problems and the ways of experiencing and solving them. The answers are given on a 5-point scale, where five is *true,* and one is *not true*.

The authors have defined emotional tension as a feeling of anxiety, excessive nervousness, inability to relax, lack of willingness and energy to act, and excessive fatigue for no apparent reason. External stress represents an individual's confrontation with events in the outside world. It is a feeling of being unfairly judged at home or work, but also a growing sense of helplessness, frustration, fatigue, and a feeling that the set requirements exceed one's ability to cope. Intrapsychic stress is defined as stress resulting from a confrontation with oneself; it is expressed by excessive worry, a feeling of being mentally weak and thinking about the future, which causes anxiety and pessimism. Raw results can be converted into results on the ten scale, where 1-4 is low, 5-6 is medium, and 7-10 is high. The analysis results show that the

highlighted scales' reliability is satisfactory. For the subscale, emotional tension is α = .811, external stress α = .726, intrapsychic stress α = .697, and lying scale α = .568. The coefficients of internal consistency oscillate between 0.697 (intrapsychic stress) and 0.811 (emotional tension) (Plopa & Makarowski, 2010). In the presented research, KPS was used to determine the generalized stress level and identify its sources in pregnant women.

Results

Data collections were conducted periodically with the training group, while participants in the physically inactive group made individual appointments to complete tests and data. However, due to the COVID-19 pandemic, arranging appointments was difficult. The subjects had various concerns about their health and meeting in a larger group; on more than one occasion, it was necessary to travel to their place of residence, which was often interrupted due to illnesses of, for example, older children, private matters, and, on three occasions, just before the scheduled data collection a woman went into labor. All this affected the size of the study group and depleted it considerably.

The following results can be indicated from the collected data using unpaired *t*-test analysis. No differences were found between exercising and non-exercising women when choosing a stress-coping strategy. The results did not fully confirm the hypothesis of differences in the frequency of choosing problem-focused coping with stress. Both problem-focused coping and emotion-focused coping were chosen just as often. Avoidant coping was chosen least often, but no statistically significant difference between the groups was observed. The COPE Inventory contains 15 scales, most of which did not indicate any differences between women from the physically active group and women from the non-physically active group.

Only in two scales of coping with stress, belonging to problem-focused coping and emotion-focused coping, a difference was noticed at the tendency level: it was a turning to religion, where physically active women chose this strategy slightly more often ($p = 0.15$), and the strategy of restraint in which non-physically active women chose this strategy more often ($p = 0.17$). The overall level of stress was measured with the Perceived Stress Questionnaire. There were no differences in the level of perceived stress between the analyzed groups, and the results on individual dimensions were considered (i.e., by

analyzing emotional tension, intrapsychic stress, and external stress). The hypothesis that there are differences has not been confirmed.

Table 1

Summary Perceived Stress in Physically Active (PA) and Not Active (NA)

KPS	PA	NA	*p*
Stress level	47±8.5	49.8±5.5	0.658
Emotional tension	18±2.8	19.1±2.4	0.858
Intrapsychic stress	14.6±3.9	15.2±3.9	0.784
External stress	14.2±3.4	14.8±3.4	0.786

Note. Values are presented as mean ± standard deviation [SD] expressed in relative or absolute values

Table 2

Summary of Selected Stress Coping Strategies

COPE Inventory	PA	NA	
N=28	N=15	N=13	*p*
Active coping	11.06±1.2	11.8±1.0	0.190
Planning	11.1±1.7	12±1.4	0.513
Seeking instrumental social support	11.6±1.6	13±1.7	0.221
Seeking emotional and social support	11.5±2.7	13.4±1.9	0.267
Suppression of competing activities	10.4±1.8	9.8±1.0	0.218
Turning to religion	7.3±3.0	5.5±1.7	**0.146**
Positive reinterpretation	11.8±1.0	10.6±1.0	0.254
Restraint coping	5.4±1.3	6.4±1.0	**0.168**
Acceptance	9.8±1.2	9.1±1.7	0.295
Focus on and venting of emotions	12.1±1.8	11.7±1.7	0.662
Denial	5.2±1.1	5.0±0.8	0.821
Mental disengagement	7.6±1.5	7.2±1.2	0.619
Behavioral disengagement	5.8±1.3	6.4±1.3	0.265
Tendency to reach for stimulants (alcohol, drugs)	4.4±0.7	4.2±0.3	0.664
Sense of humor	6.7±1.9	5.8±1.3	0.254

Note. Values are presented as mean ± standard deviation [SD] expressed in relative or absolute values. Bold p-values indicate the highest significance.

Discussion

Both in the study group and in the control group, the most frequently declared style of coping with stress was problem-focused coping, almost on par with emotion-focused coping. This means that women in a stressful situation do not avoid confrontation with the problem but take several actions to solve it,

and, at the same time, seek emotional support, also through prayer and treating religion as a signpost to a positive re-evaluation (Juczyński & Ogińska-Bulik, 2009). This is also confirmed by studies that indicate that these two strategies are most often used during pregnancy (Lobel et al., 2008; Rehbein et al., 2023). Avoidance-oriented style was the least frequently chosen style. Many researchers consider this style ineffective in coping with difficult and stressful situations. They may become dysfunctional in many situations, leading to feelings of helplessness or resorting to substitute activities that do not contribute to coping with stress (Juczyński & Ogińska-Bulik, 2009). Although being pregnant is one of the most stressful life events (Scully et al., 2000), in the presented results, women both active and non-physically active during pregnancy declared a low level of perceived stress, both in terms of perceived emotional tension as well as intrapsychic and external stress. In 45% of women, the level of emotional tension was defined as average, but in both the control and research groups, no statistically significant differences were observed. Prenatal stress has a negative effect on the mother and the developing fetus. It can be associated with the risk of premature birth (Lilliecreutz et al., 2016) and low birth weight of the newborn (Khashan et al., 2014). In addition, symptoms of anxiety or depression can increase the risk of life-threatening pre-eclampsia (Maher et al., 2017). Long-term exposure to stressors during pregnancy can have negative effects on both mother and child (Gangadharan & Jena, 2018). Rates of prenatal stress range from 13% to 36% and are comparable to other diseases that can occur during pregnancy, such as obesity, gestational diabetes, or hypertension in pregnancy (Kingston et al., 2012). It is, therefore, important to take various measures during pregnancy to reduce the stress, emotional tension, and anxiety experienced.

Study Limitations and Future Research

The study's limitations include the small group of women in the samples and the lack of comparison to the post-pandemic study group. In addition, a significant limitation is the lack of tools in the form of special questionnaires to measure stress in pregnant women. The study is continuing, and further results will appear in future publications. Our study shows a relationship between mental health and physical activity. However, follow-up studies in a larger group are needed. Movement through active participation in fitness activities can be an effective factor in dynamic coping with stressful situations

during pregnancy. Movement lowers cortisol levels in the body, an increase of which is correlated with declared mental stress. This study is part of a larger work intended to serve as a doctoral dissertation, which supports the hypothesis that regular exercise affects levels of declared and perceived stress.

As the declared stress we assessed with the KPS tool did not show significant differences, it is possible that another tool targeted for studying stress in pregnant women would have shown more significant differences. For example, an overview of such methods can be found in the article by Fiona Alderdice, Fiona Lynn, and Marci Lobel (Alderdice et al., 2012). Unfortunately, these tools are not widely available in Polish. Recently, Polish authors decided to translate the Pandemic-Related Pregnancy Stress Assessment PREPS into Polish (Ilska et al., 2021). However, this tool was unavailable when the study's methods were planned. We suggest that these studies should be enriched by checking hair cortisol levels, which would give a retrospective look at the actual level of stress the pregnant woman was experiencing. We suggest that the stress level in pregnancy should not be determined only by self-report questionnaires but also by objectively measurable indicators such as testing hair cortisol levels.

In addition to the concept of stress, the literature on stress often points to coping strategies and styles for dealing with difficult and stressful situations. Women use a variety of ways to cope with the challenges and stresses of pregnancy (Strelau et al., 2007). A coping style can be considered a relatively fixed, persistent, and characteristic way of responding. Coping style in a stressful situation expresses personality functioning in action; coping is a cognitive or behavioral attempt to cope with demands perceived as burdening or exceeding one's resources (Lazarus & Folkman, 1984). All pregnant women from our study tried to solve problems proactively by confronting the stressor, although women who were inactive preferred to remain seemingly passive, more often trying to delay confrontations and wait for the right moment. Most of the studies that have examined how women cope with stress during pregnancy have not considered possible period-specific aspects but have used generally known methods to validate and identify coping strategies in difficult and stressful situations (Alderdice et al., 2012). These studies were also performed at different times during pregnancy, in different trimesters, low-risk pregnancies, and complicated pregnancies (Lobel et al., 2008).

Researchers have described several strategies that pregnant women use to cope with anxiety, insecurity, and emotional tension. In a study devoted to the

comparison of coping styles in difficult situations in women with normal pregnancies compared to women with high-risk pregnancies, it was found that in both the study and control group, the most frequently declared style of coping with stress was task focused. This means that women experiencing stress do not avoid confronting the problem but take various actions to solve it effectively (Rutkowska et al., 2010). In a study on stress, depressive symptoms, and coping styles in women undergoing infertility treatment and women with high-risk pregnancies, it was found that women undergoing infertility treatment most often chose active ways to cope with stressful situations, followed by denial and distraction.

Women with at-risk pregnancies were most likely to seek emotional support, turn to religion, or focus on emotions and their discharge (Chanduszko-Salska & Kossakowska, 2018). Our study shows a noticeable trend among physically active women to choose emotional support for problem-solving, described as a turn to religion. A study of coping in women with their first pregnancy indicates that an emotion-focused coping strategy was more often used at the beginning of pregnancy than in the middle or third trimester, and a problem-focused style was more often seen in the first and second trimesters of pregnancy (Lobel et al., 2008). Lobel and colleagues conducted a study showing that half of women with high-risk pregnancies use strategies such as prayer, preparation, avoidance, and positive reappraisal (Lobel et al., 2002). Another study has shown that spiritual coping translates into lower levels of anxiety or perceived stress in normal pregnant women, and again, in a study by Lobel et al., a coping style of prayer caused more emotional distress in high-risk pregnant women (Lobel et al., 2008).

Our study also confirmed that pregnant women choose a task-oriented style and that women actively seek to solve problems and deal with stress. They do not use avoidance strategies. It cannot be ignored that emotion-oriented strategies were also eagerly chosen, especially in terms of seeking emotional and instrumental support and the need to focus on experienced emotions and discharge them. For some physically active women, such emotional support was precisely the turn to religion.

Recent research on religiosity and spirituality is very promising, showing that faith can be a valuable resource in the fight against stress. In a recent prospective study, African American mothers who were more religious and more spiritual had fewer depressive symptoms during the year following birth (Lobel et al., 2016). These data mostly coincide with previous studies but also

show that an important differentiating factor may be the abnormal course of pregnancy and the trimester during which the tests are performed.

The examples from the research presented above illustrate the difficulty in defining a specific coping strategy for difficult or stressful situations as either adaptive or maladaptive. Coping styles are likely to be influenced by individual characteristics and environmental conditions. In addition, the coping style may depend on the type of stressors the woman encounters, which will be directly influenced by the course of the pregnancy itself, its regularity, the woman's well-being, receiving support, etc. Whether the type of physical activity would affect the frequency of choosing the strategy to restrain from action remains open.

Conclusion

Exercise is an important part of a healthy lifestyle; however, the effect of physical activity on stress, as declared in questionnaires and experienced in the body during pregnancy, is still little known; larger groups should be studied. Our results could be used to focus on more thorough screening offered to women during pregnancy to monitor their psychological stress levels. It would be appropriate to present them with effective tools to deal with stress. It should be a daily practice for caregivers and gynecologists to educate people on the benefits of physical activity.

Recognizing that people experience severe psychological stress during pregnancy allows healthcare providers to more thoroughly assess the nature of the stress and sensitize women to evaluate related risk factors. Addressing high stress during pregnancy will increase maternal well-being. Although many of the factors associated with stress are difficult to overcome (e.g., material status or violence), this leaves ample room for health caregivers to educate on mental and physical relaxation, diet, and the impact of sports on health.

Pregnancy is a special time in a person's life, and popular tools to measure the level and type of stress may not be sufficient. Questionnaires presented to pregnant women should explore aspects such as concerns about the health of the baby, economic status, and social and emotional support. This could reveal significant differences between physically active and inactive women.

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Understanding the Impact of Childbirth: Postnatal Stress Symptoms in Psychologically Stable Mothers

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This study examines the psychological impact of childbirth on first-time mothers, focusing on post-traumatic stress and depressive symptoms using the Impact of Event Scale (IES) and the Edinburgh Postnatal Depression Scale (EPDS). Many participants experienced intrusive thoughts, avoidance behaviors, and depressive symptoms within the first year postpartum. A strong correlation was found between mothers' sense of safety and presence during childbirth and lower stress and EPDS scores. Additionally, the Baby Blues were associated with higher IES and EPDS scores, suggesting that early emotional disturbances can have lasting effects on maternal mental health. The study also highlights how recounting birth experiences, either as reliving them or from a present perspective, influences stress levels. These findings underscore the importance of psychological support in postnatal care and advocate for routine screening for negative birth experiences and stress symptoms, emphasizing early intervention to improve maternal and family outcomes.

Keywords: postnatal mental health, childbirth experience, maternal stress symptoms

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The Prevalence of Postnatal Stress Symptoms

Childbirth could be experienced as distressing or even traumatic by some women. A traumatic childbirth could increase the risk of anxiety, depression, and even post-traumatic stress disorder (PTSD) (Skari et al., 2002; Wijma et al., 1997). Postnatal stress remains a significant concern in maternal health. There is increasing evidence that women develop PTSD in response to the birth of their child. Reviews suggest it affects 3.17% of women postpartum. (Grekin & O'Hara, 2014). "…there is clear potential to prevent or minimize postpartum PTSD by changing maternity and early postpartum care to improve women's experiences of birth. However, in order to do this, we first need to identify the risk factors for birth-related PTSD" (Ayers et al., 2016, p.1121).

Several studies examined risk factors for developing PTSD after birth. Some are looking at previous factors, such as previous psychiatric problems (Bittner et al., 2019; Dekel et al., 2017), history of PTSD and trauma (particularly interpersonal violence) (Dekel et al., 2017); others are examining pregnancy or birth-related stress factors like previous negative birth experiences (Wigert et al., 2020), previous abortion (Sentilhes et al., 2017), severe fear of childbirth (Bittner et al., 2019; Dekel et al., 2017), subjective pregnancy-related distress (Bittner et al., 2019), psychological difficulties during pregnancy (Soederquist et al., 2009). Moreover, there are risk factors during the birth experience itself, such as birth complications (Andersen et al., 2012), poor interaction between provider and mother (Olde et al., 2006), and low social support during labor and birth (Chabbert et al., 2020; Dekel et al., 2017; Olde et al., 2006).

The transition to motherhood, therefore, seems a period of vulnerability, where the emotional and psychological well-being of women can be profoundly impacted. The physical and hormonal changes after birth and a possibly traumatic experience, along with the new responsibilities of caring for a newborn, can lead to stress reactions that, if not properly addressed, may have enduring effects on both the mother and the child. "… post-traumatic stress did not decrease over time among women who at least once had post-traumatic stress …within 1–11 months postpartum. Women with post-traumatic stress also showed a decrease in perceived social support over time postpartum" (Söderquist et al., 2006, p.113).

As research on the prevalence of post-traumatic stress symptoms following childbirth expands, it is essential to scrutinize the data more closely. There is a

difference between the potential traumatic event and trauma reactions that occur later. Pantlen and Rohde (2001) found indications of PTSD in the first weeks after giving birth. A large portion of the women showed symptoms of anxiety, depressive moods, anger and irritability, and obsessive thoughts. In another study, many women in the study described their birth experience as traumatic four weeks after giving birth, and many developed symptoms of PTSD (Soet et al., 2003).

Subjective Birth Experience and Maternal Mental Health

A woman's subjective experience of childbirth, including her feelings of safety and presence, plays a crucial role in her mental health outcomes post-birth. Stephen Porges (2017) said, "The question is thus whether one feels safe, and not whether one is safe" (p. 17). Moreover, "To fulfill the biological necessity to maintain a sense of connection, we must prioritize efforts to convey to others that they are safe" (Porges, 2017, p. 25). Several studies have identified peritraumatic dissociation as a strong predictor for the development of chronic PTSD (Ehlers et al., 1998; Koopman et al., 1994; Murray et al., 2002; Ozer et al., 2003; Shalev et al., 1998). Shalev et al. (1996) and Marshall (2002) also showed that with increased peritraumatic dissociative experiences, the occurrence of posttraumatic stress symptoms is greater. This study explores how subjective factors during birth can influence the psychological well-being of new mothers.

Study Focus on Psychologically Stable Women

A meta-analysis on the etiology of post-traumatic stress disorder (PTSD) following childbirth identified vulnerability factors for PTSD, including prenatal depression, fear of childbirth, pregnancy health issues, and previous traumatic events (Ayers et al., 2016). Additionally, the literature indicates that an individual's psychiatric history and family history are significant in the development of post-traumatic symptoms (Czarnocka & Slade, 2000; Pantlen, 2001; Soederquist et al., 2009; Wijma et al.,1997). Patients with a history of mental disorders, such as depression, anxiety disorders, or personality disorders, have an increased vulnerability to developing other mental disorders, including PTSD. To emphasize that postnatal stress symptoms can affect any woman, regardless of their emotional stability before birth, this research specifically examines a subset of women who were psychologically stable prior

to giving birth. This approach allows for a clearer understanding of how the birth experience itself can trigger stress symptoms.

Methodology

Study Design and Objective

The study embarked on a detailed exploration of the psychological aftermath of childbirth, focusing on post-traumatic stress and depression symptoms among new mothers. By employing a cross-sectional analysis, the researcher aimed to dissect the nuanced relationship between the subjective experience of childbirth and its psychological impacts. This approach was pivotal in uncovering the multifaceted nature of postnatal stress and its triggers.

Participants

The study focused on a select group of 145 first-time mothers from an initial pool of 463 respondents. The participants were chosen based on specific inclusion and exclusion criteria to ensure a homogenous sample for accurate analysis. When completing the questionnaire, the inclusion criteria required participants to be first-time mothers of single births with infants no older than 12 months.

Exclusion criteria were meticulously applied to create a psychologically stable cohort, which included:

- Exclusion of mothers with multiple births to maintain the focus on singular birth experiences;
- Exclusion of mothers with a history of psychiatric illness to avoid pre-existing conditions influencing the study's outcomes;
- Exclusion of preterm births and, therefore, mothers with an extra set of stress due to uncertainty and extra hospital visits;
- Exclusion of mothers who had experienced miscarriages or stillbirths, as this might affect the present pregnancy and birth experience;
- Exclusion of mothers with previous traumatic experiences, particularly in the realm of sexuality or intimacy, events of violence and loss, to isolate the impact of the birth experience;
- Exclusion of mothers whose children might have potential disabilities to focus on the standard postnatal experience;

- Exclusion of mothers who reported an extremely helpful birth-related conversation (rated 6 on a scale of 1 to 6), as this could have significantly reduced stress symptoms beforehand.

The recruitment process targeted German-speaking mothers through various channels, including email distribution lists, websites like www.nachdergeburt.com and www.geburtstrauma.de, and social media platforms like Facebook, featuring targeted advertisements. The stringent application of these criteria resulted in a final sample of 145 participants, ensuring the study's findings reflect the experiences of psychologically stable, first-time mothers following a full-term, single birth.

Data Collection Instruments

The cornerstone of the study's data collection was a meticulously designed questionnaire, integrating several validated scales to capture a holistic view of the childbirth experience and its aftermath:

- **Salmon's Item List (SILGer_12):** This scale was instrumental in quantifying the emotional and physical intensity of the childbirth experience. Its inclusion allowed for a standardized measurement of the birth experience's subjective nature (Stadlmayr et al., 2009).
- **Impact of Event Scale (IES 15 scale):** By focusing on symptoms experienced within the past seven days, the IES provided a temporal snapshot of post-traumatic stress, directly linking it to the childbirth event (Horowitz et al., 1979).
- **Edinburgh Postnatal Depression Scale (EPDS):** Similarly, the EPDS assessed the immediate postnatal period, offering insights into the prevalence and intensity of depression symptoms following childbirth (Cox et al.,1987).
- **Additional Questions:** Beyond standardized scales, the questionnaire delved into personal perceptions of safety, presence, and stress during childbirth. These questions were pivotal in understanding the personal and emotional context of each birth experience.

Procedure and Analysis

The study's outreach strategy was designed to maximize participant diversity and engagement. The study accessed a broad demographic using

social media and network partnerships, ensuring a representative sample. The online questionnaire format was selected for its accessibility, encouraging participation from a wide geographical area. Microsoft Excel was utilized to analyze the collected quantitative data due to its accessibility and comprehensive features for data management and visualization. The Pearson correlation coefficient was calculated to determine the linear relationships between variables related to maternal health and childbirth experiences. Creating charts and graphs within Excel allowed for a clear visual representation of the data, aiding in interpreting complex statistical relationships. This approach provided a straightforward means to identify trends and patterns pertinent to the study's objectives. This approach ensured the analysis was methodologically sound and accessible for replication and review.

Results

All findings indicate that even psychologically stable women who had no prior history of psychiatric illness were susceptible to stress during birth, resulting in a negative birth experience and postpartum disturbances, like intrusive thoughts and avoidance related to their birth experience, indicative of post-traumatic stress, when faced with a challenging birth experience. The study revealed that a notable 48% of participants labeled their birth experience as negative, which significantly correlated with higher IES and EPDS scores, indicating a greater incidence of post-traumatic stress and depressive symptoms. In fact, 83% of the women, a significant proportion of the participants who reported a negative birth experience, also showed signs of post-traumatic stress, displaying elevated scores on the Impact of Event Scale (IES). The Salmon's Item List (SIL), a tool used to assess subjective birth experiences, indicated that 88% of women with conspicuous results also exhibited posttraumatic stress symptoms.

The statistical analysis revealed strong correlations within the participant group (N=145): There was a Pearson correlation coefficient of 0.72 between negatively rated birth experiences and the IES scores, suggesting a strong relationship between the subjective birth experience and the development of stress reactions. Similarly, a correlation of 0.70 was found between the results of the Salmon's Item List and the IES data, reinforcing the connection between the subjective assessment of birth and post-traumatic stress.

Dynamics of Post-traumatic Stress Related to Postpartum Depression

A significant portion of the study participants exhibited elevated IES scores, with 62% reporting scores indicative of moderate to severe post-traumatic stress. This was characterized by intrusive thoughts and avoidance behaviors related to their childbirth experience. Among these, 63% also showed EPDS scores suggesting depressive symptoms within the first year postpartum, highlighting the intertwined nature of post-traumatic stress and postpartum depression—a strong Pearson correlation of 0.63 between the IES and the EDPS score.

The IES Scores increased over time, being the highest in the 4th quarter of the first year. As 32% of the mothers scored stress symptoms in the EPDS and IES, 28% just in the IES, and 0.05% just in the EPDS, it highlights the importance of screening for traumatic stress symptoms, using a combination of both questionnaires to identify more woman affected by stress symptoms after a negative experience.

Accumulation of Stressful Moments

The study's results revealed a significant correlation between the number of stressful moments experienced during childbirth and the severity of postnatal stress symptoms. The data showed a significant pattern: none of the women who reported experiencing zero stressful moments were found in the *not present* or *insecure* groups. Conversely, all women who reported experiencing 31 or more stressful moments were categorized in the *insecure* group. This suggests a strong correlation between the number of stressful moments experienced during childbirth and the subsequent feelings of insecurity and lack of presence post-birth.

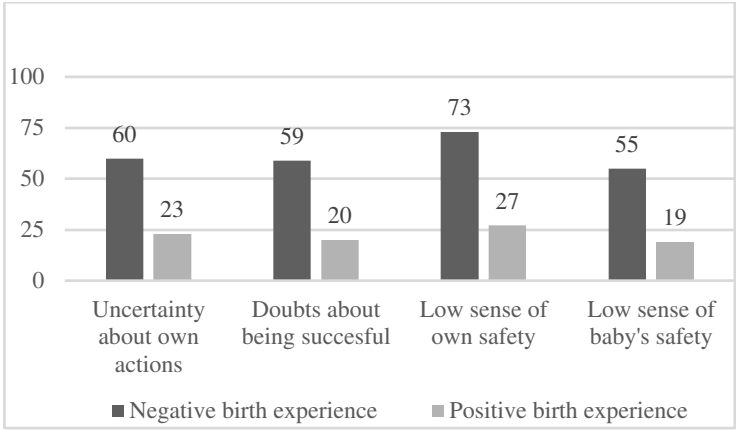
Correlation with Presence and Security

The analysis further highlights that not all women with zero stressful moments were in the *secure* or *present* groups, indicating that the absence of stressful moments does not necessarily equate to a positive or secure childbirth experience. This nuanced finding underscores the complexity of childbirth experiences, the multifaceted nature of stress, and its perception. Figure 1 shows that women with negative birth experiences felt less safe than women

with positive birth experiences. 89% of participants who lacked a sense of security during birth were more likely to report post-traumatic stress symptoms.

Figure 1

Intrinsic Feeling Safe



Note. Numbers are percentage of participants (N=145)

The study also found that 81% of women who reported a diminished sense of presence during childbirth experienced higher levels of post-traumatic stress. This finding about the relationship between the subjective feelings of safety and presence during childbirth and the subsequent stress reactions is certainly innovative. The finding that women who felt more secure and present during the birth process reported fewer posttraumatic stress symptoms and lower EPDS scores suggests that the emotional environment and support during childbirth can play a crucial role in mitigating the impact of stressful events. This could be a significant area of focus for specialists.

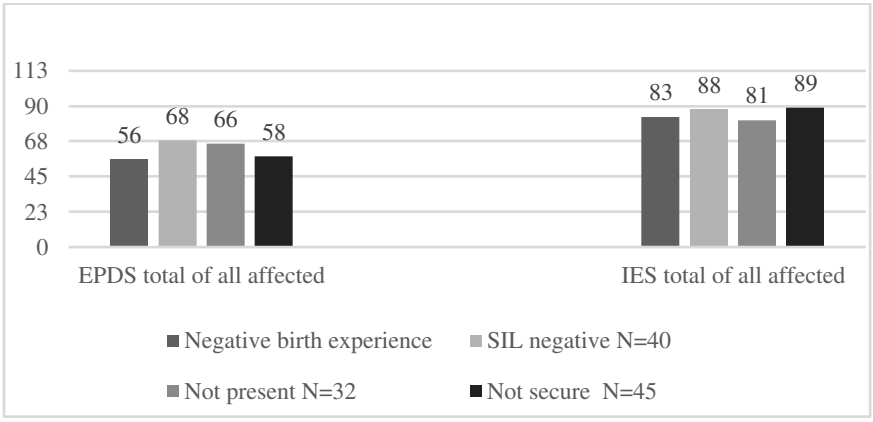
The statistical analysis revealed strong correlations, with a Pearson correlation coefficient of 0.69 within the total average of feeling safe and talking about a positive or a negative birth experience. There was also a strong correlation coefficient of 0.62 between the average of feeling safe and the stress symptoms of the IES. A strong Pearson correlation coefficient of -0.52 was found within the total average of feeling present and talking about a positive or a negative birth experience and -0.51 from the average of feeling present towards IES symptoms.

The Birth Experience and Its Stressful Outcomes

Figure 2 shows that 89% of women who did not feel secure during the birth situation showed stress symptoms in the IES later, while 58% showed higher scores in the EPDS. 81% of women who did not feel present during the birth situation showed stress symptoms in the IES later, while 66% showed higher scores in the EPDS.

Figure 2

EPDS/IES and the Birth Experience



Note. Numbers are percentage of participants (N=145)

Baby Blues and Stress Symptoms

Additionally, the study explored the relationship between *Baby Blues* days and post-stress reactions. Baby Blues (also called Postpartum Blues) is a short-term mood drop experienced by many women shortly after childbirth. During this period, new mothers often feel fatigued and emotionally unstable and may cry without a clear cause. These days are informally known as *cry days*. The Baby Blues typically last no more than two weeks and usually resolve spontaneously. It was found that experiencing more crying in the first days after birth was positively associated with higher IES and EPDS scores, indicating that early postpartum emotional disturbances could be a precursor to longer-term stress reactions.

Figure 3

Baby Blues: Showing the Way?

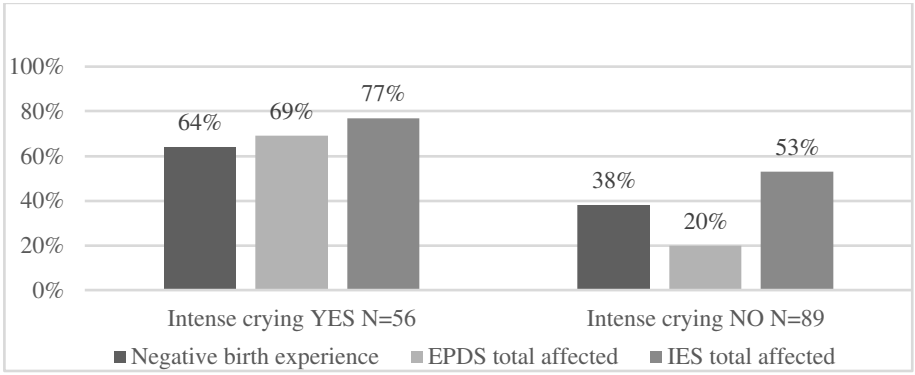


Figure 3 shows that women affected by Baby Blues days represent more negative birth experiences and more EPDS and IES symptoms. The Pearson correlations presented do not suggest a close relationship between the birthing experience, the following days of Baby Blues, and the onset of depressive or traumatic symptoms as measured by the EPDS and IES scores. A more detailed examination is crucial for understanding the nuances of postnatal emotional disturbances and their potential as indicators of longer-term stress reactions and depressive symptoms following childbirth.

Temporal Perspectives and Stress Correlation in Birth Experiences

The study further delved into the temporal narrative mothers employed when recounting their childbirth experiences. It investigated whether their reflections were anchored in the present or if they mentally revisited the time of the event. The findings revealed that 43% of the participants maintained their initial assessment of the birth experience, 34% retrospectively viewed it more positively, and 26% now perceived the event more negatively. Notably, one participant's rating shifted dramatically from 1 to 6 on the evaluative scale. This aspect of the study underscores the variability in responses to seemingly straightforward inquiries such as, "How was your birth?" The results suggest that the perspective from which a mother recounts her experience can significantly influence her response and its subsequent correlation with stress symptoms.

Another key observation from the research corroborates this concept. Mothers who exhibited no additional stress symptoms following early care interventions, such as the AS aftercare support program based on Trauma Incident Reduction, demonstrated elevated scores on Salmon's Item List. This increase may be attributed to a heightened awareness of the events that transpired during childbirth. The study's findings are quantitatively supported by a Pearson Correlation analysis, which indicates a strong correlation (r = 0.72) between stress symptoms as measured by the IES and the present-moment perspective of the birth experience. Conversely, the correlation is somewhat reduced (r = 0.60) when mothers mentally revisit the birth event. This suggests that the temporal context in which the experience is recalled may modulate the association with stress symptoms.

Discussion

These findings underscore the importance of emotional support during childbirth and the potential long-term impact of birth experiences on maternal mental health. The study's results highlight the need for healthcare professionals to recognize and address the psychological aspects of childbirth to mitigate the risk of postpartum stress disorders. There is a critical need for comprehensive aftercare intervention programs for new mothers. The high incidence of negative birth experiences and their correlation with post-traumatic stress and depressive symptoms highlights a significant gap in the current postpartum support structure. Existing aftercare programs solely focus on physical recovery and may overlook the psychological impact of childbirth, which can have long-lasting effects on maternal mental health.

The study's findings suggest that screening mothers for negative birth experiences and feelings of stress during childbirth could be a straightforward yet effective strategy for identifying those in need of further support. This approach acknowledges that the subjective experience of childbirth, including the mother's emotional state and sense of control, is as important as the clinical outcomes. Implementing routine screening for negative birth experiences and stress symptoms in postpartum care practices could facilitate early intervention, offering mothers the support they need to navigate the challenges of the postpartum period. The importance of temporal perspective in evaluating questions must be considered.

Implications for Aftercare Interventions

The study suggests that interventions should prioritize emotional support during and after childbirth, as feelings of safety and presence are inversely related to stress symptoms. Aftercare programs could help mitigate the effects of negative birth experiences. Early identification of Baby Blues and timely intervention could prevent the progression to more severe postpartum mood disorders. The study advocates for a holistic approach to postpartum care that includes mental health as a critical component of maternal well-being. Family-centered care models that involve partners and other family members could provide a more supportive environment for new mothers. Education and awareness programs for families about the signs and symptoms of postnatal stress can facilitate early intervention and support.

This research highlights the profound impact of childbirth experiences on a mother's psychological state. As the well-being of the mother has ripple effects on family dynamics, bonding, child development, partnership, and therefore, the whole society, it calls for a reevaluation of postpartum care practices to include mental health as a fundamental aspect of postnatal support, ensuring that families are equipped to thrive during this transformative period. The findings of this study highlight the need for comprehensive aftercare and underscore the importance of advancing trauma research within the context of childbirth. Specifically, the themes of safety, presence, and stress emerge as critical factors that significantly influence a mother's postpartum mental health. Future research should delve deeper into these themes to develop a nuanced understanding of how they interact and contribute to the overall birth experience. Such insights could inform the creation of more effective support systems that address these core aspects of childbirth.

Directions for Future Research

Further research is needed to explore the efficacy of different types of aftercare interventions in reducing postpartum stress symptoms. Longitudinal studies could provide insight into the long-term effects of negative birth experiences on maternal and family well-being. Investigating the role of perceived safety and presence during childbirth can offer valuable insights into designing interventions that enhance these feelings, potentially reducing the risk of postnatal stress. Exploring the relationship between stress during

childbirth and long-term psychological outcomes can help identify key intervention points to reduce trauma.

Conclusion

The study revealed a profound theme: the influence of temporal perspective on the evaluation of positive or negative childbirth experiences. This has important implications for clinical assessments and interventions. The findings raise critical questions about the standardization of screening questions for postpartum stress. The marked difference in stress correlation based on the recall perspective ($r = 0.72$ for present moment vs. $r = 0.60$ for retrospective) underscores the need for nuanced approaches to screening that account for the dynamic nature of avoidance and awareness and their impact on stress indicators. The power of perspective is a psychological phenomenon and a pivotal factor in the clinical understanding and support of maternal mental health. Future research should aim to unravel the complexities, ultimately guiding the development of more personalized and effective postnatal care. Incorporating these considerations into future research and clinical practice can lead to more targeted and effective support for mothers, ultimately enhancing maternal and family well-being in the postpartum period.

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A Story of Skin and Bones: How the Birth Process Sculpts the Human Face and the Human Being

Karlton Terry

Human beings have a special way of coming into the world compared to other mammals. Our large fetal brains encased in thin, vulnerable cranial bones must wedge and rotate through an extremely narrow space. While research suggests that up to 45% of birthing mothers experience trauma during or from the birth process (Beck et al., 2018), babies also surely experience trauma, pain, and physical injuries during birth, though their plight remains largely underacknowledged. We have learned that the birth process can be traumatic for the infant, causing asymptomatic brain hemorrhages (Looney et al., 2007) and retinal hemorrhages (Callaway et al., 2016) occurring in up to 43% of vaginally delivered neonates (Ami et al., 2019; Rooks et al., 2008).

When birth is considered from the baby's point of view, significant biological factors reveal that the baby's experience can sometimes be perilous if not traumatic. As explored further below, the baby's thin (<1.5mm) cranial bones are no match for the hard, dense bones (>30mm) of the mother's sacral bone and lumbosacral promontory (LSP).

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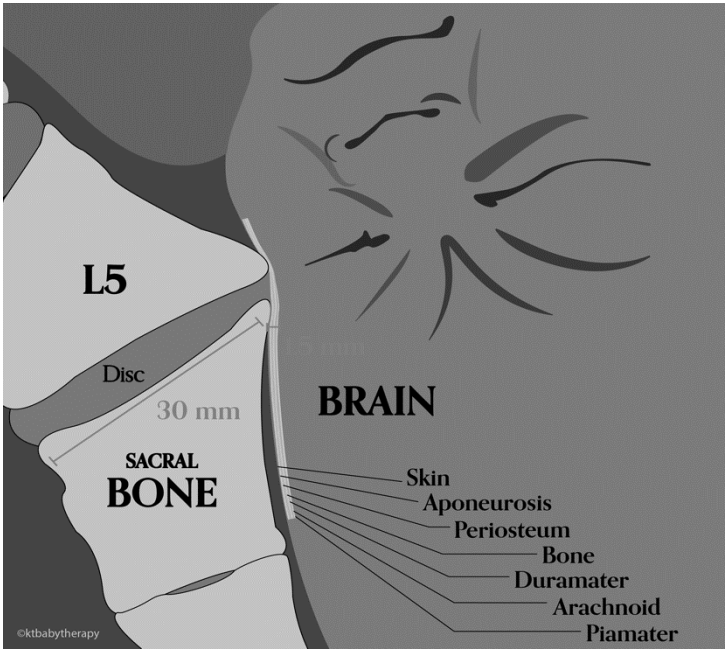
Figure 1

Cranium Contacting LSP



Note. From ktbabytherapy.com

Within the mother's pelvic bones lies a hollow space through which the partially ossified cranial bones of the baby navigate during birth. The baby's brain, having recently begun forming neural connections prenatally, now enters into a period of extraordinarily rapid formation of new neural connections at this crucial time, laying the perinatal foundation of neural coding. Unlike the mother, who can move in response to shared pain, the baby remains largely immobile, alone in the birth canal. This sense of aloneness is characteristic of many traumatic events.

As Dr. Gabor Maté explains, trauma is not merely what happens during birth but the internal response to those events (Maté & Maté, 2022). Many mothers are unaware of their unborn baby's sentience and capacity to form emotional connections while in the womb, leaving many babies to experience a sense of isolation before and during birth. Prenatal bonding, facilitated by ongoing communication (verbally or with thoughts) between mother and baby, can mitigate this feeling of aloneness during pregnancy and the birth process.

To Peek Under the Veil

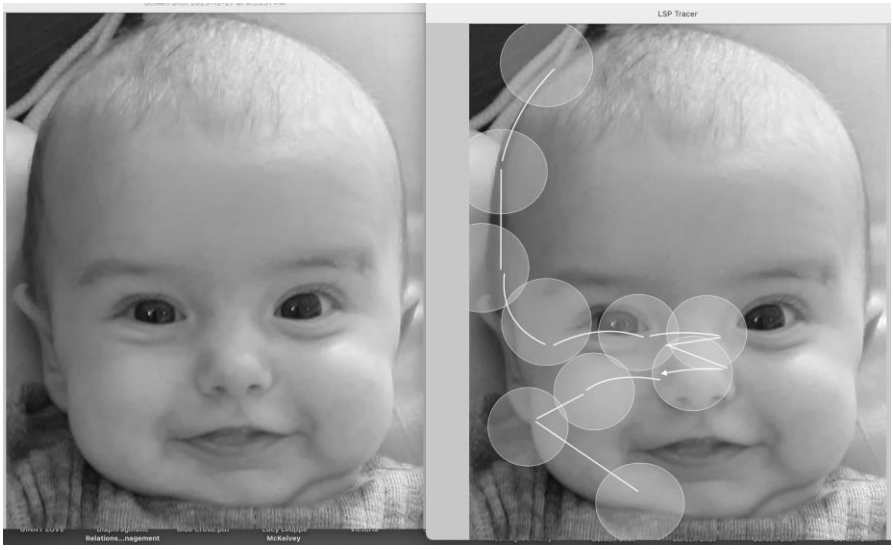
In this article, I propose that our Post-Industrial Western culture suffers from a form of cumulative *inattentional blindness* that acts as a collective veil protecting us or deflecting us from seeing the stamp of birth trauma we each wear on our faces. There are five sociocultural phenomena that contribute to our inattentional blindness. Together, they create a strong barrier to the perceptual clarity and accurate empathy required to see each other's inherently human and ubiquitous *birth trauma masks*. These phenomena each have their own defined qualities and are entitled: 1) Asymmetry Bias, 2) Witness Pain, 3) Disgust, 4) Contagion, and 5) Rescuer Entrapment. This article introduces Asymmetry Bias and Witness Pain of the five forms of inattentional blindness.

Over the past thirty years, after studying and experimenting with Dr. William Emerson's Lie Side Theory (Emerson, n.d.), I have developed a method called Birth Mask Reveal (BMR) for mapping the imprints from compression and drag forces that appear on or beneath the faces of babies and adults. These diagrams and the underlying indications reveal the narrative of birth. BMR identifies the details and results of these forces, showing how multiple hollows and grooves on and under the skin are consequences of birth impacts. Like fingerprints, no two births leave identical traces on a face, resulting in a unique *birth mask* for every person.

Observing a BMR for the first time is akin to viewing a stereogram picture; with mindful observation, another image or reality emerges. As the baby's pathway into the world becomes apparent, we can respectfully observe the impacts of birth. The cranium, especially the face, has many small, complex, fragile bones, and it takes on forms shaped by the birth process. Anatomical mechanics and the function of contractions leave a story on the human body, particularly the face.

Figure 2

Birth Mask Reveal Image



Note. The circles represent the location of the mother's LSP as the baby's face was pressed over it and where the most intense pressure was experienced during this baby's descent through the birth canal. From ktbabytherapy.com

This paper is a compassionate plea to acknowledge the impacts of birth trauma. It explores some of the ways inattentional blindness diverts us from noticing the unique facial imprints of each person's journey through the birth canal. We can cultivate deeper empathy by truly seeing each other with authentic presence. Connecting with another's vulnerable humanity brings us closer to understanding the lived birth experiences of others and our own.

Asymmetry Bias

It seems that we are programmed to prefer and expect symmetrical, blemish-free, and ideally smiling faces (Qiuping et al., 2021). We even look for a smile as early as possible, perhaps as a validation that all is well and that we are doing an okay job with this challenging task called parenting. The human face and form are symmetrical in that we have two eyes, ears, arms, legs, and so on. Nearly every facet of our aesthetic assessments of the beauty of the human form has been inspired by its symmetry. Therefore, those that are

particularly symmetrical are often considered perfect, beautiful, ideal, and desirable. Symmetry is associated with health, balance, and perhaps even a good genome (Little et al., 2011). However, when we observe a face with trained and compassionate eyes, we see how compression and drag forces have led to various levels of asymmetry and cranial molding. If asymmetry means something has been broken (or bent), then we all have been somewhat broken (or bent) because birth leaves none of us with a perfectly symmetrical face. Although body parts like eyes and fingerprints develop at different times (i.e., one eye develops first; fingerprints develop at different times), an unborn child is symmetrical until babies are large enough to lie against something. We usually imagine our babies floating in dreamy amniotic fluid. Still, as any mother will tell you, pressures build in bladders, rib cages, and backs as the womb space is filled by the growing, developing baby.

As pregnancy progresses, babies increasingly feel these pressures and restrictions. Braxton Hicks contractions are followed by early birth contractions that build momentum. These later-stage rhythmical contractions compress the baby's head against the thickest, most dense bones of the mother. The baby lies against bones on one side and contracting uterine muscles on the other that press the baby's cranium against the maternal spine and her lumbosacral promontory.

It is now well-known that babies do experience pain (Ranger & Grunau, 2015), and when prominent facial asymmetry is noted, it is clear that the baby lived through a challenging and painful descent down the birth canal. The birthing perinate may experience their journey as an extraordinary obstacle course of pelvic bones, the lumbosacral promontory, pubic symphysis, ischial spines, and a curved sacrum blocking their way. Their descent is, I suggest, reminiscent of Homer's descriptive episodes of his hero encountering dangerous, impressive, and life-shaping events while striving to arrive home.

Perinatal cranial bones are thin, not fully ossified, almost rubbery, and can bend, tear, and break. Some of the teeth, or the thinned edges of individual sutures, are likely to break completely or bend permanently or become pressed to override or underride each other, as shown by an impressive study by Oliver Ami et al. on MRI imaging of fetal head molding during stage 2 of labor (Ami et al., 2019). Inflammation and lesions will likely occur at the edges where the cranial bones are pressed into, over, and under one another. There is no standard of medically accepted terms for the details of these normal perinatal traumas, probably because most of the obvious deformations relax and dissipate within

a few days or weeks of birth. But this does not mean that they did not imprint physical and psychological influences. Adequate language discussing the forces upon and actions against the perinatal cranium is lacking due to the inattentional blindness discussed here. Parents are usually told not to worry about them if they are noticed. They will go away. In the worst case, we can put a little helmet on the baby's head to make the cranium look a little more normal. But shouldn't we be curious about what went on in the brain underneath? How has the psyche been affected?

Figure 3

Compression Forces Experienced During Birth Leave Painful Traces on the Face For a Considerable Time

Note. From zlikovec/Shutterstock.com

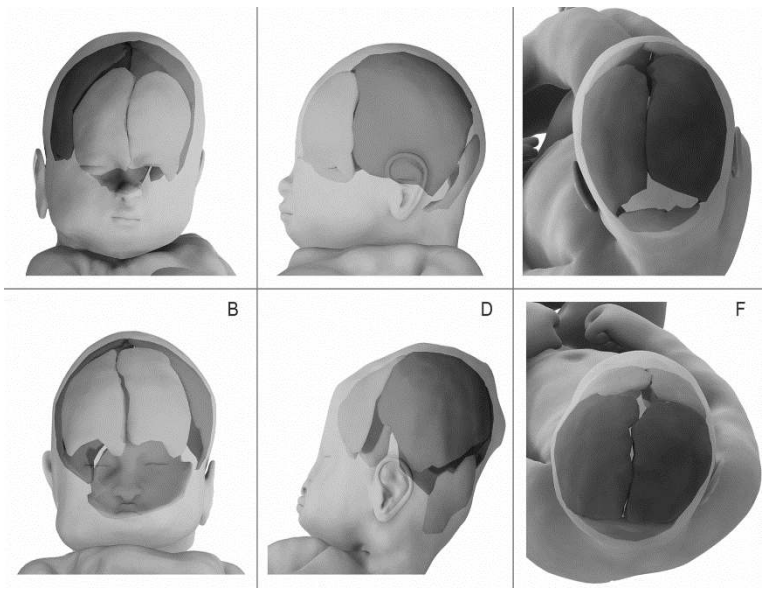
We could say that a baby's head bones were *smushed* during passage through the birth canal. Though informal, smushed effectively describes how the baby's thin cranial bones align with the mother's hard bones, like the lumbosacral promontory. The baby's fragile, partially ossified skull bones, especially the small complex bones of the face, are usually rearranged during birth. While most neonatal cranial asymmetry reverts to prenatal symmetry within weeks, some rearrangements leave visible remnants, or birth masks,

throughout life. The profound somatic repercussions of compression and drag forces have expected psychological consequences, just as physical traumas and traumatic brain injuries do. Severe asymmetry from extreme birth trauma is more likely to be noticed, as inattentional blindness cannot shield us from such evident marks.

An eye-opening experiment undertaken by Ami et al. (2019) gave the world an astonishing look at what birth looks like based on fMRI images of babies actively engaged in the birth canal during birth. The pressures and overlapping of the cranium are substantial and clear. Further, the impacts upon the brain, distorted and forced into unusual shapes, and how the blood supply must be affected are all revealed. According to Ami et al., during vaginal delivery, the shape of the fetal brain can become distorted to varying extents based on how much the skull bones overlap. The study also indicated that before labor, none of the fetal craniums had any head molding, while after labor, all had head molding, and some had overlapping cranial sutures (Ami et al. 2019.).

Figure 4

fMRI Perinatal Craniums



Note. From Ami et al., 2019

It may be hard for a mother not to feel concerned when she notices marks or areas of swelling or bruising on her baby's face. She may not want to imagine

the reality of the hardships her baby endured during birth. Many mothers deal with layers of self-blame and guilt and may be asking themselves, "How could I have saved my baby from distress? Should I have done something different?" It is a pervasive challenge for mothers to reconcile the forces and strength of birth mechanics and accept that their bones and body naturally and normally have shaped the innocent new arrival. Most mothers do their very best during birth. They need support and deep respect. It is important to acknowledge mothers and honor them. Motherly love is the strongest healing medicine needed by neonates.

In most cases, neonatal facial asymmetry is only slightly noticeable, but it should be self-evident that in all cases, there are consequences for the baby from being stuck under tremendous pressure. These pressures leave the baby with very little agency. It is callous to compare facial asymmetry from birth to a broken nose from a trip and a fall, as they result in completely different psychological consequences.

Witness Pain

Let's reflect for a moment what happens instinctively inside each of us when we view unexpected marks, injuries, and inconsistencies on a human face. An array of visceral, conflicted feelings can spontaneously flood us. There is a magnetic urge to look, a childlike desire to know what has happened, quickly tempered by a learned politeness that demands it is best to look away. If we were to see a shocking wound like an eye injury, however, we might experience a strong sense of repulsion or even disgust as though it was our eye that had been affected. We feel we should be braver and criticize our tolerance. Another's pain can remind us of our insecurities about our mortality, fears about our diminishing mental states, and our own declining personal resources.

When we see something that has caused others pain, an emotional anomaly registers within us: something is wrong. Pain is not just a neutral, benign experience. It demands some form of action or repair, or at least the promise to do something about it someday. Witnessing an animal or human being in pain is certainly consequential. It causes the same parts of our brain to light up as when we are in pain (Dewey, 2012). If we would rather our brain circuits not light up, it may feel as though we have no other choice but to dive into the safety of denial and put on the blinders.

Birth trauma markers on faces, known as the birth mask, are the effects of painful birth experiences. These exceptional fMRI images (Ami et al., 2019) show the impacts on the cranium and brain, providing a rare view of birth trauma. Human beings rubberneck at the scene of a car crash because our human nature compels us to yield to our curiosity and examine the details of traumatic events. Birth trauma, however, should elicit compassion rather than shock. Recognizing the vulnerability of the newborn can lead us to empathize, thinking, "How sad that this happened when this person was a baby, just coming into this world." This awareness fosters a connection with the universality of human experience.

Compassionate awareness prompts action. We can gently handle a newborn's bruised head or scalp hematoma and acknowledge the baby's pain by saying, "I see your head is bruised, and it must be sore from your journey into the world. You are strong and safe now. We will be very gentle, and your head will feel better soon."

Those curious about pre- and perinatal experiences often explore the anatomical features and biological forces that cause pain during birth. Observing the depth and complexity of these phenomena, we can become humbled and confused by the mysteries of natural processes of the cosmos. We wonder, seek to help ourselves and others heal, and strive to find solutions.

Unlike humans, other mammals do not face such challenges at birth; they do not need to rotate their heads because they have smaller head sizes compared to their birth canals. During the rotational phase of human labor, extraordinary pressures are literally right between the eyes of our perinates. The ethmoid and sphenoid bones that form the underlying architecture behind our nose and orbital cavities are particularly prone to disturbance during head-first vaginal birth.

Figure 5

Transparent Baby Face Overlying Ethmoid Bone

Note. Notice how many small and finely articulated aspects, with narrow air sacs and fragile spaces, are in the ethmoid bone's anatomy. From ktbabytherapy.com

The ethmoid, in particular, is a very complex and detailed bone with many thin surfaces, arches, bony points, and cavities. It is also known to have more of the mineral magnetite, which helps us orient ourselves in the world and toward the geographic and mental horizons like the homing pigeon that has large amounts of magnetite in the skin folds above its beak and can orient and fly astonishing distances with uncanny accuracy. Trauma to the ethmoid bone may have many potential impacts that have not been thoroughly researched. Many of my private baby and adult clients with sinus issues from ethmoid compression struggle with following directions, decision-making, and mental continuity.

When the ethmoid has been substantially injured, it can create symptoms of disorganization, imbalance, and disorientation, not only physically, such as in actions like walking or moving, but also in thinking and organizing in the brain. Witnessing confusion in babies or children due to ethmoid trauma can be

very disconcerting for adults. Such trauma may leave the child unable to grasp simple concepts, like direct continuity in thinking or actions to achieve a goal.

A baby might become unnecessarily frustrated while trying to determine which way to turn when something blocks their path because, during birth, they navigate around bony barriers. This early experience imprints a program in the brain: success means going around rather than negotiating with or powering through obstacles, even if that doesn't make sense later in life. In my opinion, rotational trauma from birth can be a cause of, or at least a contributor to, dyslexia. These primal survival programs are strong, and brains often insist that they are the only way to handle situations.

Healing modalities that work with implicit memories aim to unwind and release these outdated neurological programs. By acknowledging and witnessing the pain, we can take the first step toward healing the physical and emotional manifestations of early imprints. This process can liberate the brain from insisting on applying primal survival strategies it adopted at birth, allowing for more practical and effective responses to challenges occurring in the present.

When we witness someone in confusion due to illogical processes, we often hesitate to engage, especially when they try to persuade us that their thinking is correct. In such cases, inattentional blindness can be a form of self-care, similar to Ulysses' protection from the Sirens' songs, preventing disaster. However, with birth trauma, where compassionate aid is possible, choosing to care does not diminish us. Instead, it fosters empathy for the most vulnerable human beings—perinates navigating the birth canal and newborns emerging into the world.

When confronted with an image of someone who has endured painful events, especially severe ones, we are likely first to experience disgust. Initially, the disgust is aimed at the perpetrator of the pain. Perhaps one of the highest forms of action is to investigate the cause of the symptoms. This allows the underlying pain to be addressed and healed or helps to avoid potential causes in the future.

The resistance and refusal to act on witness pain mistakenly liberates us from expending energy, becoming overly involved, and having the freedom to avoid taking on any more projects or issues. This resistance is easily dismissed as another form of inattentional blindness. It can feel like a relief not to have to take care of someone else's worry about their plight or understand where or when their problems originated, allowing us to move on in our myopic world.

Conclusion

It has been suggested that endorphins produced by both babies and mothers offer some protection from the intense pain of childbirth. However, the lifelong effects of this experience are undeniable for both parties. Acknowledging each other's vulnerabilities is both humbling and empowering. Our culture often suffers from collective inattentional blindness, shielding us from recognizing the remnants of our birth narratives etched on each face. Can we confront this universal truth that we have overlooked?

Recognizing the universality of birth imprints unites us as human beings with similar journeys. By fostering empathy, we can steer society away from competitiveness, aggression, and division towards compassion and unity. It is not just kind but essential for our collective well-being. Authentic empathy elevates compassion and benefits both the giver and the receiver, affirming our inherent heroism. It's our birthright to be authentically honored for the heroes we are.

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Bonding Treatment for Childhood Asthma

Antonio Madrid, PhD

This article presents case studies of a treatment for childhood asthma realized by the Redwood Psychology Center in Western Sonoma County. The treatment involves addressing the disruption in maternal-infant bonding that many asthmatic children experience. The article provides details of a severely asthmatic 7-year-old girl whose asthma was cured after her mother received Bonding Therapy to correct her daughter's difficult birth. Additionally, three studies are discussed, which investigated the prevalence of non-bonding birth histories in asthmatic children, revealing that over 80% of asthmatic children have a history of non-bonding. The article also considers the relevance of this finding to previous research on childhood asthma, highlighting how events related to pregnancy, labor, and delivery can interfere with maternal-infant bonding and increase the risk of developing asthma.

New Finding, First Cases

A college student sought therapy for her 7-year-old asthmatic daughter. The daughter was severely asthmatic, missing several days of school each month, having frequent emergency room visits, and taking the standard asthma medications, including frequent courses of steroids. She was a sick little girl. The mother had heard that hypnosis could help. The therapists at the clinic agreed to attempt hypnosis based on the protocols of various authors, but unfortunately, it did not yield the desired results. The patient would feel better during the hypnosis sessions, but the symptoms would resurface soon after

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leaving the office. However, the mother continued her counseling sessions, discussing her life as a student and a single mother. One day, she disclosed that she had spent the previous night in the emergency room with her daughter. She added that she did all this for her child without feeling any love. This revelation made the therapists realize that it was a common occurrence for mothers who did not bond with their babies to make such statements.

The therapist inquired about what happened around the child's birth. Several events were classical interferences in maternal-infant bonding. The father left the family during the pregnancy. After birth, the baby was rushed to the Neonatal Intensive Care Unit, and the mother was not allowed to hold the baby for several hours. The baby was kept in the hospital for a couple of days while the mother was sent home. When the mother was finally reunited with her infant, she thought, "Are you sure this is my baby? This does not feel right." All these events were signs of a disruption in maternal-infant bonding.

The therapist directed the mother's focus to two key areas during the therapy session. Firstly, the therapist facilitated the clearance of all grief and negative emotions related to the birth. Secondly, the mother was asked to imagine the birth experience in a manner that aligned with her ideal expectations. The entire intervention lasted less than half an hour.

Several weeks following the session, the mother reported that her daughter's asthma symptoms had vanished. There were no more episodes of wheezing, shortness of breath, or asthma attacks, even during bouts of cold. The child was deemed completely cured. Encouraged by this success, the therapists at the clinic chose to extend this intervention to other mothers with asthmatic children. To their amazement, the same intervention resulted in complete cures in all other cases.

One infant was born to a 14-year-old mother whose parents were ashamed of her. She was sent to live with her aunt in the Midwest, who continued to shame her. The therapist at the clinic helped her clear the same and asked her to experience the birth the way she had wanted. To everyone's amazement, including the baby's doctor, the child was cured of asthma.

These results sparked three studies that investigated how often asthmatic children are "unbonded" to their mothers. The studies were conducted following the discovery made by Drs. Marshall Klaus and John Kennell (Klaus & Kennell, 1997), who found that a mother will automatically bond (fall in love) with her newborn unless she is separated from them after the birth, or if she has undergone a particularly traumatic experience during pregnancy or

childbirth (such as a death in the family or separation from her partner). The studies conducted at the Redwood Psychology Center revealed that more than 80% of asthmatic children had birth histories of non-bonding, as compared to 25% of non-asthmatic children. The Maternal-Infant Bonding Survey (Brown et al., 1999) was used to assess the existence of bonding disruption.

Previous Research

There is a long history of research about events related to childhood asthma. However, few studies identify *bonding* as the intermediating variable. Mrazek et al. (1991) at the National Jewish Center for Immunology and Respiratory Medicine in Denver discovered a correlation between early problems in coping or parenting and the development of asthma. Klinnert also noted that parental stress in caregiving was associated with asthma. Both events are signs of non-bonding (Klinnert et al., 2001).

A Finnish study of 60,000 births found that mothers who delivered by Cesarean sections were found to be 50% more likely to have a child who later developed asthma (Kero et al., 2002). Annesi-Maesano found that childhood asthma was more frequently reported by mothers when there had been health complications during pregnancy, labor, or delivery or when the child was ill during the first week of life. These researchers concluded that there is evidence that *in-utero* and perinatal factors may increase the risk of developing asthma (Annesi-Maesano et al., 2001). Similarly, a Norwegian study of over 1.5 million mothers and 5,938 asthmatic children found that many types of pregnancy complications represented a risk factor for the development of childhood asthma (Nafstad et al., 2003). All these are events that can interfere with bonding.

Kozyrskyj and colleagues studied healthcare records of 13,907 children and their mothers from Manitoba databases (Kozyrskyi et al., 2008). They found that the risk for childhood asthma increased among children who were exposed to continued maternal distress from birth until the age of 7 years. Similarly, a Puerto Rican study concluded that maternal depressive symptoms were associated with an increased risk of asthma hospitalizations at the age of one year (Lange et al., 2011). Both studies identified events that often disrupt bonding between mother and child.

Mäntymaa et al. (2003) showed that psychological stress (a non-bonding event) is associated with physical illnesses like asthma or infection. Another

study by Wright at Brigham and Women's Hospital at Harvard (Wright et al., 2002) discovered that greater levels of perceived stress experienced by caregivers during the first few months of a child's life were associated with an increased risk of subsequent repeated wheezing among children during the first 14 months. Subsequently, they found that prenatal stress was associated with altered innate and adaptive immune responses, concluding that stress-induced perinatal immunomodulation may impact the expression of allergic disease in children (Wright et al., 2010). Cassibba et al. (2004) found that children affected by asthmatic bronchitis were less securely attached than healthy comparisons. These children showed less harmonious and comfort-seeking behaviors than healthy children, indicating insecure attachment and signs of an unbonded child. Yatsenko et al. (2017) extensively reviewed the research surrounding asthma and accompanying factors, concluding:

> Modern research suggests that multiple asthma risk factors are also possible results of poor maternal-infant bonding, supporting the theory that a poor maternal-infant bond may make a child vulnerable to the development of later asthma. In summary, research about childhood asthma and maternal factors reveals events that are classic causes or signs of disruptions in bonding. (p. 69)

This led the researchers at the Redwood Psychology Clinic to ask: "Was the cure of these three children an accident? Or does bonding the mother to the asthmatic child really cure the asthma?" They conducted four studies to test the hypothesis that Bonding Therapy cures asthma.

Bonding Therapy and Childhood Asthma

Bonding Therapy is a three-step process that can be completed in a very short time. The first step is to find the Non-Bonding Event (NBE). This is usually evident when the baby is separated from their mother at birth or the mother goes through a particularly challenging phase in her life. It could be as "simple" as the mother finding out that her best friend died. The next step is to address the NBE and work towards healing it. In some cases, the NBE may have already healed on its own, for instance, when a mother has overcome the grief of her father's death that occurred four years prior. However, if the NBE remains unhealed, it should be processed and treated accordingly. This can be achieved quickly through interventions such as hypnosis, Eye Movement

Desensitization and Reprocessing (EMDR), or any other method that utilizes the mother's imagination.

The final step for the mother is to create a new birth experience in her mind, which is how she wanted it to be. She can imagine different scenarios, such as her brother not passing away two months before the delivery, her husband returning to the family, or the baby not being taken to the Neonatal Intensive Care Nursery. Implementation of the steps mentioned above is likely to result in a significant improvement in the asthmatic child's condition.

The first study involved six mother-child pairs (Madrid et al., 2000). Five of the six children, including two infants, experienced complete or nearly complete remission from asthma symptoms as measured across 18 variables. In the second study (Madrid et al., 2004), 12 of 15 children's asthma symptoms improved, and eight of the ten children taking medication no longer needed to continue them. The two children who did not improve were teenagers, which led the researchers to surmise that Bonding Therapy does not work for teenagers who are separating themselves from their mothers.

In the third study (Madrid et al., 2011), 16 asthmatic children were evaluated before and after their mothers were treated with Bonding Therapy. Fourteen improved on 11 measures, including a reduction in the STEP classification system. Thirteen children were able to stop all medications. All mothers improved on the Beck Depression Scores. Combining the three studies, 37 mothers of asthmatic children treated with Bonding Therapy and 31 children's respiratory problems showed significant improvement (84%). Of the 32 on medication, 26 no longer needed medication (81%).

Conclusion

The case studies highlight the importance of maternal-infant bonding disruptions in developing childhood asthma. The findings suggest that a significant number of asthmatic children have histories of non-bonding, which can be a contributing factor to the development of asthma. While more research is needed to confirm these findings, this study provides valuable insights into the role of bonding disruptions in childhood asthma. It underscores the need for interventions that promote healthy bonding between mothers and their infants. By addressing bonding disruptions and promoting healthy attachment, it may be possible to reduce the incidence of childhood asthma and improve the health outcomes of affected children.

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Prenatal Memory Therapy—Wonder Baby Therapy: Dialogue with Wonder Baby

Kumiko Ito

This paper introduces Wonder Baby Therapy, a Prenatal Memory Therapy that employs hypnotherapy to access and heal prenatal memories. This method acknowledges the consciousness of unborn children and addresses fractal emotions from the prenatal period, thereby enhancing the mother-child relationship. The observed positive outcomes are significant, including the rewriting of memories, the easing of anxiety, and the mitigation of somatic symptoms from traumatic stress. By defining the unborn as Wonder Baby, deserving respect from conception, this therapy reshapes perspectives on prenatal care. Wonder Baby Therapy holds the potential to greatly improve the quality of life of the pregnant mother and her child by fostering prenatal environments filled with love, enabling children and mothers to discover the purpose for which they were born.

The prenatal period, often overlooked, plays a crucial role in establishing a loving bond and attachment between mother and child (Igarashi et al., 2023). Its significance extends far beyond this period, shaping later life (Igarashi et al., 2023). It is crucial to recognize that during conception and gestation, the parents' genetic information, including neurological and epigenetic data, is not only transmitted to their child but can also be passed on over generations (Igarashi et al., 2023a).

Kumiko Ito is a renowned hypnotherapist in Japan who has focused on prenatal care for nine years. She founded a hypnotherapy and aromatherapy school in 2002 and has provided counseling to over 5000 individuals. In 2022, she presented at the 37th Annual Conference of the Japan Institute of Hypnosis on Prenatal Regression Therapy and a study of stress between mother and child. Kumiko authored an academic paper and developed Wonder Baby Therapy. Kumiko extends sincere appreciation to Dr. Akira Ikegawa for his invaluable guidance and expertise in the presentation and composition of this paper. Address correspondence to Yuko Igarashi: info@clear-mind.net.

By tracing the core factors that caused the onset of disorders back to the prenatal period, which is much earlier than childhood, I realized the significant influence and importance of Prenatal Memory, the memory of the prenatal period. This discovery led to a gradual increase in the frequency of Wonder Baby Therapy sessions. In my journey with Wonder Baby Therapy (Ito, 2024), I underwent numerous sessions and experiences that led to a profound realization. By delving into the concept of Prenatal Memory, we can access the blueprints of life that guide us to our purpose. This realization was the driving force behind the name of this therapy: Prenatal Memory Therapy—Wonder Baby Therapy.

Wonder Baby Therapy: Preliminary Assessment

Client A is a woman in her late 50s and a former nurse (hereafter referred to as Mrs. A). Her family members are a husband and three children (two children live in separate households due to marriage). Mrs. A reported that her long-standing tension had become more pronounced after her in-laws' passing and that she had been suffering from it for five years without improvement despite extensive medical treatment. She was diagnosed with blepharospasm, eye tension that causes persistent twitching, by the psychiatry department of a local medical institution specializing in traditional Chinese medicine. She tried treatment with Chinese herbal medicine for two years, but there was no improvement.

To explore the possibility that the environment during the prenatal period, the period from implantation in the womb to birth, influences later life, the Wonder Baby Therapy was used as a reference to Ikegawa's classification of Prenatal Memory (Ikegawa, 2008, p. 19) to confirm this through the therapy process.

Wonder Baby Therapy (Prenatal Memory Therapy)

Before beginning the pre-session counseling, Wonder Baby Therapy was thoroughly explained to the patient, and the client's consent was obtained. Since childhood, Mrs. A has been sensitive and reserved, finding it difficult to express her true feelings to others. After her marriage, she moved in to live with her in-laws. During her second pregnancy, she experienced a traumatic incident when her mother-in-law said something hurtful at a time when she almost had

a miscarriage. Even after her mother-in-law's passing, she still struggled with unforgiving feelings.

Mrs. A showed the following symptoms:

- Intense tension around the eyes, causing constant twitching (blepharospasm)
- Both eyelids were almost completely blocked, reducing her vision
- Tension in the limbs caused restricted movement
- Poor complexion, mental exhaustion, and depression
- Overall bodily coldness

First Session

When I guided Mrs. A to return to the scene that had caused these problems, she returned to the womb of her pregnant mother. She told me that her consciousness had returned to the fetus, saying that she was a 6-month-old fetus and that she was warm and comfortable in the womb. She felt her mother's love, but the psychological pain she felt from her mother was too much for her to bear. She repeatedly expressed her distress by saying, "I am in pain. I am in pain. I cannot wait to get out of here." The cause of Mrs. A's mental and physical problems originated in her prenatal period. As Mrs. A was guided to enter the consciousness of her pregnant mother through hypnosis, I sensed that her mother was having difficulty dealing with her strict mother-in-law and was experiencing daily stress that no one could understand. Mrs. A realized that the cause of her distress was not only her own making but that she also was receiving emotional patterns that came from her mother.

As I led her into other stressful situations similar to the one she experienced during the prenatal period, she recalled a specific incident. When she was six months pregnant with her second child, her mother-in-law coldly said to her, "I wish I had never had you as a daughter-in-law," while she was lying down with a bloated stomach. This made her cry, and she found it difficult to forgive her mother-in-law for what she had said. Mrs. A vividly recalled that when she wanted to complain back to her mother-in-law, she felt as if her baby had kicked her as hard as it could; she was unable to say anything back, which was very frustrating. When I asked her what she wanted her mother-in-law to do, she replied, "I want her to apologize for what happened." Mrs. A communicated her feelings to her mother-in-law and got her to apologize. After the posthypnotic suggestion, I released Mrs. A's hypnosis.

After the first session, I explained how to communicate with Wonder Baby through self-hypnosis. I described the work as a way to build a trusting relationship with Wonder Baby through verbal communication with love. I concluded the first session by instructing her to practice this work daily. We then conducted a telephone interview to determine the effectiveness of the counseling and to suggest some tasks before the next counseling session. As a result of continuing the daily self-hypnosis work, Mrs. A's physical and mental tensions gradually began to relax as she was able to communicate smoothly with herself during her life in the womb, with herself as a Wonder Baby. One month later, she mentioned that she was happy to report that her mind had become more optimistic about being able to move her body more freely.

Second Session

When asked to identify the situations that needed healing, the Wonder Baby, who could now communicate with her, stated that the pattern created during the womb was repeated well into early childhood and instructed her to work on healing the undigested emotions of her inner child from her childhood. The term *inner child* is a psychological term referring to childhood memories and feelings. After one month of self-hypnosis, the Wonder Baby had become a sub-personality of Mrs. A—her healing companion.

When Mrs. A regressed to her childhood, the cause of her general tension was revealed to be an incident in which her father yelled at her for laughing while watching television, telling her, "Do not laugh!" As a result, whenever she hears loud voices, she tenses up and struggles to express her feelings, and she remembers not being able to laugh. I conducted a session in which we met a nervous inner child scolded by her father, "Do not laugh!" The inner child looked down with a lonely expression and hugged her doll. When we asked her what she wanted to tell her inner child, she said, "I want to make clothes for my doll with my mother." As we guided her into the future created by Wonder Baby, we could see Mrs. A. communicating smoothly with people, enjoying her activities, and having pleasant conversations. After the posthypnotic suggestion, I released Mrs. A's hypnosis.

Mrs. A continued with the self-hypnosis work, and her Wonder Baby became an advisor in her life. Therefore, I can confirm that Wonder Baby Therapy has had significant outcomes. Mrs. A's eyelids were beginning to open wider than before. Three months after the first visit, the tension in her whole

body was relieved, and her mind was at peace. She reported that the tension she used to feel towards her husband was relieved when she communicated smoothly with Wonder Baby. After the session, she said she could communicate with her husband and was happy to express her feelings.

Six months later, she could move her limbs freely, and her blepharospasm had greatly improved. Mrs. A. recovered to the point where her pupils were visible, her eyelids were almost open, and she explained that her vision became wider. Her nervousness and fear of communicating with others diminished, and she became able to engage in positive conversation and realized the importance of expressing her feelings. Through two sessions and continued work with self-hypnosis, Mrs. A experienced significant benefits from understanding her mother's feelings and being able to forgive her mother-in-law. She reported that not only had her physical and mental state changed, but also the relationship between Mrs. A and her daughter, and even between her daughter and her grandchildren, had notably improved.

The healing experience that happened to Mrs. A led to the realization of the holistic mind-body-spirit connection. With 40 years of experience as a nurse, she now wants to incorporate this awareness to help others facing the same challenges. She is now pursuing a career as a counselor. The researcher found that after completing the healing process for mother and child, Mrs. A's physical and mental symptoms significantly improved. She became a counselor for mothers and children and achieved her life purpose because she became a licensed counselor and is actively working as a counselor. Through Wonder Baby Therapy, Mrs. A has fulfilled her life's purpose.

Discussion

In the first session, I noticed that Wonder Baby, who was initially stubborn, was regaining her energy because she longed for positive communication with her mother. As the sessions continued, I felt it was important to rebuild the mother-child bonding with love starting from the prenatal period. I suggested that Mrs. A try daily self-hypnosis work. Her stress during the prenatal period has had a lasting effect on her for over 60 years. It required continuous self-hypnosis work to recognize and address the deep-seated emotional patterns that originated during the prenatal period. This process could serve as a catalyst for transforming future experiences into more positive ones.

The second session healed unaddressed childhood emotions, and the apology work brought about forgiveness, which resolved the client's long-standing dissatisfaction and negative emotions. Based on the latest neuroscience findings, brain circuits do not operate in a linear manner (Iwasaki, 2020). Instead, they work by predicting the future and making slight modifications. The more accurately the brain predicts the future, the less need to modify behavioral output. Finally, by conducting future pacing and encouraging Mrs. A to imagine a positive future, she gained hope and was motivated to take action toward it. She experienced a growing sense of emotional stability as she understood her life circumstances.

The transformation in Mrs. A, who later became aware of the interconnectedness of life across time and space, provided an opportunity to explore the possibility of bi-directional healing benefits between the ancestors who shaped her past and her descendants who connect her life to the future. John Bradshaw (1993) writes, "The inner child, or inner child of the past, is the source of the suffering in life" (p. 28). By going further back in time than the inner child in childhood, we can trace the source of life's suffering to the mother's stress during the prenatal period. Based on this, I believe that a mother's emotions can affect the fetus during the prenatal period and have negative impacts on their life.

In the above-referenced case, the stress caused by Mrs. A's mother's tension with her mother-in-law had a detrimental impact on Mrs. A. It not only made her pregnancy difficult due to lack of understanding and support but also resulted in ongoing challenges in her adult life. This suggests that maternal stress not only directly affected Mrs. A as a fetus but also indirectly contributed to her difficulties in life as an adult. Sabina Spielrein (1991) states, "It is impossible not to feel this destructive, reconstructive process" (p. 367). In other words, inside the womb, the fetus is directly affected by the stress vibrations transmitted by the mother.

Wonder Baby Therapy and self-work as a fetus at the time when she received her mother's stress improved Mrs. A's experience of her prenatal environment. I believe it is possible that even the effects of stress from the mother, which the fetus receives through its five senses, can be healed. Regarding the growth-promoting process Mrs. A experienced from the hope-filled womb, Thomas Verny (2007) says, "A pregnant woman in distress will continuously relay distress signals to her unborn baby shifting the balance of brain development in her child from growth to protection. On the other hand,

signals relaying the existence of a loving and supportive maternal environment encourage the selection of genetic programs promoting growth." (p. 18). In other words, the signals determined by selecting the fetus's genetic program during the prenatal period can initiate healing. For example, when Mrs. A regresses to her prenatal period and realistically experiences positive genetic program selection through Wonder Baby Therapy.

In the sessions with Mrs. A, the unborn child and the mother were reconnected through love, bonding, and attachment. We recognized the unborn child as an individual and performed imagery work. This led to healing so that mother and child could cooperate and overcome obstacles from the prenatal period. Therefore, mothers could potentially heal their negative memories by returning to their perceptions during pregnancy and addressing the feelings and sensations they had experienced in the past. In addition to healing the prenatal trauma, dialogue with Wonder Baby can initiate healing. Ikegawa (2008) states, "The unborn child has outstanding abilities and awaits the love and attention of its parents" (p. 144). Respecting the unborn child as an individual from the time of conception would be possible with Wonder Baby Therapy.

Mrs. A's mental and physical disorders were enhanced because of facilitating positive communication with her mother during the prenatal period. Ikegawa (2008) describes the relationship between the mother and the fetus during the prenatal period as "from the moment of conception, during this embryonic period, we must continue to send messages to the unborn child that the environment in which they are now living is safe and secure" (p. 35). Through the application of Wonder Baby Therapy, Mrs. A could create pleasant memories of her mother and Wonder Baby. The Law of Concentration of Attention (Rose, 2001) states that focusing on a specific idea increases the probability of realization (p. 38). Consistent self-hypnosis practice can help individuals visualize their future. Mrs. A found it effective to actively communicate and recreate a sense of comfort during her time in the womb, which she does not consciously remember. Self-hypnosis work led her to set a new life goal of becoming a counselor.

Regarding the ripple effect of prenatal healing that positively affected the relationship between Mrs. A and her husband, daughter, and grandchildren, the author seeks to apply the concept of epigenetics. Thomas Verny (2021, p. 163) suggests that the expression of genes differs from the life we live, and parental life experiences and environmental exposures modify their germ cells and, in turn, affect the development and health not only of their children but even of

their grandchildren and great-grandchildren. Furthermore, an exciting aspect of this epigenetic mechanism is that it notes that we do not adapt to environmental changes over thousands of years, as in Darwin's theory of evolution, but can adapt quickly, sometimes instantaneously.

The healing effects of Wonder Baby Therapy result from the mother's loving bonds and restructuring attachment towards Wonder Baby. Ikegawa (2024) is adamant that Prenatal Memory involves creating a human who chooses what kind of life they will lead with that information before taking on a physical body. While the conventional view of pregnancy is passive, in that conception occurs accidentally and life afterward changes over time, Ikegawa (2024) affirms that the life that begins with conception, as envisioned by Prenatal Memory, is active (p. 5). Wonder Baby Therapy utilizes the concept of Prenatal Memory to help clients see life's trials and difficulties as essential to realizing their primary purpose for being born, giving them hope for the future. Clients have reported positive changes, greater acceptance of their life circumstances, and increased resilience in both mental and physical health.

Conclusion

This article highlights the positive effect of Wonder Baby Therapy, which restores a client's vision, eyesight, and a larger perspective on life by reconstructing her Prenatal Memory. The therapy enabled the client to view her future more positively, creating a greater sense of purpose for which she was born. I will continue to investigate the potential benefits of this approach in future research. Suppose we can create an environment where Prenatal Memory becomes a loving and tender memory for children who will live in the future; it is possible that children will be born without trauma, and we can imagine a time when life will be even easier to live than it is now. For this purpose, it is necessary to review the quality of life of the mother and child during pregnancy and create an environment that promotes good communication from the prenatal period.

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Review of The Nurture Revolution: Grow Your Baby's Brain and Transform Their Mental Health Through the Art of Nurtured Parenting

By Greer Kirshenbaum, PhD
Review by Stephanie Cloutman, RN, BSN, CPN, CLC

In Greer Kirshenbaum's book *The Nurture Revolution: Grow Your Baby's Brain and Transform Their Mental Health Through the Art of Nurtured Parenting,* she delves into the intricate web of prenatal and perinatal psychology with a blend of scholarly rigor and compassionate insight. Kirshenbaum holds a PhD in neuroscience and draws from her experiences as a mother and doula. Her knowledge and wisdom shine through as she guides readers on a journey through the formative stages of human brain development.

She expertly shares the influence parents and caregivers have on creating greater mental health and overall health for their child's future when they adopt high-nurture ways of supporting their infant. Dr. Kirshenbaum explains, "The efficiency of the stress system built in infancy is what underlies resilience or vulnerability to mental health struggles. The efficiency of the stress system becomes the foundation for all brain growth that comes after infancy" (Kirshenbaum, 2023, p. 35).

At the heart of Dr. Kirshenbaum's exploration lies a profound understanding of the interconnectedness between how one's stress is responded to in early life and future health outcomes. When a loving and attuned caregiver bonds with a baby and consistently responds to the stress that they cannot yet regulate on their own, it changes how their brain develops.

> The relationship experienced between the infant and their caregivers, through thousands of interactions, develops and connects the brain cells to physically shape the structure and function of the stress system and thereby emotional brain circuits. The most important impact a parent will have on their child is the formation of the stress system to shape emotional brain circuits. (Kirshenbaum, 2023, p. 24)

Through a meticulous examination of empirical research, Dr. Kirshenbaum unveils how nurture profoundly shapes neural development, emotional regulation, and cognition. Nurturing can mitigate the effects of genetic predisposition or challenges experienced in early life. It is also remarkable that increased nurture in infancy decreases susceptibility to chronic stress and adversity, thus improving health outcomes in the long run.

> The neurobiology of our stress system is our foundation for mental wellness, physical health, connected relationships, and success. When it grows to be regulated, we benefit by living more in safety states, recovering from stress efficiently, and enjoying mental and physical health. When it grows to be reactive, we suffer by living more in stress states, experiencing slow recovery from stress and vulnerability to mental and physical health struggles. (Kirshenbaum, 2023, p. 31)

The stress and emotional systems that develop in infancy influence the development of the structures and systems responsible for the higher functioning of the brain.

> Since thinking brain circuits are so interdependent with emotional brain circuits, the best strategy to achieve a regulated brain is to first develop an adaptive brain in infancy or through therapy after infancy. (Kirshenbaum, 2023, p. 30)

An impactful takeaway from her work is the value of creating a strong foundation in infancy because it is not so easy to change the foundation later, and the most efficient would be to positively influence the foundation from the start as it has a lifelong influence. The book dispels many cultural myths, which are clearly numbered, defined, and italicized throughout. It replaces these myths with what neuroscience has discovered about the needs of babies.

Dr. Kirshenbaum also delves into the intricate interplay between genetics and environmental influences, shedding light on how these factors converge to sculpt the developing brain. Her nuanced discussion emphasizes the dynamic nature of neurodevelopment and highlights the potential for positive interventions to mitigate adverse experiences and influence epigenetic expression.

Dr. Kirshenbaum shares an invaluable message with the hope that it will reach the public and influence policy change. She emphasizes that the stress

and emotional systems of the brain, which are laid down in infancy, are formed in response to the way babies are responded to, supported through stressful moments, and connected with by their caregivers. Parents need a lot of support to nurture their babies, and policies and knowledge sharing play an important role in achieving this.

In addition to its substantive content, the book is impeccably organized, with each chapter building upon the previous ones to create a cohesive narrative. Dr. Kirshenbaum's writing style is engaging yet scholarly, making complex concepts accessible to readers from diverse backgrounds. Moreover, her inclusion of practical recommendations and evidence-based strategies enhances the book's utility as a resource for both professionals and lay readers alike.

The Nurture Revolution heavily focuses on how to nurture in all kinds of situations to support brain development during this vital time of early life. The author goes into depth in the areas of how to nurture when an infant is alert and awake through connection and how to nurture for sleep, crying, clinging, and withdrawn or melting down behaviors. Dr. Kirshenbaum states, "Two core concepts that are foundational to nurture are what I call nurturing presence and nurtured empathy. Together, these concepts form the essence of how we nurture" (Kirshenbaum, 2023, p. 78). These topics are heavily expanded on with detail and practical guidance. The book is complete with ample information on how parents' brains change and education on how parents can regulate their stress system toward greater resilience, an invaluable skill set to support parents in implementing high-nurture practices for babies.

American Academy of Pediatrics (AAP) does not advocate co-sleeping in any form, so some may take issue with some of the material presented regarding this topic. Dr. Kirshenbaum shares compelling research on the benefits of close sleep and many ways to achieve this, including those that would be aligned with current AAP guidelines and that also promote what is most ideal for babies' developing brains.

The impact of the information shared in this book has the capacity to positively influence society in myriad ways. Focusing on caring for babies to support health is a powerful approach to preventative medicine, with the potential to improve mental health and wellness with each generation.

In addition to its scholarly rigor, *The Nurture Revolution* is imbued with a sense of hope, possibility, and practical guidance on how to nurture within a cultural context where low-nurture practices are normalized. In conclusion,

The Nurture Revolution stands as a seminal work in the field of prenatal and perinatal psychology and health. Greer Kirshenbaum's expertise, coupled with her empathetic approach, makes this book an indispensable resource for anyone seeking a deeper understanding of the profound impact of early experiences on human development.

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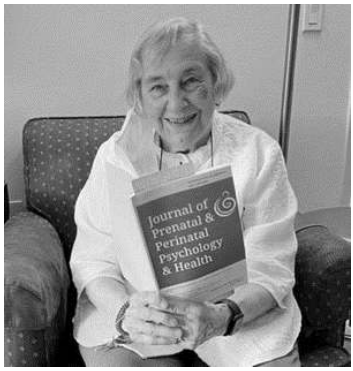
In Memoriam

Penny Simkin (1938-2024)



Penny Simkin, renowned doula, trainer, author, and educator, profoundly impacted the birthing world. Before Penny's work in the birthing community, the term *doula* was largely unknown. Penny recognized the gap in care caused by the shift to hospital births, which had led to a loss of emotional support for laboring women. Nurses were often too occupied with technical tasks and charting to provide the necessary emotional care. She understood that emotional support was a critical element missing in modern childbirth.

Penny's background in physical therapy further enriched her knowledge and enabled her to help mothers achieve positive birthing experiences through optimal positioning, ultimately improving birth outcomes. Penny's dedication to her work was evident in her rigorous research, numerous books, and insightful articles. She emphasized the importance of medical sources to gain credibility and acceptance within the medical community. Her efforts were rewarded in 2014 when OB/GYN professionals recognized the value of her work and revised their guidelines to include doulas as integral members of the birthing team. This acknowledgment marked a significant milestone, validating doulas' essential role in labor and delivery.

The development of the doula program took time and collaboration. Alongside Penny, key figures like Marshall Klaus, MD, Phyllis Klaus, John Kennell, MD, and Annie Kennedy played pivotal roles in establishing what is now known as DONA International. This organization has set the gold standard for doula training, inspiring countless others with the same mission: to provide emotional, physical, and empowering support to families. Over the past few

decades, millions of families worldwide have benefitted from the dedicated support of doulas.

Penny's unwavering commitment and humility as an educator revolutionized the birthing experience, promoting evidence-based education for healthier birth outcomes. While Penny may have passed, her legacy endures in the countless lives she touched and the wisdom she imparted. She was a beacon of support for birthing individuals and has touched lives globally with her profound knowledge and compassionate care. Her dedication to DONA, from its inception to nurturing volunteers and members, has been a testament to her commitment to improving maternal care. As a pioneer birth doula, Penny's influence extends beyond training; her teachings on the power of oxytocin and patient-centered care enhanced healthcare practices. Penny's lasting presence is a reminder of the angelic passion she embodied, leaving an enduring legacy of love for generations.

Barb Decker, PPNE, Doula, HBCE,
Certified Prenatal Bonding (BA) Facilitator
and Barbara A. Hotelling, BSN, MSN

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