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JOURNAL FOR PRENATAL AND PERINATAL PSYCHOLOGY AND HEALTH publishes findings from the cutting edge of the rapidly growing science of prenatal and perinatal psychology and health. The journal, published quarterly from 1986 through 2023, and now triannually, is dedicated to the in-depth exploration of the dimension of human reproduction and pregnancy and the mental and emotional development of the

unborn and newborn child. It provides a forum for the many disciplines involved, such as psychology, psychiatry, midwifery, nursing, obstetrics, prenatal education, perinatology, pediatrics, law, and ethology. The journal also navigates the numerous ethical and legal dilemmas that are emerging as society reevaluates its attitudes toward adoption and abortion or strives to establish moral positions on high-tech obstetrics and third-party conception. The opinions expressed in articles are those of the authors and do not imply endorsements by APPPAH, the editorial team at *JOPPPAH*, or the printer, Allen Press, Inc.

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Editorial

Welcome to *JOPPPAH*'s spring issue of 2023! In this first issue of the year, *JOPPPAH* brings to your door—or digital device—global research on how we, as prenatal and perinatal clinicians, researchers, and educators, can improve birth and maternal health outcomes and learn from childbearing women's lived experiences of birth. We are fortunate to host researchers from around the world who investigate, ask hard questions, and provide possible answers.

The first two articles of our spring issue derive research from Germany, Switzerland, Austria, France, and the United States. The researchers explore what protocols may be necessary to improve birth outcomes for mothers and their babies and how clinicians can alleviate maternal mental health mood disorders for pregnant and birthing people. From Australia, the third article researches women's lived experiences of giving birth during the COVID-19 lockdown—both the anxiety of birthing during a pandemic and possible positive growth.

We are fortunate to have new staff and volunteers who hit the ground running, coordinating outreach, conducting interviews, and writing book reviews for *JOPPPAH*. We end our spring issue with an interview of a film producer who is spreading the word on the infant microbiome, conducted by our Copy Editor, Dr. Christiana Rebelle, and a book review from our new Book Review Editor, Stephanie Cloutman, RN.

Anne Goertz-Schroth, Dr. Gerhard Schroth, and Dr. Raylene Phillips lead our spring issue with "Prenatal Bonding (BA) as a Breakthrough in Improving Pregnancy, Birth, and Postpartum Outcomes," a retrospective study demonstrating how Prenatal Bonding (BA) can create better birth outcomes for both gestational parent and child. Prenatal Bonding (BA) protocol encompasses an in-depth assessment of intergenerational trauma for the birthing parent and facilitates communication between the gestational parent and baby prior to birth. The three scholars found that almost all the birth outcomes of nearly three-hundred mothers from Germany, Switzerland, Austria, and France were improved after the mothers experienced Prenatal Bonding (BA). Among the study participants, 99% of the mothers gave birth to full-term babies, 82% had vaginal births, 99% initiated breastfeeding, and 94% continued breastfeeding until six months following birth. Only one baby had colic

symptoms and three mothers had symptoms of Postpartum Depression. The authors argue that though a larger, systemic study is necessary to substantiate their claims, Prenatal Bonding (BA) can effectively reduce preterm birth, cesarean sections, the need for supplementing formula, and can effectively lower colic and Postpartum Depression.

In "Examination of a Behavioral Health Initiative for 15 Women Hospitalized Due to Obstetric Risk," Dr. Kimberly Hart, Dr. Emily B.K. Thomas, Dr. Andrea Greiner, Kristen Eastlund, and Dr. Stacey Pawluck highlight their designed quality improvement project to assess and alleviate symptoms of maternal anxiety for hospitalized antepartum women at an academic medical center in a rural midwestern state in the United States. The authors argue that childbearing years accompany higher risks of mood and anxiety disorders, especially for mothers with high-risk pregnancies. Mothers who opted in for this study were given one to three 30-minute psychotherapy sessions in-hospital. The goal was to normalize, validate, practice mindfulness, and increase the window of tolerance for each mother. Though the quality improvement project results are not yet available, the study showed that initiatives such as these, which require collaboration across fields, can be implemented in an inpatient setting.

In "Childbirth and COVID-19 Lockdown: 21 Bunkering Down and Getting to Be a Family," Dr. Lynne McCormack, Claudia Lawson, and Emily Magee highlight mothers' lived experiences of childbirth during the COVID-19 lockdown in Australia. The authors' case study explores six Australian mothers' stories of their hospital births. Four themes developed from postpartum interviews were collected: ambiguous ruling, permeating fear and loss, peaceful reprieve, and future fears. The mothers largely experienced anxiety about the unknown. However, the authors noted that some mothers felt substantial growth, having to navigate much on their own without the support of extended family and friends.

JOPPPAH is blessed with prenatal and perinatal researchers, clinicians, and scholars who staff and volunteer at the journal. We end our spring issue with work from our *JOPPPAH* team: first, an interview, "Living Life in Balance with our Passengers: An Interview with Toni Harman on the Infant Microbiome" by *JOPPPAH*'s Copy Editor, Dr. Christiana Rebelle and second, a book review on Isa Gucciardi's *The New Return of the Great Mother: Birth, Initiation and the Sacred Feminine* by our new Book Review Editor, Stephanie Cloutman, RN. Our journal would cease to function without the creative, bold, and savvy work of our staff and volunteers, who are the lifeblood of this journal.

Thank you for your contributions and continued support of *JOPPPAH*—we appreciate your submissions, your comments on the research provided within these pages, and your energy which drives us to produce cutting-edge research on prenatal and perinatal psychology and health.

This year, we look forward to bringing you more in our Summer and Fall 2023 issues. Until then, if you have new article submissions, comments, or questions, feel free to reach out to us at journal.editor@birthpsychology.com. We love hearing how this research has helped shape your own practices and ideas about pregnancy, birth, and postpartum!

Happy spring to you and yours,
Dr. Kate Stahl-Kovell
Editor-in-Chief

Prenatal Bonding (BA) as a Breakthrough in Improving Pregnancy, Birth, and Postpartum Outcomes

Anne Goertz-Schroth, Dr. Gerhard Schroth, Dr. Raylene Phillips

Abstract: Prenatal Bonding (BA) is a method of supporting pregnancy that enables a pregnant mother to connect with her unborn child and opens the possibility of mutual communication between the gestational parent and her yet-to-be-born baby. Over time, these communications develop patterns that result in a growing sense of emotional connection, enabling them to experience birth together as a team, something that had never been considered possible by most people, including birth professionals, medical healthcare providers, and psychologists. This retrospective study reviewed the birth outcomes of 295 women who received this method of support during their pregnancies. Results showed that after Prenatal Bonding (BA) facilitation, the need for birth interventions and Cesarean sections are reduced, and breastfeeding rates are increased, while preterm birth, postpartum depression, and infantile colic are exceedingly rare. Because they have already created a connection, the postpartum period becomes a new phase of an existing relationship.

Keywords: prenatal, bonding, pregnancy, preterm birth, colic babies, postpartum depression

Introduction

Medical advances over the last several decades have improved the safety of pregnancy, birth, and early infancy. However, maternal and infant mortality rates have not decreased at the rate needed to meet UNICEF's

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Sustainable Developmental Goals for 2030 (UNFPA, 2019; UNICEF, 2023), indicating that more can be done to optimize maternal and infant care. Researchers have established the connection between mental and physical well-being, and a growing body of research has applied this knowledge to pregnancy and birth. Kennell and Klaus demonstrated that the presence of a support person during labor is associated with a significant reduction in Cesarean birth rates (Kennell et al., 1991). Fredrick Leboyer advocated for seeing birth from the baby's perspective and adjusting birth practices to support the baby in a gentle and non-violent birth (Conley, 2010). Bowlby and Ainsworth created a theory of attachment and researched the effects of infants and toddlers with a secure or insecure mother-infant attachment (Bretherton, 1992). Phillips has described how uninterrupted skin-to-skin contact immediately after vaginal and Cesarean births supports mother-infant bonding and is associated with increased breastfeeding initiation rates, which are well-documented to improve maternal and infant outcomes (Centers for Disease Control and Prevention [CDC], 2021; Phillips, 2012, 2013). Increasing evidence demonstrates maternal mental health during pregnancy has direct effects on fetal and child development (Jeličić et al., 2022; Molenaar et al., 2019; Simons et al., 2019; Van den Bergh et al., 2020; Wu et al., 2022).

For almost 100 years, a focus on prenatal and perinatal psychology has shown that understanding and supporting maternal and infant mental health, even before birth, improves birth outcomes (Evertz et al., 2021; Janus, 2021). In the 1970s, Thomas Verny, a Canadian psychiatrist, and David Chamberlain, a United States psychologist, discovered in their separate therapeutic settings that many children and adults have memories from before, during, and after birth—often with profound long-term effects on their lives (Chamberlain, 1988; Verny & Kelly, 1981). Verny and Chamberlain independently discovered that when traumatic prenatal, birth, or infant experiences were revealed from the unconscious memory through hypnosis and other therapeutic techniques, mental health pathologies related to these traumas often resolved. The knowledge that prenatal and birth memories are stored in the unconscious mind and body memory was groundbreaking and led to new modalities of early preverbal trauma resolution.

This knowledge, in addition to providing new information about the prenatal mind, also raised awareness that an emotional connection between the pregnant mother and the unborn child is possible. It has been known since the 1990s that maternal-child bonding and attachment are critical to normal development (Bretherton, 1992). It was previously assumed, however, that bonding and attachment can only begin after birth. The paradigm-shifting knowledge that emotional connections can

begin before birth opened the door to new, previously unimagined ways to support pregnancy, birth, and early postnatal development of the child and the family. Prenatal care providers began encouraging pregnant mothers to talk and sing to their babies and to visualize their babies growing and developing within their wombs. This interaction was initially assumed to be one-directional. Many mothers felt empowered to communicate with their babies, but few suspected they could communicate with them and receive communication back from their unborn babies while still within their wombs.

In the late 20th century, the Hungarian psychologist and psychoanalyst Jenoe Raffai, Ph.D. and the Hungarian psychiatrist and psychoanalyst György Hidas, MD, developed a method of supporting pregnancies based on principles of psychoanalysis, naming their method initially "Bonding Analysis," and later "Prenatal Bonding (BA)." This program enables a pregnant person to connect with their unborn child and opens the possibility of mutual communication between the parent and their yet-to-be-born baby. In Prenatal Bonding (BA), parents and their unborn child can develop a deep inner relationship long before birth, enabling them to experience birth together as a team—something that had not before been considered possible by most birth professionals, healthcare providers, and psychologists. Feedback from the baby can even direct attention to problems in the pregnancy and lead to medical examination and intervention (Hidas et al., 2002; Schroth, 2021).

A Prenatal Bonding (BA) facilitation involves a thorough physical and psychological history of both parents. It seeks to identify, acknowledge, and clarify intergenerational traumas, beliefs, and ideologies that negatively affect pregnancy, birth, and parenting. Mothers (and birth partners) are guided in deep relaxation exercises and supported in connecting with their unborn baby in whatever way they and their baby choose. During these sessions, parents often experience mutual communication with their baby through feelings, body sensations, imagery, thoughts, or the baby's movements. Over time, these communications develop patterns resulting in a growing emotional connection. By the time of birth, most mothers feel they already know their baby and understand their baby's personality. Because they already have created a connection, mothers find their newborns easy to feed and soothe. The postpartum period becomes a new phase of an already developed relationship (Schroth, 2021).

Raffai and Hidas used Prenatal Bonding (BA) facilitations from 1986 to support over 4350 pregnant mothers. Birth outcomes were noted to be strikingly positive but were never systematically tracked. After being trained by Raffai and Hidas, Gerhard Schroth, MD, and Anne Goertz-Schroth have been using Prenatal Bonding (BA) in Dr. Schroth's

psychiatric practice in Germany and have also been teaching the method in Europe and the United States since 2011. More than 10,000 pregnancies have been facilitated by trained and certified Prenatal Bonding (BA) professionals in many countries in Europe and the United States (Schroth, personal communication, 2023). In this retrospective study, we report the most extended quantitative and qualitative data about Prenatal Bonding (BA) birth outcomes collected to date.

Methods

Evaluation questionnaires were used to collect reliable data on birth outcomes after Prenatal Bonding (BA) facilitations with one-hour follow-up interviews done one month and six months after the birth. Mothers who participated in Prenatal Bonding (BA) gave voluntary consent for data from the de-identified questionnaires to be shared. The first evaluation documented when the facilitation began, how many sessions were completed, gestational age at birth, place of birth, duration, and course of labor, use of medications and obstetric interventions during delivery, mode of delivery, postnatal behavior of the baby (e.g., sleeping and crying pattern), the progress of breastfeeding, the mother's subjective experiences with the baby, symptoms of postpartum depression, and the mother's self-reported rating of her experience with Prenatal Bonding (BA).

The second evaluation, done six months after the baby's birth, assessed the baby's further development, including the baby's sleeping pattern, crying, behavior, and motor skills, any illnesses, breastfeeding history, the mother's subjective experiences with the postpartum period and expectations for the future, symptoms of postpartum depression, and the mother's self-reported rating of her experience with Prenatal Bonding (BA).

Outcomes of 295 Prenatal Bonding (BA) facilitations done by 45 Prenatal Bonding (BA)-certified colleagues were analyzed retrospectively. The professional backgrounds of facilitators varied widely, including midwives, gynecologists, psychotherapists, social workers, educators, and doulas who worked in settings of prenatal care, obstetrics, family counseling, and medicine. Working with pregnant women was their common professional experience. The facilitations were conducted in various cultural settings, including Germany, Switzerland, Austria, and France.

The 295 facilitations with Prenatal Bonding (BA) from 2017 through 2020 included 64 facilitations from 2017, 27 from 2018, 90 from 2019, and 74 from 2020. Facilitations were included in the analysis if they had a

minimum of 12 sessions (range 12-29, average 19) and had completed the follow-up evaluations at 1 and 6 months after birth.

Results

Preterm Births

In this cohort of pregnant mothers (295), 292 women (99%) gave birth to full-term babies (37th - 42nd week gestation), while 3 (1%) of babies were born preterm. Of the preterm births, two mothers (0.7%) gave birth in the 36th week, and 1 (0.3%) gave birth in the 34th week of pregnancy.

Mode of Birth

After Prenatal Bonding (BA), 227 women (77%) began labor spontaneously, and 94 women (32%) gave birth with no medication or any other obstetric interventions. A total of 242 women (82%) gave birth vaginally, while a Cesarean section was clinically indicated for 53 births (18%).

Place of Birth

A total of 261 births (88.5%) occurred in a hospital, 30 births (10.2%) occurred in a home setting, and 4 births (1.3%) occurred in freestanding birth clinics.

Breastfeeding

After Prenatal Bonding (BA), 292 mothers (99%) successfully initiated breastfeeding. Only 3 women (1%) could not breastfeed after giving birth. Another 15 women (5%) could breastfeed partially, meaning they breastfed with supplemental feeding or breastfed for less than six months. At six months of age, 277 babies (94%) were still breastfed.

Infant Crying and Infantile Colic

Only 1 baby (0.3%) in 295 facilitated cases met the criteria for infantile colic. In 2 cases (0.7%), crying for 30-60 minutes per day occurred for the first few weeks.

Postpartum Depression

After Prenatal Bonding (BA) facilitation, 292 women (99%) were completely free from any symptoms of postpartum depression. Three mothers (1%) had some characteristics or symptoms of postpartum depression.

Baby Blues

Eighteen mothers (6%) experienced symptoms of baby blues for less than two weeks, while 277 mothers (94%) of mothers were free from any symptoms of baby blues.

Discussion

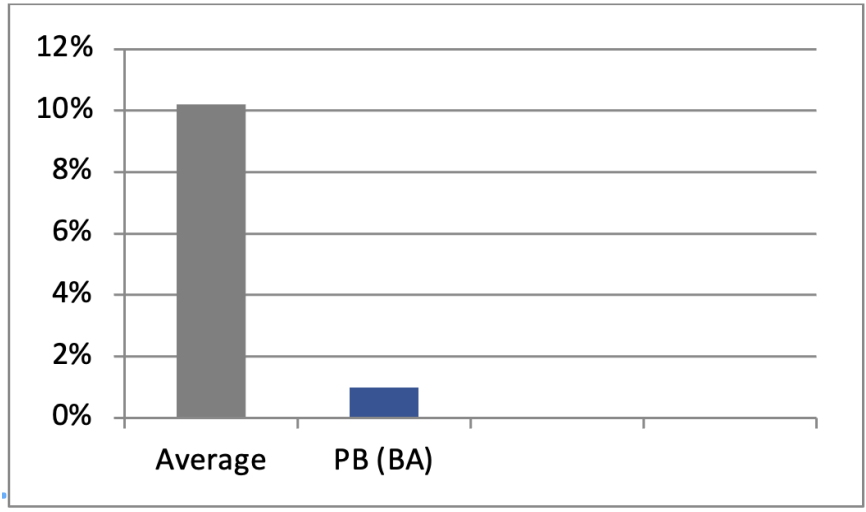
This retrospective study consistently found improved maternal and infant birth outcomes in mother-baby dyads who had experienced Prenatal Bonding (BA) facilitation compared to averages found in other studies.

Preterm Births

In this cohort of 295 facilitated pregnant mothers, 99% gave birth to full-term babies (37^{th}- 42^{nd} week gestation), while only 1% were born preterm (see Figure 1). In the earliest birth (34 weeks gestation), there were multiple uterine surgeries in the mother's medical history. For comparison, rates of preterm births in Europe range from 5.3% to 14.7%. In Germany in 2017, the rate was 8.6% (Berger et al., 2019). In the United States, 1 in 10 babies (10.2 %) was born preterm in 2019 (March of Dimes, 2022).

Figure 1

Preterm Birth Rates: Average United States vs. Prenatal Bonding (BA)



In Germany and many European countries, preterm birth rates have not decreased for almost ten years. Clinical-scientific research thus far has focused on identifying medical risk factors and their prevention. Many risk factors can be avoided by counseling pregnant women at the start of prenatal care, by maternal lifestyle changes, and by reducing stress during pregnancy, but none of these interventions are completely effective in preventing preterm birth (Berger et al., 2019).

Preterm birth continues to be a major problem in perinatal medicine. It is defined as a birth before 37 completed weeks of gestation. To better appreciate the significance of reducing preterm birth rates, it is helpful to focus on the consequences of preterm birth in general. Preterm birth is the leading cause of death among children accounting for 18% of deaths in children younger than five years of age and 35% of infant deaths in the first month (28 days) after birth (Walani, 2020). Morbidity and mortality rates vary by country but universally increase with decreasing birth gestational age (Bell et al., 2022; Manuck et al., 2016). Premature births often require care in a Neonatal Intensive Care Unit (NICU) for days, weeks, or months. This can present a massive psychosocial burden for affected families with significantly higher rates of post-traumatic stress disorder and anxiety than the general population and a substantial

financial burden for families and the healthcare system (Malouf et al., 2021; Walani, 2020).

Because premature infants usually require immediate medical interventions, skin-to-skin contact between mother and newborn in the first hour after birth is usually not possible. Uninterrupted skin-to-skin contact with the mother is important for physiologic stability, bonding, and breastfeeding, all of which support the child's optimal physical and emotional development (Phillips, 2013). Preterm infants in the NICU are exposed to multiple medical and care interventions daily, many of which are painful and most of which are stressful. Parents and infants are often separated, adding to the physiologic and emotional stress on babies and parents (Morgan et al., 2011).

In addition to the short-term consequences after preterm birth, there are often severe long-term consequences. Infants born prematurely have a significantly higher risk of being diagnosed with attention deficit disorder as children and adults (Murray, 2016; Perapoch et al., 2021; Robinson et al., 2022). Children and adults born prematurely can often have difficulties coping with transitional life events, and parents often continue to worry about their prematurely born children for years (Treyvaud et al., 2014). Preterm birth is also considered one of the main risk factors for disability-adjusted life years (DALY) lost due to sickness, disability, or early death (Berger et al., 2019).

In addition to the emotional consequences, high financial costs are associated with preterm birth. A United States study in 2016 calculated that each prematurely born child results in average costs of approximately $49,140 in the first year of life, four times higher than the costs for term infants ($13,024). In the first year of life, the total annual costs for premature babies in the United States reach up to $25.2 billion (Waitzman et al., 2021).

Causes and preventions of preterm birth continue to be studied, and effective therapeutic strategies continue to be investigated. Prenatal Bonding (BA) can significantly contribute to this area of research.

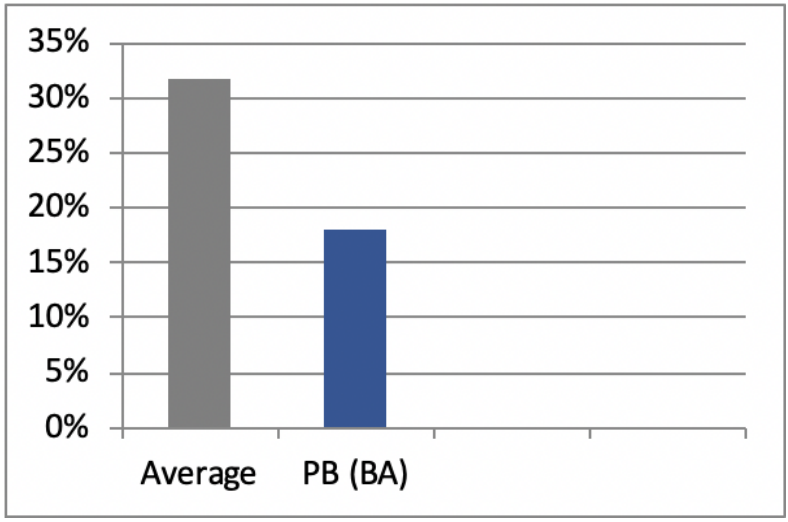
Mode of Birth

In this cohort, 82% of women had a vaginal delivery, while 18% had a Cesarean section (see Figure 2). By comparison, United States National Vital Statistics reports a Cesarean section rate of 31.7% in 2019 (Osterman, 2022). While a Cesarean section delivery can be lifesaving, it

comes with the risks of major abdominal surgery, well-documented risks of changes in infant microbiome, and delayed postnatal bonding and breastfeeding if mother and baby are separated after birth. Due to these known risks, efforts have been made to reduce elective Cesarean section birth rates with varied success (World Health Organization [WHO], 2021). The WHO recommends using non-clinical interventions to help reduce cesarean section rates (WHO, 2018). Prenatal Bonding (BA) has been shown to be a successful intervention to safely reduce the rate of Cesarean section births.

Figure 2

Cesarean Section Rates: Average United States vs. Prenatal Bonding (BA)



It was also found that 32% of women gave birth without medical interventions, such as synthetic oxytocin, epidural anesthesia, vacuum extraction, or episiotomy. In Germany, only 8% of women gave birth without medical intervention (Sayn-Wittgenstein, 2011). Notably, the rate for intervention-free births was four times higher following Prenatal Bonding (BA).

Place of Birth

In the cohort of pregnant mothers facilitated in Prenatal Bonding, 88.5% gave birth in a hospital setting, while 11.5% gave birth outside of

the hospital (1.3% in a birth center and 10.2% at home). By comparison, a Quality Report for the Society for Out-of-Hospital Obstetrics describes a 1.3% out-of-hospital births rate in Germany in 2019 (QUAG, 2019). The out-of-hospital birth rate for women facilitated with Prenatal Bonding (BA) was more than eight times higher than Germany's average, and may reflect a lower rate of anxiety in birthing mothers before birth and greater confidence in their competence and power to have a physiological birth without the need for medical interventions.

Breastfeeding

With Prenatal Bonding (BA) facilitation, mothers have a high awareness of the value of breastfeeding, and 99% were successful at initiating breastfeeding after birth (see Figure 3), while 94% were still breastfeeding six months after birth (see Figure 4). In comparison, a German study (2017-2019) found that 74.1% of newborns were exclusively breastfed after birth, and after six months, only 66.1% of infants were still breastfed (Hockamp, 2021; Kersting et al., 2020).

Figure 3

Breastfeeding Rates After Birth: Average Germany vs. Prenatal Bonding (BA)

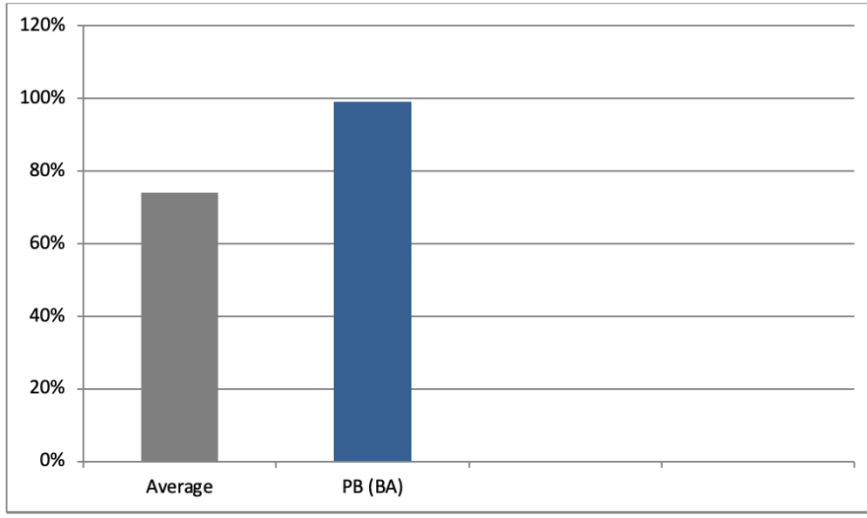
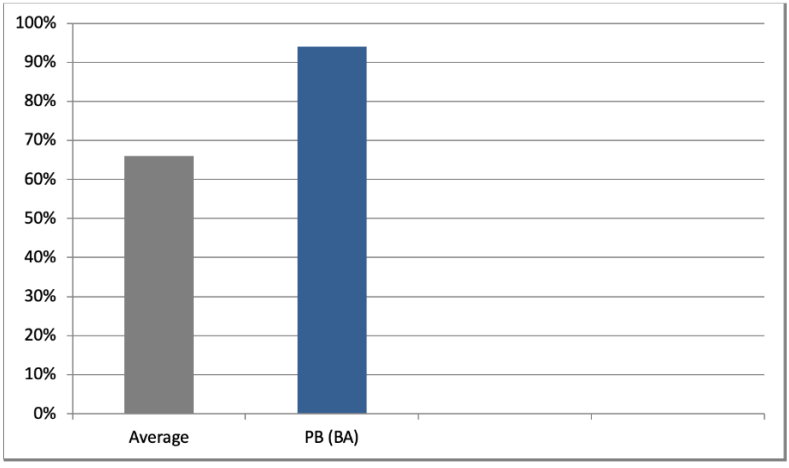


Figure 4

Breastfeeding Rates After 6 Months: Average Germany vs. Prenatal Bonding (BA)



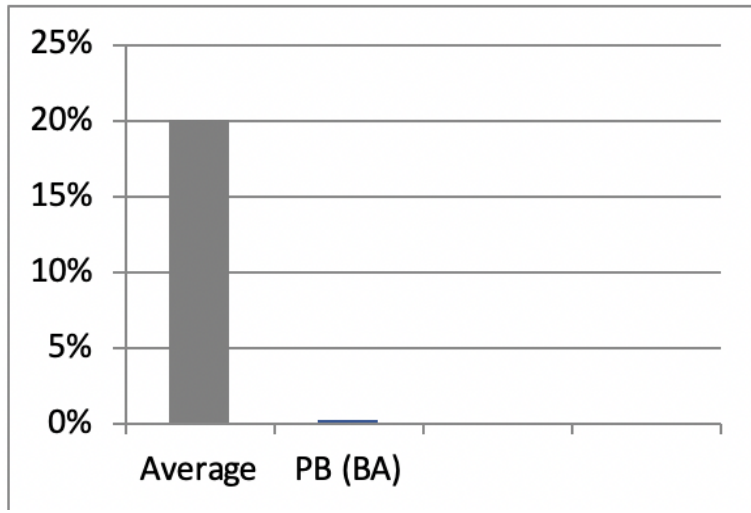
The health benefits of breastfeeding have been well-documented for many years (CDC, 2021). Any intervention that supports and increases breastfeeding rates deserves attention.

Infant Crying and Infantile Colic

In the group of mothers who experienced Prenatal Bonding (BA), only 1 baby (0.3%) had crying that fit the description of infantile colic (see Figure 5). In contrast, according to the German Society for Child and Adolescent Psychiatry, about 20% of newborns are assessed as infantile colic babies (Santos et al., 2015).

Figure 5

Infantile Colic Rates: Average Germany vs. Prenatal Bonding (BA)



According to a definition of colic from the German Society for Pediatrics and Adolescent Medicine, babies are said to have "infantile colic" if they cry 3 hours or more per day, resisting every effort to soothe for an extended period, sometimes for over three months and more. Characteristics of infantile colic babies include inconsolable crying with increasing overtiredness and overstimulation of the infant and the parents. Infantile colic is also considered a risk factor for later, further behavioral problems (Zeevenhooven et al., 2022).

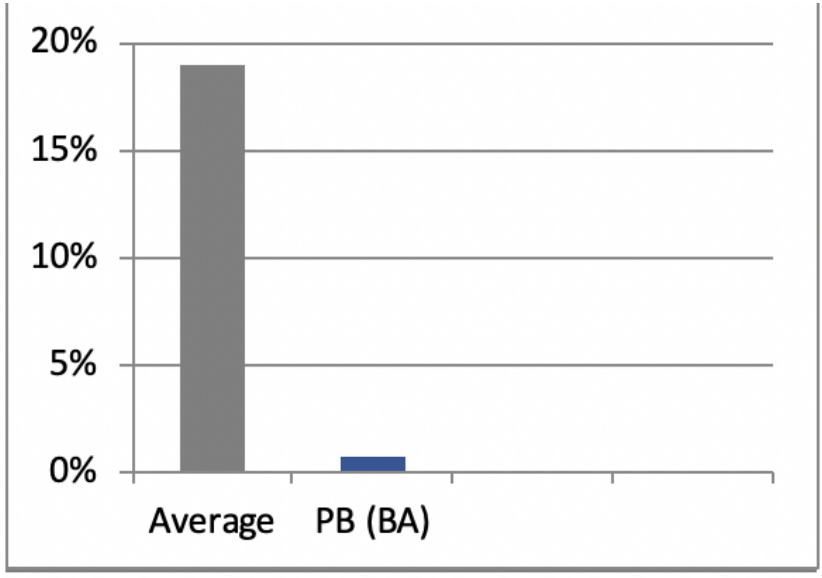
Babies of mothers who have experienced Prenatal Bonding (BA) rarely cry for extended periods. On the Prenatal Bonding (BA) evaluation questionnaire given at one month and six months after birth, the answer most often given to describe crying is "The baby cries little and is easily comforted." A mother reported: "You can count on the fingers of one hand how many times Kati has cried for a while. Only once did she cry for 10 minutes, and we did not understand why. From time to time she cries briefly to communicate when she is hungry or wants to be close to me. As soon as her needs are met, she calms down and is happy again".

Postpartum Depression

From the researched cohort of 295 pregnant women, only 3 mothers (1%) had some characteristics or symptoms of Postpartum Depression (PPD) (see Figure 6). Postpartum Depression is a major depressive disorder that occurs in the first few months after childbirth and lasts several months or longer. While a comprehensive overview of recent literature found postpartum depression (PDD) in 17.2% of the world's population, including a range of 0.5-60% (Wang et al., 2021), it is a rare occurrence among mothers who experienced Prenatal Bonding (BA) facilitation (Schroth, 2021).

Figure 6

Postpartum Depression Rate: Average Global vs. Prenatal Bonding (BA)



This low rate is particularly noteworthy because almost a fifth of the cohort (19.5%) began the Prenatal Bonding (BA) facilitation while still suffering either from postpartum depression diagnosed after a previous birth or from symptoms of trauma after a previous traumatic birth. They specifically chose Prenatal Bonding (BA) facilitation to seek professional support in recovering from symptoms of existing PPD or trauma. It is, therefore, clear that the reduction of PPD we saw after Prenatal Bonding

(BA) facilitation did not result from a "selection bias" of mothers predisposed to good mental health. On the contrary, many pregnant women sought the program because of already existing severe mental suffering and with the hope for healing. Many were being treated with anti-depressive medication, thus exposing the unborn babies to additional risks. All mothers who began Prenatal Bonding (BA) facilitation while on medication for pre-existing PPD no longer required medication within a short time after beginning the program.

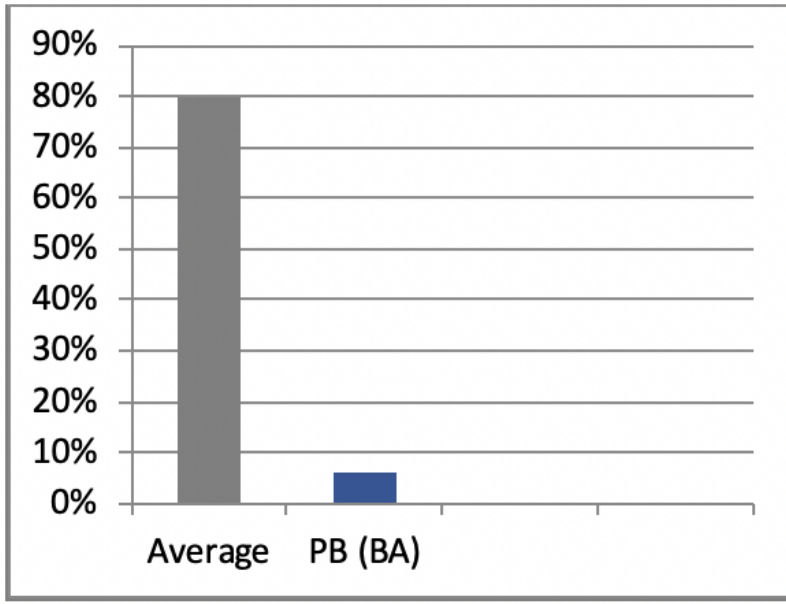
Postpartum depression is highly prevalent worldwide and results in untold suffering to mothers, babies, and families, even leading to delayed development in infants of mothers with PPD (Bernard-Bonnin, 2004, Faisal-Cury et al., 2021). In reducing rates of Postpartum Depression, the Prenatal Bonding (BA) method achieves positive results without the need for any medication (Schroth, 2015).

Baby Blues

Baby Blues is defined as a depressive mood disorder after birth for a few hours up to 2 weeks. The change of hormonal conditions after delivery has often been given as the medical explanation for this short depressive mood disbalance. Baby blues occurs in Germany with a frequency of up to 80% (Hübner-Liebermann et al., 2012; Landeskoordination, 2015). However, in this group of mothers who were facilitated in Prenatal Bonding (BA), only 6% experienced baby blues (See Figure 7). This result may challenge the common assumption that baby blues is primarily the result of hormonal changes that occur in all mothers.

Figure 7

Baby Blues Rates: Average Germany vs. Prenatal Bonding (BA)



Comparison of Two Different Prenatal Bonding (BA) Cohorts

Previous research from 2013 through 2017 was presented at the International Conference on Prenatal Bonding (BA) in Cologne in 2018 (Goertz-Schroth, 2019). In that study, a cohort of 188 pregnant mothers had been facilitated by 37 certified Prenatal Bonding (BA) professionals from different countries, including the United States. The results were very similar to the results reported in the current analysis (see Figure 8). Notable exceptions include an increase in Caesarean section births from 12% in the first study to 18% in the current study, which may be related to the increase in hospital births also seen in the current cohort.

Figure 8

Comparison of First (2013-2017) and Second (2017-2020) Prenatal Bonding (BA) Cohorts

Birth Outcomes	1st Cohort (2013-2017) n=188 (%)	2nd Cohort (2017-2020) n=295 (%)
Full term babies	97.5	99.0
Preterm babies	2.5	1.0
Vaginal births	88.0	82.0
Caesarean section births	12.0	18.0
Hospital births	80.5	88.5
Out-of-hospital births	19.5	11.5
Breastfeeding rate after birth	98.5	99.0
Breastfeeding rate after 6 months	92.0	94.0
Infantile colic	0.0	0.3
Postpartum depression	2.0	1.0
Baby blues	5.0	6.0

The similarity of results from two different cohorts demonstrates the reliability of Prenatal Bonding (BA) facilitated support with different groups of pregnant mothers facilitated by a different group of professionals over seven years.

A mother who participated in the first cohort reported:

Prenatal Bonding (BA) was such a relief for us. Our bond was strong long before birth, and that made it so easy. Giving birth went so incredibly well. It felt like Emma already knew me and was well prepared for birth, and had a strong relation with us from the first moment. Now I'm surprised how easy it is with my two kids and the daily routine and housekeeping. After the birth of my first child, I didn't know how I would have managed without my mother's help. I was so stressed. Now I have two children and I don't need any help at all. (Goertz-Schroth, 2019)

Conclusion

This retrospective study sought to answer the effects of Prenatal Bonding (BA) on pregnancy, birth, and postpartum outcomes. All the parameters demonstrated improving outcomes after Prenatal Bonding (BA) facilitation, with most babies born vaginally at full term and able to initiate breastfeeding successfully. In the postpartum period, almost all babies were easily soothed, with a very low percentage of infantile colic, and a high percentage of babies continued to be breastfed for at least six months. The rates of baby blues and postpartum depression were exceedingly low. All these factors help to continue in the postpartum period the maternal-infant bond that began before birth and supports the foundation for a healthy and trusting parent-child interaction with increased stress-resilience for the whole family system.

This retrospective analysis has demonstrated the safety and reliability of Prenatal Bonding (BA) as an effective support for pregnant mothers and has shown consistent positive outcomes over time. The method can be learned and successfully applied by professionals from many different professional backgrounds. It has proven to be an effective intervention to support pregnant mothers, their unborn babies, and families in creating deeply meaningful connections long before birth.

Strengths of this study include the constancy of markedly improved birth and postpartum outcomes over time with various professional facilitators in varied settings. Limitations of the study include the retrospective study design, the relatively small sample size, and the lack of maternal prenatal demographic information. Additional research is needed to validate these results further.

By increasing the chance of spontaneous vaginal birth and reducing the risk of birth trauma, Prenatal Bonding (BA) can help prevent serious adverse outcomes, which often lead to chronic illness later in life (Mead, 2020). By significantly reducing the risk of postpartum depression, much maternal, infant, and family suffering can be prevented. By supporting improved birth outcomes and secure bonds of attachment, Prenatal Bonding (BA) helps lay the foundation for optimal physical and mental health throughout the lifespan, contributing to a healthier, more peaceful society.

Note of Thanks

Jenoe Raffai's method of Prenatal Bonding (BA) has made it easier for many families to become parents, preventing grief and suffering and giving the whole family a much happier and more fulfilling start with their baby. Safely bonded babies are better protected from emotional and physical pain and can begin life with less of a burden. The authors would like to thank Jenoe Raffai and Gyoergy Hidas for the gift of Prenatal Bonding (BA) and for the dedication of all the colleagues who supported this research project with their evaluations.

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Examination of a Behavioral Health Initiative for Women Hospitalized Due to Obstetric Risk

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Abstract: The childbearing years represent a period of high risk for mood and anxiety disorders. Pregnancy complications, especially those leading to antepartum hospitalization, increase the risk of mental health concerns. In this quality improvement project, we describe a newly developed behavioral health service designed to increase inpatient antepartum women's access to mental health care. Of the women seen for behavioral health intervention, 29.5% of the women reported elevated symptoms of depression and 47.7% reported elevated symptoms of anxiety. Results represent a call to action to intervene with hospitalized antepartum women with elevated depressive or anxiety symptoms.

Keywords: pregnancy; high-risk, hospitalization, depression, anxiety

Introduction

Maternal mental health conditions are the most common complications of pregnancy and childbirth, affecting 1 in 5, or 800,000 pregnant patients each year in the United States (Maternal Mental Health Leadership Alliance, 2020). Up to 12.7% of pregnant patients experience an episode of Major Depressive Disorder during pregnancy, exceeding 18% if minor depressive episodes are included (Gavin et al., 2005). Antenatal anxiety is also common. A 2019 meta-analysis of 26 studies found that women's risk

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of experiencing anxiety during pregnancy is 21.1% (Fawcett et al., 2019). Certain situational factors and stressors increase the risk for antepartum mood issues. Lancaster et al. (2010) conducted a systematic review of research from 1980-2008 and found that maternal anxiety, life stress, history of depression, lack of social support, unintended pregnancy, Medicaid insurance, domestic violence, lower income, lower education, smoking, single relationship status, and poor relationship quality were associated with a greater likelihood of antepartum depressive symptoms in bivariate analyses. Life stress, lack of social support, and domestic violence demonstrated a significant association using multivariate analyses (Lancaster et al., 2010).

Antenatal mental health issues are associated with pregnancy complications and adverse fetal and maternal outcomes. Studies have linked maternal depression and anxiety during pregnancy to preterm delivery (Staneva et al., 2015), decreased birth weight (Uguz et al., 2019), preeclampsia (Kurki et al., 2000), a lower rate of breastfeeding initiation (Ritchie-Ewing et al., 2019), or early cessation (Ystrom, 2012), increased length of labor, greater use of analgesics and decreased Apgar scores (Smorti et al., 2019), and increased NICU admissions (Misri et al., 2004). Grigoriadis et al. (2013) conducted a systematic review and meta-analysis and found that maternal depression is linked to premature delivery and a lower likelihood of breastfeeding initiation.

While mood issues during pregnancy have been associated with maternal and fetal complications, the converse may also be true. A medically high-risk pregnancy may contribute to the onset of exacerbate mood problems. Women with high-risk pregnancies also appear to be at higher risk for developing posttraumatic stress disorder (PTSD; Schlomi Polachek et al., 2015). Pregnancy conditions such as preterm premature rupture of membranes (PPROM), intrauterine growth restriction (IUGR), preeclampsia, complications due to multiple gestation, or placental problems may necessitate antenatal hospitalization, which may stretch from days to months prior to delivery. In addition to concerns about the health of the fetus and self, hospitalized pregnant women may experience negative emotions related to perceived situational loss of control, distance between hospital and home, isolation/loss of access to supports, changes to employment with resulting financial implications, sleep disruption, and boredom (Spehar et al., 2018; Waldron & Asayama, 1985; White & Ritchie, 1984). Treatment of antenatal mood concerns is vital due to potential impacts on maternal and fetal health, especially during hospitalization for high-risk pregnancies.

The literature examining the mental health status of women hospitalized prior to delivery has grown over the last decade, with a

recent meta-analysis reporting that the prevalence of anxiety and depressive symptoms among women hospitalized during pregnancy is twice that of the general obstetric population (Toscano et al., 2021). Moreover, women who experience depression or anxiety symptoms during pregnancy may lack access to mental health care and may be at high risk for adverse outcomes. A 2008 study that used the self-report Edinburgh Postnatal Depression Scale (EPDS) and more rigorous assessment via the Structured Clinical Interview for DSM (SCID) found that 44.2% of pregnant women hospitalized during pregnancy screened positive for depression, and at least 19.4% met criteria for Major Depressive Disorder (Brandon et al., 2008). Additional findings from this study indicated that depressive symptoms were unrelated to the severity of obstetric risk. A 2014 study found similar results (Byatt et al., 2014), highlighting that perinatal mood disorders often go untreated, even during hospitalization. Subjects completed the EPDS and Generalized Anxiety Disorder-7 (GAD-7) weekly until delivery/discharge and once postpartum, with 27% meeting the criteria for depression and 13% for anxiety. Of note, past mental health diagnoses predicted depression and anxiety symptoms at the initial survey, though 21% of the women with increased depression during antenatal hospitalization reported no diagnostic history. Though 77% of the women in the study indicated that they would likely benefit from psychotherapeutic treatment, only 5% received mental health care during their pregnancy (Byatt et al., 2014). The impact of antenatal depression during hospitalization was further investigated in a 2019 study of hospitalized high-risk obstetric patients (Hermon et al., 2019). Among the 279 participants, 28.3% screened positive for depression on the EPDS. Maternal antenatal depression during hospitalization was noted as an independent risk factor for preterm delivery when controlling for maternal age, ethnicity, gestational diabetes mellitus, preeclampsia, past preterm delivery, and gestational age upon admission.

Development of a Behavioral Health Intervention

For women struggling with symptoms of perinatal depression or anxiety, evidence-based treatment options include psychotherapy, medication, or a combination (Cohen, 2006; Pearlstein, 2015; Sockol, 2015; Spinelli et al., 2016; Spinelli & Endicott, 2003). Despite the efficacy associated with psychopharmacotherapy, many women prefer to avoid medication during pregnancy due to concerns about potential fetal impacts (Dimidjian & Goodman, 2014). Existing studies of psychotherapy targeting mood and anxiety symptoms during pregnancy have typically focused on treatment delivered in an outpatient setting.

Studies focusing on intervention during hospitalization have tended to focus on complementary/alternative treatments, such as pet therapy (Lynch et al., 2014), music therapy (Yang et al., 2009), or relaxation/mind-body interventions (Jallo et al., 2017; Kao et al., 2019). To our knowledge, there are no randomized controlled trials examining the efficacy evidence-based psychotherapy for hospitalized women with a high-risk pregnancy. However, a small pilot study investigated the feasibility and acceptability of brief (7-day) acceptance-based therapy for five women hospitalized for PPROM. Tunnell et al. (2019) speculated that acceptance-based treatment would benefit women hospitalized for obstetric risk, as it may help them learn skills to respond flexibly, often with acceptance and compassion, to emotional and physical discomfort, as well as the uncertainty that is inherent in high-risk pregnancy. The authors found that the brief treatment was well-accepted but that attrition was unexpectedly high due to spontaneous delivery. Results on symptom improvement were mixed, given the short-term nature of the intervention, but investigators observed an increase in positive affect post-intervention (Tunnell et al., 2019).

Given the increased risk of depression and anxiety symptoms and the lack of accessible psychological treatments for women hospitalized during pregnancy, a care enhancement initiative was developed and implemented at a major U.S. academic medical center. The initiative was developed by a Department of Psychiatry psychologist employed at the hospital's outpatient perinatal mental health clinic in collaboration with the Department of Obstetrics and Gynecology, which reported over 400 antepartum admissions in 2020. This collaboration aimed to improve care for women coping with distress or experiencing mental health symptoms during antepartum hospitalization.

Methods

At the time of development, no formal mental health screening protocol was in place in the antepartum unit. Thus, we relied on OB providers to identify and refer women who might benefit from mental health care. Before implementation, the team agreed to focus on women likely to be hospitalized for a prolonged time instead of women admitted for potentially brief monitoring or likely to deliver soon. It was felt that a relatively longer stay would allow for better application of targeted mental health care interventions and increase the potential for improved outcomes.

Women referred to our service were all offered meetings with a provider (opt-in) and were also given the option to decline any aspect of the meeting (opt-out), maximizing patient autonomy. Interpreter

services and questionnaires in their preferred language were available for women who did not speak English but wished to access care. Following referral, women who chose to engage in our service met with the perinatal psychologist, who provided bedside care on the antepartum unit. Care included brief assessment and intervention. The assessment included a semi-structured clinical interview and completion of self-report measures of depressive and anxiety symptoms. The Patient Health Questionnaire –9 (PHQ-9; Kroenke et al., 2001) is a nine-item measure of depressive symptoms experienced in the past two weeks. Items are rated on a four-point scale (0-3) corresponding to frequency/duration of symptoms, including *not at all*, *several days*, *more than half the days*, and *nearly every day*. Total scores across all nine items range from 0 –27, and scores ≥ 10 are typically used to identify patients with probable depression. The PHQ-9 is available in several languages and has been validated in obstetric populations (Flynn et al., 2011). The Generalized Anxiety Disorder scale (GAD-7; Spitzer et al., 2006) is a seven-item self-report measure of anxiety symptoms that are most characteristic of generalized anxiety disorder. Like the PHQ-9, items are rated on a four-point scale (0-3) corresponding to frequency/duration of symptoms, including *not at all*, *several days*, *more than half the days*, and *nearly every day*. Severity of symptoms is determined by summing the total of responses, with total scores ranging from 0-21. Scores ≥ 10 typically identify patients who meet diagnostic criteria for clinical anxiety.

While traditional psychotherapy often involves multiple sessions lasting 45-60 minutes, delivered over a period of several weeks to months, interventions in this program were designed to be relatively brief, often delivered in 1-3 sessions, each lasting approximately 30 minutes. Therapeutic care included strategies and skills-building based upon evidence-based psychotherapeutic treatments (e.g., Interpersonal Psychotherapy, Cognitive Behavioral Therapy, Acceptance and Commitment Therapy). Strategies included normalization and validation, focusing on elements under personal control, accepting vs. reducing distress through mindfulness and present-moment focus, increasing values-based actions, and communicating needs to interpersonal supports. Basic behavioral strategies were integrated to improve mood and coping related to prolonged hospitalization. These included activity scheduling (e.g., engaging in pleasant events, taking brief walks unless activity was restricted), developing a routine, improving sleep hygiene, increasing light exposure, and bringing in comfort items from home. Information about outpatient clinic services and potential referrals were provided when relevant.

Our goals in evaluating this initiative included enhancing or optimizing future behavioral health care initiatives by reviewing strategies that worked well in the development and application of the intervention, examining relevant patient clinical and demographic characteristics, utilization of follow-up care after the initial health and behavior consult, and use of services throughout the duration of hospitalization and pregnancy. To this end, we conducted a retrospective medical chart review of women who participated in the intervention. The following variables were thought to be most pertinent to our quality improvement goals: age, ethnicity, marital status, distance between residence and hospital, parity, gravidity, weeks gestation at admission, gestational status (i.e., singleton vs. multiple), BMI at admission, reason for admission, length of stay, number of visits with the behavioral health team, substance use during pregnancy, history of mental health diagnosis and treatment, and scores on PHQ-9 and GAD-7.

Analyses

All statistical analyses were conducted in SPSS, version 27. Continuous variables were examined for normality, skewness, and kurtosis. Outliers were examined further to ensure data validity, and after verification, outliers were retained. Missing data were due to incomplete records in the electronic medical record, so we did not impute item-level missing data. First, descriptive characteristics of the sample were examined, including frequencies and metrics of central tendency. Second, we examined variables associated with clinic development, including prevalence of mental health concerns, time between admission and behavioral health intake, and the number of visits with the behavioral health provider.

A description of the project was submitted to the university Institutional Review Board, which determined that the project did not meet human subjects research criteria because it was designed as a quality improvement project to enhance patient care in a specific patient population and a specific unit.

Results

Descriptive characteristics of the sample were examined using frequencies, means, and standard deviations. See Table 1 for additional information regarding the sample's age, race, marital status, and obstetric characteristics. All women reported abstaining from alcohol during their pregnancy, though 25% reported using tobacco products, and approximately 15% reported drug use.

Though multiple presenting concerns may have contributed to admission, common physician-identified reasons for admission were preterm premature rupture of the membranes (PPROM; 36.4%), vaginal bleeding (13.6%), and hypertension or preeclampsia (18.2%). To further characterize the psychiatric history of the sample, frequencies of mental health diagnosis, counseling, medication, and hospitalization history are reported (see Table 2). In addition, depressive and anxiety symptom severity measures were completed during the hospitalization, and means are reported in Table 2. Most participants reported a mental health history, and though not all reported specific past diagnoses, the most common histories were mood and anxiety disorders. Frequencies of substance use in pregnancy are also reported in Table 2.

Program development information is particularly important to quality improvement efforts as the program is modified over time. An important contextual variable is that 70.5% of the sample was admitted after restrictions related to the COVID-19 pandemic were implemented. Restrictions varied over time, but examples include required face coverings, limited visitors, or required viral testing prior to admission. On average, there were 8.79 days (SD = 9.50) between date of admission and first consult. The median number of behavioral health visits was 1, with 52.4% of the sample being seen once, 28.6% being seen twice, and 19% being seen three or more times. Further, the average length of hospitalization was 24.19 days (SD = 16.15). Ten (22.8%) of the patients were readmitted during pregnancy. The average days between admission and delivery date was 85.44 (SD = 33.72).

Discussion

This innovative behavioral health intervention was designed to better identify and increase treatment access for women at high risk of developing depression and anxiety during antenatal hospitalization or following delivery/discharge. Based on this initiative, we conclude that a brief behavioral health assessment and intervention is a feasible approach to identify and intervene with hospitalized women at high risk for mood and anxiety symptoms. However, significant investment from various stakeholders was required to successfully launch the program. This endeavor began with an informal needs assessment led by an OB/GYN hospitalist who reviewed census numbers and clinical data to determine whether a need for the intervention existed. Departmental administration approved the psychologist's request to devote time to initiative development, hospital information technology personnel created protocols in the electronic health record system to manage triage and care documentation, and clinic and unit leaders advocated and

supported the implementation of the service. Once the service was available, clear communication between all involved parties was vital, including the psychologist, OB care team (the referring OB hospitalist or resident physicians), and patients. Communication typically involved discussing patient needs, coordinating visit timing to accommodate patient monitoring and care, optimizing the psychologist's outpatient schedule, and more.

Basic demographic characteristics of women referred to the intervention were not remarkable given that this sample was collected from a large academic medical center in a largely rural midwestern state with limited racial diversity (approximately 90% White, based on 2021 US Census Bureau data: www.census.gov/quickfacts/IA). Rates of substance use in our sample were slightly higher than average national usage rates: approximately 5% of pregnant women reported using one or more addictive substances, including tobacco, alcohol, or illicit substances (NIDA, 2021). On average, women who participated in the intervention and completed self-report questionnaires experienced mildly or moderately elevated symptoms of depression and anxiety at the time of assessment; nearly one-third (29.5%) reported elevated depression, and nearly half (47.7%) reported elevated anxiety. Although these data were collected in a clinical context and not as part of a screening study, they align with the existing literature. Other studies have reported rates of depressive symptoms ranging from 12.5-44.2% (Brandon et al., 2008; Byatt et al., 2014; Hermon et al., 2019; Tsakiridis et al., 2019) and rates of elevated anxiety symptoms ranging from 13-66% (Barber & Starkey, 2015; Byatt et al., 2014; Nagle-Yang et al., 2019) among women hospitalized during pregnancy.

Several factors may have contributed to the prevalence of depressive and anxiety symptoms observed in this sample. Over two-thirds (68.3%) of women referred to the behavioral health intervention had a prior mental health history (diagnosis and treatment), and a quarter had a history of psychiatric hospitalization. Given that women with a history of mood symptoms are at high risk for elevated symptoms during pregnancy (Lancaster et al., 2010), we expect symptoms to be high in this group of women. Byatt et al. (2014) reported similar findings, in which past mental health diagnoses predicted depression and anxiety symptoms at the initial survey (Byatt et al., 2014). Prior studies have also demonstrated that women experience significant stress related to hospitalization (Waldron & Asayama, 1985; White & Ritchie, 1984), likely further increasing the risk of depressive and anxiety symptoms. Isolation/loss of access to social support was likely a significant factor in this sample, with women's places of residence being, on average, over 60 miles from the hospital. The ongoing COVID-19 pandemic may have

further exacerbated this loss of support. Over 70% of the sample was hospitalized following the start of the pandemic, during which visitor restrictions further prevented or restricted access to support persons.

Limitations and Future Directions

The extent to which brief behavioral health or psychotherapeutic intervention may buffer pregnant women from potential adverse outcomes remains an understudied area. This care initiative illuminates the importance of this work and leads to several questions and areas for further investigation. Several limitations are also worth noting.

Due to reliance on OB providers to identify and refer women to the intervention, our sample may reflect a subgroup experiencing particularly high distress. Because there was no screening protocol guiding referral, there are no comparative data regarding general symptom prevalence rates for the antepartum unit. Nonetheless, whether the sample is representative of all pregnant women hospitalized on the unit or merely represents a highly selected segment of patients, the results point to prenatal hospitalization as an opportunity to screen women for depressive or anxiety symptoms that may otherwise go undetected.

Similarly, because this intervention was a quality improvement initiative delivered in a clinical context, there are no data comparing number of women offered to those who accepted a referral to the service. Moving forward, additional data pertaining to feasibility, acceptability, and engagement will be important components of program development and evaluation. Over 75% of the sample received only one or two behavioral health visits, either because women declined additional follow-up (often because they felt better as a result of the first or second meeting) or because they were discharged or delivered before the next scheduled visit. As a result, no quantitative data are available to determine the extent to which the intervention resulted in a reduction in symptoms or what the natural course of symptoms might be during hospitalization, with or without intervention. As has been observed in other studies (Tunnell et al., 2019), natural attrition due to delivery and discharge will likely continue to complicate the collection of follow-up data in this population, making it more challenging to determine the efficacy and effectiveness of treatments.

Behavioral health resources are often limited in the inpatient setting due to the availability of providers, time, or cost of services. In these circumstances, it may be ideal to target a specific subset of hospitalized women such as those with anticipated extended stays, elevated scores on screening tools, or a history of mental health concerns. The personnel

cost may also need to be subsidized by the department and grant funding. Additionally, because a single perinatal psychologist delivered the behavioral health intervention, absences due to illness, holidays, or external clinic needs often caused a delay or pause in service availability. If the volume of the service were to increase substantially, further development of a team/alternate coverage would likely be needed, along with funding for such expansion.

Likewise, whether this specific intervention is best suited for the target population remains unclear. The intervention described in this paper was delivered in a naturalistic setting. It was not manualized but drawn from therapies previously shown to be efficacious for perinatal mood or anxiety symptoms. Although it could likely be further specified/operationalized, the point was to be flexible and match treatment to patient needs. Given that only one psychologist provided treatment, the perceived helpfulness of the intervention may have been related to therapist factors or characteristics. As such, including multiple therapists/providers in future investigations would be important. Other interventions showing initial effectiveness, such as relaxation or mind-body interventions (Jallo et al., 2017; Kao et al., 2019), pet therapy (Lynch et al., 2014), peer support, or internet- or application-based interventions (Goetz et al., 2020; Jallo et al., 2017) may be preferred and used on a wider scale.

Conclusion

The childbearing years represent a period of high risk for mood and anxiety disorders (Fawcett et al., 2019; Gavin et al., 2005; Maternal Mental Health Leadership Alliance, 2020). Women with medically high-risk pregnancies may be at even greater risk for depression and anxiety symptoms (Brandon et al., 2008; Byatt et al., 2014; Tsakiridis et al., 2019), and in turn, patients who experience depression or anxiety during pregnancy are at increased risk for pregnancy complications and adverse birth outcomes (Grigoriadis et al., 2013; Kurki et al., 2000; Misri et al., 2004; Ritchie-Ewing et al., 2019; Smorti et al., 2019; Staneva et al., 2015; Uguz et al., 2019; Ystrom, 2012). Women hospitalized during pregnancy are under high stress yet are frequently unable to access mental health care. Women with a prior history of mental health concerns likely face an increased risk for recurrence during this stressful time. Early identification and treatment of mood symptoms in women hospitalized before delivery is vital. Although outcome data are not available, this initiative demonstrated that brief behavioral health assessment and intervention are feasible when flexibly applied, even by a single clinician, in an inpatient setting. Data from this care enhancement

initiative also represent a call to action, encouraging providers to identify and intervene (when appropriate treatment is available) with hospitalized women who are likely to be experiencing elevated depressive or anxiety symptoms during pregnancy. Although further data on feasibility, acceptability, and efficacy is needed, offering on-site, brief evidence-based interventions such as the one described in this paper may ultimately reduce the burden of mood symptoms for hospitalized pregnant patients.

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Table 1

Descriptive characteristics of the clinical sample

Variable	**M(SD)**
Maternal age	29.52 (6.02)
Weeks gestation	27.32 (4.63)
Gravidity	3.23 (3.15)
Distance from hospital (miles)	66.09 (38.64)
BMI at admission	33.11 (9.48)
	N (%)
Race	
White	32 (72.7%)
Black	7 (15.9%)
Latinx	3 (6.8%)
Other	2 (4.5%)
Married or partnered	22 (50%)
Singleton pregnancy	35 (79.5%)
Obstetric Outcome	
Vaginal delivery	9 (20.5%)
Cesarean section delivery	33 (75%)
Unknown	2 (4.5%)

**Note.* BMI = Body mass index.

Table 2

Mental health and substance use characteristics of the sample

Variable	n (%)
Mental health history, n = 41	28 (68.3%)
Mood disorder history, n = 30	25 (83.3%)
Anxiety disorder history, n = 30	18 (60%)
Counseling history, n = 42	27 (64.3%)
Psychotropic medication history, n = 41	28 (68.3%)
Psychiatric hospitalization history, n = 36	11 (25%)
Perinatal alcohol use, n = 33	0 (0%)
Perinatal nicotine use, n = 35	11 (25%)
Perinatal illicit drug use, n = 33	5 (15.2%)
	M(SD)
Depressive symptoms	7.92 (4.38)
PHQ-9 Severity Range, n(%)	
None (0-4)	10 (22.7%)
Mild (5-9)	13 (29.5%)
Moderate (10-14)	11 (25%)
Moderately Severe (15-19)	2 (4.5%)
Severe (≥ 20)	0 (0%)
Missing PHQ-9	8 (18.2%)
Anxiety symptoms	10.89 (5.74)
GAD-7 Severity Range, n(%)	
None (0-4)	8 (22.2%)
Mild (5-9)	7 (15.9%)
Moderate (10-14)	7 (15.9%)
Severe (≥ 15)	14 (31.8%)
Missing GAD-7	8 (18.2%)

**Note.* Depressive symptoms were measured by the Patient Health Questionnaire – 9. Anxiety symptoms were measured by the Generalized Anxiety Disorder – 7.

Childbirth and COVID-19 Lockdown: Bunkering Down and Getting to Be a Family

Dr. Lynne McCormack, Claudia Lawson, Emily Magee

Abstract: Little is known of subjective experiences of birthing during the first-phase SARS-CoV-2 (COVID-19) lockdown. Semi-structured interviews explored birthing experiences, returning home, and perceived mother-infant bonds overlaid by COVID-19 restrictions. Interpretative phenomenological analysis revealed two superordinate themes from the data: 1) COVID lockdown and childbirth, and 2) Growth and connection. Rich data sets highlighted a deep sense of fear, loss, isolation, and hypervigilance associated with life threats, disrupted medical care, and banned familial support for participants. Conversely, the lockdown provided recovery and bonding opportunities within the immediate family unit, uninterrupted by visitors. Additionally, vulnerable birthing populations, including first nation peoples, need prioritizing during crises.

Keywords: COVID-19, childbirth, mother-infant bond, posttraumatic growth, interpretative phenomenological analysis (IPA)

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Introduction

In response to the arrival of the SARS-CoV-2 (COVID-19) pandemic in 2020, the world entered an almost simultaneous lockdown, impacting the experience of childbirth for millions of people worldwide. How this has influenced short- and long-term psychological well-being, mothering, intimate relationships, and particularly a mother's relationship with their baby, is unknown. Waldenström and colleagues (1996) described childbirth as a multidimensional phenomenon inclusive of experience of control, support during labor, anxiety, childbirth classes, and expectations. This interpretative phenomenological study explored both positive and negative lived experiences of giving birth to a live baby during the COVID-19 pandemic lockdown. Specifically, it sought to understand the psychosocial impact of limited support from an intimate other and immediate family in the immediate birth-giving period, sense of safety during delivery of their baby, post-delivery days in the hospital, and post-discharge period of isolation while in lockdown at home.

Antenatal classes are one component that offers both education and the opportunity for vital friendships with fellow expectant mothers (Beaton & Gupton, 1990). Antenatal classes have provided a space to prepare for childbirth processes and post-birth milestones, including breastfeeding, handling a newborn, and navigating the experience of being at home with a newborn. This process allows parents to alleviate anxieties by expressing concerns to primary caregivers who can equip them with tools and strategies (Barimani et al., 2018) through the unique bond formed via the shared experience with other expectant women (Nolan et al., 2012).

In addition, hospital tours, partner support in antenatal care and during delivery, and the post-delivery support offered by friends and family have become accepted as fundamental components of the childbirth rituals in the Western world. Research suggests that these social supports are protective factors against negative outcomes during the birthing phase (Zamani et al., 2019) and postnatally (Leahy-Warren et al., 2012).

Almost overnight, the COVID-19 pandemic abruptly restricted many of these practices and rituals. The medical industry scrambled globally to develop policies and procedures allowing medical care to continue while protecting patients and staff from the virus consuming the population. Future research will reveal the positive and negative impacts of this modern pandemic, including child development and cultural implications following the streamlining of services to accommodate safety. An early systematic review conducted by Hessami et al. (2020) demonstrated a

significantly increased risk for anxiety among pregnant women during COVID-19, a population at high risk of psychological distress (Peltzer et al., 2014). Pre-pandemic, Indigenous communities within Australia benefitted from outreach, home visits, and transport supports to promote better outcomes pre- and post-natally (Jongen et al., 2014). Disturbingly, Gildner and Thayer (2020) found that women who resembled first nation women in the United States of America during COVID-19 were separated from their newborns at birth if mothers were under investigation for COVID-19. Loss of services, prejudice, and biases are all potentially traumatic experiences confronting many mothers during their babies' birth in times of disaster and crises. With government restrictions in place and changing, Indigenous and ethnic minority mothers worldwide are likely disproportionally impacted during the lockdown.

In Australia, despite the nation having a lower rate per head of population of the virus than other parts of the world initially, hospitals variably converted the majority of antenatal care to telehealth forums with uncertainty around appointments that remained face-to-face (Bradfield et al., 2021). Many birthing classes were converted to online webinars, erasing the hands-on approach to educating a birthing partner on supporting a laboring woman (Bradfield et al., 2021).

Early research on pregnancy and childbirth during the COVID-19 pandemic has focused on the medical implications and mitigating the risk of women and their babies contracting coronavirus, including limiting skin-to-skin contact for mothers infected with COVID-19 and allowing only one support person for the duration of the hospital stay (Trapani Júnior et al., 2020). Similarly, reduced antenatal visits for low-risk women, early separation post-birth for mothers who tested positive for COVID-19, and bottle-feeding for newborns, have been put in place (Asadi et al., 2020). At the writing of this paper, there is no comprehensive research illuminating birthing mothers' psychological well-being as a direct consequence of childbirth during a COVID-19 lockdown.

Many restrictions experienced by many birthing mothers during COVID-19 potentially interrupt the mother-infant bond (Winston & Chicot, 2016), particularly if factors such as low moods and other anxiety-related distress occur during pregnancy and postpartum in the mother (Ohoka et al., 2014). Unfortunately, emotionally unavailable mothers often experience transference of interpretation and describe their child as invasive, having a difficult temperament, and the mother-infant attachment to be of lesser quality than anticipated. This phenomenon has been described particularly by mothers diagnosed with posttraumatic stress disorder (PTSD) (Davies et al., 2014).

Schematic changes following traumatic events that shatter our interpretations of the world are underpinned by Assumptive Worlds

Theory (Janoff-Bulman, 1989) and Existential Crisis Theory (Yalum, 1980). In trying to redefine our world posttrauma, there is a period of struggle to make sense of events, particularly those that threaten death, freedom, or bring isolation and meaninglessness with substantial mental health decline and a disconnect from self, relationships, and social functioning (Janoff-Bulman, 1989; Yalum, 1980). In the context of the current research, women will likely hold schemas surrounding the process of the childbirth experience that have been shattered by COVID-19 lockdown experiences. Therefore, it is feasible that the pandemic and COVID-19 lockdown may have impacted women's experience of giving birth in subsequent relationships with themselves, others, and their newborns.

Fortunately, the cognitive struggle to make sense of adversity (Tedeschi & Calhoun, 1996; Joseph, 2012) through the individuals' journey to process and integrate the new reality overriding their former schema can precipitate posttraumatic growth. Five major domains of posttraumatic growth have been described: greater life appreciation and shifted priorities, more intimate relationships, increased sense of personal strength, consideration for new directions and possibilities, and spiritual development (Joseph, 2012; Tedeschi & Calhoun, 1996).

The current study explored women's unique lived experience of childbirth and the delivery of a live baby during the first lockdown period for COVID-19 in Australia. The researchers used Interpretative phenomenological analysis (IPA) to explore participants' positive and negative perspectives and interpretations of their birthing experience during the first COVID-19 lockdown in 2020. The divergent and convergent themes can inform future research and models of care during lockdowns.

Method, Design, & Epistemology

Interpretative phenomenological studies explore complex phenomena and spotlight focal points in the phenomenon of interest (Stutterheim & Ratcliffe, 2021). Phenomenology seeks an idiographic interpretation of experience, specifically human experience. Husserl argues that "experience should be examined in the way that it occurs" (in Smith et al., 2009, p.12). IPA is underpinned by phenomenology using a double hermeneutic to reiteratively seek clarification of the intended meaning. Collectively, the theory of symbolic interactionism draws these philosophies and theories together, providing the platform for the personal and social worlds of the researcher and the researched to connect through dialect, images, sense, and inferences in reiterative reflection (Denzin, 1995; Denzin & Lincoln, 2011).

Analytic Strategy

IPA draws from a homogenous population via purposive sampling. Through semi-structured interviews, a funneling technique allows prompts to emerge, eliciting general to

more specific responses (Smith, 1996). Patterns or connections between diverse and converse themes are also identified (Smith, 1996), with some emerging as superordinate concepts (Smith, 1996). The researchers are bound by strict protocols that ensure the bracketing of biases and presuppositions. The raw data is referenced throughout this process to substantiate the findings (Smith, 2008). The interactive nature of this data retrieval method occurs through the double hermeneutic, with the researcher striving to make sense of the participant's efforts to make sense of their experience (see Table 2).

Participants

Following approval from the University Human Ethics Committee, participants were recruited by the second author via purposive sampling at primary practice clinics, mother's groups, and relevant social media groups. Potential participants were provided with Study Information, a consent form, and a demographic questionnaire if they met the criteria, i.e., were females over 18 years of age who had given birth to a live child in an Australian hospital during a COVID-19 lockdown. Excluded from the study were females who had delivered home birth or had adverse outcomes, e.g., stillbirth, or women who fell outside the recognized dates for lockdown. A total of six participants provided consent. Three were first-time mothers (primiparous), while three had given birth previously (multiparous; see Table 1).

Table 1

Participant Demographics

Name	Age	Hospital Arrival	Parity*	Gestation weeks/days	Delivery Mode and by who
Victoria	Under 35	Husband	Primiparous	42/0	Caesarean, Obstetrician
Cassie	Under 35	Husband	Multiparous	38/0	Vaginal, Midwife
Fiona	Under 35	Husband	Primiparous	39/1	Caesarean, Obstetrician
Olivia	Under 35	Partner	Multiparous	39/5	Vaginal, Obstetrician
Loralie	Under 35	Partner	Primiparous	35/0	Caesarean, Obstetrician
Mallory	Over 35	Ambulance	Multiparous	36/0	Caesarean, Obstetrician

Procedure

Interviews were then arranged and conducted by the first author face-to-face or via Zoom conference, depending on current COVID-19 restrictions. The primary material used for data collection was the semi-structured interview questionnaire developed by the third author to facilitate the funneling protocols of IPA in line with the present study's key objectives. Per IPA practice, participants were provided a semi-structured interview one day before the interview to allow for reflective preparation (Smith, 1996). Confidentiality was assured, and the interview duration for each participant ranged from 32:35 to 54:54 (min:sec), exploring positive and negative interpretations of participants' experiences of giving birth during the COVID-19 global pandemic. Interviews were recorded via an audio device for face-to-face settings and through the online software Zoom for remote interviews dictated by COVID-19 lockdown requirements. All interviews were transcribed verbatim, and recorded data was erased on completion of transcription. It was then de-identified with pseudonyms and stored according to the university's privacy rules.

Participants were reminded before the interview that they could take a break or withdraw their consent from participation at any point during the interview. Participants were provided with local support services details for their use should they experience any post-interview distress. Unlike positivist-nomothetic research, the methodology of choice, IPA, is not constrained by hypotheses or cause-and-effect testing. Instead, data obtained from the interviews were analyzed to draw subjective meanings from personal lived experiences of childbirth through IPA methodology.

The second and third authors independently analyzed the data before conducting robust joint analysis to identify the notable themes which emerged from the datasets (See Table 2). The first author audited the findings.

Credibility

Spinelli (2005) details three overlapping elements of effective experiential interpretation: 1) to effectively receive the data in its pure form, the researchers must bracket any existing biases and preconceived notions of what might emerge from the data; 2) the rule of description encourages a point of focus on "immediate and concrete impressions" rather than referring to theories and hypotheses (p.20); 3) any emerging themes within the data are to be treated as equal, with no degree of hierarchy—referred to as the equalization rule. In conjunction with applying these rules, the authors worked independently and collectively to robustly consider joint thematic outcomes while being conscious of bias influence.

Table 2

Systematic data analysis (Smith et al., 2009).

Step	Process
1. **Initial note taking**	Examination of the semantic and language identifies initial description of experience and further reflection.
2. **Developing emergent themes**	Identification of emergent themes is developed from the interrelationships, connections, and patterns.
3. **Quality**	Auditing through simultaneous and independent checking maintains quality control. The first author's assessment of authenticity and thematic representation brackets out any biases and presuppositions from the second author's interpretation. Emergent themes are arrived at via robust author discussion and analysis with strict adherence to the philosophical principles of IPA. Whilst multiple genuine themes are possible a detailed audit trail negates the included a convergent and divergent themes through a credible and systematic analysis of the phenomenon.
4. **Searching for connections across emergent themes**	Conceptualisation of the emergent themes assembles superordinate clustered themes that are mapped via graphical tabling.
5. **Moving to next case**	Each transcript undergoes the previous step.
6. **Looking for patterns across cases**	The tables of superordinate themes and the initial emergent themes from each transcript are compared for connections and patterns. The collective connections are then tabled and the superordinate themes are nested within to capture participant's most important perception. These processes continue throughout the write-up of the results.

Authors' Perspectives

The first author is a medical practitioner who completed her student Obstetrics training during the 2020 COVID-19 lockdown; the second author is a postgraduate psychology graduate interested in maternal childbirth experiences under stressful situations. The third author, a clinical psychologist, former midwife, and academic, underpins her research at the interface of complex trauma and posttraumatic growth. All researchers have a lived experience of childbirth and recognize that they differentially bring personal biases and strength to the reflections and interpretations of this study. Thus, neutrality and objectivity were at the forefront of their collaboration, particularly during the analysis and write-up.

Results

One superordinate theme: COVID-19 lockdown and childbirth, overarch four subordinate themes: ambiguous ruling, permeating fear and loss, peaceful reprieve, and future fears. A second superordinate theme: Growth and connection, reveals two subordinate themes: Family dynamics and Growth through adversity. These themes seek to make sense of the interpreted experiences of mothers who gave birth to live infants during Australia's COVID-19 lockdown in 2020. Given the unprecedented nature of the viral outbreak beginning in early 2020, *ambiguous ruling* highlights the disparity between expectation and the reality of various aspects of childbirth during the lockdown, triggering feelings of uncertainty and anxiety. The subsequent implementation of protective measures and restrictions leaves these participants not knowing "hour to hour, day to day if my husband was even going to be there for the birth of his child." A sense of *permeating fear and loss* on the expected family welcome for their new baby is juxtaposed with *peaceful reprieve*, where restorative healing from the physical, and a sometimes-complicated delivery, affords them valuable and uninterrupted opportunities to connect with the newest member of their families. However, uncertainty and sadness meander through these interpretative narratives as the COVID-19 pandemic threatens changes, and risks for their child and their expected birth experience are overtaken by the necessity for the greater good.

Personal growth from the need to resource self and redefine their dependence on others brings trust in self-reliance. Despite feeling fear, distress, and intense aloneness, these participants report moments of heightened satisfaction, a new sense of purpose, and gratitude that

emerged from the unexpected opportunities and warmth in joining with professionals also caught in the uncertainty of COVID-19 restrictions. Importantly, transgenerational relationships, particularly the value of the larger family network and a sense of doing it differently with their own mothers, are recognized for moving forward in their mother/child relationship with greater independence and maturity.

Ambiguous Ruling

This theme highlights the persistent uncertainty the participants felt as they journey into the unknown of a global pandemic at the later stages of pregnancy. As the pandemic lockdown set in, they gave birth to their child, and a blunt chaotic barrier descended to the usual family support in the aftermath of delivery and homecoming. Participants reflected on being prepared for all possibilities, often ambiguous restrictions, and trying to navigate the constantly changing support, medical care, and visitation following the birth of a child. "I didn't have anything planned about how long I would be in hospital for" (Olivia).

The abrupt introduction of rules and restrictions around healthcare left expectant mothers feeling anxious and confused. They spoke of having appointments canceled, "yet you were still able to go to the movies and sit next to a stranger!" Ever-changing rules and restrictions increased stress for these mothers as they tried to plan for the birth of their children. Current, reliable information was hard to come by, and the changes caused great angst: "It's difficult because those rules were changing all the time…even week to week, you wouldn't quite know what was going to happen the following week" (Loralie).

This uncertainty was shared among expectant women and the medical staff. "No one was confident enough in giving us a recommendation" demonstrates midwives' challenges in delivering advice to put mothers at ease. "I think if we had gotten clearer information, it might have helped settle our nerves" (Cassie).

For one mother, the logistics of having her firstborn cared for while she was in delivering her second left her feeling as though she was breaching regulations and putting her loved ones at risk "because we were about to come home from a hospital." "You sort of felt like you were asking to go against health advice just because we needed to have a baby" (Olivia).

Permeating fear and loss

This theme highlights the widespread sense of loss women experienced from the restrictions in place at the time of their child's birth.

It recognizes the longing for the shared experience, the moments they will never get back, and the chance to fulfill rituals. In the antenatal phase, many women reported missing having their partner present as a support during their appointments, "even right at the end." "I get it, but it was still a bit disappointing, especially for a first baby" (Fiona).

Logistics hung heavily on those who have family abroad: "we couldn't introduce them, and we still are at a point where you know she's almost one and a half now, and I don't know when we'll be able to go over there." "My family is in America…I'm never gonna have a photo of my parents and her as a baby" (Victoria).

The joy of introducing a new baby to loved ones was hampered by restrictions on visitation, eliminating gestures of "flowers and cards and wishing well." Family rituals that begin with older siblings were stopped. "I felt like my second son just didn't get the welcome into the world" (Cassie).

Four of the six participants required cesarean sections. Emergency arrivals and deliveries presented unique challenges in the face of fear. As a crisis unfolded for Mallory, she becomes alert to her increasingly frantic paramedic trying to navigate through those lined up for COVID-19 checks at the entrance to the hospital—"this is probably not great if he's starting to get flustered." In the absence of a chosen support person, the small gestures of medical staff were welcomed to alleviate some of the fears associated with her growing obstetric emergency and doing it alone amid the chaos of a worldwide pandemic. "They were amazing…she stayed and held my hand…so she was awesome" (Mallory).

However, reflecting on her postnatal care, Mallory recognized her Aboriginal identity and cultural needs as "the big thing that they missed," recalling, "they didn't offer me any support from the Aboriginal maternity services." Reflecting on how normal protocols and sensitivities had gone awry in the panic of COVID-19, she mused about the potential vulnerability of other moms needing cultural support, "I think they should be asking everyone" (Mallory).

Peaceful Reprieve

Despite some negative aspects of the implications of the lockdown, the absence of visitors brought unexpected relief to new mothers. These participants echoed the restorative nature of the peace and quiet, expressing how good it felt not to need to "get up and get changed for people to come and visit. I didn't have to think about who's coming when." "I was so relaxed, and I didn't get the baby blues at all" (Mallory).

Hindsight from previous pregnancies revealed that the absence of the guests meant "I didn't have to care about our house being untidy, the dishes not being done." There was great comfort in not having to repeat the ritual with visitors that occurred following the birth of her first child. "Though I loved it, it was just emotionally draining to host all the time" (Olivia).

Having uninterrupted time in the early stages with a baby allowed for invaluable moments as a new family unit, "getting to know him before we kind of introduced him to everyone else." "I think it gave more time to kind of establish feeding and, um, kind of have a bit of us time" (Loralie).

Future Fears

While the childbirth experience passed, the anxiety associated with COVID-19 was still very real, and the future was still obscured with uncertainty. Women reported concerns for their future family plans, what their child's life might look like, and the emotional anguish of unmade plans as their children "come into this world at a time where life is a lot different." "I was thinking more about my sons' futures, and you know, would they get to experience that…like, 'how is the world gonna change from COVID? How will that affect my boys?'" (Olivia).

As society continued to traverse through the evolving COVID-19 world, the participants expressed sadness and uncertainty about what life will be like for their children. "I really, really desire this life for my son that was more carefree and laidback, not so rule-driven and risk minimization-driven" (Mallory). Making plans for events like birthdays or preparing for a holiday to visit family was now made with guarded enthusiasm. "You're living in a world where you're never gonna know if it's going to be able to go ahead, or if anything's gonna change day to day" (Cassie).

The uncertainty of when life would return to normal and allow passage to our distant loved ones had significant implications for one mother. The emotional toll of not having her family around for her first baby strongly influenced her planning for more children. "Knowing I'd have two babies that weren't going to be able to meet my family…I don't know if I'd be able to emotionally handle it twice" (Victoria).

Family Dynamics

In these circumstances, where regular support from friends and family was unavailable, this theme highlights the value of the mother/daughter relationship, the development of trust in each other, and the importance of confidence in the role of a mother.

Without the extra hands available to support in the early days after birth, "I had to rely on Cameron much more than what I probably would have otherwise because we were the only two people that were allowed to see him." With many fathers also at home in lockdown, engaging and expediting the father role in those early days was valued by Loralie. "So he was, I suppose, really independent with him, really early on…it sort of let me learn to trust him with those things, quicker than otherwise."

The distance from her own mother during the major life event of becoming a mother herself is a particularly poignant experience for one participant. Not only did she long for her mom to be with her, but musings on the importance of the relationship between grandmother and grandchild also emerged:

> It's definitely something that's important [relationship with grandparents], and you know you need to make that a priority in life, but I think we already felt that way. Like, I think we already knew that was gonna be a big thing because I'm very close with my family. (Victoria)

Birthing through COVID-19 presented a safe space "to stand my ground" in the journey to establishing a voice and identity as a mom. For one participant, the supportive nature of restrictions unexpectedly presented the space for her to claim independence as a mother. Having to go it alone, Olivia recognized her tendency to acquiesce to the experience of her mother. Time to reflect and manage alone brought new courage and conviction to redefine her relationship with her mother. As such, it also gave her confidence to take the reins more permanently in the parenting journey with her children:

> For me, it meant, like, bunkering down and getting to be a family and, um, know my baby a bit better and trusting myself and my own decisions and my own choices and being able to put up boundaries for my family. (Olivia)

Growth through Adversity

The peculiarity and uniqueness of the adverse circumstances surrounding giving birth during the COVID-19 lockdown unexpectedly brought time for purposeful rumination and positive change for these participants. Rejecting the negativity, fear, and uncertainty was a rejection of how "the media can just hammer into us how negative the situation was."

They welcomed the opportunity to use the experience to provide support and a different perspective to other mothers, given that "there was a lot of things out there about how bad this time is for new mothers." The shared experience and a shift in attitude presented the opportunity to offer solace to others. "It felt nice to be able to share a different light…just trying to help them see how some of those things can have that positive spin" (Olivia).

The uncertainty of the future and limited freedoms experienced during periods of lockdown offered an invaluable shift in perspective, finding a greater sense of satisfaction in simpler things. "Some of the material stuff doesn't really hold that much value for me anymore, like, it's more around, as long as my kids are safe, I'm okay. And, that's all that really matters" (Mallory).

From the individual level to overarching bodies that lay out the rules, each participant spoke of positive change within themselves and their view of the world. While some of the broader impacts of their birth experiences were less desirable, a sense of achievement and strength in integrating this unknown journey into the bigger picture permeated these narratives. "It makes me, um, I suppose appreciate, um, what we went through…I think it probably made Marcus and I more of a team…I'm kind of proud of how we managed it" (Loralie).

Sharing the homecoming with fathers, also in lockdown, lightened the load and negated the necessity for extended family support as fathers "got to be there…usually he would have gone back to work after three weeks." There was a sense of contentment and sharing a cocoon, previously not experienced, "a really nice way of having that time as a little family, get to know each other as a little family of four," permitting mothers to retrospectively consider what they truly desire. "In hindsight, maybe I didn't want visitors, just for the sake of not wanting visitors" (Olivia).

These reflections revealed the comforts that restrictions offered new parents and the alliance which formed between patients and professionals as it was "the health care professionals who gave that advice." Following professional directives alleviated the pressure to meet the expectations of others; they could say "no." "Before, I feel like people would have been like, 'Aw, come on, it'll be alright'" (Fiona).

Discussion

The two superordinate themes: lockdown and childbirth, and growth and connection, overarched the findings of this interpretative phenomenological study. First, anxiety was manifest in the prenatal, delivery, and early stages of life with a newborn as a result of perpetual rule changes, restricted social support, and uncertainty for the future

related to COVID-19. Second, anxiety was lessened by the unexpected pleasure of spending time as a new family unit without interruption from others. Additionally, they highlighted other positive outcomes, such as well-being in their relationships and an intrinsic recognition of their strength to be independent as mothers. Within the first subordinate theme, *Ambiguous Ruling*, participants found themselves navigating antenatal care alone and feared the absence of a support partner during birth, contrary to pre-COVID-19 practices and the beneficial values of having a support person present both in the prenatal phase, during delivery and postpartum (Bjelica et al., 2018; Dunkel-Schetter et al., 1996; McLeish & Redshaw, 2017).

Furthermore, the participants sensed that staff were not confident in providing reassurances or advice to address their concerns despite recent findings that medical staff were satisfied with their ability to provide timely and informative updates (Bradfield et al., 2021). Similarly, social distancing and stay-at-home rules made for logistic disruption for mothers with older children at home. Cassie recalled the convoluted shift in the family structure required to guarantee care for her eldest son, a sentiment shared by Olivia, whose needs also seemed to go against public health protocol.

Permeating Fear and Loss captures the sense of sadness felt by participants as they ruminated on what was missing from their experience. As with recent findings (Meaney et al., 2021), COVID-19 changes influenced the severity of stressors. Cassie mourned the welcome she had envisioned for her second son, while Victoria and Mallory sensed aloneness without family by their side, particularly during a life-threatening emergency for Mallory. Further, the valuable information for fathers who attend antenatal appointments (Forbes et al., 2021) and the support they provide during labor and childbirth has been shown to have profound benefits for the welfare of the mother and the child, including reduced intervention and better outcomes on initial newborn assessments (Bohren et al., 2017).

A welcome contrast to the confusion, loss, and fears was the *Peaceful Reprieve* permitted in the absence of visiting guests upon returning home. All participants expressed gratitude for the peace and quiet of settling in as a family with no expectations or unannounced visitors. Described as having a positive mental and physical impact on recovery, Mallory reported no baby blues, and Loralie appreciated the time to develop breastfeeding skills. Pre-COVID-19 literature highlighted the disadvantageous outcomes for women who did not permit themselves sufficient rest and recovery post-birth, largely attributed to physical and emotional fatigue (Kurth et al., 2010). Further, without time for bonding during the early stages of infanthood, positive social and emotional

outcomes for the child, and the associated psychological welfare of the mother, are at risk (Spinner, 1978). These participants valued less disruption as a protective barrier against stress and anxiety, giving them time to recover and focus on bonding with intimate family members—"there's some things I think we could use and learn from (the restrictions of COVID-19) and keep in place."

However, participants expressed sadness for the missed milestones and continued to be missed moving forward in a world with COVID-19. *Future fears* encapsulated the various concerns, including interactions with loved ones overseas and the uncertainty of what life would look like for their children as they grow up. At the time of this research, the impact of COVID-19 was still causing concern and interfering with global movement. Therefore, with no vaccinations imminent, these participants began their early parenting alone at home.

A consequence of social distancing and lockdown shifted *Family dynamics*. The support network of these new mothers was suddenly condensed to, more often, a partner or parent. For those quarantined with the other parent, the paternal role was able to feature more prominently in the early stages of the baby's life. Shapiro et al. (2020) reported increased satisfaction in both parents of newborns when the father's role complimented the mother's workload. They also found links between paternal involvement and a mother's perception of support. For others, time alone allowed for the mother/daughter role to be reflected upon and redefined. For example, while Victoria mourned her mother's absence in her daughter's life, Olivia found the confidence to seek her own maternal voice. Literature supports the value of grandparents being present with grandchildren and, equally, the importance of independence for new parents (Breheny et al., 2013).

Growth through adversity came through redefining important values and priorities during the COVID-19 lockdown. Finding the voice to say "no" to meeting the needs of others, reclaiming intrinsic values in family wellness, and seeking purpose in offering support to others, were interpreted as positive changes in themselves. In particular, from each participant's unique journey, elements of posttraumatic growth emerged: a reduced value in materialistic items, stronger bonds and collaboration with their partners, and positive restructure in broader family relationships; a greater sense of strength and achievement; a sense of purpose found in providing support to other pregnant women facing fears and uncertainties; and particularly for Mallory, a resilient and supportive relationship with ancestral and spiritual connections (Tedeschi & Calhoun, 1996). Despite potentially traumatic responses to a worldwide pandemic, these self-identified strides in growth domains amplified positive outcomes for these participants.

Strengths, Limitations, and Future Directions

A phenomenological approach acknowledges the inevitability of epistemological and methodological limitations (Larkin et al., 2006). In drawing common themes, the integrity of the idiographic nature of the phenomenological approach was able to be upheld (Williams & Reid, 2010). However, it cannot be generalized to the broader population nor explain a causal sequence of relationships aligned with the epistemological scope of the research (Smith et al., 2009). The present study does provide contemporary insights and unique accounts of an unprecedented phenomenon, supporting the development of future nomothetic research hypotheses. Furthermore, the collaborative development of knowledge, though susceptible to presuppositions and potential biases, was an intensely interactive process that ensured the validity of the participants' interpreted lived experiences of childbirth during the COVID-19 pandemic.

The insightful reflections from the participants of this study illustrate the various impacts the COVID-19 lockdown had on their antenatal phase, hospital stay, and immediate postnatal experience at home. The unforeseen circumstances challenged previous expectations of the childbirth experience and the maintenance of minority and vulnerable group protocols. Impeded by rules and regulations, vital supports were prohibited during periods of high stress, including antenatal education and social support in antenatal and postnatal settings.

Future longitudinal research could highlight strengths and losses in the attachment and psychological development of children born during the COVID-19 lockdown, including the early grandparent-child bond for informing practices during pandemics and other humanitarian and man-made disasters.

Conclusion

A noteworthy finding in this study is the potential risk to cultural acknowledgment during times of heightened social disruption. The disparity between Indigenous and non-Indigenous maternity care is recognized worldwide and has been a focus area for improvement in recent years (Jones et al., 2017). While this is encouraging, the current study raised concern about the reach of these advances. Mallory disclosed that no offer was made for Aboriginal support services, "they don't always look at me as a very fair [skinned] woman and make that connection." Vigilant practices must be maintained during crises to ensure all patients are culturally supported. Second, the arrival of COVID-19 resulted in

significant changes to social liberties, and access to educational and health resources, including maternity care in hospital settings, raising concerns about the impact this had on expectant women during the lockdown. However, most interpreted protective factors for the core family unit, including the no visitors rule in the hospital and fathers in lockdown working from home. These participants expressed gratitude for the role social distancing played in promoting uninterrupted recovery and family growth, despite a keen longing to return to normality, celebrate milestones, and create memories with loved ones. Women reported substantial positive growth in their identity and confidence as mothers, redefining their relationships with others and their priorities.

Data Extract Notations:

[…] indicates editorial elision where non-relevant material has been omitted

[—] indicates pauses in speech by participant

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Living Life in Balance with our Passengers: An Interview with Toni Harman on the Infant Microbiome

Dr. Christiana Rebelle, Toni Harman

REBELLE: I took your mini-course, *What is the Infant Microbiome,* and watched the documentary, *Microbirth*, and your story is so interesting—transitioning from film producer to infant microbiome advocate and educator. Can you tell me a little bit about that leap? What got you interested in this topic?

HARMAN: We just finished our first feature film, a psychological thriller, and sold it to a Hollywood studio. So, we thought we were off on a journey to Hollywood. Then I discovered I was pregnant, which was fantastic but took me off in a different direction. During the pregnancy, I was hoping for a home birth. I wanted candles and music. I wanted to be supported by midwives. As it sometimes happens, it didn't go to plan, I ended up having an emergency c-section, and then I struggled to breastfeed. I didn't have any support, and I supplemented with formula. I found it really difficult, that transition from what I had in my head and what I wanted for my birth experience to reality. I felt alone and disempowered.

So, that experience led me to start thinking and, as a filmmaker, gave me a whole set of questions. I started looking into the world of birth. I started meeting doulas, and I made a film about doulas, and then I got into the science and the politics of childbirth. I made a documentary called "Freedom for Birth" about human rights in childbirth and how it should be the right of every expectant parent to decide how, where, and with whom they give birth. That right is not available to many women around the world. After making it—it premiered with 1,000 premieres in 50 countries—we had people marching in the streets of Buenos Aires. We had

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hundreds of emails coming into us each day talking about their birth stories, and it just became this fantastic reaction to this film. But, it was so divided in terms of opinions, and when we made Freedom for Birth, I couldn't see an opposite side to giving birth.

I couldn't see how anyone could argue against human rights in childbirth. How anyone could argue that it wasn't the mother's choice, how and where, and with whom she gives birth. I couldn't see the other argument. But we got a wave of emails and messages presenting this other argument, saying birth can be very problematic, and many births ended in c-sections. It just became really polarized. Alex, my partner, and I thought, okay, let's step away from the politics of childbirth and look at the science of childbirth. We started looking into the microbiome and how that affects pregnancy, birth, and breastfeeding. And it's amazing. That was ten years ago. We've spent a decade in a world of microorganisms.

R: Wow, what a trajectory. That's amazing. It's interesting, I recently began following many people in the birthing community online, and I am amazed to see the polarized arguments. I thought I would find a supportive community, but it's like people have their corners. It tends to be holistic home birth versus obstetric hospital birth.

We can be so divided, and it's a shame because who suffers? The birthing families and parents and infants. So, you're right; the politics of birth are a lot.

H: I think you're right there. I mean, there are sort of two polarized ways of looking at birth. You've got the midwifery model, and you've got the obstetric model. They do kind of clash.

But, I think the science of the microbiome can bring everybody together. I am learning from microbes. That sounds really crazy, but this is the idea of a symbiotic network where you work together for the benefit of everybody. When most people talk about birth, they talk about humans and the human process of giving birth. But, if you take away the human side, you're left with microbes and the microbial transfer that happens during childbirth. That has no politics. That's just how birth works.

R: Yeah, it just happens, whether you believe it or not. Okay, so that helps transition into what exactly is the microbiome and why is it so important?

H: The microbiome is the collection of microbes that, if you're talking about the human microbiome, are the collection of microbes that live on and in you. There are trillions of microorganisms, so that's bacteria, viruses, fungi, archaea… These tiny, microscopic microorganisms that you

can't see with your human eye, yet they're all over you. Most of them are from your mouth to your anus, and the biggest part of them are at the bottom of your gut.

So, a baby who is mostly born sterile starts to get their microbes as soon as the mother's water breaks, as they journey for vaginal birth. As the baby travels through the birth canal, they pick up the mom's vaginal bacteria. Then as the baby comes out, hopefully gets a good lick of the mom's bum because that's the mom's gut microbes, and then, the baby will go straight onto the mom's chest and be covered in the general dirtiness of birth. Through skin-to-skin contact, her baby acquires the beneficial skin microbes. So, all of these microbes are acquired in that sensitive period during birth. That's the main seeding event for founding the baby's microbiome.

R: I'm thinking about births that I've had and witnessed and the last century of modern birthing, and it often isn't what you just described. It can look like: take the baby away, clean it all up. It seems like there's an attempt to keep it a very sterile environment.

H: I hear horror stories from midwives who say that the doctor basically had sterilized the whole perineum with like pouring whatever antibiotic or disinfectant over the mother's vagina and their whole area…

R: Gets an *antimicrobial*!

H: Exactly, exactly. And you just think, gosh, it's just this basic understanding of the science of the microbiome. This is not me saying this; 1000s of papers have been published. This is no longer emerging science. This is the vertical transmission of microbes from the mother to the baby during vaginal birth.…the murkiness of birth, that dirty, messy, murky birth, should be embraced. That is the best thing a mom could give her baby, along with breastfeeding.

There are special sugars in breast milk, which are food for those wonderful beneficial microbes transferred during birth. The sugars in human milk are the perfect food, and they're matched up to the bacteria. So in this amazing seed and feed process, you have the seed, which is the bacteria, and you have to feed, which is the sugars in breast milk. It's this wonderful, fantastic system that we're interrupting.

R: It's almost like nature knew what it was doing.

H: Oh, that's it, we have evolved for this to happen, and it's an incredible, miraculous process. We have so many layers to it because once

it's fed by the special sugars in the breast milk, these help ensure the right type of microbes populate the infant gut really quickly, and having the right type of microbes populating the gut really quickly, they're the ones that train the infant immune system. They're the ones that are going to protect the baby's long-term health.

R: Let's talk about that a little bit. My son was also born with an emergency c-section, and they immediately put him on antibiotics. It's hard not to think that he didn't get what he needed, and it's such a heavy feeling as a mom. Is there something parents can do after the fact to make up for when things don't go as planned?

H: Breastfeeding for as long as possible. There is really strong science behind that. There's research into probiotics, but not all probiotics are the same, and different probiotics might work for different people. So it's finding the probiotic that's right for you. There are certain tests you can do, but then I'm not sure because it's still an emerging field about probiotics. But, yes, there are things you can do. Things like going for walks and exposing your child to the natural world, getting houseplants, doing gardening, getting a dog, there's really good research about the benefits of getting a dog…

R: Does it have to be a dog, or could it be a cat or a hamster?

H: I can't remember the exact statistics, but dogs are really good because they go outside, and they burrow in the ground, and they get mucky, and they come back in, and they lick your face, and that's brilliant because they are microbial superhighways. They spread all of the bacteria they get from outside around their house. We don't have a dog; we hire a dog. We borrow someone else's dog just for this purpose.

Cats aren't like that. Cats would go outside, very clean, possibly come back in and they may just sit in the corner and clean themselves. So it's just the dynamic–you might have a cat that runs around and licks you like a dog. That would probably be the same sort of exposure. We've had lots of hamsters in my daughter's life. I'm a big fan of hamsters, but they stay in their cage so they don't bring in the outside world. We interviewed this scientist at the University of California, and he said, ideally, you'd want to have a pet cow.

R: That's so funny. So it's the exposure to the outside world and the fur that collects those microbials, not just the pet itself. It's what that pet brings into the home.

H: And there are other things you could do. A diet high in fiber, a plant-based diet, cutting down the processed foods, cutting down on antibiotics—using antibiotics only when necessary—and maybe not being so sterile in your house. Antibacterial cleaners are fantastic, but maybe our houses are too clean.

R: Let's dive into the connection between the microbiome and your mental health and the quality of microbiome and your risk for disease. You mentioned briefly in this interview, but I also know from your course and documentary about the seed and feed process—receiving that initial microbiome as you exit the vagina and are exposed to microbes. It has lifelong implications. Can you speak to that long-term importance?

H: Scientists are just at the tip of the iceberg in terms of how important it can be. And, at the moment, it's very difficult to establish causality. For example, it's very difficult to establish that because a baby was born by c-section or had antibiotics that this causes other illnesses. However, there are associations, and the associations are that a baby born by c-section, and c-section usually comes with antibiotics, or if formula fed, that child is at increased risk for a certain number of diseases. Increased risk for allergies, asthma, diabetes, celiac disease, other autoimmune conditions, and obesity. So there's links with increased risk, but that doesn't mean that every child is going to get that. It just means that there's an increased risk across the population.

The thing is, if a child is at increased risk for asthma or obesity, the scientists also show there is a trajectory of disease. So, if you have asthma early in life, you are at higher risk of having other conditions later in life. If a child is obese early in life, then I think it's either 43 or 46 comorbidities associated with obesity. So there's a kind of a trajectory of disease that child is more likely to be at risk of.

Also, the microbiome has been associated with many other conditions, from multiple sclerosis to other autoimmune conditions and a whole web of diseases. So it could be, and this is the hypothesis right now, that what happens during that early infant period has lifelong effects. And it's not just the microbes themselves, the microbes interact with genes. The expression of genes, switching on and switching off genes, called epigenetics. It's a really complex process, but the evidence suggests there are lifelong consequences to what happens during that really sensitive period that surrounds birth.

R: A new study that came out said that the fetus doesn't have a microbiome yet, but the infant does, so we're still learning about the timing of all of this. But, I read another study months ago that said a

person who eats a ketogenic diet (high fat, low fiber, low plant diet) kills off a lot of their microbes because the microbes aren't being fed through the pre and probiotics that they get from plants. Therefore, if the pregnant person doesn't have it to give to the infant, they can't transfer what they would they don't have. I was nervous about a headline like 'a fetus doesn't have a microbiome' because the pregnant person's microbiome is still very important. I'm not sure what my question is in there; I guess I'm just saying there's still seems to be some confusion and dots are being connected. And there's mixed messages. Do you have any key takeaways to birthing families or to people who maybe didn't have the birth they had hoped?

H: There was some research that was published that there was a scientific consensus that the baby starts acquiring microbes after birth. This is a hotbed of science to dispute because other scientists will say, "Actually, I disagree with that consensus." So, this is an emerging field. There's so much to learn. And yes, the dots haven't been connected yet. They're starting to be connected. But in many areas, they don't have all the information. But there are key takeaway messages.

Sleep is really important, particularly if you're pregnant. Sleep, relaxation, meditation–there was a study, I think it was on Tibetan monks showing how much meditation affects the microbiome. So if you're pregnant, taking time out to meditate to relax, or the things I mentioned before about things you could do—gardening house plants, opening windows is great to let nature in, getting a dog or a cat that goes outside.

Leafy green vegetables are good for everybody. And maybe not restricting your diet so much apart from processed foods, eating a diverse range of fruits and vegetables, and having diversity within your diet. If you're not sensitive to gluten, then eat oats, bran, barley and wheat, and all of those types of things. A diversity of whole foods that is high fiber. That is fantastic. But also eating your sauerkraut, kimchi, yogurt, and probiotic foods are good.

What else can you do? Just being mindful, that's my biggest takeaway message. Just be mindful that you're not who you think you were. You might have thought you're a human. I'm Toni. I've got trillions of human cells, that's me. I've also got trillions of other cells in me that also need to be protected and thought about, and to be I need to be mindful of. So that's my take-home message that you are more than you think you are. So just behave in ways that are taking on microbial friends.

R: Yeah, tend to your passengers, you're their host. That makes a lot of sense. And that's interesting to think about, that we are kind of

responsible for these microscopic creatures. We take care of them, and they take care of us in return.

H: That's the whole point. This idea of this symbiotic network that we help them, and they help us. We're all happy about living life and in balance with our passengers. I like that expression.

R: Well, that's wonderful. Thank you so much for your time and for chatting with me. It's been so interesting. Is there anything that you feel is important that we didn't get to?

H: Our conference. We're running our first-ever international global-scale conference, connecting a fantastic panel of scientists with childbirth educators, doulas, midwives, and other birth workers. We're bringing everybody together in this two-day virtual conference to discuss how we bring this information to parents in a way that doesn't trigger parent guilt. We'll have keynote presentations and panel discussions, but actually, the key is the small group discussions. I'm looking for people to generate solutions. We've got the big birth and doula organizations involved, including APPPAH. My vision is to generate momentum, to bring this science to parents, and to unite and galvanize the community birth community, so that we change the face of human health.

R: I love that. When is it? Where can I go to learn more and sign up?

H: 29th and 30th of April 2023. Go to microbirth.com.

R: Wonderful. It was so nice to meet you. I wish you the best for your conference. And I'm so grateful for the work that you're doing.

H: Thank you so much.

Book Review

The New Return of the Great Mother: Birth, Initiation and The Sacred Feminine (2021), by Isa Gucciardi. Sacred Stream. 100 pages. ISBN-10: 0989855422; ISBN-13: 978-0989855426

Note: This text explores childbirth through cis-gender female experiences.

Isa Gucciardi's 2021 book, *The New Return of the Great Mother*: *Birth, Initiation, and The Sacred Feminine*, examines the energy of the Great Mother through the biological experiences of women. The Great Mother, the sacred feminine, Mother Mary, or Mother Earth, and any number of other names can represent how a human may perceive the Great Mother. Gucciardi highlights women's own stories before and during their childbirth experiences. She tailors the book to explore the creator aspect of the Great Mother and the nurturing and unwavering support and wisdom she can offer women during the initiation of childbirth. For people seeking the qualities the Great Mother carries, the author offers a way to receive healing and learning directly from this force, which can guide us toward embodying the Great Mother's qualities.

The author dedicates a chapter to the seven biological experiences the female body undergoes and the corresponding initiatory experience. The book focuses on the initiation of childbirth and the impact of inviting in connection with the Great Mother. Gucciardi explores how connection with the Great Mother has offered women the support they needed to make it through childbirth with greater well-being and empowerment, supporting them to become more of themselves and benefit the human life being born.

Gucciardi urges:

We must heal the places within us, individually and societally, that cause us to fear or have contempt for any part of ourselves, including the parts that are uniquely and divinely feminine. In doing so, we will begin to value the qualities of the Sacred Feminine—understanding, creativity,

receptivity, tenderness, ability to flow, etc.—and the Sacred Masculine—assertiveness, strength, giving, courage, focus, etc.—equally, allowing both aspects of ourselves to work in tandem to create a healthy, balanced state of being. (Gucciardi, 2021)

Gucciardi's work argues that female bodies are extensions of earth, linking the connection between earth, the Great Mother, female biology, and their corresponding initiations. She explores the initiations of birth, the first menses, the first sexual encounter, childbirth, menopause, and death.

She contends:

These events are driven by our biology and serve to usher us into new ways of knowing ourselves…in a perfect world, we would be given a proper framework to comprehend the power and vulnerability at the heart of initiatory processes. (Gucciardi, 2021)

This book offers a paradigm on initiation experiences that can and do impact pregnancy, birth, postpartum, and beyond.

The New Return of the Great Mother illustrates how women connect with this force through the altered state experiences of giving birth, in meditation, and through shamanic journeying. Gucciardi details how to connect to the energy of the Great Mother for the reader and illustrates how the connection can lead to a greater capacity to embrace the teachings offered by life experiences or to move through challenges with greater ease.

Isa Gucciardi, Ph.D., holds various degrees and certificates and is a dedicated Buddhist practitioner, studying with master teachers of various spiritual traditions over the past decades. She is the creator of depth hypnosis and maintains a private practice with institutions and individuals in Depth Hypnosis and Coming to Peace processes. Gucciardi's experience working with countless women humbled and intrigued her—how women moved through earlier initiations seemed to impact their future life experiences and initiatory experiences. She offers the support of the Great Mother's guided meditations to create healing of prior initiations that may have been interrupted, such as one's own birth experience. Gucciardi shares how anyone can connect with the force of the Great Mother to receive the support they need, specifically before, during, and after childbirth. Disruption to initiation is common and does not need to be viewed as a problem, though it can cause great suffering and even wounding to not feel supported when going through an intense and major life transition experience such as childbirth. If there is wounding, one can connect with the Great Mother as one possible way of receiving support

and healing in service of the initiatory experience where wounding occurred and in service of future initiations.

The New Return of the Great Mother contributes perspective on initiations and conscious childbirth. It offers detailed examples from women's voices to support conscious experiences of childbirth for both mother and child, with the possibility of creating a positive ripple effect far beyond the birth experience.

A guided meditation to meet the Great Mother is included at the end of her book, which can also be purchased separately.

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