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Editorial

Christiana Rebelle, PhD, Editor-in-Chief

Welcome to the Winter 2024 *Journal of Prenatal and Perinatal Psychology and Health* (*JOPPPAH*). This issue is a milestone in *JOPPPAH's* 40-year history, offering the most original research published in a single issue. These studies reflect our growing emphasis on evidence-based science, providing practical applications and thought-provoking ideas for researchers, practitioners, and anyone dedicated to prenatal and perinatal psychology and health.

Our first article, *"Association Between Adverse Childhood Experience Scores and Sexually Transmitted Infections in Pregnant and Postpartum People,"* by Dutra et al., examines how adverse childhood experiences (ACEs) correlate with sexually transmitted infections during pregnancy. The findings suggest that while ACE scores may indicate higher risks for certain infections in univariate analyses, they do not hold predictive value when adjusted for other factors. The authors underscore the need for continued exploration into the implications of ACE scores in prenatal care.

Next, McSorley et al. provide insights into healthcare professionals' experiences delivering online perinatal mental health support. Their article, *"Online Mental Health Support for New Mothers: Healthcare Professionals' Views and Experiences,"* identifies the benefits of blending online and in-person services while addressing challenges in accessibility and education. The researchers advocate for the expansion of virtual support to help bridge perinatal mental health care gaps.

Thirkettle et al. evaluate the impact of an online Compassion Focused Therapy (CFT) group for new mothers in *"Evaluating Outcomes of a Compassion Focused Therapy Group for Mothers Under the Care of a Perinatal Community Mental Health Team."* The study highlights reductions in self-criticism and psychological distress, emphasizing the potential of CFT

to support mothers in navigating societal expectations and personal challenges during the postpartum period.

In *"Pandemic Perceptions and Healthcare Decisions: Exploring Perceived COVID-19 Threat's Impact on Perinatal Healthcare in Florida,"* Ulfat and colleagues highlight how perceptions of safety influence care choices, offering valuable lessons for preparing healthcare systems for future public health crises.

Lykkegaard et al. introduce a groundbreaking theory in *"The Primary Cell Model: Linking Prenatal Development to Subcellular Psychobiology and Consciousness."* This work explores the idea of a primary cell that connects intracellular biology with consciousness, opening us to new possibilities for understanding developmental processes and disease mechanisms.

To conclude this issue, we review upcoming programs for healing and growth and honor the life and legacy of Terence Dowling, whose pioneering contributions to prenatal psychology have left a lasting imprint.

Thank you to our contributors, peer reviewers, volunteers, and editorial team, whose collaborative efforts allow *JOPPPAH* to achieve its mission of making a meaningful impact in prenatal and perinatal psychology and health. Together, we are committed to supporting families, improving professional practices, and shaping the future of our field.

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Association Between Adverse Childhood Experience Scores and Sexually Transmitted Infections in Pregnant and Postpartum People

Karley Dutra, MD, Gweneth B. Lazenby, MD, MCSR, Miyonta Mavins

Adverse childhood experiences (ACEs) are associated with numerous adverse health outcomes, including risky sexual behaviors and sexually transmitted infections (STIs) in non-pregnant individuals. However, limited data exist on the relationship between high ACE scores (≥ 4) and STIs during pregnancy. This study evaluated the association between high ACE scores and STI positivity among 855 pregnant and postpartum individuals. Using logistic regression, we assessed STI diagnoses (lower genital tract infections, HIV, syphilis, HSV, and hepatitis C) relative to ACE scores. Results indicated that high ACE scores were associated with increased odds of lower genital tract infection during pregnancy in univariate analysis but not in adjusted models. Additionally, no significant association was found between high ACE scores and overall STI positivity or hepatitis C infection. While high ACE scores were prevalent in the cohort (37%), further research is needed to determine if ACE scores can be used in screening for STIs during pregnancy.

The authors have no conflicts of interest. Karley Dutra, MD (ORCID: 0009-0001-7668-5638) and Gweneth Lazenby, MD (ORCID: 0000-0002-5233-442X) are Reproductive Infectious Disease specialists at the Medical University of South Carolina who specialize in sexually transmitted infections in pregnancy, trauma-informed care, and HIV. They have extensive clinical and research expertise in Reproductive Infectious Diseases and Obstetrics and Gynecology. Miyonta Mavins, BS (ORCID: 0009-0002-1541-1147) completed medical school at the Medical University of South Carolina and is pursuing a residency in Obstetrics and Gynecology. Address all correspondence to karleydutra@gmail.com.

Keywords: pregnancy, adverse childhood experiences, ACE score, sexually transmitted infections, STI, lower genital tract infection, risky sexual behaviors, maternal health, hepatitis C

Adverse childhood experiences (ACEs) are potentially traumatic events experienced by an individual before the age of 18 (Felitti et al., 1998). These can include different forms of neglect, abuse, and household challenges such as mental illness, substance use, or incarceration of a family member. ACE scores are determined by administering a questionnaire with ten questions regarding exposure to abuse, neglect, or adverse events before the age of 18. Each positive response receives a point, which is tallied to determine an individual's total ACE score (Petruccelli et al., 2019). Unfortunately, nearly two-thirds of adults in the United States report at least one ACE, and approximately one in six reports four or more ACEs (Merrick, 2019; Swedo, 2023). Previous studies have established that reporting four or more ACEs is associated with adverse health outcomes, including mental illness, alcohol and illicit substance use, stroke, diabetes, and obesity (Felitti et al., 1998; Hughes et al., 2017; Petruccelli et al., 2019).

Additionally, a high ACE score (≥ 4) has been associated with higher odds of risky sexual behaviors in non-pregnant people. Those reporting a high ACE score were 4.3 times (95% CI 3.425 - 5.327, $p < 0.001$) more likely to report sexual activity before age 16 (Felitti et al., 1998; Wood et al., 2022). A history of childhood sexual abuse has been associated with engaging in transactional sex (OR 2.71, 95% CI 2.17 – 3.38) (Cohen et al., 2000). High ACE scores and engagement in risky sexual behaviors have been associated with higher rates of sexually transmitted infections (STIs) in non-pregnant people. Previous studies have reported that a high ACE score had 1.36 to 7.1 times higher odds of STI(s) (Felitti et al., 1998; London et al., 2017; Loxton et al., 2021; Wood et al., 2022). Limited data are available regarding the relationship between high ACE scores and STIs in pregnant people. For postpartum people, exposure to ≥ 1 ACE was not significantly associated with STI diagnosis (adjusted OR = 1.43 95%, CI = 0.42, 4.84) (Thomas et al., 2021). Another small observational study of pregnant people ($n = 52$) did not find a significant association between high ACE and STI diagnosed during pregnancy (29.7% vs 24.4%, $p = 0.415$) (Jasthi et al., 2023).

STIs during pregnancy are associated with adverse pregnancy outcomes, including low birth weight, preterm birth, and infant death (He et al., 2020; Heumann et al., 2017; Johnson et al., 2011; Lin et al., 2018; Panel on Treatment of HIV During Pregnancy and Prevention of Perinatal Transmission, 2022; Tang et al., 2020; Van Gerwen et al., 2021). Identification and treatment of STIs during pregnancy improves pregnancy outcomes, and delayed treatment may result in preterm birth (Brandenburger & Ambrosino, 2021). The American College of Obstetricians and Gynecologists and the Center for Disease Control and Prevention have established guidelines for STI screening during pregnancy (Davidson et al., 2021; Prevention, 2021). In pregnancy, universal screening is recommended for HIV, hepatitis B, hepatitis C, and syphilis. Additionally, screening for gonorrhea and chlamydia is recommended for those < 25 years old and those > 25 years old at high risk for STI acquisition.

While current guidelines include screening for a variety of STIs based on individual history and risk, people with STIs during pregnancy may be missed using traditional screening paradigms. By evaluating the relationship between STIs and high ACE scores, an alternative method to identify pregnant individuals at risk of STIs may be elucidated. Currently, it is unclear if ACE scores can be used as a tool to determine which pregnant people are at risk for an STI. More information is needed to determine the potential relationship between high ACE scores and STI infections in pregnancy. Our primary aim was to evaluate the association between high ACE scores and STIs during pregnancy. Our secondary aims included identifying factors associated with lower genital tract infection (gonorrhea, chlamydia, and trichomonas positive), any STI positivity (lower genital tract infection, HIV, syphilis, and herpes simplex virus (HSV) positive), and hepatitis C infection (chronic or resolved) during pregnancy or in postpartum people.

Method

Patients were not involved in this retrospective cohort study, and personal health information was not collected as part of our protocol. This study was a retrospective cohort study of pregnant and postpartum people within one year of delivery. The study included 855 participants recruited between 2015 and 2019 as part of an IRB-approved behavioral health study of pregnant and postpartum people. A secondary analysis was conducted in which all participants were pregnant or postpartum and receiving care with our Women's

Behavioral Health Services. Participants were universally screened. We examined ACE scores and STI positivity in a population of pregnant people undergoing mental health screening. In the initial data collection, behavioral health specialists collected mental health outcomes, screening, and ACE scores. We obtained IRB approval to collect additional variables related to STI in this cohort.

Descriptive variables collected for participants included age, self-reported race and ethnicity, insurance status, relationship status (single versus partnered), income, and education. Behavioral health specialists collected adverse childhood experience scores, depression scores (Patient Health Questionnaire, PHQ9) , anxiety scores (General Anxiety Disorder – 7 item, GAD-7), and mania scores (Altman Self-Rating Mania Scale, ASRM). STI diagnoses were determined through a chart review of the participants' current or recent pregnancies. A high ACE score was defined as greater than or equal to 4. We used bivariate analyses to compare percentages of individuals with high vs. low ACE scores. We used logistic regression to determine if factors, including high ACE, were associated with lower genital tract infection (gonorrhea, chlamydia, and trichomonas positive), any STI positivity (lower genital tract infection, HIV, syphilis, and HSV positive), and hepatitis C infection (chronic and resolved). Individuals with data available on the outcome of interest were included in the analyses, reducing the overall sample size.

Results

Demographic results for the sample are listed below in Table 1. The median ACE score was 2 (interquartile range, IQR of 1-5). Over one-third of participants had a high ACE score (300/808, 37%). Most participants reside in the three counties surrounding our academic medical center in Charleston, South Carolina (n = 570, 80%). Most participants had commercial insurance, and 44% had Medicaid or were uninsured. Most participants identified as non-Hispanic (95%) ethnicity; 71% identified as white and 28% as Black. The median age of participants was 29 (IQR 25-33). Less than half of participants (43%) had a low household annual income (< $25,000).

Table 1

Demographic Information of Participants

Variable	***n* (%)**
Latina/Hispanic Ethnicity	
Yes	43 (5%)
No	822 (95%)
Missing	33
Race	
White	589 (71%)
Black	229 (28%)
Other	14 (1.7%)
Missing	23
Age (Median 29, IQR 25-33)	
< 25	184 (22%)
≥ 25	661 (78%)
Missing	13
ACE Score	
Low ACE (≤ 4)	508 (63%)
High ACE (≥ 4)	300 (37%)
Missing	47
Tricountry Resident	
Yes	570 (80%)
No	141 (20%)
Missing	144

Variable	*n* (%)
Medicaid or No Insurance	
Yes	372 (44%)
No	483 (57%)
Relationship Status	
Single	122 (15%)
Partnered	706 (85%)
Missing	30
Education	
Some college or more	383 (49%)
High school or less	403 (51%)
Missing	72
Income	
< $25,000	331 (43%)
> $25,000	443 (57%)
Missing	84
Tobacco Use	
Yes	125 (33%)
No	256 (67%)
Missing	477

Note. Other: Asian, Native Hawaiian and Pacific Islander, and Native American Tricountry Resident: Charleston, Berkeley, and Dorchester Counties in South Carolina. IQR, Interquartile range; ACE, Adverse Childhood Experience

HSV was most often reported as positive during pregnancy, with a large number of missing results reported. The remaining STI results are below in Table 2, and missing data was noted for participants across each diagnosis. In

general, missing data was common regarding STI results in pregnancy, ranging from 213 to 833 missing values depending on the diagnosis.

Table 2

Sexually Transmitted Infection Prevalence

Variable	Yes, *n* (%)	No, *n* (%)	Missing, *n*
HSV + During Pregnancy	95 (53%)	126 (47%)	676
HIV + at Initial Visit	7 (1.1%)	633 (98.9%)	215
HCV Ab + During Pregnancy	22 (10%)	212 (90%)	643
Chronic HCV Infection	12 (55%)	10 (45%)	833
Syphilis Infection	3 (0.5%)	642 (99.5%)	213
Chlamydia Infection	23 (4%)	578 (96%)	277
Gonorrhea Infection	4 (0.7%)	577 (99.3%)	278
Trichomonas Infection	17 (8%)	227 (92%)	628
Lower Genital Tract Infection	41 (7%)	537 (93%)	277

Note. Chronic HCV: chronic hepatitis c virus infection; positive hepatitis C antibody and detectable viral load. Lower genital tract infection: chlamydia, gonorrhea, or trichomonas positive at initial prenatal visit. HSV, herpes simplex virus; HIV, human immunodeficiency virus; HCV, hepatitis C virus

Lower genital tract infection was more often diagnosed during pregnancy in those with a high ACE score compared to those without (54% vs. 37%, p = 0.04). Additionally, lower genital tract infection was diagnosed more frequently for those with Medicaid or no insurance (76% vs. 53%, p = 0.005), tobacco use (54% vs. 31%, p = 0.018), single relationship status (36% vs. 15%, p = 0.0004), and income < $25,000 (97% vs. 45%, p < 0.0001) (Table 3). In the univariate logistic regression analysis, a high ACE score was associated with increased odds of lower genital tract infection (unadjusted OR 2.034 CI 1.040 – 3.979, p = 0.038), but this finding was not statistically significant in the adjusted analysis (aOR 1.296 CI 0.484-3.468, p = 0.606) (Table 4). Factors associated with lower genital tract infection in the adjusted analysis were age <

25 years old (aOR 2.858 CI 1.054-7.753, $p = 0.029$) and income < $25,000 (aOR 11.361 CI 1.249-103.354, $p = 0.031$). Medicaid or no insurance was associated with lower odds of lower genital tract infection (aOR 0.256 CI 0.075-0.876, $p = 0.029$).

Those with a high ACE score were not more often diagnosed with any STI positivity (44% vs 37%, $p = 0.152$). Any STI positivity was diagnosed more often in those with Medicaid or no insurance (71% vs. 50%, $p < 0.0001$), age < 25 years old (35% vs. 21%, $p = 0.001$), tobacco use (44% vs. 30%, $p = 0.039$), income < $25,000 (67% vs 43%, $p < 0.0001$), and single relationship status (28% vs 13%, $p < 0.0001$). STI positivity was less often diagnosed among those with some college education or more (30% vs. 48%, $p = 0.001$) and those residing in the Tricounty area (76% vs. 84%, $p = 0.043$) (Table 3). None of these factors were significantly associated with STI positivity in adjusted analyses. On univariate and adjusted logistic regression analysis, high ACE score was not associated with increased odds of STI positivity (uaOR 1.341 CI 0.897 – 2.005, $p = 0.153$ and aOR 1.100 CI 0.578-2.095, $p = 0.77$) (Table 4).

Table 3

Lower Genital Tract Infection and Any STI Positivity

Variable	**Lower Genital Tract Infection (*n* = 41)**	**No Lower Genital Tract Infection (*n* = 537)**	***p*-value**
High ACE (*n* = 208)	20/37 (54%)	188/513 (37%)	0.04
Medicaid or No Insurance (*n* = 314)	31/41 (76%)	283/537 (53%)	0.005
Black Race (*n* = 152)	8/40 (20%)	144/522 (28%)	0.297
White Race (*n* = 402)	32/40 (80%)	370/522 (71%)	0.222
Latina/Hispanic Ethnicity (*n* = 31)	0/41 (0%)	31/537 (6%)	0.109
Tricounty Resident (*n* = 475)	30/41 (73%)	445/533 (83%)	0.092
Age < 25 (*n* = 141)	23/39 (59%)	118/535 (22%)	< 0.001
Tobacco Use (*n* = 99)	15/28 (54%)	84/267 (31%)	0.018
Single (*n* = 90)	14/39 (36%)	76/524 (15%)	0.0004
Some College or More (*n* = 239)	3/34 (9%)	236/505 (47%)	< 0.001
Income < $25,000 (*n* = 259)	33/34 (97%)	226/498 (45%)	< 0.001
Variable	**STI Positivity *n* (%)**	**No STI Positivity *n* (%)**	***p*-value**
High ACE (≥ 4) (*n* = 215)	55/126 (44%)	160/437 (37%)	0.152
Medicaid or No Insurance (*n* = 324)	93/132 (71%)	231/460 (50%)	< 0.0001
White Race (*n* = 411)	100/128 (78%)	311/447 (70%)	0.0589
Latina/Hispanic Ethnicity (*n* = 31)	6/126 (4%)	26/440 (6%)	0.398
Tricounty Resident (*n* = 483)	99/130 (76%)	384/458 (84%)	0.0434

Variable	Lower Genital Tract Infection (*n* = 41)	No Lower Genital Tract Infection (*n* = 537)	*p*-value
Age < 25 (*n* = 143)	46/130 (35%)	97/458 (21%)	0.0009
Tobacco Use (*n* = 101)	31/71 (44%)	70/230 (30%)	0.039
Single (*n* = 96)	36/127 (28%)	60/450 (13%)	< 0.0001
Some College or More (*n* = 243)	36/119 (30%)	207/432 (48%)	0.0006
Income < $25,000 (*n* = 264)	79/118 (67%)	185/427 (43%)	< 0.0001

Note. Lower genital tract infection and any STI positivity on bivariate analysis. Lower genital tract infection: Chlamydia, gonorrhea, and trichomonas positive at initial prenatal visit. Tricounty Resident: Charleston, Berkeley, and Dorchester Counties in South Carolina. Any STI positivity: lower genital tract infection, HIV, syphilis, or HSV positive at any time during pregnancy.
Significant at $p < .05$. Highly significant at $p < .0001$.

Table 4

Logistic Regression Analysis for Factors Associated with Lower Genital Tract Infection and Any STI Positivity

Variable	**uaOR (95% CI) Lower genital tract infection**	***p*-value**	**aOR (95% CI) Lower genital tract infection**	***p*-value**
High ACE	2.034 (1.040, 3.979)	0.038	1.296 (0.484, 3.468)	0.606
Medicaid or No Insurance	2.782 (1.337, 5.788)	0.0045	0.256 (0.075, 0.876)	0.0299
White Race	1.643 (0.740, 3.648)	0.222	1.738 (0.664, 4.551)	0.26
Tricounty Resident	0.539 (0.261, 1.117)	0.096	1.680 (0.521, 5.418)	0.3851
Age < 25	5.080 (2.600, 9.927)	< 0.0001	2.858 (1.054, 7.753)	0.0392
Tobacco Use	2.514 (1.145, 5.519)	0.022	1.754 (0.592, 5.200)	0.3108
Single	3.301 (1.643, 6.634)	0.0008	1.515 (0.540, 4.251)	0.4297
Some College or More	0.110 (0.033, 0.366)	0.0003	0.164 (0.019, 1.395)	0.0979
Income < $25,000	39.717 (5.390, 292.661)	0.0003	11.361(1.249, 103.354)	0.0310
Variable	**uaOR (95% CI) Any STI**	***p*-value**	**aOR (95% CI) Any STI**	***p*-value**
High ACE Score	1.341 (0.897, 2.005)	0.1527	1.100 (0.578, 2.095)	0.77
Medicaid or No Insurance	2.364 (1.559, 3.584)	< 0.0001	0.942 (0.421, 2.104)	0.88
White Race	1.561 (0.981, 2.486)	0.0604	1.142 (0.572, 2.280)	0.71
Tricounty Resident	0.615 (0.383, 0.988)	0.0445	0.678 (0.332, 1.388)	0.29
Age < 25	2.038 (1.334, 3.113)	0.001	1.465 (0.732, 2.930)	0.28

Variable	uaOR (95% CI) Any STI	*p*-value	aOR (95% CI) Any STI	*p*-value
Tobacco Use	1.772 (1.026, 3.061)	0.0403	1.340 (0.671, 2.677)	0.41
Single	2.571 (1.604, 4.123)	< 0.0001	1.778 (0.857, 3.690)	0.12
Some College or More	0.471 (0.305, 0.728)	0.0007	0.831 (0.368, 1.879)	0.66
Income < $25,000	2.650 (1.726, 4.068)	< 0.0001	1.802 (0.749, 4.335)	0.19

Note. Lower genital tract infection and any STI positivity on bivariate analysis. Lower genital tract infection: Chlamydia, gonorrhea, and trichomonas positive at initial prenatal visit. Tricounty Resident: Charleston, Berkeley, and Dorchester Counties in South Carolina. Any STI positivity: lower genital tract infection, HIV, syphilis, or HSV positive at any time during pregnancy.
Significant at $p < .05$. Highly significant at $p < .0001$.

Hepatitis C, either resolved or chronic, was diagnosed in 10.4% (22/212) of participants. Hepatitis C was diagnosed more often with Medicaid or no insurance (95% vs. 67%, $p = 0.006$), income < $25,000 (94% vs 60%, $p = 0.007$), and those reporting tobacco use (76% vs. 41%, $p = 0.006$). In the adjusted analyses, tobacco use was the only factor associated with hepatitis C infection (aOR 8.8 CI 1.7 – 45.4, $p = 0.009$).

Discussion

Adverse childhood experiences were common in our population of pregnant and postpartum people, with 37% reporting four or more ACEs. A high ACE score was associated with an increased risk of lower genital tract infection during pregnancy on bivariate analysis, but the association was not statistically significant in adjusted analyses. High ACE scores were not significantly associated with any STI positivity or hepatitis C during pregnancy. Our findings are similar to those of a recent study that evaluated the association between high ACE scores and adverse pregnancy outcomes, including STIs during pregnancy (Jasthi et al., 2023).

Currently, there is insufficient evidence to support the use of ACE scores as a tool for identifying people at risk for an STI during pregnancy. Based on our results, ACE score is not significantly associated with STI diagnosis during

pregnancy, limiting its possible use as a screening tool for STIs. Further research is needed to determine if ACE scores can be adopted to identify people at risk for an STI diagnosis. Future studies could include a retrospective larger sample size with fewer missing data or prospective studies obtaining a baseline ACE score in pregnancy and following for new STI diagnosis. The Centers currently recommend STI screening strategies for individuals under the age of 25 for Disease Control, and our study further supports this as a means of identifying higher-risk individuals (Prevention, 2021).

While our study included over 800 participants, missing data reduced our sample size when assessing lower genital tract infection, STI positivity, and hepatitis. Our sample collection started before recommendations for universal screening for hepatitis C infection in each pregnancy. The smaller sample size available for adjusted analyses likely contributed to the lack of statistically significant associations between high ACE scores and sexually transmitted infections and hepatitis in pregnancy.

Conclusion

Adverse childhood events have been associated with reporting risky behaviors, including condomless sex, transactional sex, and a higher number of lifetime partners (Cohen et al., 2000; Felitti et al., 1998; Thomas et al., 2021). This translates to an increased risk of STI acquisition outside of pregnancy. Based on our analyses and the limited literature published, this association has not been found in pregnancy. More studies are needed to fully elucidate the relationship between STIs in pregnancy and high ACE scores to determine if ACE scores can be utilized in risk-based screening strategies.

References

Brandenburger, D., & Ambrosino, E. (2021). The impact of antenatal syphilis point of care testing on pregnancy outcomes: A systematic review. *PLoS One*, *16*(3), e0247649. https://doi.org/10.1371/journal.pone.0247649

Cohen, M., Deamant, C., Barkan, S., Richardson, J., Young, M., Holman, S., Anastos, K., Cohen, J., & Melnick, S. (2000). Domestic violence and childhood sexual abuse in HIV-infected women and women at risk for HIV. *American Journal of Public Health*, *90*(4), 560-565. https://doi.org/10.2105/ajph.90.4.560

Davidson, K. W., Barry, M. J., Mangione, C. M., Cabana, M., Caughey, A. B., Davis, E. M., Donahue, K. E., Doubeni, C. A., Krist, A. H., Kubik, M., Li, L., Ogedegbe, G., Pbert, L., Silverstein, M., Simon, M. A., Stevermer, J., Tseng, C. W., & Wong, J. B. (2021). Screening for Chlamydia and Gonorrhea: US Preventive Services Task Force Recommendation Statement. *JAMA*, *326*(10), 949-956. https://doi.org/10.1001/jama.2021.14081

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, *14*(4), 245-258. https://doi.org/10.1016/s0749-3797(98)00017-8

He, W., Jin, Y., Zhu, H., Zheng, Y., & Qian, J. (2020). Effect of Chlamydia trachomatis on adverse pregnancy outcomes: A meta-analysis. *Archives of Gynecology and Obstetrics*, *302*(3), 553-567. https://doi.org/10.1007/s00404-020-05664-6

Heumann, C. L., Quilter, L. A., Eastment, M. C., Heffron, R., & Hawes, S. E. (2017). Adverse Birth Outcomes and Maternal Neisseria gonorrhoeae Infection: A Population-Based Cohort Study in Washington State. *Sexually Transmitted Diseases*, *44*(5), 266-271. https://doi.org/10.1097/olq.0000000000000592

Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., Jones, L., & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet Public Health*, *2*(8), e356-e366. https://doi.org/10.1016/s2468-2667(17)30118-4

Jasthi, D. L., Lappen, J. R., Garber, S., Kennedy, S., McCarther, N., Nagle-Yang, S., Moore, T., Frank, S., & Huth-Bocks, A. (2023). Associations between adverse childhood experiences and obstetrical outcomes in a predominantly Black-identifying and low-income pregnant population. *American Journal of Obstetrics & Gynecology MFM*, *5*(7), 101008. https://doi.org/10.1016/j.ajogmf.2023.101008

Johnson, H. L., Ghanem, K. G., Zenilman, J. M., & Erbelding, E. J. (2011). Sexually transmitted infections and adverse pregnancy outcomes among women attending inner city public sexually transmitted diseases clinics. *Sexually Transmitted Diseases*, *38*(3), 167-171. https://doi.org/10.1097/OLQ.0b013e3181f2e85f

Lin, J. S., Eder, M. L., & Bean, S. I. (2018). Screening for Syphilis Infection in Pregnant Women: Updated Evidence Report and Systematic Review for the US Preventive Services Task Force. *JAMA*, *320*(9), 918-925. https://doi.org/10.1001/jama.2018.7769

London, S., Quinn, K., Scheidell, J. D., Frueh, B. C., & Khan, M. R. (2017). Adverse Experiences in Childhood and Sexually Transmitted Infection Risk From Adolescence Into Adulthood. *Sexually Transmitted Diseases*, *44*(9), 524-532. https://doi.org/10.1097/olq.0000000000000640

Loxton, D., Forder, P. M., Cavenagh, D., Townsend, N., Holliday, E., Chojenta, C., & Melka, A. S. (2021). The impact of adverse childhood experiences on the health and health behaviors of young Australian women. *Child Abuse & Neglect*, *111*, 104771. https://doi.org/10.1016/j.chiabu.2020.104771

Merrick MT, F. D., Ports KA, Guinn AS, Chen J, Klevens J, Metzler M, Jones CM, Simon TR, Daniel VM, Ottley P, Mercy JA. (2019). Vital Signs: Estimated Proportion of Adult Health Problems Attributable to Adverse Childhood Experiences and Implications for Prevention- 25 States, 2015-2017. *Morbidity and Mortality Weekly Report, US Department of Health and Human Services, Centers for Disease Control and Prevention*, *68*(44), 6. https://www.cdc.gov/mmwr/volumes/68/wr/pdfs/mm6844e1-H.pdf

Panel on Treatment of HIV During Pregnancy and Prevention of Perinatal Transmission. (2022). Recommendations for the Use of Antiretroviral Drugs During Pregnancy and Interventions to Reduce

Perinatal HIV Transmission in the United States Retrieved from https://clinicalinfo.hiv.gov/en/guidelines/perinatal

Petruccelli, K., Davis, J., & Berman, T. (2019). Adverse childhood experiences and associated health outcomes: A systematic review and meta-analysis. *Child Abuse & Neglect*, *97*, 104127. https://doi.org/10.1016/j.chiabu.2019.104127

Prevention, C. f. d. C. a. (2021). *Sexually Transmitted Infections Treatment Guidelines: Screening Recommendations and Considerations.* https://www.cdc.gov/std/treatment-guidelines/screening-recommendations.htm

Swedo EA, A. M., Dahlberg LL, Niolon PH, Guinn AS, Simon TR, Mercy JA. (2023). Prevalence of Adverse Childhood Experiences Among US Adults- Behavioral Risk Factor Surveillance System, 2011-2020. *Morbidity and Mortality Weekly Report, US Department of Health and Human Services, Centers for Disease Control and Prevention*, *72*(26), 8. https://cdc.gov/mmwr/volumes/72/wr/pdfs/mm7226a2-H.pdf

Tang, W., Mao, J., Li, K. T., Walker, J. S., Chou, R., Fu, R., Chen, W., Darville, T., Klausner, J., & Tucker, J. D. (2020). Pregnancy and fertility-related adverse outcomes associated with Chlamydia trachomatis infection: a global systematic review and meta-analysis. *Sexually Transmitted Infections*, *96*(5), 322-329. https://doi.org/10.1136/sextrans-2019-053999

Thomas, J. L., Lewis, J. B., Ickovics, J. R., & Cunningham, S. D. (2021). Associations between Adverse Childhood Experiences and Sexual Risk among Postpartum Women. *International Journal of Environmental Research and Public Health*, *18*(7). https://doi.org/10.3390/ijerph18073848

Van Gerwen, O. T., Craig-Kuhn, M. C., Jones, A. T., Schroeder, J. A., Deaver, J., Buekens, P., Kissinger, P. J., & Muzny, C. A. (2021). Trichomoniasis and adverse birth outcomes: A systematic review and meta-analysis. *BJOG*, *128*(12), 1907-1915. https://doi.org/10.1111/1471-0528.16774

Wood, S. K., Ford, K., Madden, H. C. E., Sharp, C. A., Hughes, K. E., & Bellis, M. A. (2022). Adverse Childhood Experiences and Their Relationship with Poor Sexual Health Outcomes: Results from Four Cross-Sectional Surveys. *International Journal of Environmental Research and Public Health*, *19*(14). https://doi.org/10.3390/ijerph19148869

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Online Mental Health Support for New Mothers: Healthcare Professionals' Views and Experiences

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Literature has focused on women's use of online support for perinatal mental health. However, research exploring the scope of available well-being services and the views of healthcare professionals (HCPs) who deliver this provision is extremely limited. This study focused on HCPs' experiences providing online perinatal mental health and well-being support. Based on interviews with eight UK-based HCPs providing various forms of online perinatal mental health and well-being support, reflexive thematic analysis distilled four themes that captured experiences and perceptions of online provision: 1) New ways of working bring new opportunities; 2) Obstacles and areas for development; 3) Bridging the gap—formal and informal peer support; and 4) Too little too late: lack of mental health education in antenatal services. HCPs indicated that blended ways of working (online and face-to-face) were valuable within their services. Findings emphasize the need for online support services to be available to new and expectant mothers who may not require an HCP referral. The versatility, convenience, and accessibility of online resources bridge the

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gap between face-to-face services and a viable economic and effective form of mental health provision.

Keywords: postpartum, mental health, health professionals, online support

Perinatal mental health (PMH) problems affect up to 27% of women during pregnancy and within the first year after birth (NHS, n.d). Commonly experienced conditions include perinatal depression, perinatal anxiety, post-traumatic stress disorder, and perinatal OCD (Mind, 2020). Women report symptoms such as sleep disturbances, anxiety and worry, appetite changes, low mood, and intrusive or obsessive thoughts (NHS, 2022). This can lead to feelings of hopelessness, isolation, and shame, along with the inability to cope with motherhood (Britton et al., 2019). Thus, seeking early support for PMH complications is crucial to recovery and well-being (Fitelson et al., 2010).

In the UK, women are supported in their transition to motherhood by a multi-disciplinary team of healthcare professionals (HCPs), including midwives, general practitioners (GPs), and health visitors. Health visitors have an important role in the perinatal period, building relationships, guiding, and advising on child health needs such as feeding and sleep. Within their role, they assess maternal mental health as a key element (Slade et al., 2010). However, notable barriers, such as shame and stigma, make it harder for mothers to disclose mental health concerns (Elliott et al., 2020). Additionally, HCP's caseloads are high, and time is limited for each service user to make appointments and provide support (Institute of Health Visiting, 2018). Furthermore, a woman's perceived relationship with their health visitor has been found to influence their decision to disclose mental health concerns (Slade et al., 2010).

Online Support Seeking for Perinatal Mental Health

Online parenting forums, communities, and social media groups are now utilized as a resource for practical support, information seeking, and advice (Moon et al., 2019). The array of digital media for parenting purposes is vast, including parenting apps, blogs, groups, forums, and websites (Lupton et al., 2016; Moon et al., 2019). Parents increasingly use platforms like Facebook, X (formerly known as and referred to in this paper as Twitter), and Instagram to

share experiences and upload parenting-related content. The information mothers seek via online outlets, such as forums, websites, and social media, is highly influential in decision-making (Moon et al., 2019). Many now prefer using digital media as a self-help management tool instead of contacting healthcare professionals for support or advice (Donelle et al., 2021).

One notable positive outcome of forum use for maternal mental health is their potential to create a community, facilitating a sense of bonding, emotional support, and information sharing (Gleeson et al., 2019). Some have likened the online parenting forum to a virtual self-help group informed by members' personal experiences (Doyle, 2013). Peer support (i.e., engaging with other women experiencing the same challenges in new motherhood) can also positively influence postpartum mental health (Huang et al., 2020). Through virtual peer support, online parenting forums provide opportunities for new mothers to seek support and advice while sharing concerns and experiences (Teaford et al., 2019). Moreover, the anonymity afforded by posting on forums reduces potential feelings of stigma or judgment by others.

Studies have begun to examine the effectiveness of online support forums for women with postnatal depression (PND). Moore and Ayers (2017) interviewed women (n = 15) who had accessed parenting forums for postnatal depression. Findings suggest forums had been largely supportive and, for some, had empowered women to disclose concerns offline. A later meta-synthesis (Moore et al., 2020) reviewed five studies to investigate how forum use may reduce maternal mental health stigma. Here, mothers valued sharing experiences, having realized that others were facing similar concerns. Discussing concerns online helped to mitigate against persisting perceived stigma, along with fear around perceived or actual consequences that may be faced if they were to confront their feelings offline (e.g., the fear of having the child removed).

While the benefits of seeking peer support through online communities have been evidenced, research exploring HCP experiences of supporting the mental health of new mothers via these online outlets is lacking. One recent Australian study explored the experiences of peer supporters working on a national perinatal mental health helpline (Biggs et al., 2019). However, the study focused largely on the motivations for support workers taking up this role and the support they received to provide this service. Thus, a gap remains in understanding the features of this support; for example, how this support is delivered, challenges or benefits that healthcare professionals have identified,

the impact professionals believe this support has on their service users, and views on how this support could be improved or integrated with other methods. Consequently, considering how new mothers utilize other outlets of mental health support, this could inform new frameworks to make this support more ubiquitous.

This study aimed to understand the scope of available online provision and conduct a qualitative exploration of healthcare professionals' (HCPs) views and experiences providing online mental health and well-being support to new mothers. More specifically, HCPs were invited to consider how this online support could be improved or integrated with other methods. This is particularly salient for two reasons. Firstly, the move to online perinatal services throughout (and to some extent, after) the COVID-19 lockdown has changed the landscape of how perinatal support organizations provide and run their services (Bridle et al., 2022). It is important to consider how this blended mix of provision is being experienced and enhanced by professionals and received by mothers. Secondly, previous research suggests that many women do not disclose perinatal mental health concerns face-to-face to healthcare professionals, preferring to disclose through online anonymous outlets due to stigma (Moore et al., 2020). Therefore, considering how this online support could be improved, streamlined, and monitored, along with ensuring the trustworthiness of advice and information, is crucial to supporting the mental health of new mothers.

Method

Participants were recruited through an array of online methods. Ads were placed on social media platforms such as Twitter and Facebook and UK parenting forums Netmums and Mumsnet, per the site providers' terms and conditions. Using Twitter handles and email, perinatal mental health charities were invited to share the study with users. Recruitment and data collection commenced in November 2021 and closed in September 2022. A community sample of eight UK-based healthcare professionals (who provided online mental health support for new mothers) participated in this study; seven of these were women with one male HCP. Age information was only disclosed for three individuals (range: 37-48 years). Participants were assigned a pseudonym for anonymity purposes. They worked in various roles, such as health visitor,

specialist occupational therapist, charity peer support worker, and apprentice social worker.

Virtual semi-structured interviews were conducted via Microsoft Teams, using convenience and volunteer sampling. This decision was made partly because the Covid-19 virus was still prevalent within the community and because a remote option facilitated recruitment from a wider geographical area. Moreover, meeting online is more convenient for participants and more effective at building rapport than face-to-face (Braun et al., 2021).

An interview schedule was created focusing on 1) how women can best be supported by remote support, 2) some of the difficulties HCPs may have faced in engaging or supporting women in this way, and 3) how this support could potentially be adapted or improved to provide a more positive and inclusive support experience. Other areas for discussion included contemplating the type of information that is being made available to women on forums and websites about maternal mental health more widely and potential ways in which this online support could be integrated with offline support. The interview took place as outlined in the schedule, using verbal prompts where necessary. Video recordings were available for seven individuals, and an audio recording was only available for one participant whose camera was not working. All interviews were conducted by Dr. McSorley and ranged in duration from 20 minutes to an hour. Interview data were then transcribed and anonymized, ready for manual coding.

The decision to cease data collection for the study was based on practical and pragmatic factors, such as every potential avenue for recruitment being utilized, time constraints, and considerations around the project scope (Braun & Clarke, 2021). Furthermore, the personal judgment of qualitative data's quality, detail, and depth is an integral element of researcher reflexivity and meaningful interpretation (Gough, 2017; Gough & Deadrick, 2015).

The study received ethical approval from [anonymized for peer review] Leeds Beckett University [2021, ref no 98045], in full compliance with the British Psychological Society Codes of Practice and University guidelines. Interested participants were provided with study information and consent instructions via a direct link to the Qualtrics™ site. Participants were advised to consider the sensitive nature of the study on the information page. They were provided examples of the most sensitive questions and details of relevant support organizations, recognizing the potential for distress in relaying experiences of providing mental health and well-being support. The

information sheet further reminded participants of their right to withdraw from the meeting. Data (including that of electronically signed consent forms) were stored securely via Qualtrics™ and per University and GDPR guidelines.

Reflexive thematic analysis (RTA) was employed as the six-step approach advocated by Braun and Clarke (2021). RTA was deemed an appropriate method due to its suitability for encompassing analysis of views, experiences, feelings, and attitudes; furthermore, it is appropriate for developing constructions of meaning within a dataset (Braun & Clarke, 2021). This method is coherent with a critical realist perspective, making practical use of both inductive (i.e., surface meanings) and deductive (i.e., pre-existing knowledge and context) coding (Braun & Clarke, 2021).

Step 1 involved Dr. McSorley reading through the transcripts several times to ensure familiarisation with the data. Step 2 was approached by working through the entire dataset, making initial notes of interest, and creating codes. Then, Step 3 of the initial theme construction began by grouping similar codes to form thematic maps (Braun & Clarke, 2021). This helped to progress from singular ideas to generating broader themes (Braun et al., 2016). In Step 4, candidate themes were discussed with all authors, and reflexive consideration was given as to how the codes and themes fit with the research questions for the study. Collaborative discussion led to some themes being discarded or merged. Themes were then named (Step 5), and the final four themes were deemed to accurately reflect patterns of meaning within the dataset. Findings were reported as part of Step 6.

Results

Four themes were generated which captured experiences and perceptions of online support provision: 1) New ways of working bring new opportunities, 2) Obstacles and areas for development, 3) Bridging the gap—formal and informal peer support, and 4) Too little too late: lack of mental health education in antenatal services.

Theme 1: New Ways of Working Bring New Opportunities

Most HCPs reported that continuing to use some sessions online was effective and beneficial to mothers and HCPs, thus increasing the time available to support more women:

> I mean, I think COVID has helped. If anything, you know, like reach out to more people like like like I said earlier, I think it's as much as it's had its real negatives, it's positives is that we have been able to connect with lots of other people. (Laura)

Although some professionals suggested that providing support online can potentially make it harder to form and maintain relationships with new mothers, others noted how using online platforms can facilitate an open and encouraging space for disclosure:

> I guess in some respects because if you're not there, they might feel like you're not in their house and you're not intruding on their own space. So, they might feel like actually I can disclose a bit more because, you know, she's not right here with me and I ... it feels a bit detached. (Laura)

It was therefore deemed important to consider and respect women's state of comfort and communication preferences when providing online perinatal support:

> I think it does make it easier for some moms. Some moms absolutely love it online … they prefer that online support because it means they don't have to get dressed and they don't have to, you know, think about what am I gonna do with the baby the whole time? (Laura)

In addition, there was some suggestion that online support can be less intimidating than reaching out to an HCP:

> It's a really good first step, I think, because one of the things you do as a new mum is you Google, don't you like you're you're on your phone in the middle of the night finding what support is there … then the idea is that we can then sort of be a bit of a springboard to them accessing more support. (Olivia)

Professionals highlighted that the convenience and ease of access to seeking support online can make it easier for mothers. Olivia noted, "I suppose because it's email as well, people can do it any time of the day, 24 hours. We get emails in the middle of the night."

> I guess the benefits is that it does mean that we can manage time a little bit better and maybe see a few more people because we're not having to travel. So you know for those rural areas, if they are connected and stuff, it does mean that we can fit in more visits, you know, online visits in the week. (Sarah)

The importance of diversity was discussed in terms of women opting for the type of support that they feel comfortable with:

> So, I think just offering the choice, having the choice, would be really good because, at the moment, I feel like most assessments are done on video, and then it's always face-to-face follow-up, whereas you know, it could be the opposite really if needed. (Laura)

Many of those interviewed spoke about how they were beginning to plan (or were setting up) social media support groups (e.g., via Facebook) for new mothers as part of their service. Participants described the perceived benefits of providing this kind of support, which was an additional alternative outlet for women to seek support for their mental health.

> We've only just started a Facebook group that hopefully is gonna kind of come up and coming for mums to post questions about their mental health, about their babies, anything that they feel that they need a bit of support in. (Laura)

Theme 2: Obstacles and Areas for Development

Several interviewees remarked on the requirement of a referral from an HCP to access their service. This was identified as a major barrier for women seeking support due to either not wanting to see a GP or health professional face-to-face to disclose their concerns or because of the limits to preserving anonymity:

> Because that's a there's a barrier there, isn't there? If you need to get a referral in … then you're not anonymous. Well, you can ... I think you can be anonymous on there, but most people, you just see their names. And

> then so I think people, I think people prefer the email because it is a bit more protected. (Olivia)

Another concern raised with perinatal services more widely (e.g., mandated health visitor visits) being increasingly carried out online was the potential for any safeguarding concerns to be missed:

> I asked about it because I thought, what if someone says that they gonna hurt themselves or, you know, and you don't know where they live? You don't do anything about them, or all you know is you've got their email address. And the only thing we can do really is respond and say … This is what you know: you need to call an ambulance, or you know those … I guess it's the stuff that I do in my paid job is, you know, here's the crisis line number. Here's, you know, there's Samaritans it, you know, all those things that you would do. (Olivia)

However, for mothers seeking support for maternal mental health specifically, it would arguably still be preferable for them to access anonymous support rather than no support. Any mandated visits by the health visiting team would likely identify any safeguarding concerns separately.

While this theme highlights that professionals are beginning to embrace online technologies within their services, this emphasizes a need for a wider awareness of online services that new mothers are using for support, thus allowing a deeper understanding of the issues new mothers are facing and their reasons for seeking online services for disclosure and support (e.g., anonymity).

> So yeah, I think people [Perinatal healthcare professionals] just need to talk a little bit more about it and what online support is available. So, hopefully, we can kind of do that as a service, but there's definitely could be more of it. (Laura)

However, access and administrative difficulties associated with setting up and monitoring social media groups were also raised. Professionals considered how to best manage this to provide the most effective support. Olivia observed, "I think with the Facebook stuff…it can be quite difficult to manage that."

> I mean, they could reply to a thread, but they couldn't actually post on it because it's then who do you get to monitor it, and when we first got our page up and running, it was only myself and a nursery nurse, and it's a lot. It is quite a bit of work. And when you're trying to fit that in with the busy caseload as well. (Sarah)

Professionals stressed both the lack of funding and the slow process of getting changes through governance as frustrating and limiting within perinatal mental health services. Charity workers reiterated that a lot of the support they provide relies on trained volunteers rather than employed staff:

> And that's maybe not online face-to-face, and that would be amazing if we could do that. But you know it's a charity, and it's not very well funded. So, kind of relies on very, you know, like committed volunteers and then the the odd person that's paid. (Olivia)

Theme 3: Bridging The Gap–Formal and Informal Peer Support

This theme focuses on how two distinct types of peer support were being provided to new mothers by interviewees: (1) The formal online mental health support provided by employed lived experience peer support workers and (2) professional facilitation and encouragement of mother-to-mother peer support between women in online mental health support groups.

Participants emphasized the value of online support services employing (or utilizing voluntary) trained peer support workers who have previously experienced a perinatal mental health condition. This was viewed as a form of support that centered on a listening ear, empathy, validation, and without judgment. "You know we're not here to fix people. And we are here to listen and, empathize and validate," Jessica.

> Because it's peer support, they know that they're not gonna be judged, and they know that they're just talking to, although a lot of us are also mental health workers. And I guess that's, you know, we've all been there as well. So, we're all peers. We've got lived experience, so they know that anything they say is not going to shock us. (Olivia)

Employed lived experience, peer support workers have the advantage of being trained in perinatal mental health while providing personal experience, knowledge, and empathy stemming from their own struggles.

> That I'm hoping you know it's growing this more and more peer support workers and, you know, lived experience. And I think that that would make a massive difference. It certainly did for me. (Natasha)

In addition, lived experience peer supporters were reported to play a crucial role in driving change within services, promoting the provision of person-centered support, and recognizing where care has not met the needs of the mother:

> It doesn't matter whether I'm in a meeting with the trustees and, you know, all the managers, if there's something that needs tackling or some, you know, some ladies that have disclosed distressing stories, I will share them. And I will, you know, be the voice, but yeah, I wanna say, you know, things have changed dramatically since I went through my own loss in 2017, and it's, you know, it gives me hope to be in this role because I do see all the conversations that happen and it's difficult and there's no money and we all know that there's a lack of staff and yeah, things are really, really difficult, but there's a lot of clinicians and people that want to make that change, and it's acknowledging as well, it's not just saying right, you know, go home. It's one of them things now and it's taking people accountable as well for that change. Changes take time and patience. (Natasha)

HCPs identified that whilst listening support was a crucial part of their role, encouraging and facilitating the supportive and safe sharing of experiences among groups of new mothers was equally valuable, where the power of mother-to-mother peer support needs to be acknowledged and utilized where possible. Amelia said, "That's where the peer support was so empowering, really, because somebody else was saying something similar. And although, as professionals, we can say we've heard it to hear it from somebody else. And to relate to each other."

Theme 4: Too Little Too Late—Lack of Mental Health Education in Antenatal Services

Several professionals perceived themselves to be addressing postpartum support needs, which they felt should be addressed antenatally. For example, women they had supported were unprepared for the emotional transition into motherhood and had not anticipated some of the challenges of motherhood, which in turn contributed to them experiencing well-being issues:

> There's also issues with the kind of, like you know, change in [the new mother's] identity. We have a lot of women who come to us, and they've had quite thriving careers and actually becoming a new mum, it's like starting a career from the bottom again. It's like no one, no one trained me for this [being a mother]. (Jessica)

"We recognized that a lot of women were … quite unaware of the transitions into motherhood and the fourth trimester, and the implications on their mental health and all that sort of thing," Amelia.

Increased antenatal education and preparation to be provided by health services regarding perinatal mental health would also contribute to challenging stigma and normalizing poor maternal mental health, thus facilitating greater disclosure, whether online or offline. Olivia remarked, "Maternal mental health still has a massive stigma attached to it. Like you are a failure because you're not feeling like a bundle of joy about your bundle of joy."

This is linked closely to concerns about persisting societal expectations of motherhood; women take to the new motherhood period naturally, with ease and joy, with little challenge or difficulty. These notions need to be addressed and challenged during antenatal appointments, health visitor appointments, and mother and baby classes:

> It's not just a question of having antenatal classes, and then woohoo, you're prepared. It's actually a wider cultural thing. I think. Antenatal classes can be helpful, and they can also be really unhelpful because particularly, the types of antenatal classes, and I'm not pointing the finger at anyone in particular, but the ones that advocate vaginal births being normal births and … you know, if you can't breastfeed, then you're some kind of failure. If you have to have a C-section, then you've somehow you know you

somehow failed. I think those antenatal classes compound the idea of mothers being failures, and it's a whole like level, and it's a whole lot of stuff that needs to be unpicked there, but that is …. You know, a lot of the women that come to us have been to these classes, and they come to us, and they feel like failures for not having the right birth. (Jessica)

Discussion

This study has contributed to a more holistic and comprehensive understanding of postnatal online mental health support by exploring the viewpoints and experiences of healthcare professionals working across an array of services. New ways of working, such as online communication via video calls and social media groups (alone or blended with face-to-face visits), are valuable in offering new (and wider) opportunities for positive engagement with postpartum mothers. Thus, the value of online support is being realized within perinatal mental health services and charities alike (RQ1). Professionals discussed incorporating blended ways of working and creating new online services, such as social media groups, online interactive posters, and apps (RQ2). However, the need for perinatal services to have a greater understanding of the virtual outlets that mothers may turn to for support was raised to aid in creating further integration between online and offline services. Furthermore, there is a need for professionals to understand the needs of new mothers and the barriers to support that they experience. This could be approached partly by taking a patient-centered approach and involving mothers in developing provision by considering their preferences, support, and information needs.

While promising developments are being made, some online services require a healthcare professional referral to access them, which is largely seen as a barrier to support by interviewees (Theme 2). Indeed, several previous studies have reported that many mothers do not feel comfortable disclosing to healthcare professionals in traditional face-to-face settings (Elliott et al., 2020; Webb et al., 2021). Therefore, the need to gain a referral from an HCP to access an online service conflicts with the desire to access support anonymously.

The emphasis on offering choices in how women receive support is centered on embracing modern technology and communication methods. Recent UK statistics show that during 2020 (the year of the first COVID-19 lockdown), 46.6 million people used the Internet daily, breaking the previous record of 41.8 million in 2016 (Statista, 2023). This suggests that many mothers

are both experienced and confident in using online technologies to communicate and have successfully adapted to adopting new ways of communication post-pandemic. Moreover, the flexibility and convenience afforded by adopting a blended approach to working (online and face-to-face) means that professionals can prioritize needs more easily and allocate time appropriately. Increasing the number of women who can be supported may be particularly salient now, in the aftermath of COVID-19, given that the pandemic is suggested to have consequently increased the risk of women experiencing perinatal anxiety (Hessami et al., 2022).

Theme 3 focused on the value of online peer supporters in providing aid and encouragement to women in the perinatal period. Research has generally overlooked the formal support that can be delivered online by lived experience peer support workers, who provide this service through either employed or voluntary roles for perinatal services or charities. This new insight demonstrates that lived experience, peer support workers have the unique ability to bridge the gap between formal and informal support. While not necessarily a qualified healthcare professional (although some carry out dual roles), these supporters have specialist training, access, and the opportunity to liaise with clinicians regarding the women they support. This is done while grounding the support in experience and empathy.

Drawing on peer support workers' expertise in maternity services may also help to reverse the sense of distrust of health professionals. A recent study utilized interviews with ethnic minority women (n = 19) and an online survey of NHS healthcare practitioners (n = 145) to explore barriers and facilitators contributing to inequalities in perinatal mental healthcare. The authors identified that some women in marginalized communities might be traumatized by (or have a distrust of) perinatal mental health services owing to negative experiences. These include potential poor care due to language barriers, inability to build relationships with HCPs due to cultural differences, discriminatory approaches from HCPs, and experiencing socio-economic deprivation (Darwin et al., 2022). Thus, the ability to integrate support workers within community settings to facilitate relationships between the mothers and healthcare providers may potentially begin to tackle existing health inequalities (outlined above) in perinatal care (Darwin et al., 2022) and offer a culturally centered alternative to traditional services.

The final theme underlines the need for more intensive and realistic antenatal preparation, specifically focused on postpartum mental health, to

prepare women with a more comprehensive understanding of motherhood that goes beyond the period of labor itself. Indeed, previous studies have found that being unprepared for the difficulties and pressures of new motherhood can subsequently lead to feelings of stress, shock, and failure, which can lead to depressive symptoms (Britton et al., 2019). Spiby et al. (2022) emphasize that successful group antenatal education is a key opportunity to provide crucial social support, reduce anxieties, and normalize challenging aspects of the perinatal experience. The authors note that maternity services should prioritize antenatal education more due to its potential role in preventative perinatal mental health. However, Spiby et al. (2022) utilized interviews and focus groups with new and expectant mothers who had attended face-to-face classes. At the same time, the current study adds an extra dimension by considering views from health professionals and the value of an online version of this antenatal support.

A limitation to note, is the small number of participants that were interviewed. Whilst the aim of the current study was to explore various capacities in which professionals worked, in order to understand the support being provided, there was no intention (as a qualitative exploratory study) to report a representative sample. However, it would have been advantageous to recruit a larger number of participants to provide a further understanding of different experiences and services. Specifically, none of the HCPs interviewed provided support on parenting forums, a frequent and valuable source of mental health support for new mothers (McSorley et al., 2022).

Conclusion

These findings highlight the value of incorporating online support within services while also raising questions about the current efficacy of this support and the provision of antenatal education regarding maternal mental health. This study advocates the need for expectant mothers to receive extensive, free (or low-cost) online antenatal preparation programs that outline potential difficulties, challenges, and lifestyle changes. Additionally, these findings could be utilized by perinatal mental health services providing a range of options for women who are seeking support, be that face-to-face, email, text, or video call. Parenting website providers could foster the peer support benefits highlighted in this study by increasing the number of supporters working on

their forum. Moreover, this online peer supporter should be available in various formats, such as a weekly live chat session.

The findings emphasize the crucial need for online well-being support services to be available to new and expectant mothers, which do not require an HCP referral. The versatility and accessibility of these resources could have numerous benefits for maternity services and new mothers compared to what is currently offered through face-to-face services.

References

Biggs, L. J., McLachlan, H. L., Shafiei, T., Small, R., & Forster, D. A. (2019). Peer supporters' experiences on an Australian perinatal mental health helpline. *Health Promotion International, 34*(3), 479–489. https://doi.org/10.1093/heapro/dax097

Braun, V., Clarke, V. & Weate, P. (2016). Using thematic analysis in sport and exercise research. In B. Smith & A. C. Sparkes (Eds.), *Routledge Handbook of Qualitative Research in Sport and Exercise*. 191–205. London: Routledge.

Braun V., & Clarke V. (2021). *Thematic analysis: A practical guide.* SAGE Publications.

Braun, V., Clarke, V., Boulton, E., Davey, L., & McEvoy, C. (2021). The online survey as a qualitative research tool. *International Journal of Social Research Methodology*, *24*(6), 641–654. https://doi.org/10.1080/13645579.2020.1805550

Bridle, L., Walton, L., van der Vord, T., Adebayo, O., Hall, S., Finlayson, E., Easter, A., & Silverio, S.A. (2022). Supporting Perinatal Mental Health and Well-being during COVID-19. *International Journal of Environmental Research and Public Health, 19*, 1777. https://doi.org/10.3390/ijerph19031777

Britton, L., Barkhuus, L., & Semaan, B. (2019). "Mothers as Candy Wrappers": Critical Infrastructure Supporting the Transition into Motherhood. *Proceedings of the ACM on Human-Computer Interaction, 3*(GROUP), 1-21. https://doi.org/10.1145/3361113

Darwin, Z., Blower, S. L., Nekitsing, C., Masefield, S., Razaq, R., Padgett, L., Endacott, C., Willan, K., & Dickerson, J. (2022). Addressing inequalities in the identification and management of perinatal mental health difficulties: The perspectives of minoritised women, healthcare practitioners and the voluntary sector. *Frontiers in global women's health, 3*, 1028192. https://doi.org/10.3389/fgwh.2022.1028192

Donelle, L., Hall, J., Hiebert, B., Jackson, K., Stoyanovich, E., LaChance, J., & Facca, D. (2021). Investigation of Digital Technology Use in the Transition to Parenting: Qualitative Study. *JMIR Pediatrics and Parenting, 4*(1), e25388. https://doi.org/10.2196/25388

Doyle, E. (2013). Seeking advice about children's health in an online parenting forum. *Medical Sociology Online, 7*(3), 17–27.

Elliott, G. K., Millard, C., & Sabroe, I. (2020). The utilization of cultural movements to overcome stigma in narrative of postnatal depression. *Frontiers in Psychiatry, 11*, 532600. https://doi.org/10.3389/fpsyt.2020.532600

Fitelson, E., Kim, S., Baker, A. S., & Leight, K. (2010). Treatment of postpartum depression: clinical, psychological and pharmacological options. *International Journal of Women's Health, 3*, 1–14. https://doi.org/10.2147/IJWH.S6938

Gleeson, D. M., Craswell, A., & Jones, C. M. (2019). Women's use of social networking sites related to childbearing: An integrative review. *Women and Birth, 32*(4), 294–302. https://doi.org/10.1016/j.wombi.2018.10.010

Gough, B. (2017). Reflexivity in qualitative psychological research. *The Journal of Positive Psychology*, 12:3, 311-312, DOI: 10.1080/17439760.2016.1262615

Gough, B., & Deatrick, J. A. (2015). Qualitative health psychology research: diversity, power, and impact. *Health Psychology, 34*(4), 289. https://doi.org/10.1037/hea0000206

Hessami, K., Romanelli, C., Chiurazzi, M., & Cozzolino, M. (2022). COVID-19 pandemic and maternal mental health: a systematic review and meta-analysis. *Journal of Maternal-Fetal & Neonatal Medicine, 35*(20), 4014-4021. https://doi.org/10.1080/14767058.2020.1843155

Huang, R., Yan, C., Tian, Y., Lei, B., Yang, D., Liu, D., & Lei, J. (2020). Effectiveness of peer support intervention on perinatal depression: A systematic review and meta-analysis. *Journal of Affective Disorders, 276*, 788-796. https://doi.org/10.1016/j.jad.2020.06.048

Institute of Health Visiting. (2018). *Caseload*. https://ihv.org.uk/news_tag/caseload/

Lupton, D. (2016). The use and value of digital media for information about pregnancy and early motherhood: a focus group study. *BMC Pregnancy and Childbirth, 16*(1), 171. https://doi.org/10.1186/s12884-016-0971-3

McSorley, L., Deighton-Smith, N., Budds, K., & Wang, X. (2022). "Hang in there, mama!": The role of online parenting forums in maternal mental health. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace. 16*(4), Article 11. https://doi.org/10.5817/CP2022-4-11

Mind. (2020, April). *Postnatal depression and perinatal mental health*. https://www.mind.org.uk/information-support/types-of-mental-health-problems/postnatal-depression-and-perinatal-mental-health/about-maternal-mental-health-problems/

Moon, R. Y., Mathews, A., Oden, R., & Carlin, R. (2019). Mothers' Perceptions of the Internet and Social Media as Sources of Parenting and Health Information: Qualitative Study. *Journal of Medical Internet Research, 21*(7), e14289. https://doi.org/10.2196/14289

Moore, D., & Ayers, S. (2017). Virtual voices: Social support and stigma in postnatal mental illness Internet forums. *Psychology, Health & Medicine, 22*(5), 546–551. https://doi.org/10.1080/13548506.2016.1189580

Moore, D., Drey, N., & Ayers, S. (2020). A meta-synthesis of women's experiences of online forums for maternal mental illness and stigma. *Archives of Women's Mental Health, 23*(4), 507–515. https://doi.org/10.1007/s00737-019-01002-1

NHS. (2022, August). *Overview-Postnatal depression.* https://www.nhs.uk/mental-health/conditions/post-natal-depression/overview/

NHS. (n.d.) *Perinatal mental health*. https://www.england.nhs.uk/mental-health/perinatal/

Slade, P., Morrell, C. J., Rigby, A., Ricci, K., Spittlehouse, J., & Brugha, T. S. (2010). Postnatal women's experiences of management of depressive symptoms: a qualitative study. *British Journal of General Practice, 60*(580), e440-e448. https://doi.org/10.3399/bjgp10x532611

Spiby, H., Stewart, J., Watts, K., Hughes, A. J., & Slade, P. (2022). The importance of face-to-face, group antenatal education classes for first-time mothers: A qualitative study. *Midwifery, 109*, 103295. https://doi.org/10.1016/j.midw.2022.103295

Statista. (2023, February 3). *Number of internet users and non-users in Great Britain from 2006 to 2020 by frequency of use.* https://www.statista.com/statistics/286077/number-of-internet-users-in-great-britain-by-frequency/

Teaford, D., McNiesh, S., & Goyal, D. (2019). New mothers' experiences with online postpartum forums. *MCN: The American Journal of Maternal/Child Nursing, 44*(1), 40–45. https://doi.org/10.1097/nmc.0000000000000489

Webb, R., Uddin, N., Ford, E., Easter, A., Shakespeare, J., Roberts, N., Alderdice, F., Coates, R., Hogg, S., Cheyne, H., Ayers, S., & MATRIx study team (2021). Barriers and facilitators to implementing perinatal mental health care in health and social care settings: A systematic review. *The Lancet. Psychiatry, 8*(6), 521–534. https://doi.org/10.1016/S2215-0366(20)30467-3

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Evaluating Outcomes of a Compassion Focused Therapy Group for Mothers Under the Care of a Perinatal Community Mental Health Team

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New motherhood is associated with multiple changes and role transitions. The internalization of cultural narratives that idealize motherhood may increase guilt and shame when new mothers perceive that they are failing to meet these standards. Compassion Focused Therapy (CFT) has been adapted as a model for understanding and alleviating distress during the perinatal period. This study evaluates the outcomes of an eight-session, online perinatal CFT group developed and delivered within a Perinatal Community Mental Health Team in East England. Service user feedback is analyzed to explore participants' experiences with the group. Thirty women took part in the CFT group. Three routine outcome measures were used to measure self-criticism, self-reassurance, fears of compassion, and psychological distress, pre- and post-group. Service user feedback was collected verbally and via an online questionnaire. Significant reductions in self-criticism and psychological distress and significant improvements in the

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ability to self-reassure were observed. Qualitative feedback suggested that participants found the group informative and supportive. The service evaluation results suggest that the CFT group appears to be meeting its aims of reducing self-criticism, fears of compassion, and psychological distress.

Keywords: Compassion Focused Therapy, CFT, perinatal mental health

Perinatal mental health difficulties (those occurring during pregnancy or in the first year after birth) are considered a serious public health concern, which, if left untreated, can lead to adverse outcomes for mothers, partners, and infants' well-being and development (British Psychological Society, 2016). The transformation of specialist Perinatal Mental Health Services (PMHS) across England, therefore, was identified as a key priority within the NHS Long Term Plan (NHS England, 2019) and Five Year Forward View (NHS England, 2016). Clinical psychology leadership is argued to play an important role in driving the improvement of PMHS, including increasing access to high-quality, evidence-based psychological interventions to support mothers' mental health needs and associated difficulties in the parent-infant relationship (British Psychological Society, 2019). Given the breadth and complexity of perinatal mental health presentations, national guidance advises that services should offer rapid access to a range of psychological therapies. These may include Cognitive Behavioural Therapy (CBT), Interpersonal Therapy (IPT), and family interventions (NICE, 2014; Royal College of Psychiatrists, 2020).

Compassion Focused Therapy (CFT)

Compassion Focused Therapy (CFT) is an increasingly popular transdiagnostic therapy adapted for treating perinatal mental health difficulties (Cree, 2010; Cree, 2015). Underpinned by attachment theory and evolutionary psychology, CFT aims to reduce shame and self-criticism and cultivate compassion (defined as "a sensitivity to suffering in self and others, with a commitment to try to alleviate and prevent it"; Gilbert, 2014). Compassion is seen as a relational process that can flow in three directions: toward the self, others, and from others to ourselves. High levels of shame and self-criticism are thought to interfere with the ability to experience affiliative emotions, such

as love, calmness, safety, and affiliative ways of relating, which play important roles in attachment.

Another core component of CFT is the three systems model, whereby emotions are seen as serving three key evolutionary functions: to alert us to threats (threat system), to seek resources and rewards (drive system), and to seek safety (soothing system; Gilbert, 2014). As these systems are said to co-regulate each other, significant over- or under-activity in any one system may lead to difficulties. CFT aims to stimulate the soothing system by encouraging engagement with suffering and taking action to help alleviate this. Fears, blocks, and resistances to experiencing compassion are actively explored as part of CFT.

Since its inception in 2000, CFT has become increasingly popular as an alternative to CBT across various clinical settings. Two recent systematic reviews explored the effectiveness of CFT as a treatment for a range of mental health conditions (Craig et al., 2020; Millard et al., 2023). Results showed that most studies focused on group CFT, but there was considerable variation in the duration and intensity of treatment. While it appeared that CFT led to reduced self-criticism, symptomatology, and increased self-compassion, findings should be taken cautiously, as the quality of studies reviewed was variable. Both reviews highlight the need for longitudinal RCTs, using standardized treatment protocols and comparing CFT to alternative therapies to strengthen the evidence base for the effectiveness of CFT.

The Role of CFT in the Perinatal Period

Although motherhood is often viewed as a time of great joy, evidence suggests that many women find the transition to motherhood difficult and challenging for a variety of reasons (Cree, 2010). Various vulnerabilities may contribute to difficulties around the time of birth, including a lack of social support, hormonal changes, and traumatic birth experiences (Cree, 2015). Furthermore, mothers who feel that they have failed to live up to their view of the “ideal mother” may be more prone to experiencing guilt and shame, which may underlie a range of mental health difficulties (Gilbert, 2009; Gilbert & Irons, 2004, Liss et al., 2013;). CFT, therefore, has been adapted as a model for understanding and helping to alleviate perinatal distress (Cree, 2010).

The evidence base for perinatal CFT is in its infancy. A few studies describe brief, self-guided, compassion-based interventions trialed with

nonclinical samples (Gammer et al., 2020; Kelman et al., 2016; Lennard et al., 2020; Mitchell et al., 2017). For example, an RCT by Gammer et al. (2020) evaluated a low-intensity, compassion-based intervention with a nonclinical, volunteer sample of mothers (n=206). Participants completed an interactive, self-guided online program (Kindness for Mums Online) based on a self-help book. Compared to waitlist controls, those receiving the intervention showed a significantly greater increase in self-compassion and psychological well-being, while changes in psychopathology were not significantly different between groups. However, the study suffered a high attrition rate, with 49% of those in the intervention group not completing post-intervention measures. Furthermore, using a nonclinical sample and low-intensity intervention somewhat limits the generalisability of findings in clinical settings. Further research focusing on perinatal clinical populations is needed.

Local Context: The Perinatal CFT Group

The Perinatal Community Mental Health Team (PCMHT) was set up in 2017 as a local service in the East of England and is commissioned to assess and treat women who are experiencing (or at risk of developing) severe and complex mental health difficulties during pregnancy or up to 24 months after birth. In line with the NHS Long-Term Plan, the psychology provision has expanded to include access to a range of psychological therapies. This project evaluates outcomes from an online perinatal CFT group set up in March 2020 by Clinical Psychologists within the service.

The CFT group is transdiagnostic in nature and is designed for mothers who are experiencing high levels of self-criticism and difficulties with self-compassion, which impacts their ability to manage difficult emotions and challenges during the perinatal period. Case managers make referrals, and individuals are offered a psychological assessment to consider suitability for the group. The group consists of eight weekly, 90-minute sessions facilitated via Zoom by two Clinical Psychologists, with support from Peer Support Workers and Assistant Psychologists. Sessions are based on a workbook and involve a combination of psychoeducation, CFT exercises, and group discussions (Table 1). The group aims to help women better understand their experiences and learn skills to increase self-compassion and reduce emotional distress.

Table 1

Summary of Sessions and Exercises in the CFT Group

Number	Focus of Session	Exercises
1	Understanding our tricky brains	Notice five things Soothing rhythm breathing
2	Influences on our struggles: challenges of the perinatal period and our past experiences	Compassionate color Shark music video Safe place exercise
3	Our affect system (three circles model)	Safe, calm place with baby Drawing our three circles Your kindness to others
4	Safety strategies and unintended consequences	Leaves on a stream The compassionate self
5	Self-to-self relating and self-criticism	The perfect nurturer Three chairs exercise Bringing compassion to the self-critic
6	Applying compassion to thoughts and emotions	Mindfulness of thoughts and emotions Taking a difficult situation to the perfect nurturer
7	Compassionate letter writing	Formulation review
8	Review and reflections	Loving-kindness meditation Compassionate kit bag

Note. Percentages in brackets.

This service evaluation collects routine outcome measures and service user feedback between March 2020 and April 2023 to evaluate whether the CFT group effectively achieves its aims. This will help the PCMHT to evidence therapeutic outcomes, inform future improvements to the group, and contribute to the developing evidence base for perinatal CFT.

This study explored whether the CFT group helped reduce self-criticism, fears of compassion, and global psychological distress. It also explored which aspects of the group participants found helpful or unhelpful and participants' suggestions for improvement.

Method

This service evaluation has a mixed-methods, pre-post design. Participants were asked to complete three standardized outcome measures at the beginning and end of the CFT group. Service user feedback was collected at the end of the group. The total sample consisted of 34 women under the care of the PCMHT who were invited to attend the CFT group between March 2020 and April 2023. The group ran seven times during this period. This project evaluates outcome measures data and service user experience data, which the PCMHT routinely collects. Therefore, separate written consent was not required. Three standardized routine outcome measures were administered at the beginning and end of the CFT group. These measures aim to assess self-criticism, self-reassurance, fears of compassion, and global psychological distress.

This project was registered with the local NHS Trust Research and Development Department. Ethical approval for the service evaluation project was received from the University of East Anglia Faculty of Medicine and Health Sciences Research Ethics Committee.

Forms of Self-Criticising/Attacking and Self-Reassuring Scale (FSCRS)

The FSCRS is a widely used, 22-item self-report compassion-based measure that assesses how individuals respond to perceived failures (Gilbert et al., 2004; Millard et al., 2023). The FSCRS measures tendencies to be self-critical (considered an important factor in many forms of psychopathology) and, in contrast, the ability to be self-reassuring.

Baião et al. (2015) conducted a confirmatory factor analysis of the FSCRS, collating data from 12 studies. This provided support for a three-factor model of the FSCRS, comprising one factor of *self-reassurance* (a positive, warm view of the self, scored 0-20) and two factors of self-criticism: *inadequate self* (feeling inadequate in response to setbacks, 0-36) and *hated self* (a disgust-based response to setbacks, characterized by self-dislike, 0-32). Gilbert et al. (2004) found that the FSCRS had excellent internal consistency, with Cronbach's alphas for *inadequate self, hated self,* and *reassured self* of 0.9, 0.86, and 0.86, respectively. Furthermore, Castilho et al. (2015) found that the FSCRS had acceptable test-retest reliability, with Pearson's correlation coefficients for *inadequate self, hated self,* and *reassured self* of $r = 0.72$, $r = 0.78$, and $r = 0.65$, respectively.

Fears of Compassion Scales (FCS)

The FCS is a 28-item self-report measure (introduced during the fourth group cycle), which assesses fears of the three flows of compassion: *for self*, *to others*, and *from others* (Gilbert et al., 2011). Many individuals may find it challenging to receive compassion or practice self-compassion for various reasons, which is important to monitor as part of CFT (Gilbert et al., 2011). Indeed, a meta-analysis by Kirby et al. (2019) found that fears of compassion significantly correlated with mental health outcomes (e.g., shame, self-criticism, depression). The FCS produces three subscale scores: fears of compassion *for self* (0-60), *from others* (0-52), and *for others* (0-40). The scales showed good internal consistency, with Cronbach's alphas of 0.92, 0.85, and 0.84, respectively (Gilbert et al., 2011).

Clinical Outcomes in Routine Evaluation – Outcome Measure (CORE-34)

The CORE-34 is a 34-item, self-report transdiagnostic measure of global psychological distress (Evans et al., 2002) routinely collected by the PCMHT to monitor mental health and evaluate therapeutic interventions (Lucas, 2018). The CORE-34 provides a total score (global distress) and four subscale scores (well-being, symptoms, functioning, and risk). The CORE-34 is problem-scored, meaning higher scores indicate greater psychological distress across all subscales. Subscale scores range from 0-4, and total scores range from 0-136.

The CORE-34 has been validated with clinical populations and shown to be sensitive to change and able to differentiate between clinical and nonclinical samples (Connell et al., 2007; Evans et al., 2002). All domains of the CORE-34 show Cronbach's alpha of between 0.75 and 0.95, indicating acceptable internal consistency.

For the first four cycles of the group, participants were invited to complete an anonymous SurveyMonkey questionnaire about their experience with the CFT group. This explored the helpfulness of the sessions and areas for improvement. In subsequent groups, time was allocated during the final session for participants to give verbal feedback about their experience. This was facilitated in a reflective group discussion guided by an informal interview schedule. The group facilitators documented feedback.

G*Power was used to perform an a priori power calculation for paired samples with two-tailed t-tests. Using Cohen's d effect size, a medium effect size of 0.5 was input into the calculation, and it was determined that a sample size of 34 would be required to achieve sufficient power (0.8). Qualitative service user feedback was analyzed using qualitative content analysis (Mayring, 2021).

Results

Thirty women attended the CFT group. The mean age of women attending the group was 31 years (range = 22-41 years, SD= 4.67), and for infants, 6.5 months (range = 0-14 months, SD = 3.68). Eighty-eight percent of participants identified as White British, 9% as White Other, and 3% as Black South African. The most common psychiatric diagnosis was perinatal depression (59%), followed by Post-Traumatic Stress Disorder (PTSD), complex PTSD or birth trauma (32%), perinatal Obsessive Compulsive Disorder (OCD) (21%), Borderline Personality Disorder (BPD) or Emotionally Unstable Personality Disorder (EUPD) (21%), and eating disorders (21%). Sixty-two percent of participants had received more than one psychiatric diagnosis. Attendance data are presented in Table 2.

Table 2

Attendance at the CFT group

Group	Invited	Completed (6-8 Sessions)	Partially Completed (3-5 Sessions)	Not Completed (≥2 Sessions)
1. March – June 2020	6	6	0	0
2. November 2020 – January 2021	5	4	1	0
3. May – July 2021	5	2	3	0
4. November 2021 – January 2022	4	2	0	2
5. June – July 2022	4	3	0	1
6. November – December 2022	6	5	0	1
7. March – April 2023	4	3	1	0
All	34	25 (73)	5 (15)	4 (12)

Note. Percentages in brackets.

Routine Outcome Measures

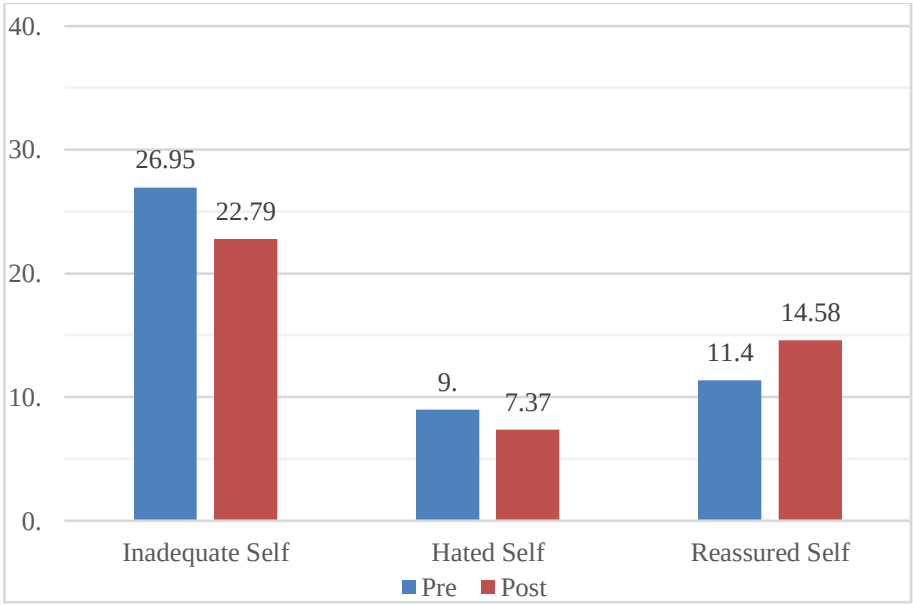
Forms of Self-Criticising/Attacking and Self-Reassuring Scale (FSCRS)

Twenty-four out of thirty women attending the CFT group completed a pre- and post-FSCRS (80% return rate). However, due to a change in the scoring procedure, three-factor subscale scores were only available for 19 people.

Mean pre- and post-group FSCRS scores are shown in Figure 1. Two-tailed, paired samples t-tests were used to compare scores (Table 3). G*Power was used to perform a post-hoc power calculation, which revealed that the power to detect a medium effect was 0.54. This falls below the recommended threshold (0.8).

Figure 1

Mean FSCRS Scores, Pre- and Post-Group



Note. Possible scores for the *inadequate self* subscale range from 0-36, *hated self*, 0-32, and *reassured self*, 0-20

Table 3

Paired Samples T-Tests Comparing Pre- and Post-FSCRS Scores

	Pre-Group Mean	**Post-Group Mean**	**Difference**	**T**	**df**	***p***	**Effect Size (Cohen's d)**
Inadequate Self	26.95 (6.24)	22.79 (7.76)	-4.16	3.55	18	.002	0.59
Hated Self	9 (4.90)	7.37 (5.33)	-1.63	2.03	18	.057	-
Reassured Self	11.38 (4.57)	14.58 (5.78)	+3.2	1.26	18	.004	0.61

Note. Standard deviations in parentheses.
Significant at the $p < .05$ level, with Holm correction for multiple comparisons (Wright, 1992).

The results of the t-tests showed a statistically significant reduction in *inadequate self* scores and a significant increase in *reassured self* scores from the beginning to the end of the CFT group. Effect sizes were medium (Cohen, 1988).

Fears of Compassion Scales (FCS)

The FCS was introduced as an additional outcome measure from the fourth group. Only six of a possible fourteen participants completed a pre- and post-group FCS (43% return rate). Therefore, there was insufficient power to perform inferential statistics. Descriptive statistics are presented in Table 4.

Table 4

Mean FCS scores

	Pre-Group Mean	**Post-Group Mean**	**Difference**
Fears of Compassion *For Self*	25.67 (12.91)	16.12 (15.04)	-9.5
Fears of Compassion *From Others*	21.12 (6.31)	16 (12.33)	-5.17
Fears of Compassion *For Others*	14.67 (8.69)	12.5 (8.96)	-2.17

Note. Standard deviations in parentheses. Higher scores indicate a greater fear of compassion. Possible scores for fears of compassion *for self* range from 0-60, *from others*, 0-52, and *for others*, 0-40.

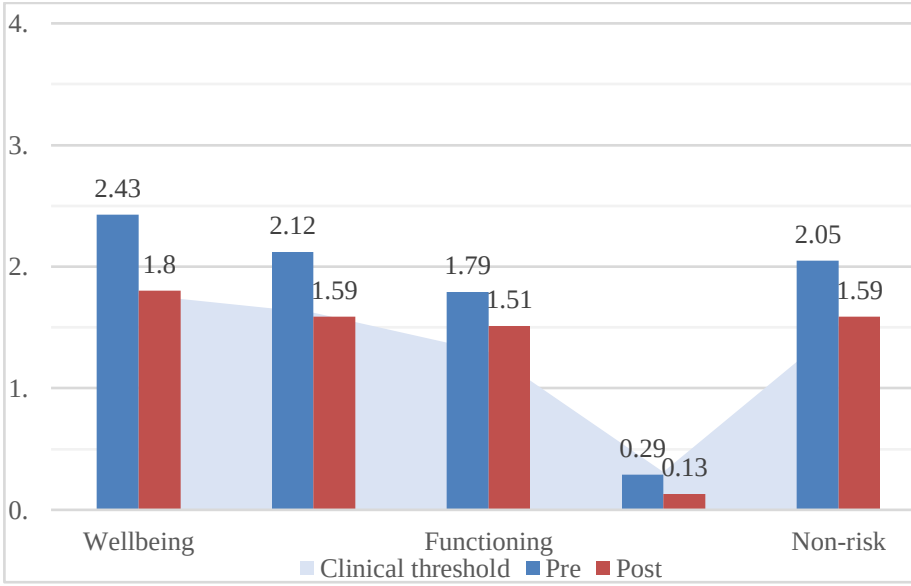
On average, participants' fear of compassion for self, from others, and for others reduced from the beginning to the end of the CFT group. The greatest reduction was in fears of compassion for self.

Clinical Outcomes in Routine Evaluation–Outcome Measure (CORE-34)

Twenty-six out of thirty women completed a pre- and post-group CORE-34 (87% return rate). G*Power was used to perform a post-hoc power calculation for paired samples two-tailed t-tests. Results revealed that the power to detect a medium effect was 0.69, which falls below the recommended threshold.

Mean scores are presented in Figure 2. As can be seen, mean scores on the problems/symptoms and risk subscales moved from the clinical to nonclinical range post-intervention (Evans et al., 1998).

Figure 2



Note. The shaded area represents cut-off scores for differentiating clinical and nonclinical populations, as follows: well-being (1.77), problems (1.62), functioning (1.3), risk (0.31), and non-risk (1.5; Evans et al., 1998).

Two-tailed, paired samples t-tests were used to compare pre-and post-group subscale scores, which met parametric assumptions. Non-parametric data (risk subscale) were analyzed using a Wilcoxon Signed-Rank test.

Table 5

Paired Samples T-Tests Comparing CORE-34 Subscale Scores, Pre- And Post-Group

	Pre-Group Mean	**Post-Group Mean**	**Difference**	**T**	**df**	***p***	**Effect size (Cohen's d)**
Well-being	2.43 (0.89)	1.8 (0.88)	-0.63	3.3	25	.003*	0.72
Problems/ symptoms	2.12 (0.84)	1.59 (0.79)	-0.53	3.01	25	.005*	0.78
Functioning	1.79 (0.59)	1.51 (0.76)	-0.28	2.38	25	.025*	0.41
Non-Risk	2.05 (0.67)	1.59 (0.73)	-0.46	3.12	25	.005*	0.66
Total	59 (20.14)	45 (20.79)	-14	3.22	25	.004*	0.68

Note. *Significant at the $p < .05$ level, with Holm correction for multiple comparisons (Wright, 1992). Standard deviations in parentheses. Subscale scores range from 0-4, and total scores from 0-136. Higher scores indicate greater psychological distress.

Results from the t-tests revealed that total scores and scores on well-being, problems or symptoms, functioning, and non-risk subscales significantly reduced, post-intervention. Effect sizes ranged from small to medium (Cohen, 1988).

Table 6

Results of a Wilcoxon Signed-Rank Test Comparing Pre- and Post-Group CORE-34 Risk Scores

	Pre-Group Mean	**Post-Group Mean**	**Change**	**Z**	***p***
Risk	0.29 (0.44)	0.13 (0.2)	-1.6	1.64	.101

Note. Standard deviation in parentheses.

*Significant at the $p < .05$ level.

The difference in mean pre/post-group risk scores was non-significant.

Qualitative Service User Feedback

Service user feedback was analyzed to explore what participants found helpful and unhelpful about the CFT group and their suggestions for improvement. Between March 2020 and April 2023, 18 women provided feedback about their experience (eight people via SurveyMonkey and ten people verbally). In total, 77 comments were collected.

Qualitative content analysis (Mayring, 2023) was used to analyze (categorize) the text. Each comment was treated as a unit of analysis (Graneheim & Lundman, 2003). Following familiarisation with the data, a manifest analysis was felt most appropriate, given the brief, literal nature of the feedback and the service focus on identifying strengths and areas for improvement. Comments were organized according to the project question, and inductive category formation was used to develop categories directly from the material. A summary is presented below.

What Has Been Helpful About the CFT Group?

Forty comments related to helpful aspects of the group. *Understanding* ($n = 18$) was the most common category. Eight comments highlighted the value of CFT exercises (e.g., compassionate letter-writing, three chairs exercise) in facilitating greater self-awareness and important realizations. “Not being so reactive to the lack of compassion I have towards myself. The realization of how un-compassionate I can be towards myself and figuring out why I am like that.”

Six comments related to formulation and sense-making. Participants described having gained a better understanding of their feelings and experiences, which helped to reduce self-blame:

> A lot of things made so much sense because of the past trauma and bad history with my parents. Even though it happened, it wasn’t my fault. It is going to be a big journey, but it’s doable. It normalized things – feeling that you are not the only one going through it. It’s ok. You just have to be compassionate, like you would be to a friend.

Supportive ($n = 13$) was the second most common category. Participants seemed to value opportunities to connect and hear about others’ experiences. Six comments referred to shared experiences; participants described feeling

reassured and less alone. Three comments described the group as a "safe space" where people felt comfortable sharing if they wished. "I liked that a lot of us had the same fears and worries. I felt less weird that I worried my baby would die. I liked that we had [facilitator] from peer support, who had done it before." Five comments referred to the group's accessibility. Participants commented on some advantages of remote (as opposed to face-to-face) therapy, which included being able to attend to children when needed, feeling less exposed, and not being required to travel.

What Has Been Unhelpful About the CFT Group?

Only five comments related to unhelpful aspects of the group. It was not possible to develop meaningful categories due to the brevity of the comments. However, themes included distractions during the group (e.g., the presence of babies), challenges with maintaining concentration for the session, and other factors associated with the online format, such as the requirement to have one's camera on.

How Can the Group be Improved?

Twenty comments related to ways in which the group could be improved. *Group format* (n = 10) was the most common category. Six comments related to possible benefits of doing the group face-to-face. These included being able to meet other mothers in person, having fewer distractions, and finding it easier to contribute. Two people described a preference for smaller groups, and two said they would prefer shorter sessions due to difficulties with maintaining concentration. "I found it easier to talk in a smaller group [referencing a session when there were only two participants there]."

Information/materials (n = 8) was the second most common category. Three people suggested improving the CFT workbook (e.g., providing further support with completing individual CFT formulations). Three people said that summaries of sessions and reminder emails would be helpful. "I wasn't sure how to fill in the formulation [agreed that an example formulation would have helped]."

The final category was *service user involvement* (n = 2). Suggestions included considering ways to inform partners about the group, having guest speakers, and providing a means for participants to remain in contact after the group had completed.

Discussion

Thirty women attended the CFT group between March 2020 and April 2023. Three routine outcome measures were collected, pre- and post-group, to assess change in self-criticism, self-reassurance, symptomatology, and fears of compassion. Qualitative service user feedback, exploring participants' experience of the group, was collected verbally and via a SurveyMonkey questionnaire.

Consistent with group aims, comparisons between pre- and post-group FSCRS scores showed that self-criticism scores (*inadequate self)* had significantly reduced and self-reassurance scores significantly increased. Reductions in symptomatology were observed across all subscales of the CORE-34, but only one of these comparisons was statistically significant, with effect sizes ranging from small to medium. Comparisons between a small number of pre-and post-group FCS scores showed that participants' mean fears of compassion scores (*for self, from others,* and *to others*) had reduced post-intervention; however, there were insufficient responses to perform any statistical analysis of FCS scores. Overall, these results provide tentative support that the CFT group effectively meets its aims of increasing self-compassion and reducing psychological distress.

Qualitative content analysis was used to analyze service user feedback. Eighteen (of thirty) women provided feedback; this was generally very positive. Participants commonly reported having gained a better understanding of their feelings and experiences during motherhood, which helped to reduce self-blame (a core aim of CFT; Gilbert, 2009). Many participants found it reassuring to hear about other mothers' experiences and realize they were not alone. This appears consistent with the aims of perinatal CFT in reducing participants' sense of shame and difference (Cree, 2010). Previous qualitative research with women with perinatal depression suggests that opportunities to connect with others authentically may help to reduce feelings of isolation and offer support and validation (Negron et al., 2013; Taylor et al., 2021).

Twenty comments were collected regarding how the CFT group could be improved. Common suggestions included increasing opportunities for social connection during the group, providing more support with aspects of the workbook (such as completing individual CFT formulations), and finding ways to involve service users and partners. Some of these suggestions have already been implemented by the group facilitators. For example, one-to-one sessions

are offered alongside the group to support completing formulations, and WhatsApp groups provide opportunities for informal contact between participants. Regarding service user and partner involvement, this is an under-researched area that requires further exploration and consultation with the PCMHT service user panel. A meta-synthesis of qualitative studies exploring partners' views of perinatal services found that although partners play a vital role in perinatal mental health, they often feel marginalized and uninformed by services, which are largely mother-baby-oriented (Taylor et al., 2017).

Currently, there is limited evidence for the effectiveness of perinatal CFT. Previous studies have sampled nonclinical populations and described brief, low-intensity interventions (Gammer et al., 2020), which limits the generalisability of findings to perinatal mental health settings. This service evaluation took place within a real-world clinical setting and uses standardized outcome measures, which are well-established within the CFT literature, increasing the replicability of the project.

Craig et al.'s (2020) systematic review of CFT intervention studies concluded that there is an urgent need for treatment standardization within CFT research (i.e., through the development of universal, standardized manuals) to strengthen the existing evidence base. This CFT group was based on a manual developed by Perinatal Clinical Psychologists within the service, drawing on the work of Michelle Cree (2010; 2015), and it may be helpful to consider how this work could be shared more widely (e.g., within perinatal clinical networks).

Regarding limitations, due to missing follow-up data and a change in the FSCRS scoring procedure, the sample size was reduced to below the required statistical power. Although statistically significant improvements were found in self-criticism, self-reassurance, and psychopathology from pre- to post-group, results should be interpreted cautiously as low power may reduce the likelihood of detecting a true effect (Button et al., 2013). Furthermore, the FCS was introduced partway through the service evaluation, and return rates were considerably lower for the FCS than for the FSCRS and CORE-34 (43%, 80%, and 87%, respectively).

Finally, the first two CFT groups took place during coronavirus lockdowns. The pandemic has been associated with increased stress and mental health difficulties among new mothers (Kasaven et al., 2023). This may have adversely impacted post-group outcomes, which may have reduced the size of observed effects.

Conclusion

Perinatal mental health is a critical public health issue that affects not only mothers but also their partners and infants. Implementing effective intervention strategies, such as Compassion Focused Therapy (CFT), presents an opportunity to address the unique challenges that arise during this vulnerable period. CFT, with its emphasis on fostering compassion and reducing self-criticism, aligns well with the complex emotional landscape of new motherhood.

Despite certain limitations, such as the small sample size, the findings from the service evaluation are promising. Consistent with the group aims, results suggest that women attending the CFT group experienced improvements in self-reassurance and reductions in self-criticism and psychological distress. These results are supported by service user feedback, which was largely very positive. The CFT group will continue to run alongside the collection of routine outcome measures and service user feedback. This will help ensure that outcomes are continually reviewed and the service remains responsive to feedback.

References

Baião, R., Gilbert, P., McEwan, K., & Carvalho, S. (2015). Forms of Self-Criticising/Attacking & Self-Reassuring Scale: Psychometric properties and normative study. *Psychology and Psychotherapy: Theory, Research and Practice, 88*(4), 438–452. https://doi.org/10.1111/papt.12049

British Psychological Society (2016, February). *Briefing paper no.8 update. Perinatal service provision: The role of perinatal clinical psychology.* http://research.bmh.manchester.ac.uk/pfrg/pfrgresearch/perinatal/PerinatalBriefingPaper.pdf

British Psychological Society (2019, September 30). *Perinatal psychology provision in specialist perinatal community mental health services*. https://explore.bps.org.uk/content/report-guideline/bpsrep.2019.pp19

Button, K. S., Ioannidis, J. P., Mokrysz, C., Nosek, B. A., Flint, J., Robinson, E. S., & Munafò, M. R. (2013). Power failure: Why small sample size undermines the reliability of neuroscience. *Nature Reviews Neuroscience, 14*(5), 365–376. https://doi.org/10.1038/nrn3475

Castilho, P., Pinto-Gouveia, J., & Duarte, J. (2015). Exploring self-criticism: Confirmatory factor analysis of the FSCRS in clinical and nonclinical samples. *Clinical Psychology & Psychotherapy, 22*(2), 153–164. https://doi.org/10.1002/cpp.1881

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Routledge.

Connell, J., Barkham, M., Stiles, W. B., Twigg, E., Singleton, N., Evans, O., & Miles, J. N. (2007). Distribution of CORE-OM scores in a general population, clinical cut-off points and comparison with the CIS-R. *British Journal of Psychiatry, 190*(1), 69–74. https://doi.org/10.1192/bjp.bp.105.017657

Craig, C., Hiskey, S., & Spector, A. (2010). Compassion focused therapy: A systematic review of its effectiveness and acceptability in clinical populations. *Expert Review of Neurotherapeutics, 20*(4), 385-400. https://doi.org/10.1080/14737175.2020.1746184

Cree, M. (2010). Compassion focused therapy with perinatal and mother-infant distress. *International Journal of Cognitive Therapy, 3*(2), 159-171. https://doi.org/10.1521/ijct.2010.3.2.159

Cree, M. (2015). *The compassionate mind approach to postnatal depression: Using compassion focused therapy to enhance mood, confidence and bonding*. Robinson.

Evans, C., Connell, J., Barkham, M., Margison, F., McGrath, G., Mellor-Clark, J., & Audin, K. (2002). Towards a standardised brief outcome measure: Psychometric properties and utility of the CORE-OM. *British Journal of Psychiatry, 180*(1), 51–60. https://doi.org/10.1192/bjp.180.1.51

Evans, C., Connell, J., Barkham, M., Mellor-Clark, J., Margison, F., McGrath, G., & Kerry, A. (1998). The *CORE outcome measure: User's manual (version 2.1)*. Core System Group. https://www.researchgate.net/publication/203827825_The_CORE_outcome_measure_user's_manual_version_21

Gammer, I., Hartley-Jones, C., & Jones, F. W. (2020). A randomized controlled trial of an online, compassion-based intervention for maternal psychological well-being in the first year postpartum. *Mindfulness, 11*, 928-939. https://doi.org/10.1007/s12671-020-01306-9

Gilbert, P. (2009). Introducing compassion-focused therapy. *Advances in Psychiatric Treatment, 15*(3), 199-208. doi:10.1192/apt.bp.107.005264

Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology, 53*(1), 6–41. https://doi.org/10.1111/bjc.12043

Gilbert, P., Clarke, M., Hempel, S., Miles, J. N., & Irons, C. (2004). Criticizing and reassuring oneself: An exploration of forms, styles and reasons in female students. *The British Journal of Clinical Psychology, 43*(1), 31–50. https://doi.org/10.1348/014466504772812959

Gilbert, P., & Irons, C (2004). A pilot exploration of the use of compassionate images in a group of self-critical people. *Memory, 12*(4), 507-16. https://doi.org/10.1080/09658210444000115

Gilbert, P., McEwan, K., Matos, M., & Rivis, A. (2011). Fears of compassion: Development of three self-report measures. *Psychology And Psychotherapy: Theory, Research and Practice, 84*(3), 239–255. https://doi.org/10.1348/147608310X526511

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today, 24*(2), 105–112. https://doi.org/10.1016/j.nedt.2003.10.001

Kasaven, L. S., Raynaud, I., Jalmbrant, M., Joash, K., & Jones, B. P. (2023). The impact of the COVID-19 pandemic on perinatal services and maternal mental health in the UK. *BJPsych Open, 9*(1), e13. https://doi.org/10.1192/bjo.2022.632

Kelman, A. R., Evare, B. S., Barrera, A. Z., Muñoz, R. F., & Gilbert, P. (2018). A proof-of-concept pilot randomized comparative trial of brief Internet-based compassionate mind training and cognitive-behavioral therapy for perinatal and intending to become pregnant women. *Clinical Psychology & Psychotherapy, 25*(4), 608-619. https://doi.org/10.1002/cpp.2185

Lennard, G. R., Mitchell, A. E., & Whittingham, K. (2021). Randomized controlled trial of a brief online self-compassion intervention for mothers of infants: Effects on mental health outcomes. *Journal of Clinical Psychology, 77*(3), 473-487. https://doi.org/10.1002/jclp.23068

Lever Taylor, B., Billings, J., Morant, N., & Johnson, S. (2017). How do women's partners view perinatal mental health services? A qualitative meta-synthesis. *Clinical Psychology & Psychotherapy, 25*(1), 112–129. https://doi.org/10.1002/cpp.2133

Liss, M., Schiffrin, H. H., & Rizzo, K. M. (2013). Maternal guilt and shame: The role of self-discrepancy and fear of negative evaluation. *Journal of Child and Family Studies, 22*(8), 1112–1119. https://doi.org/10.1007/s10826-012-9673-2

Lucas, H. (2020, May). Perinatal Quality Network, Royal College of Psychiatrists. *Standards for Community Perinatal Mental Health Services Fifth Edition.* https://maternalmentalhealthalliance.org/wp-content/uploads/pqn-community-standards-fifth-edition.pdf

Mayring, P. A. E. (2021). Qualitative content analysis. In Tierney, T. J., Rizvi, F. & Ercikan, K. (Eds.), *International Encyclopedia of Education Fourth Edition* (314-321). Elsevier. https://doi.org/10.1016/B978-0-12-818630-5.11031-0

Millard, L. A., Wan, M. W., Smith, D. M., & Wittkowski, A. (2023). The effectiveness of compassion focused therapy with clinical populations: A systematic review and meta-analysis. *Journal of Affective Disorders, 326*, 168-192. https://doi.org/10.1016/j.jad.2023.01.010

Mitchell, A. E., Whittingham, K., Steindl, S., & Kirby, J. (2018). Feasibility and acceptability of a brief online self-compassion intervention for mothers of infants. *Archives of Women's Mental Health, 21*(5), 553–561. https://doi.org/10.1007/s00737-018-0829-y

National Institute of Clinical Excellence (2014, December 17). *Antenatal and postnatal mental health: clinical management and service guidance*. www.nice.org.uk/guidance/cg192

NHS England (2016, July 18). *Implementing the Five Year Forward View for Mental Health*. https://www.england.nhs.uk/publication/implementing-the-fyfv-for-mental-health/

NHS England (2019, January). *The NHS Long Term Plan*. https://www.longtermplan.nhs.uk/publication/nhs-long-term-plan/

Negron, R., Martin, A., Almog, M., Balbierz, A., & Howell, E. A. (2013). Social support during the postpartum period: Mothers' views on needs, expectations, and mobilization of support. *Maternal and Child Health Journal, 17*(4), 616–623. https://doi.org/10.1007/s10995-012-1037-4

Royal College of Psychiatrists (2018, November). Framework for routine outcome measures in perinatal psychiatry. https://www.rcpsych.ac.uk/improving-care/campaigning-for-better-mental-health-policy/college-reports/2018-college-reports/cr216

Taylor, B. L., Howard, L. M., Jackson, K., Johnson, S., Mantovani, N., Nath, S., Sokolova, A. Y., & Sweeney, A. (2021). Mums alone: Exploring the role of isolation and loneliness in the narratives of women diagnosed with perinatal depression. *Journal of Clinical Medicine, 10*(11), 2271. https://doi.org/10.3390/jcm10112271

Wright, S. P. (1992). Adjusted p-values for simultaneous inference. *Biometrics, 48*(4), 1005–1013. https://doi.org/10.2307/2532694

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Pandemic Perceptions and Healthcare Decisions: Exploring Perceived COVID-19 Threat's Impact on Perinatal Healthcare in Florida

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The COVID-19 pandemic directly impacted well-being and healthcare delivery, but its indirect effects on health services utilization among pregnant women and new mothers remain less understood. Understanding how big events like pandemics impact health behaviors is essential for anticipating healthcare needs during future crises. This study examined how the perceived COVID-19 threat influenced health concerns and service utilization among 378 participants who were either pregnant or mothers of infants less than 12 months old, 18 years or older, and lived within a 50-mile radius of healthcare sites in the OneFlorida+ Clinical Research Consortium. An online Qualtrics survey assessed COVID-19 threat perception,

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distress related to health and resource concerns (e.g., access to medicine, baby supplies, mental and general healthcare, and social interactions), and changes to health service utilizations (e.g., induction schedule, hospital/birthing center choices, prenatal provider, and visit frequency) during the pandemic. Participants who perceived COVID-19 as a significant threat were more likely to report concerns about reduced access to general healthcare (p = 0.043). Pregnant participants, compared to mothers with infants under 12 months of age, expressed greater concern about reduced access to mental healthcare (p = 0.015).

Additionally, the perceived COVID-19 threat was linked to changes in prenatal care providers and labor induction schedules ($p < 0.001$). These findings highlight the importance of integrating the perceived threat of pandemics or other major events into mental health screenings. Healthcare providers should proactively address potential changes in patient behavior during major events in anticipation of future crises.

Keywords: pregnancy, COVID-19, mental healthcare, prenatal healthcare utilization, perceived COVID-19 threat

COVID-19 has profoundly affected healthcare systems, societal structures, and the global economy (Filip et al., 2022). Among perinatal populations, the virus has notably increased health risks, such as premature rupture of membranes, preterm labor, fetal tachycardia, and fetal distress during the third trimester of pregnancy (Rasmussen et al., 2020; Wei et al., 2021). As a result, pregnant women were advised to alter their routines to reduce exposure, including avoiding crowded places, public transportation, and contact with individuals infected with COVID-19 (Aghababaei et al., 2020). Beyond the immediate physical health risks, substantial evidence shows that the pandemic has severely impacted mental health and well-being (Aghababaei et al., 2020; Folkman & Greer, 2000; Giuntella et al., 2021; Groulx et al., 2021; Mo et al., 2021; Moyer et al., 2020; Paredes et al., 2021; Shen et al., 2022; Vanstone et al., 2023). The combination of heightened health risks and psychological stressors has amplified mental health concerns for pregnant women, underscoring the urgent need for comprehensive support strategies.

Pregnancy involves significant hormonal changes. Mental health issues, like depression and anxiety, can complicate both childbirth and the well-being of mother and child (Chauhan & Potdar, 2022). Maternal depression can manifest as low self-confidence, loss of interest, apathy, feelings of worthlessness, and difficulty concentrating (Chauhan & Potdar, 2022). Unexpected events, such as the COVID-19 pandemic, can further exacerbate stress-related symptoms, including worry, depression, anxiety, and post-traumatic stress disorder (PTSD), all of which negatively impact the mental health of pregnant patients and the health of the fetus (Paredes et al., 2021). These stress responses are likely influenced by disrupted healthcare systems, reduced provider visits, and lifestyle changes necessitated by the pandemic (Filip et al., 2022). Individuals with a heightened perception of threat are at increased risk of worry, depression, anxiety, and PTSD (Paredes et al., 2021). Perceived COVID-19 threat refers to an individual's perception that the pandemic negatively impacts their life (Paredes et al., 2021).

The COVID-19 pandemic can be considered a *Big Event*, a large-scale, abnormal event that causes widespread shifts in populations' norms, beliefs, and behaviors (Friedman et al., 2021). Examples of these Big Events include war, hurricanes or other large natural disasters, economic collapses, or pandemics (Friedman et al., 2021). The health effects of Big Events are uncertain, so retrospective analysis of past pandemics and other large-scale events is essential to understanding the resulting social changes. Researchers note that analyzing variables like changes in institutional structures, individual experiences, and normative expectations could help us better understand the health impact of Big Events (Friedman et al., 2021). Therefore, exploring individual maternal experiences linked to the perceived COVID-19 threat has the potential to offer valuable insights for effectively allocating resources to perinatal health during future crises.

Data shows that pregnant patients experienced heightened anxiety and depressive symptoms during the pandemic compared to pre-pandemic levels (Moyer et al., 2020). Additionally, disruptions in prenatal care, including appointment cancellations and changes in birthing plans, have exacerbated these mental health challenges (Groulx et al., 2021). Previous studies have explored risk perception in decision-making regarding preventive behaviors and vaccination outcomes in perinatal populations, but they often fail to consider the role threat perception plays in healthcare utilization (Aghababaei et al., 2020; Mo et al., 2021; Shen et al., 2022; Vanstone et al., 2023).

The heightened concerns about mental health care during times of pandemic-related distress and healthcare disruptions underscore the importance of exploring the role of perceived threat during pregnancy (Filip et al., 2022; Giuntella et al., 2021). While prior research has established links between COVID-19, healthcare disruptions, and increased stress-related symptoms, there are limited studies that account for threat perception as a potential mediating variable (Aghababaei et al., 2020; Mo et al., 2021; Shen et al., 2022; Vanstone et al., 2023). Our study aimed to build on existing literature by investigating the intersection of perceived COVID-19 threat and healthcare utilization among pregnant patients (Filip et al., 2022; Giuntella et al., 2021; Rochelson et al., 2020).

We evaluated the association between perceived threat and healthcare utilization among pregnant patients and mothers of infants under 12 months in Florida, leveraging the OneFlorida+ Clinical Research Consortium. With more than 200,000 births recorded annually, Florida ranks fourth in the nation for annual births, making the OneFlorida+ clinical research consortium ideal for data collection (Xu et al., 2023). Given Florida's substantial birth rate, understanding the relationship between perceived COVID-19 threat and healthcare utilization in perinatal populations is crucial for informing future public health strategies and preparing for future Big Events.

Method

To be eligible for the study, participants had to be cisgender females, 18 years or older, pregnant or have an infant younger than 12 months of age, and residing within 50 miles of a site participating in the OneFlorida+ Clinical Research Consortium (Xu et al., 2023). The OneFlorida+ Clinical Research Consortium is a statewide partnership of 11 Florida health systems, providers, and insurers. It encompasses a broad and diverse population across various health systems in Florida. The OneFlorida+ sites selected for inclusion included Tallahassee, Jacksonville, Gainesville, Orlando, Tampa, and Miami (OneFlorida Clinical Research Consortium, 2024; Xu et al., 2023). Recruitment and survey administration were managed through Qualtrics, a commercial survey platform (Qualtrics, Provo, UT). Recruitment of target participants was based on qualifying demographic characteristics (e.g., race, age, gender) reported on user profiles to reflect our target audience and to ensure the findings are relevant to the populations of interest. Participants who met eligibility

requirements (pregnant or had an infant younger than 12 months of age) were invited to participate and sent an active survey link to the consent page and survey instrument. Once the pre-screening was passed, the participants took a 30-minute virtual Qualtrics survey. The study was approved by the University of Florida's Institutional Review Board.

The questionnaires assessed participants' perceptions of the COVID-19 threat and their concerns about health and resources during the pandemic. The questionnaires were constructed by integrating previously published scales and questions, such as sociodemographic questions, along with adapted measures aimed at gathering information on perceptions and experiences with clinical research using the Health Information National Trends Survey (HINTS) (Hesse et al., 2006, Xu et al., 2023). Demographic and perinatal information included maternal age, parity, education level, race and ethnicity, household income, health insurance status, Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) eligibility, and relationship status.

Perceived COVID-19 threat was measured using a 5-point Likert scale, with responses of "strongly agree" and "agree" combined into an "agree" category and "strongly disagree" and "disagree" combined into a "disagree" category. Responses of "refuse to answer" and "don't know" were excluded from the analysis due to the ambiguity of the response. Responses were combined to increase the statistical power by increasing the sample size and to identify general trends among our populations that would otherwise be unclear from nuanced differences in opinions.

Participants also reported their level of concern regarding reduced access to medicine, baby supplies, mental healthcare, general healthcare, and diminished social interactions using a 4-point Likert scale. Responses of "moderately distressing" and "highly distressing" were combined into a "distressing" category, and responses of "not of concern" and "not distressing" were combined into a "not distressing" category. Participants indicated any changes in their prenatal care and birth plans due to the pandemic, specifying whether changes in C-section or labor induction schedules, hospital or birthing centers, prenatal healthcare providers, and visit frequency. These changes were categorized as elective (proactive changes made by the participant), required (changes mandated by hospital or provider), or no change (no adjustments).

Data was collected between April and September 2020 and managed using REDCap electronic data capture tools (Harris et al., 2009, 2019). The survey data was transferred by another to ensure accurate data validation. Statistical

analysis included Pearson's Chi-squared test, performed using R version 4.0.5 via the RStudio interface 1.3.1056 (R: The R Project for (Statistical Computing, 2024). Specifically, gtsummary was utilized for descriptive statistics (Sjoberg, 2021). Chi-squared tests were used to examine associations between perceived COVID-19 threat ("agree" or "disagree") and health service access and utilization outcomes.

Results

Of the 378 participants, 267 (70.6%) perceived COVID-19 as a threat, while 111 (29.4%) did not. Among those who perceived COVID-19 as a threat, 149 (55.8%) were mothers of infants under 12 months, and 17 (6.4%) were pregnant and mothers of infants under 12 months. In contrast, of the 111 participants who did not perceive COVID-19 as a threat, 50 (45.1%) were pregnant, 56 (50.4%) were mothers of infants under 12 months, and 5 (4.5%) were both pregnant and mothers of an infant under 12 months (Table 1).

Table 1

Demographics

Agree or Disagree That COVID-19 is a Threat	**Total (*n* = 378)**	***%***	**Agree (*n* = 267)**	***%***	**Disagree (*n* = 111)**	***%***	***p*-value**[1]
Perinatal Status							0.386
Pregnant	151	40	101	37.8	50	45.1	
Mother	205	54.2	149	55.8	56	50.4	
Pregnant and Mother	22	5.8	17	6.4	5	4.5	
Recruitment Method							0.026
Other	170	45	133	49.8	37	45.1	
Social Media	131	34.7	81	30.3	50	33.3	
Email	47	12.4	33	12.4	14	12.6	
Word of Mouth	19	5.0	14	5.3	5	4.5	
Phone Call	11	2.9	6	2.2	5	4.5	

Agree or Disagree That COVID-19 is a Threat	**Total (*n* = 378)**	***%***	**Agree (*n* = 267)**	***%***	**Disagree (*n* = 111)**	***%***	***p*-value**[1]
Maternal Age							0.014
18 - 24 Years	115	30.4	74	27.7	41	36.9	
25 - 34 Years	180	47.6	139	52.1	41	36.9	
35 - 44 Years	73	19.3	45	16.9	28	25.2	
45+ Years	10	2.6	9	3.3	1	1	
Parity							0.010
0	67	17.7	50	18.8	17	15.3	
1	98	26	69	25.8	29	26.2	
2	91	24	74	27.7	17	15.3	
3+	122	32.3	74	27.7	48	43.2	
Highest Education							0.00035
Graduate Degree	86	22.8	48	18.0	38	34.2	
Undergraduate Degree	182	48.1	138	51.7	44	39.6	
High School Degree	91	24.1	69	25.8	22	19.8	
8th Grade or Less	3	0.8	0	0	3	2.7	
Technical or Vocational Degree	15	4	12	4.5	3	2.7	
N/A	1	0.2	0	0	1	1	
Maternal Race							0.452
White	222	58.7	160	59.9	62	55.8	
Black	73	19.3	47	17.6	26	23.4	
Asian	16	4.2	14	5.2	2	1.8	
Native	6	1.6	4	1.5	2	1.8	
Hawaiian	2	0 .5	1	0.4	1	1	
Multiple	43	11.4	28	10.5	15	13.5	
Other	16	4.3	13	4.9	3	2.7	

Agree or Disagree That COVID-19 is a Threat	Total (*n* = 378)	%	Agree (*n* = 267)	%	Disagree (*n* = 111)	%	*p*-value[1]
Maternal Ethnicity							0.141
Not Hispanic	259	68.5	189	70.8	70	63.1	
Hispanic	119	31.5	78	29.2	41	36.9	
Household Income							0.350
$0 - $37,000	133	35.2	93	35.8	40	36.0	
$37,001 - $75,000	152	40.2	114	42.6	38	34.3	
$75,000 or Higher	86	22.8	55	20.6	31	27.9	
N/A	7	1.8	5	1.9	2	1.8	
Health Insurance							0.214
Medicaid	158	41.8	114	42.7	44	39.6	
Private	160	42.3	106	39.7	54	48.7	
Other	22	5.8	20	7.5	2	1.8	
Military	13	3.4	9	5.2	4	3.6	
No Insurance	18	4.8	14	3.4	4	3.6	
N/A	7	1.9	4	1.5	3	2.7	
WIC Eligibility							0.367
Yes	221	58.5	150	56.2	71	64.0	
No	116	30.7	87	32.6	29	26.0	
N/A	41	10.8	30	11.2	11	10.0	
Relationship Status							0.026
Engaged or Married	227	60.1	157	58.8	70	63.1	
Committed Relationship	102	27.0	80	30.0	22	19.8	
Single	42	11.1	27	10.1	15	13.5	
Separated or Divorced	5	1.3	3	1.1	2	1.8	
Widowed	2	0.5	0	0	2	1.8	

Note. [1] Pearson's Chi-squared test.

There was a significant association between maternal age and perception of COVID-19 threat (p = 0.014). The age group 25-34 years, which included 47.6% of participants (n = 180), was most likely to perceive COVID-19 as a threat at 52.1% (n = 139). A significant association was found between the highest level of education and the perception of COVID-19 as a threat (p = 0.00035). Participants with a graduate degree constituted 22.8% (n = 86), undergraduate degree 48.1% (n = 182), and high school diploma 24.1% (n = 91).

Most participants were White (58.7%, n = 222). Hispanic participants comprised 31.5% (n = 119) compared to 23% in the OneFlorida+ Research Consortium. There was a significant association between relationship status and COVID-19 threat (p = 0.026). Most participants (87.1%, n = 329) were in committed relationships. Of those who perceived COVID-19 as a threat, 88.8% (n = 237) were in committed relationships, compared to 83% (n = 92) of those who did not perceive COVID-19 as a threat (Table 1). Among the 378 participants, 70% (n = 267) perceived COVID-19 as a threat. Perceived COVID-19 threat was associated with concerns of reduced access to general health care ($p < 0.05$) (Table 2).

Table 2

Perceived COVID-19 Threat and Concerns About Future Access to Health Resources in Pregnant Women and Mothers of Infants Less Than 12 Months

Resource Concerns	**Total (n = 378)**	**Agree that COVID-19 is a threat (n = 267)**	**Disagree that COVID-19 is a threat (n = 111)**	***p*-value[1]**
Reduced Access to Medicine in The Future				0.266
Distressing	204 (54%)	149 (56%)	55 (50%)	
Not Distressing	174 (46%)	118 (44%)	56 (50%)	
Reduced Access to Baby Supplies in The Future				0.076
Distressing	237 (63%)	175 (66%)	62 (56%)	
Not Distressing	141 (37%)	92 (34%)	49 (44%)	

Resource Concerns	Total (*n* = 378)	Agree that COVID-19 is a threat (*n* = 267)	Disagree that COVID-19 is a threat (*n* = 111)	*p*-value[1]
Reduced Access to Mental Health Care In The Future				0.141
Distressing	206 (54%)	152 (57%)	54 (49%)	
Not Distressing	172 (46%)	115 (43%)	57 (51%)	
Reduced Access to General Healthcare In The Future				0.015
Distressing	210 (56%)	159 (60%)	51 (46%)	
Not Distressing	168 (44%)	108 (40%)	60 (54%)	
Reduced Access to Positive Social Interactions Due to Social Distancing or Quarantine				0.475
Distressing	215 (57%)	155 (58%)	60 (54%)	
Not Distressing	163 (43%)	112 (42%)	51 (46%)	

Note. [1] Pearson's Chi-squared test.

Among the 173 pregnant participants, 68% (*n* = 118) perceived COVID-19 as a threat. Pregnant participants who perceived COVID-19 as a threat expressed greater concern for reduced access to mental health care ($p = 0.043$) (Table 3).

Table 3

The Association Between Perceived COVID-19 Threat and Future Access to Health Resources in Pregnant Women Only

Resource Concerns	Total (*n* = 173)	Agree that COVID-19 is a threat (*n* = 118)	Disagree that COVID-19 is a threat (*n* = 55)	*p*-value[1]
Reduced Access to Medicine in The Future				0.617
Distressing	96 (55%)	67 (57%)	29 (53%)	
Not Distressing	77 (45%)	51 (43%)	26 (47%)	
Reduced Access to Baby Supplies in The Future				0.311
Distressing	107(62%)	76 (64%)	31 (56%)	
Not Distressing	66 (38%)	42 (36%)	24 (44%)	
Reduced Access to Mental Health Care in The Future				0.043
Distressing	101(58%)	75 (64%)	26 (47%)	
Not Distressing	72 (42%)	43 (36%)	29 (53%)	
Reduced Access to General Healthcare in The Future				0.071
Distressing	99 (57%)	73 (62%)	26 (47%)	
Not Distressing	74 (43%)	45 (38%)	29 (53%)	
Reduced Access to Positive Social Interactions Due to Social Distancing and Quarantine				0.875
Distressing	96 (55%)	65 (55%)	31 (56%)	
Not Distressing	77 (45%)	53 (45%)	24 (44%)	

Note. [1] Pearson's Chi-squared test.

Participants who perceived COVID-19 as a threat were less likely to make elective changes to their C-section and labor induction schedules or prenatal healthcare providers ($p < 0.001$). Additionally, hospital and birthing centers were

not frequently changed among those who perceived COVID as a threat. In contrast, participants who disagreed that COVID-19 was a threat required cancellations or reduction in prenatal care visits more frequently than those who perceived COVID-19 as a threat (Table 4).

Table 4

Perceived COVID-19 Threat and Health Service Utilization in Pregnant Women Only

Resource Concerns	**Total (*n* = 173)**	**Agree that COVID-19 is a threat (*n* = 118)**	**Disagree that COVID-19 is a threat (*n* = 55)**	***p*-value[1]**
Change In C-Section or Labor Induction Schedule				<0.001
Required Change	43 (25%)	27 (23%)	16 (29%)	
Elective Change	55 (32%)	28 (24%)	27 (49%)	
No Change	75 (43%)	63 (53%)	12 (22%)	
Change Hospitals or Birthing Center				0.002
Required Change	43 (25%)	24 (20%)	19 (35%)	
Elective Change	42 (24%)	23 (19%)	19 (35%)	
No Change	88 (51%)	71 (60%)	17 (31%)	
Change Prenatal Health Care Providers				<0.001
Required Change	41 (24%)	23 (19%)	18 (33%)	
Elective Change	45 (26%)	23 (19%)	22 (40%)	
No Change	87 (50%)	72 (61%)	15 (27%)	
Cancellation of or Reduction in Frequency of Prenatal Visits				0.002
Required Change	65 (38%)	38 (32%)	27 (49%)	
Elective Change	37 (21%)	21 (18%)	16 (29%)	
No Change	71 (41%)	59 (50%)	12 (22%)	

Note. [1] Pearson's Chi-squared test.

Discussion

Our study provides a unique insight into healthcare service utilization among pregnant patients and mothers of infants under 12 months of age during the COVID-19 pandemic. A significant majority of participants (70.6%) perceived COVID-19 as a threat, and this perception was strongly linked to concerns over reduced access to both general and mental health care services. Notably, those who viewed COVID-19 as a threat were less likely to make elective changes to their C-section or labor induction schedules compared to those who did not perceive COVID-19 as a threat.

Florida declared a public health emergency in response to the COVID-19 pandemic on March 1, 2020, which led to significant disruptions across the healthcare system (Florida – Coronavirus State Actions, 2020). Despite efforts to maintain healthcare flexibility, Florida experienced multiple COVID-19 surges (Florida Passes 100,000 COVID-19 Cases, 2020). Our data, collected during one of the early pandemic spikes, underscores the critical need to understand health service utilization during large-scale public health crises. While previous studies have explored decision-making in pregnant populations (Aghababaei et al., 2020; Mo et al., 2021; Shen et al., 2022; Vanstone et al., 2023), our study provides new information on the specific link between perceived COVID-19 threat and healthcare utilization. Our findings align with prior research by showing that concerns related to COVID-19 significantly influenced healthcare access and decision-making (Groulx et al., 2021; Javaid et al., 2021; Rochelson et al., 2020; Vanstone et al., 2023). Pregnant women in our study also reported feeling a lack of support due to limited healthcare interactions, highlighting the widespread impact of the pandemic on mental health and the critical need for increased mental health support (Cameron et al., 2020; Javaid et al., 2021; Preis et al., 2020).

The Health Belief Model provides a useful framework for interpreting our findings by suggesting that perceived threat plays a key role in healthcare decision-making (Jones et al., 2015). According to the model, an individual's actions are influenced by the perception of the severity of a disease and the balance between perceived benefits and barriers of certain health behaviors. Our findings suggest that participants who perceived COVID-19 as a serious threat were less likely to make elective changes to their birth plans, likely due to perceived risks outweighing the potential benefits of altering their plans.

Retrospective analyses of the COVID-19 pandemic offer valuable insights into the impact of Big Events on perinatal health outcomes and healthcare utilization (Friedman et al., 2021). By examining factors such as prenatal care and birth plan choices, our study contributes to the growing knowledge of how major crises impact healthcare choices. A Big Event is any large-scale, abnormal occurrence that disrupts health norms, beliefs, social support, and behaviors (Friedman et al., 2021). Big events may include war, natural disasters, large-scale recessions, or pandemics (Friedman et al., 2021). While some Big Events have been more thoroughly studied, significant gaps remain. For instance, research on hurricane exposure has found associations with pregnancy complications, preterm birth, low birth weight, cesarean birth, and abnormal newborn conditions, though inconsistencies in study design and the type of hurricane exposure call for further investigation (Jeffers & Glass, 2020). Clarifying these outcomes may require a deeper analysis of resource concerns and specific health service utilization, as our study does.

Our study makes a significant contribution to the field by examining how patient threat perceptions influence the use of physical and mental health services among pregnant and postpartum women during a crisis. Our study results provide a more thorough understanding of choices related to healthcare utilization in patients. By exploring connections like threat perceptions during large-scale events, we can better prepare healthcare professionals to maintain strong patient relationships and continuity of care during crises. Collecting data on pregnancy and healthcare choices during COVID-19 strengthens our understanding of populations in crisis and informs how we can allocate resources and funding more effectively in future large-scale public health emergencies.

The strengths of our study include its focus on perceived COVID-19 threats and their impact on health service utilization. Our study successfully identified a need for improved mental healthcare access for pregnant patients during pandemics and examined changes in prenatal care decisions. However, the cross-sectional design limits our ability to assess the long-term effects of the pandemic. Additionally, the lack of pre-pandemic mental health data and reliance on self-reported questionnaires instead of clinical measures are limitations that should be addressed in future studies. Online recruitment may also introduce bias, particularly affecting generalizability (Jang & Vorderstrasse, 2019). Future research should include longitudinal studies to assess the long-term impacts of pandemics on healthcare utilization and mental

health. Incorporating clinical mental health measures and expanding recruitment to mitigate bias would enhance the robustness of future findings. Additionally, integrating mental healthcare specialists into healthcare services for women and children could improve support during pandemics.

Conclusion

Our study highlights the associations between perceived COVID-19 threat and concerns about reduced access to general and mental health care. The findings indicate a need for proactive measures to address mental health concerns and adapt healthcare delivery during pandemics and other Big Events. We recommend that healthcare systems incorporate mental healthcare specialists to support pregnant women and new mothers better during such crises.

References

Aghababaei, S., Bashirian, S., Soltanian, A., Refaei, M., Omidi, T., Ghelichkhani, S., & Soltani, F. (2020). Perceived risk and protective behaviors regarding COVID-19 among Iranian pregnant women. *Middle East Fertility Society Journal*, *25*(1), 29. https://doi.org/10.1186/s43043-020-00038-z

Cameron, E. E., Joyce, K. M., Delaquis, C. P., Reynolds, K., Protudjer, J. L. P., & Roos, L. E. (2020). Maternal psychological distress & mental health service use during the COVID-19 pandemic. *Journal of Affective Disorders*, *276*, 765–774. https://doi.org/10.1016/j.jad.2020.07.081

Chauhan, A., & Potdar, J. (2022). Maternal mental health during pregnancy: A critical review. *Cureus*. https://doi.org/10.7759/cureus.30656

Filip, R., Gheorghita Puscaselu, R., Anchidin-Norocel, L., Dimian, M., & Savage, W. K. (2022). Global Challenges to Public Health Care Systems during the COVID-19 Pandemic: A Review of Pandemic Measures and Problems. *Journal of Personalized Medicine*, *12*(8), 1295. https://doi.org/10.3390/jpm12081295

Florida – Coronavirus State Actions. (2020, March 9). Retrieved from https://www.nga.org/coronavirus-state-actions/florida/.

Florida Passes 100,000 COVID-19 Cases. (2020, June 22). Retrieved from https://www.npr.org/sections/coronavirus-live-updates/2020/06/22/881734964/florida-passes-100-000-covid-19-cases.

Folkman, S., & Greer, S. (2000). Promoting psychological well-being in the face of serious illness: when theory, research, and practice inform each other. *Psycho-Oncology*, *9*(1), 11–19. https://doi.org/10.1002/(SICI)1099-1611(200001/02)9:1<11::AID-PON424>3.0.CO;2-Z

Friedman, S. R., Mateu-Gelabert, P., Nikolopoulos, G. K., Cerdá, M., Rossi, D., Jordan, A. E., Townsend, T., Khan, M. R., & Perlman, D. C. (2021). Big Events theory and measures may help explain emerging long-term effects of current crises. *Global Public Health*, *16*(8–9), 1167–1186. https://doi.org/10.1080/17441692.2021.1903528

Giuntella, O., Hyde, K., Saccardo, S., & Sadoff, S. (2021). Lifestyle and mental health disruptions during COVID-19. *Proceedings of the National Academy of Sciences*, *118*(9). https://doi.org/10.1073/pnas.2016632118

Groulx, T., Bagshawe, M., Giesbrecht, G., Tomfohr-Madsen, L., Hetherington, E., & Lebel, C. A. (2021). Prenatal Care Disruptions and Associations With Maternal Mental Health During the COVID-19 Pandemic. *Frontiers in Global Women's Health*, *2*. https://doi.org/10.3389/fgwh.2021.648428

Harris, P. A., Taylor, R., Minor, B. L., Elliott, V., Fernandez, M., O'Neal, L., McLeod, L., Delacqua, G., Delacqua, F., Kirby, J., & Duda, S. N. (2019). The REDCap consortium: Building an international community of software platform partners. *Journal of Biomedical Informatics*, *95*, 103208. https://doi.org/10.1016/j.jbi.2019.103208

Harris, P. A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap)—A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, *42*(2), 377–381. https://doi.org/10.1016/j.jbi.2008.08.010

Hesse, B. W., Moser, R. P., Rutten, L. JF., Kreps, G. L. (2006) The health information national trends survey: research from the baseline. *Journal of Health Communication*, 11(Suppl 1): vii–xvi. https://doi.org/10.1080/10810730600692553

Jang, M., & Vorderstrasse, A. (2019). Socioeconomic status and racial or ethnic differences in participation: Web-based survey. *JMIR Research Protocols*, *8*(4), e11865. https://doi.org/10.2196/11865

Javaid, S., Barringer, S., Compton, S. D., Kaselitz, E., Muzik, M., & Moyer, C. A. (2021). The impact of COVID-19 on prenatal care in the United States: Qualitative analysis from a survey of 2519 pregnant women. *Midwifery*, *98*, 102991. https://doi.org/10.1016/j.midw.2021.102991

Jeffers, N. K., & Glass, N. (2020). Integrative review of pregnancy and birth outcomes after exposure to a hurricane. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *49*(4), 348–360. https://doi.org/10.1016/j.jogn.2020.04.006

Jones, C. L., Jensen, J. D., Scherr, C. L., Brown, N. R., Christy, K., & Weaver, J. (2015). The Health Belief Model as an explanatory framework in communication research: Exploring parallel, serial, and moderated mediation. *Health Communication*, *30*(6), 566–576. https://doi.org/10.1080/10410236.2013.873363

Mo, P. K. H., Fong, V. W. I., Song, B., Di, J., Wang, Q., & Wang, L. (2021). Association of perceived threat, negative emotions, and self-efficacy with mental health and personal protective behavior Among

Chinese Pregnant Women During the COVID-19 Pandemic: Cross-sectional Survey Study. *Journal of Medical Internet Research*, *23*(4), e24053. https://doi.org/10.2196/24053

Moyer, C. A., Compton, S. D., Kaselitz, E., & Muzik, M. (2020). Pregnancy-related anxiety during COVID-19: a nationwide survey of 2740 pregnant women. *Archives of Women's Mental Health*, *23*(6), 757–765. https://doi.org/10.1007/s00737-020-01073-5

OneFlorida Clinical Research Consortium. (2024, September 8). Clinical and Translational Science Institute at the University of Florida. https://Www.Ctsi.Ufl.Edu/Ctsa-Consortium-Projects/Oneflorida/

Paredes, M. R., Apaolaza, V., Fernandez-Robin, C., Hartmann, P., & Yañez-Martinez, D. (2021). The impact of the COVID-19 pandemic on subjective mental well-being: The interplay of perceived threat, future anxiety and resilience. *Personality and Individual Differences*, *170*, 110455. https://doi.org/10.1016/j.paid.2020.110455

Preis, H., Mahaffey, B., Heiselman, C., & Lobel, M. (2020). Vulnerability and resilience to pandemic-related stress among U.S. women pregnant at the start of the COVID-19 pandemic. *Social Science & Medicine*, *266*, 113348. https://doi.org/10.1016/j.socscimed.2020.113348

R: The R Project for Statistical Computing. (2024, September 8). https://www.r-project.org

Rasmussen, S. A., Smulian, J. C., Lednicky, J. A., Wen, T. S., & Jamieson, D. J. (2020). Coronavirus Disease 2019 (COVID-19) and pregnancy: What obstetricians need to know. *American Journal of Obstetrics and Gynecology*, *222*(5), 415–426. https://doi.org/10.1016/j.ajog.2020.02.017

Rochelson, B., Nimaroff, M., Combs, A., Schwartz, B., Meirowitz, N., Vohra, N., Klein, V. R., Santandreu, O., Kramer, M., Mootabar, N., Serur, E., Spiryda, L., Berlin, S., & Chervenak, F. (2020). The care of pregnant women during the COVID-19 pandemic – response of a large health system in metropolitan New York. *Journal of Perinatal Medicine*, *48*(5), 453–461. https://doi.org/10.1515/jpm-2020-0175

Shen, Z., Zhong, Z., Xie, J., Zhang, Q., & Li, S. (2022). The Effects of Information-Seeking Behaviors on Risk Perception During the COVID-19 Pandemic: A Cross-Sectional Correlational Survey. *Psychology Research and Behavior Management*, *Volume 15*, 1707–1719. https://doi.org/10.2147/PRBM.S368537

Sjoberg, D. Whiting, K. Curry, M. Lavery, J. Larmarange, J. (2021). Reproducible Summary Tables with the gtsummary Package. *The R Journal*, *13*(1), 570–580. https://doi.org/10.32614/RJ-2021-053

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Vanstone, M., Correia, R. H., Howard, M., Darling, E., Bayrampour, H., Carruthers, A., Davis, A., Hadid, D., Hetherington, E., Jones, A., Kandasamy, S., Kuyvenhoven, C., Liauw, J., McDonald, S. D., Mniszak, C., Molinaro, M. L., Pahwa, M., Patel, T., Sadik, M., Sanya, N., … Greyson, D. (2023). How do perceptions of Covid-19 risk impact pregnancy-related health decisions? A convergent parallel mixed-methods study protocol. *PloS one*, *18*(8), e0288952. https://doi.org/10.1371/journal.pone.0288952

Wei, S. Q., Bilodeau-Bertrand, M., Liu, S., & Auger, N. (2021). The impact of COVID-19 on pregnancy outcomes: a systematic review and meta-analysis. *Canadian Medical Association Journal*, *193*(16), E540–E548. https://doi.org/10.1503/cmaj.202604

Xu, K., Hsiao, C. J., Ballard, H., Chachad, N., Reeder, C. F., Shenkman, E. A., Flood-Grady, E., Louis-Jacques, A. F., Smith, E. L., Thompson, L. A., Krieger, J., Francois, M., & Lemas, D. J. (2023). Peripartum women's perspectives on research study participation in the OneFlorida Clinical Research Consortium during COVID-19 pandemic. *Journal of Clinical and Translational Science*, *7*(1), e24. https://doi.org/10.1017/cts.2022.476

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The Primary Cell Model: Linking Prenatal Development and Intracellular Biology to Psychology and Consciousness

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In this paper, we introduce an entirely new model of psychobiology. Unexpected discoveries are often made by combining different fields of knowledge. Here, prenatal psychology was combined with developmental and cell biology to yield a surprisingly simple yet profoundly important intracellular (subcellular) psychobiology theory. Like many discoveries, this one took us completely by surprise. It explained many puzzling observations in psychology and medicine and has led to effective therapeutic applications.

Our breakthrough was realizing that the sensations, feelings, and perceptions inside a single, unique totipotent cell are superimposed on our everyday bodily experience. We have called this unique cell the *primary cell*. It forms at the fourth cell division after conception and remains with us our entire life. Thus, this cell links psychology to intracellular biology, and its existence has profound implications in both evolutionary biology and understanding the intracellular biology of consciousness itself.

This paper presents part one of a three-part series, sharing real-life experiences that ultimately resulted in the development of the primary cell model. By utilizing various viewpoints and techniques from different fields, some of which are not widely known, we aim to provide insight into the key

The Institute for the Study of Peak States was founded in Canada in 1998 by Grant McFetridge, PhD (ORCID: 0000-0002-8917-6613). This privately funded international research, training, and clinical institute focused on understanding the psychobiology behind exceptional mental and physical wellness. Kirsten Lykkegaard, DVM, PhD (ORCID: 0000-0001-7602-1578) directs the fundamental research team, and Mary Pellicer, MD (ORCID: 0000-0002-5335-7957) directs the psychoimmunology applications team. We have published five textbooks so far; in particular, the *Subcellular Psychobiology Diagnosis Handbook* (2014) for trauma therapists covers diagnosis and treatment for several intracellular diseases. Many talented volunteers did this work without funding as part of the research efforts of the Institute. This paper is dedicated to our inspiring research colleague and close friend, Adam Waisel MD (Israel), who died of a heart attack in 2006. Please address all correspondence to kirsten@peakstates.com and learn more at PeakStates.com.

moments that shaped our decade-long journey of discovery. These stories will help you understand how we made our observations and conclusions.

In the next issue of *JOPPPAH*, part two will show how a broader theory of subcellular psychobiology is built from the primary cell model. Extraordinary claims require extraordinary proof, and the best proof is empirical. Thus, in part three, we will explain how the subcellular psychobiology theory is used to derive disease treatments. We recognize that this theory will be controversial. Because of its novelty, we are unaware of any preexisting peer-reviewed publications. Our hope for this paper is that you will be inspired to explore its ramifications and profound implications.

The Primary Cell: Puzzling Observations

It all started with a suicide. In 1997, one of Dr. McFetridge's closest friends unexpectedly hung herself. I (Grant) was devastated. Along with my feelings of loss, grief, and regret, I found myself deeply drawn to the question, "What is death?" If this had happened decades earlier, there would have been no story to tell. Instead, in the 1980s and 1990s, the fields of humanistic and transpersonal psychology flourished, and one of the drivers of this was the Holotropic Breathwork technique, developed by Stanislav Grof, MD. This technique, involving music and long hyperventilation, was routinely used to explore the unconscious psyche, so I tried it (Grof & Grof, 2023).

If you have not been exposed to the extensive literature on regression therapy, the phenomenon of prenatal cellular memory, and developmental psychobiology, we kindly direct your attention to the references at the end of this paper (Farrant, 1986; Farrant & Larimore, 1995; Gabriel & Gabriel, 1992; Janov, 1991; Linn et al., 1999; Noble, 1993; Verny & Kelly, 1982).

My therapist picked the right piece of music by talent or luck. I suddenly found myself caught in an experience of death and dying as I dramatically relived the splitting of my sperm head inside the egg during conception. As he continued to replay the music, I remember thinking, "Oh no, not again!" as new intense feelings of death and dying arose, pulling me into reliving my fourth cell division compaction event (Iwata et al., 2014). All the cells of my zygote body felt like they were dying as my awareness consolidated into just one of those 16 cells. At this point, my therapist had enough of my screaming and turned off the music to end our session. It felt like being repeatedly run over by a bus. However, this compaction experience would be a key piece of the puzzle.

The next key event happened in a sweat lodge. In the summer of 2002, Dr. McFetridge attended a First Nations sweat lodge ceremony led by J. C. Lucas at Kakawis on Meares Island, BC. To increase his chances of having something significant happen, he asked Dr. Willo Walker to give him acupuncture just before the sweat. Later, Willo would say he had chosen spiritual points to needle. For those who have never attended a sweat lodge, there are rounds of chanting; it is pitch black inside, and you are packed together like sardines in a claustrophobic space. The heat, lack of outside air, and smoke from burning herbs can make one feel suffocated, with red hot rocks glowing in a pit in the dirt. As a participant, you find sweat running off your body in streams, bent over with your nose in the dirt, trying to find some cooler air to breathe.

However, this time was different. About halfway through, I (Grant) suddenly felt like I had a lot of room around me. Above me were stars, and in the distance were Stonehenge-like stone monoliths. After the ceremony, I still saw things superimposed on my normal surroundings. I felt perfectly fine (still feeling like there was lots of room around me), and I found it all very intriguing. I assumed I had entered a strange spiritual state and immediately contacted my colleagues at the Institute, Adam Waisel, MD (Israel), and Mary Pellicer, MD (USA). With some experimentation, we discovered that they could also duplicate this state in themselves. This state would prove to be permanent.

So, what were we all observing? By simply shifting our attention, our default viewpoint became one of being suspended in lightly fogged air. With some experimentation, we could move, expand, or contract our viewpoint to look more closely at objects in this space. The most obvious features were crumpled bags linked by a thin string. Pulling back to get an overview, we saw the sea floor with many strings sticking out. We spent time trying to find uses for this state; we soon found that we could pull out a string, and an emotionally traumatic feeling would vanish out of our everyday awareness. However, pulling out these strings ended up being a very bad idea.

Building the Primary Cell Model

After several months of steady work, we (Dr. Waisel, Dr. McFetridge, and Dr. Pellicer) finally realized that we were seeing the inside of a cell. The gray fog was the cytoplasm; the sea floor was the nuclear membrane, and the crumpled bags were ribosomes linked by mRNA. We were so slow in making

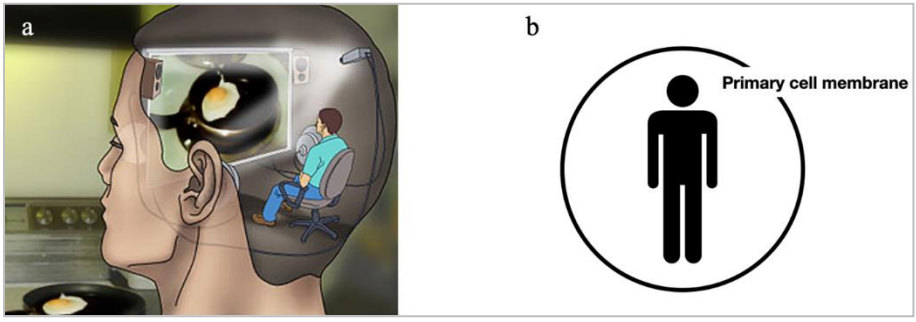
the connection because what we saw in 3D was very different from the flat, thinly sliced electron microscope images with which we were familiar.

If true, the key question was, “Which cell are we in? Were we each in a different, random cell in our body, a brain cell, or something else?” After experimentation using regression therapy, we realized we were all finding ourselves in that same cell that experienced compaction at the fourth cell division. As far as we could tell, the cell stayed relatively unchanged from its compaction event until adulthood.

The next key question was, “What is so special about this cell?” Here is where biology and consciousness research intersect. That consolidation of conscious awareness at the fourth cell division compaction event was not some odd, momentary effect of compaction but rather a life-long change in the location of consciousness itself. To give this model a visual image, you could think of this cell as the medieval idea of a tiny homunculus inside our head that runs our body (Figure 1a). This means that our everyday consciousness is not some emergent property of interconnecting brain cells but already exists inside this single cell. Our new state was no breakthrough—our consciousness had always been inside this cell; we just had not realized it (Figure 1b).

Figure 1

Primary Cell Model Visual Analogies



Note. a. A cartoon homunculus suggests the primary cell model. CC image by Jennifer Montes. https://creativecommons.org/licenses/by-sa/2.5/deed.en.
b. Illustration of the primary cell being superimposed on our experience of our body. Our perception is a combination of that of our body and our primary cell simultaneously.

From a therapeutic treatment perspective, an even more important question is, “How does this cell biologically interact with all the other cells in the body?” We soon realized this cell was a template for all cells in the body. Thus, any changes in this cell instantly echo outwards into all relevant body cells (e.g., muscle, skin, heart, liver). As clinicians, we only need to fix relevant damage in the primary cell, and the organs and other tissues will follow suit and repair themselves (within obvious limitations - you still need a cast when you break your arm!). This is why we called this unique, totipotent cell the primary cell.

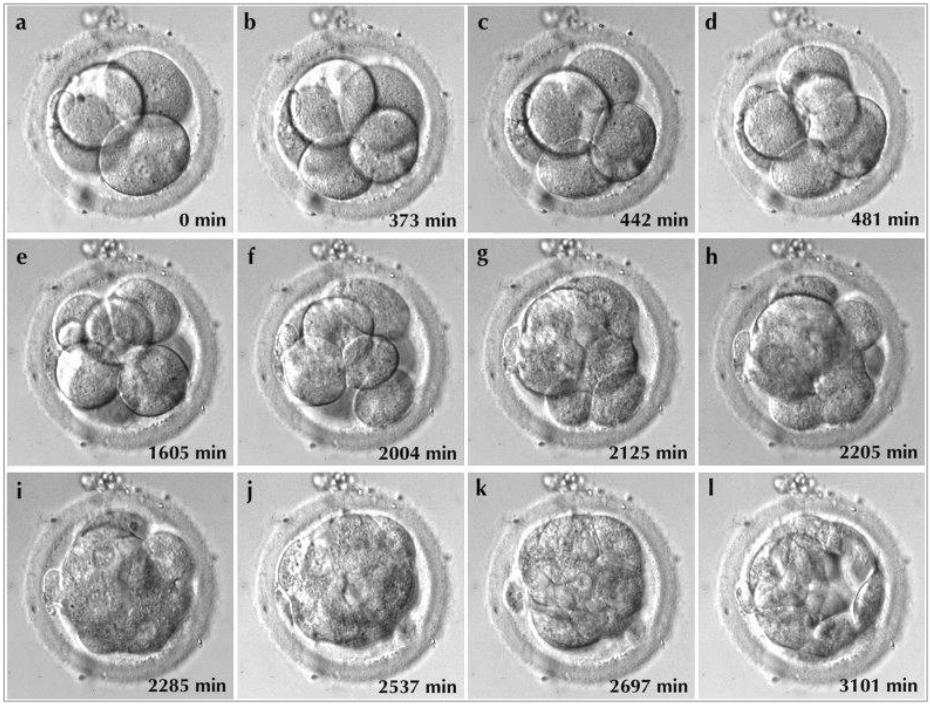
The implications of the primary cell model were profound and, over time, reshaped our worldview. This model posits that we inhabit a cell-centric world, wherein the billions of cells in our body serve as a medium for pre- and post-processing for the single cell where our consciousness resides. By analogy, this singular cell functions as the CPU of our computer, with all the rest akin to the camera, hard drive, and other peripherals.

Regressing to the Primary Cell Formation

When working with students, we generally start the regression just after fertilization. Surprisingly, it will feel like you have your normal adult body superimposed on a round cell. Soon, it feels like suddenly a crack appears between the left and right sides of your body. This is quite strange, as your body still feels intact, now with a thin membrane splitting you down the middle. For many, this splitting is an uncomfortable, even painful experience. The top and bottom split at the second cell division, although you still feel like your body is intact. These splits continue to the fourth cell division, dividing your body into 16 equal partitions (Figure 2).

Figure 2

Compaction in the Human Embryo



Note. After several cell divisions (a–e), the blastomeres became flattened (f), and the intercellular boundaries became obscured (g–i) until they finally unified in one cluster (j, k). These morphological changes are called compaction, and blastulation occurs only after the complete compaction of the embryo (l) (Iwata et al., 2014). CC Image exposure was modified to be lighter. https://creativecommons.org/licenses/by/4.0/.

At this point, compaction occurs. Experientially, you feel like you start to die (often with feelings of shock and pain), and this is accompanied by the bizarre feeling that your body parts start flowing into one spot in your head. Many need to look for the dying feeling deliberately, or else they unconsciously avoid compaction altogether. At completion, your body image is more like a homunculus, living inside one cell with the other cells surrounding it.

This cellular arrangement stays present, with the primary cell surrounded by 14 other cells in a ball or bundle. We call these secondary cells, which act as communication relays from the primary cell to specific parts of the body, with each secondary cell responsible for its own set of organs and tissues. The

16th cell dissolves in some people, while others have two places where their awareness can reside. We call this 16th cell the *shadow primary cell*; experientially, it feels like it has one's opposite gender. Fortunately, trauma therapies can ignore this second duplicate cell, as people's conscious awareness tends to stay in just one of them.

Although the biology literature says compaction occurs at the third cell division in some mammals and perhaps in some people (Nikas et al., 1996; Iwata et al., 2014), our students all had it occur at the fourth cell division. We likely have survivor bias here—all our students survived gestation.

C. elegans and the Primary Cell

To be considered valid, a model must also agree with known science (in this case, early development and stem cell biology) - or be able to explain any discrepancies. From a practical viewpoint, we already know the primary cell model works extremely well to create new, effective disease treatments. However, regression, not dissection, obtained evidence for the primary cell's existence. This section suggests some biological experiments and observations to support and expand the model. These basic experiments might also uncover more unexpected biology and have implications in research on stem cells, epigenetics, drug development, and other fields.

If the primary cell physically exists, why has it not been discovered and described in the literature? First, no one has ever looked for or tested for it since no one suspects it could even exist. Second, it is unlikely that researchers would stumble upon it by accident because, after cell compaction, it becomes very difficult to see individual cells in the cell mass. It would be easy to miss if one were not specifically looking for a primary cell.

How can we biologically verify the existence of a primary cell? Of course, studying a mammal with visible compaction (such as mice) would be a good experimental choice. Perhaps one could follow the compaction cells through early development to see if the primary cell(s) and secondary bundle cell structure exist and where they end up in the adult body. Alternatively, one could remove the possible primary cell candidate (or pair, if mice have two) from the zygote and observe if that cell is central to survival or post-birth behavior. We suspect there are probably many ways to prove, disprove, or find potential evidence that such cells exist.

However, studying and operating on living mice (or any other mammal) blastocysts or embryos is difficult. As it is likely that the human primary cell has arisen from earlier evolutionary ancestors, a study to verify the existence of the primary cell or a primary cell analog could perhaps be performed in a simpler organism, such as the well-studied worm *C. elegans* (which has only 558 cells in a newly hatched larva). Could we use the worm to settle the question about a primary cell? The answer is a conditional maybe.

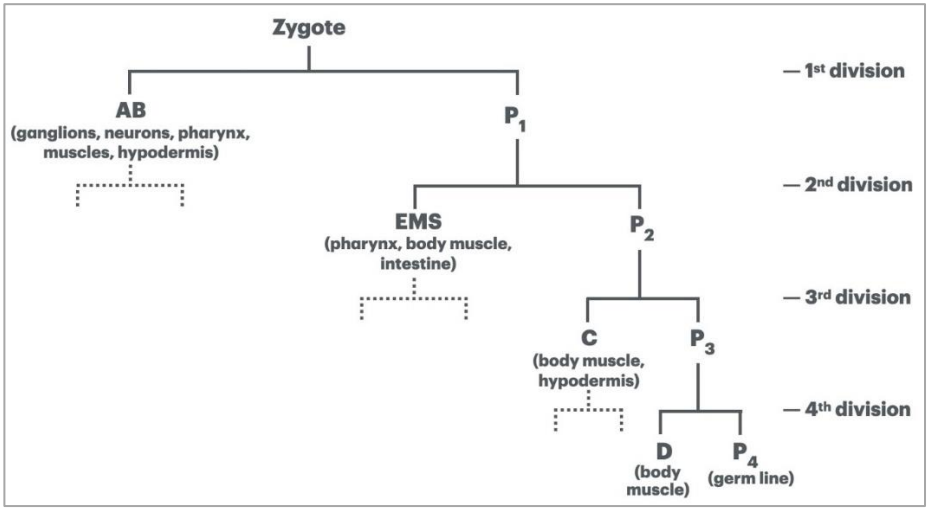
One problem is in the compaction stage. Only mammals have a visually obvious compaction of cells at the third to fourth cell division, forming a morula (Burns & Matzuk, 2006). The worm's cells also undergo compaction at their fourth cell division, albeit their compaction is of chromatin within the nucleus rather than compaction of the cells. In other words, the worm's cells do not pack together like in a mammal. Moreover, does it even form secondary bundle cells around the primary cell? Unfortunately, these queries make the worm a less ideal candidate for testing, as primary cell-to-somatic-cell communication might only arise due to tight cell proximity.

On the positive side, from a stem cell perspective, humans and worms share similar characteristics. In mammals, the cells lose their totipotence and become pluripotent at compaction. Likewise, the worm has a multipotency-to-commitment transition (MCT) occurring at compaction that reduces the cell's ability to form other cell types (Spickard et al., 2018). However, some cell or cells in humans and worms retain the ability to form germ-line cells. In regression, the primary cell releases primordial germ cell precursors as if sending out vesicles (without cell division). This suggests that the primary cell can be identified by finding and following the cell that buds off germ cells, be it a mammal or a worm.

In *C. elegans*, the P4 cell exhibits some characteristics we associate with a primary cell. First, P4 forms at the fourth cell division after the egg is fertilized and goes through chromatin compaction (Figure 3). Second, P4 retains the ability to form germ-line cells. However, after this stage, observations of what is happening become difficult and have yet to be well studied (Joshi et al., 2010).

Figure 3

C. elegans Cell Lineage for the Germ Line



Note. Cell P4 forms at the fourth cell division (Sulston et al., 1983).

Since P4 is only supposed to be involved with reproduction, any other effects from removing this cell after compaction would point to it being a primary cell analog. Would its removal *in vivo* cause development to become chaotic because we have removed its guiding pattern? Or would its removal kill the organism outright? Or if it survives this, does the organism stop behaving with "conscious" actions after the worm is hatched? Any of these results would be surprising and support the primary cell model.

Safety Issues in Primary Cell Exploration

If everyone is already inside their primary cell, one might think it should be perfectly safe to consciously see and feel its interior. After all, you live there already and continuously interact with it. However, this assumption caused many injuries in the early days of our primary cell research. Once we realized how risky it was, we quickly stopped teaching how to consciously interact with the primary cell. Part two of this paper will show how this primary cell model can be used safely to create effective treatments for various problems.

What, specifically, can go wrong? The first thing to realize is that you can mechanically damage your cell accidentally. Unfortunately, ripping out mRNA

strings (the strings in our initial observations that, when ripped out, got rid of trauma feelings) leaves the nuclear pores damaged. Ignoring our warnings not to, a colleague decided to pull out many of these strings ("like pulling out potato plants," as he called it), and it caused migraines that persisted for 15 years until we found a solution.

However, the biggest and most dangerous problem is from subcellular pathogen interactions. To our surprise, the interior of the primary cell is teeming with viral, bacterial, fungal, amebic, and prionoid pathogens. When we consciously interact with the primary cell, any pathogen we encounter becomes aware of our attention and generally responds like a wild animal—freezing, hiding, or attacking. They might contract and cause pain, tear into our cell membranes and cause pain, or release toxic caustic acid at us, causing pain. The list of damaging pathogen interactions is extensive.

Interestingly, this problem can occur accidentally when using almost any psychological therapy or mindfulness technique, but it is guaranteed when we intentionally interact with the primary cell. Incidentally, it may come as a surprise that the primary cell can even feel pain and injury, just like our normal body does. Regressing to sperm, egg, and early zygote trauma quickly demonstrates how painfully true this can be.

Worse, many of the pathogens in a typical person are psychoactive. These pathogens can drive the person's behavior, emotions, or actions. In daily life, since so many people are infected by these pathogens, we consider these behaviors relatively normal - but doing research can trigger far more dramatic experiences. For example, there is a pathogen that, when disturbed, causes a person to permanently lose their memories from the previous 20 or 30 minutes when it sprays the nuclear membrane with a particular caustic fluid. Another pathogen can trigger rage in a susceptible person; the list continues. Researching in this environment is like walking through an African jungle.

Due to these safety concerns, we have yet to publish information on how to look into the primary cell. In the last 22 years, we have mapped out most problems and their solutions but still encounter unexpected findings. Due to the risks involved, new colleagues must be taught how to navigate safely in the primary cell. Those trained are required to sign confidentiality, informed consent, and liability agreements and undergo extensive training in handling the most common problems. If you want to learn more about these safety issues, refer to *Subcellular Psychobiology Diagnosis Handbook* (McFetridge, 2014).

Summary of the Primary Cell Model

The primary cell model describes the properties of a previously unsuspected totipotent stem cell in the body. It is a very useful cell model that forms the basis of subcellular psychobiology and its applications.

- Every person has a primary cell, where our consciousness is located. It acts like a homunculus.
- The source of behavior and mental phenomena is inside the primary cell.
- The primary cell forms at the fourth cell division. Many people have a duplicate primary cell.
- In regression, the primary cell is the source of all primordial germ cell precursors.
- This cell controls the pattern and function of all cells in the body.
- Organelles in the primary cell map experientially and functionally to organs in the body.
- The primary cell feels pain from internal damage.
- The primary cell holds many internal pathogens: viral, bacterial, fungal, amebic, and prionoid.
- Damage or infection in the primary cell mirrors the corresponding cells of the body. For example, if you have an injury to your nucleus, you might experience it as an injury to your physical head.
- Many primary cell pathogens are psychoactive and influence our thoughts, feelings, and behaviors.
- Observing the inside of the primary cell can be hazardous: mechanical damage, pathogens causing injury, and psychoactive pathogens can induce extreme emotions and sensations.

Although this paper derived the primary cell model using visual perceptions of its interior, this ability is unnecessary for using and understanding the model (since we all already experience its interior, even if this is unrecognized). Like radio waves, an inability to see them does not stop us from utilizing their theory.

References

Burns, K., & Matzuk, M. (2006). Preimplantation embryogenesis. *Knobil & Neill's Physiology of Reproduction* (3rd ed).

Farrant, G. (1986). Cellular consciousness. Keynote address at the 14th International Primal Association (IPA) Convention, Aug 30, 1986.

Farrant, G., & Larimore, T. (1995). Body movements in cellular consciousness and what they mean. *Primal Renaissance, 1*(1).

Gabriel, M., & Gabriel, M. (1992). *Voices from the Womb: Adults Relive Their Pre-Birth Experiences—A Hypnotherapist's Compelling Account.* Aslan Publishing.

Grof, C., & Grof, S. (2023). *Holotropic Breathwork: A New Approach to Self-exploration and Therapy*. SUNY Press.

Iwata, K., Yumoto, K., Sugishima, M., Mizoguchi, C., Kai, Y., Iba, Y., & Mio, Y. (2014). Analysis of compaction initiation in human embryos by using time-lapse cinematography. *Journal of Assisted Reproduction and Genetics*. 31, 421–426. https//doi.org/10.1007/s10815-014-0195-2

Janov, A. (1991). *The New Primal Scream: Primal Therapy 20 Years On.* Enterprise Publishing.

Joshi, P. M., Riddle, M. R., Djabrayan, N. J. V., & Rothman, J. H. (2010). C. elegans as a model for stem cell biology. *Developmental Dynamics*. 239(5). 1539–1554. https//doi.org/10.1002/dvdy.22296

Linn, S., Emerson, W., Linn, D., Linn, M. (1999). *Remembering Our Home: Healing Hurts and Receiving Gifts from Conception to Birth*. Paulist Press.

McFetridge, G. (2014). *Subcellular Psychobiology Diagnosis Handbook: Subcellular Causes of Psychological Symptoms.* ISPS Press.

Nikas, G., Ao, A., Winston, R. M. L., & Handyside, A. H. (1996). Compaction and surface polarity in the human embryo in vitro, *Biology of Reproduction.* 55, 32-37. https//doi.org/10.1095/biolreprod55.1.32.

Noble, E. (1993). *Primal Connections: How Our Experiences from Conception to Birth Influence our Emotions, Behavior, and Health.* Simon and Schuster.

Spickard, E. A., Joshi, P. M., & Rothman, J. H. (2018). The multipotency-to-commitment transition (MCT) in C. elegans: Implications for reprogramming from cells to organs. *FEBS Letters*. 592(6). 838–851. https//doi.org/10.1002/1873-3468.12977

Sulston, J. E., Schierenberg, E., White, J. G., & Thomson, J. N. (1983). The embryonic cell lineage of the nematode Caenorhabditis elegans. *Developmental Biology, 100*(1), 64–119. https://doi.org/10.1016/0012-1606(83)90201-4

Verny, T., & Kelly, J. (1982). *The Secret Life of the Unborn Child*. Dell Publishing.

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Reconnecting Through Voice: Transformative Programs for Healing and Growth

Christiana Rebelle, PhD

The well-being of children depends on the well-being of the adults around them. Dr. Nathan Riley, a home birth doctor, holistic gynecologist, and founder of Beloved Holistics and the Born Free Method, and Maryn Azoff, a vocal transformation practitioner, have combined their unique backgrounds to offer a program to help participants reclaim their voices, stabilize their nervous systems, and foster healing for themselves and future generations. Their shared mission is to empower individuals and families to heal themselves and create environments of safety and connection.

Dr. Riley's experiences as an OBGYN and father of two have influenced his approach to health and well-being. Maryn brings her extensive knowledge of vocal practices, emphasizing the human voice as a tool for emotional regulation and personal transformation. Their methods foster nervous system regulation, emotional resilience, and intergenerational healing, helping participants reclaim their voices and create environments of safety and connection. Their programs are particularly impactful for parents and families seeking to break cycles of trauma and build healthier relationships.

The Power of Vocal Transformation

Maryn highlights the connection between vocal expression and overall health. From birth, every individual is equipped with a voice capable of creating profound internal and external changes. However, societal pressures often lead to the suppression of this tool, contributing to challenges such as anxiety, disconnection, and unresolved trauma.

The vocal transformation practice incorporates ancient chanting and tone-making techniques that stabilize the nervous system and address generational trauma embedded in cellular memory. This work allows parents to reset patterns, helping raise children free from inherited emotional burdens.

The Importance of Nervous System Regulation

Central to the programs is the concept of co-regulation. Babies and children instinctively respond to the emotional states of their caregivers. When parents feel calm and grounded, they create an environment where children can thrive. Dr. Riley explains that unresolved stress or dysregulation in parents can impact children's emotional and physiological development.

The practice of vocal transformation offers a pathway to stabilize and strengthen the vagus nerve, the key regulator of the body's stress response. This enhances the individual's ability to remain calm under pressure, improving relationships and fostering healthier family dynamics.

The Programs

Launching in January 2025, a collaboration of Dr. Riley's Born Free Method and Maryn's Vocal Transformation introduces parents and those expecting to practices centered on the root chakra. The 7-week course addresses foundational themes such as safety, belonging, and abundance. Participants will engage in guided breathwork, vocal exercises, and community discussions. The practices aim to ground the body, release stored emotional energy, and awaken creative potential. While challenging at times, the program provides the structure and accountability needed for meaningful change.

For those who miss the January course or want to go deeper, the Vocal Transformation Method (VTM) Cohort is a 9-month guided journey led by Maryn, focusing on healing and self-discovery through vocal practices and ancient chanting. This nine-month commitment mirrors the gestation period, with 40 days dedicated to each chakra. It offers group support, emotional healing, and personal transformation. Participants engage in live sessions, private calls, and a supportive online community while exploring their authentic voice and integrating spiritual and emotional growth. The next cohort runs from September 2025 to June 2026.

Why This Work Matters

A child's well-being is deeply tied to the emotional health of their caregivers. From the womb and into their early years, babies sense whether their environment communicates safety or danger, shaping their root chakra and influencing their lifelong approach to the world. Dr. Riley and Maryn

emphasize that healing begins within. Participants transform themselves and contribute to a healthier world by reclaiming their voices. The ripple effects of this work extend to parenting, relationships, and community dynamics, creating a legacy of emotional safety and growth for future generations.

Whether expecting a child or seeking personal growth, these programs offer practical tools for self-discovery and resilience. Participants will leave with a deeper connection to themselves, their families, and the world around them. The vocal transformation programs are a call to action for those ready to create meaningful change. They provide a space to explore the healing potential of the voice and build a foundation of safety, connection, and vitality. As Maryn explains, “Your voice is your birthright—it’s time to let it sing.”

For more information about the programs and enrollment details, visit vocaltransformation.com or courses.vocaltransformation.com/born-free-and-vt-cohort. Dr. Riley’s work can be found at belovedholistics.com.

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In Memoriam

Terence Dowling (1957-2024)

Terence Dowling was a pioneer of prenatal psychology. He was internationally recognized for his groundbreaking work on the placenta and its connection to mythologies around sacred trees. As trees of life, placentas magically ensure the world's continued existence.

Terence was born in Newcastle, England in 1957. He studied medicine at Cambridge on a scholarship and expanded his interests to psychology, cultural studies, and theology. Terence independently used and deepened the enneagram to grasp prenatal imprints.

Terence's journey as one of the first prenatal psychologists of his time was marked by his stays in Rome and Greece until he found his home in Germany in the 1980s. After participating in the International Society for Prenatal Psychology and Medicine Congress in Bad Gastein in 1986, he collaborated closely with Ludwig Janus in Heidelberg until his death.

The current patriarchal structures in psychology, psychotherapy, and medicine prevented Terence Dowling's brilliant insights into the presence of the earliest human experiences from gaining wider acceptance in line with their significance. His ideas found resonance in osteopathy, particularly in the osteopathic school of Torsten Liem in Hamburg. Otherwise, he predominantly imparted his profound knowledge in self-awareness-related groups at various locations, primarily in Germany and Austria, where he taught his concept of deep psychosomatics. The concept extends psychosomatics to include the prenatal and perinatal dimensions, placing Terence far ahead of his time.

Terence began his psychotherapeutic practice and his work with groups in Germany in 1984, always incorporating the body and the information stored

there. His demonstrations at conferences in front of large audiences were always impressive. He showed how to grasp and reconstruct the birth process of the respective person with great precision by touching the head and shoulders and feeling the tensions stored there. Terence dazzled audiences with his fascinating presence and ingenious grasp of early imprints. We are deeply saddened by Terence Dowling's untimely passing. He lives on in the hearts and minds of those who had the good fortune to meet him.

Ludwig Janus, MD and Thomas R. Verny, MD

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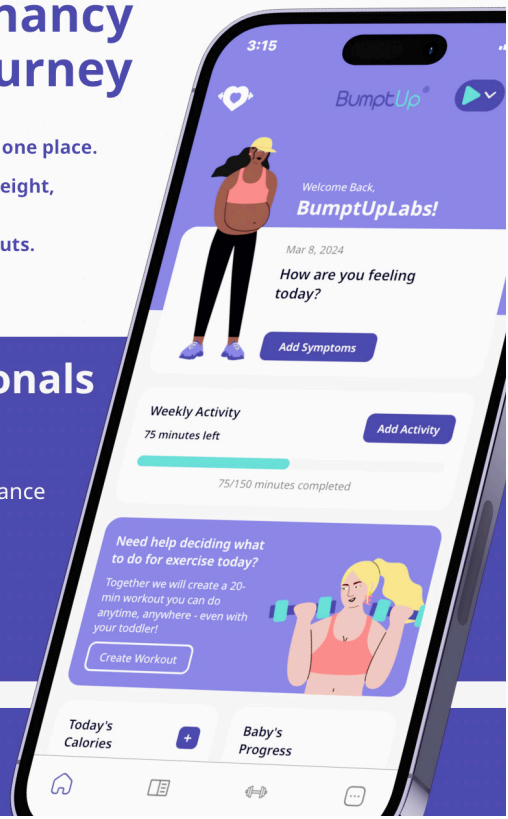

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