

# 产后抑郁的情绪冲突行为：一项系统综述

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## 摘 要

**背景：**怀孕和分娩伴随着生理与心理的巨大变化，是抑郁症的重要易感因素之一。产后抑郁症作为一种最重要的围产期心理问题，通常伴随着认知与情绪之间的冲突，可能会严重影响到母婴互动。情绪Stroop任务被广泛应用于研究情绪偏向问题研究，有助于了解个体注意力、认知控制以及情绪之间的相互作用，因此本文综述了抑郁的产后妇女的情绪冲突的研究。**方法：**本文系统检索了3个重要的电子数据库，使用了与产后抑郁和情绪冲突相关的术语，共纳入文献5篇，总计被试数量为781名。**结果：**相较于健康的母亲，患有产后抑郁的母亲在遇到情绪刺激干扰时更有可能出现负性的注意偏向，同时她们更有可能识别出婴儿脸上的消极情绪(即悲伤)，而在识别积极情绪(即快乐)方面则不太准确。此外，患有抑郁症的女性可能更快地脱离积极和消极的婴儿情绪表达。**结论：**尽管缺少对于面孔情绪刺激的干扰研究，但在产后抑郁症患者上都表现出了情绪Stroop效应。

## 关键词

产后抑郁症，情绪冲突，情绪Stroop

# Emotional Conflict Behavior in Postpartum Depression: A Systematic Review

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## Abstract

**Background:** Pregnancy and childbirth involve significant physiological and psychological changes, making them major risk factors for depression. Postpartum depression, as one of the most critical perinatal psychological issues, is often accompanied by cognitive-emotional conflict and may severely

**impact mother-infant interactions. The Emotional Stroop Task is widely employed in emotion bias research, facilitating insights into the interplay between individual attention, cognitive control, and emotion. This review therefore examines studies on emotional conflict in postpartum women with depression. Methods: We systematically searched three major electronic databases using terms related to postpartum depression and emotional conflict, identifying five studies with a total sample size of 781 participants. Results: Compared to healthy mothers, those with postpartum depression exhibited a greater tendency toward negative attentional bias when exposed to emotional stimuli. They were more likely to identify negative emotions (i.e., sadness) on infants' faces while demonstrating reduced accuracy in recognizing positive emotions (i.e., happiness). Additionally, depressed women tended to disengage more rapidly from both positive and negative infant emotional expressions. Conclusion: Despite limited research on interference with facial emotion stimuli, the emotional Stroop effect was demonstrated across studies involving postpartum depression patients.**

## Keywords

Postpartum Depression, Emotional Conflict, Emotional Stroop

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## 1. 引言

对于女性而言,妊娠不仅是一个身体多脏器多系统功能发生改变的特殊生理过程,同时由于对各种生理因素、社会因素变化的适应或适应不良,妊娠期孕妇还将伴随着复杂的心理变化。婴儿的诞生往往伴随着这种激素与心理身份的剧烈变化,在个体生理心理与社会因素共同作用下可能会诱发产后抑郁症。根据 DSM-5 的诊断标准,产后抑郁(postpartum depression)是指在怀孕期间或分娩四周内发病的重度抑郁症,抑郁症状通常在怀孕期间就已经开始了(Putnam et al., 2017),并且女性在出生后至少六个月的风险增加(Musters et al., 2008; Wisner et al., 2002)。

由于不同国家和地区的经济文化等差异,以及使用的评估工具、量表划分选取、样本量大小等不同,国内外孕妇抑郁检出率差异较大。在一项研究中,7.6%没有情绪障碍病史的妇女在妊娠或产后出现首次发作情绪障碍,其中最常见的是抑郁症(Viguera et al., 2011)。近年来,在出现产后情绪问题的病人中,10%~15%被确诊为产后抑郁症(Guintivano et al., 2018; Abulaiti, Abudurexiti, Nuermaimaiti, & Kelimu, 2022)。产后抑郁的危险易感因素包括但不限于情绪障碍的病史(Mandelli et al., 2016; Tambelli et al., 2019)、意外怀孕、婚姻不满、低社会支持(Beck, 2001; Tambelli et al., 2019)、分娩困难(Smorti et al., 2019)和对未出生婴儿的依恋程度低(Brandon et al., 2009; Goecke et al., 2012; Petri et al., 2018)。

产后出现抑郁情绪或症状可能导致母亲对婴儿的反应不足,或影响母婴之间的依恋关系(Field, 2011),进而影响到对婴儿的照顾行为。有研究观察有抑郁症和没有抑郁症的母亲与婴儿之间的互动,发现有抑郁症的母亲更有可能以拒绝或消极的方式回应婴儿(Murray et al., 1996),患有焦虑和抑郁的母亲更有可能生下一个不安全依恋的婴儿(Carter, Garrity-Rokous, Chazan-Cohen, Little, & Briggs-Gowan, 2001)。这可能是患有产后抑郁的母亲对于婴儿情绪的感知能力与反应能力较弱导致的,而这恰恰是母性行为的关键能力(van Doesum, Hosman, Riksen-Walraven, & Hoefnagels, 2007)。

目前对于产后抑郁的母亲对婴儿情绪刺激的感知能力与反应能力较差的原因与机制尚不清楚,有可

能的原因是产后抑郁的患者对于情绪冲突与干扰的处理能力较差,在情绪信息的处理上可能存在一定的偏差。情绪体验是一个复杂的过程,包括选择性注意,它可以被编码为情绪信息,并最终从当前的情绪中解脱出来(Gross, 1998)。Gross (1998)基于情绪发生的过程,提出了情绪的输入和输出模型,认为个体的情绪可以在情绪信息的输入和分离阶段受到调节。个体如果不能及时做出反应,或者花更多的时间从这种情绪中解脱出来,他们就会有更强烈的体验。认知主义方法认为,情绪障碍的病理性困扰在一定程度上是通过选择性地处理与个体困扰的问题相关的信息来维持的。信息处理中的这种偏向是认知-情绪关系恶性循环的一部分,在这种恶性循环中,痛苦导致注意的偏向,而这种偏向本身又导致进一步的痛苦。情绪冲突的研究能够帮助了解个体的注意力在面临冲突情景时如何分配,能够帮助了解认知和情绪之间如何相互影响。而患者在分娩后这一特殊时期认知和社会情感功能之间的相互作用可能为我们揭示了母亲情绪问题与婴儿发展之间的机制,同时,患有产后抑郁症的女性可能由于情绪相关的认知偏差,导致对婴儿的需求的敏感性较健康女性更低,这可能导致后续的不良后果。

情绪 Stroop 范式能够评估抑郁对情绪 Stroop 表现的影响,能作为在执行任务相关活动时对消极思维模式的注意力分配的破坏性影响的指标(Segal, 1996)。这类研究通常涉及抑郁症患者和健康对照样本在抑郁症特异性、消极、积极和中性刺激方面的比较。在相关的实验中,健康的参与者中,情绪 Stroop 任务不会引起与威胁刺激相关的注意偏向,而被诊断为抑郁症和焦虑障碍的个体对情绪负荷刺激会表现出异常的注意偏向(Epp et al., 2012; Macleod, 1991)。因此,我们能够通过这一范式来观察产后抑郁的妇女对于处理婴儿情绪刺激时可能存在的认知偏差,这种可能存在的偏差是否在成人或其他一般的情绪刺激中也同样存在。研究表明,前扣带皮层在健康个体的认知抑制中起着重要作用,且在临床人群(如精神分裂症)中,也发现患者的抑制缺陷与前扣带皮层的功能受损有关。前扣带皮层(ACC)功能异常可能是抑郁症病理生理相关结构网络的重要组成部分。

目前重度抑郁症(MDD)的神经生物学模型主要涉及边缘、纹状体和前额叶区域以及默认模式网络(Graham et al., 2013),其他大型大脑网络的功能活动和连接受到干扰(Rigucci et al., 2010),此外,下丘脑、杏仁核、前扣带皮层(ACC)、眶额叶和背外侧前额叶皮层的异常激活也与抑郁症的发病机制有关(Price & Drevets, 2012),并与情绪调节功能失调和认知功能受损有关(Hamilton et al., 2015; Price & Drevets, 2012; Rigucci et al., 2010)。而下丘脑、杏仁核、前扣带、眶额叶和背外侧前额叶皮层、脑岛和纹状体已被证明参与产后抑郁症的发病机制(Rigucci et al., 2010),同时这些区域也与母性行为有关(Numan, 2006)。在母子互动过程中,较弱的母子依恋以及较少的共情行为和情绪调节与 PCC 和杏仁核之间的静息态功能连接的中断有关(Chase et al., 2014)。

对产后抑郁症患者的情绪冲突行为及其神经机制进行研究能够帮助我们厘清患有产后抑郁的妇女对于婴儿敏感性较低的可能原因之一,进而更好地对产妇与婴儿进行针对性的关照。因此,本文对于产后的妇女在情绪 Stroop 任务上的表现以及其 fMRI 成像进行系统性的回顾。

## 2. 方法

### 2.1. 检索词

截止 2023 年 12 月,我们检索了 PubMed、Web of Science、CNKI 的数据库,中文检索关键词为“情绪冲突”或“情绪 Stroop 效应”或“词-面孔 Stroop”且“产后抑郁症”。具体检索格式如表 1。

英文检索关键词: (“emotional conflict” OR “emotional Stroop” OR “face-word Stroop” OR “word-face Stroop” OR “conflict resolution” OR “conflict monitoring” OR “emotional interference” OR “Modified stroop”) AND (“postpartum depression”)。具体检索格式如表 2。

**Table 1.** Chinese literature search format table**表 1.** 中文文献检索格式表

项目内容	项目指标
数据来源	中国知网(CNKI)
检索格式	“情绪冲突”或“情绪 Stroop 效应”或“词-面孔 Stroop”且“产后抑郁症”且“fmri”或“脑功能成像”
文献语种	中文

**Table 2.** English literature search format table**表 2.** 英文文献检索格式表

项目内容	项目指标
数据来源	SCI (Web of science), PubMed (Medline)
检索格式	(“emotional conflict” OR “emotional Stroop” OR “face-word Stroop” OR “word-face Stroop” OR “conflict resolution” OR “conflict monitoring” OR “emotional interference” OR “Modified stroop”) AND (“postpartum depression”) AND (“fmri” OR “neuroimaging”)
文献语种	英文

## 2.2. 纳入和排除标准

- 1) 2000 年 5 月后发表的中英文期刊文章。
- 2) 该研究使用了以下实验范式之一：情绪 Stroop 或词-面孔 Stroop 研究。
- 3) 可以评估与积极效价的刺激和中性刺激之间的差异；可以评估与消极效价的刺激与中性刺激之间的差异。
- 4) 初步诊断为产后抑郁症的产后患者，仅基于在规范样本中诱导焦虑抑郁的实验操作而形成抑郁组的研究和被试人群仅为健康人群或产前抑郁症的研究被排除在外。
- 5) 需报告原始数据，该研究报告的数据允许计算以下注意力偏差结果测量中的至少一种的效应量：焦虑参与者的组内比较，对照组参与者的组内比较，或组间比较。

## 2.3. 提取数据

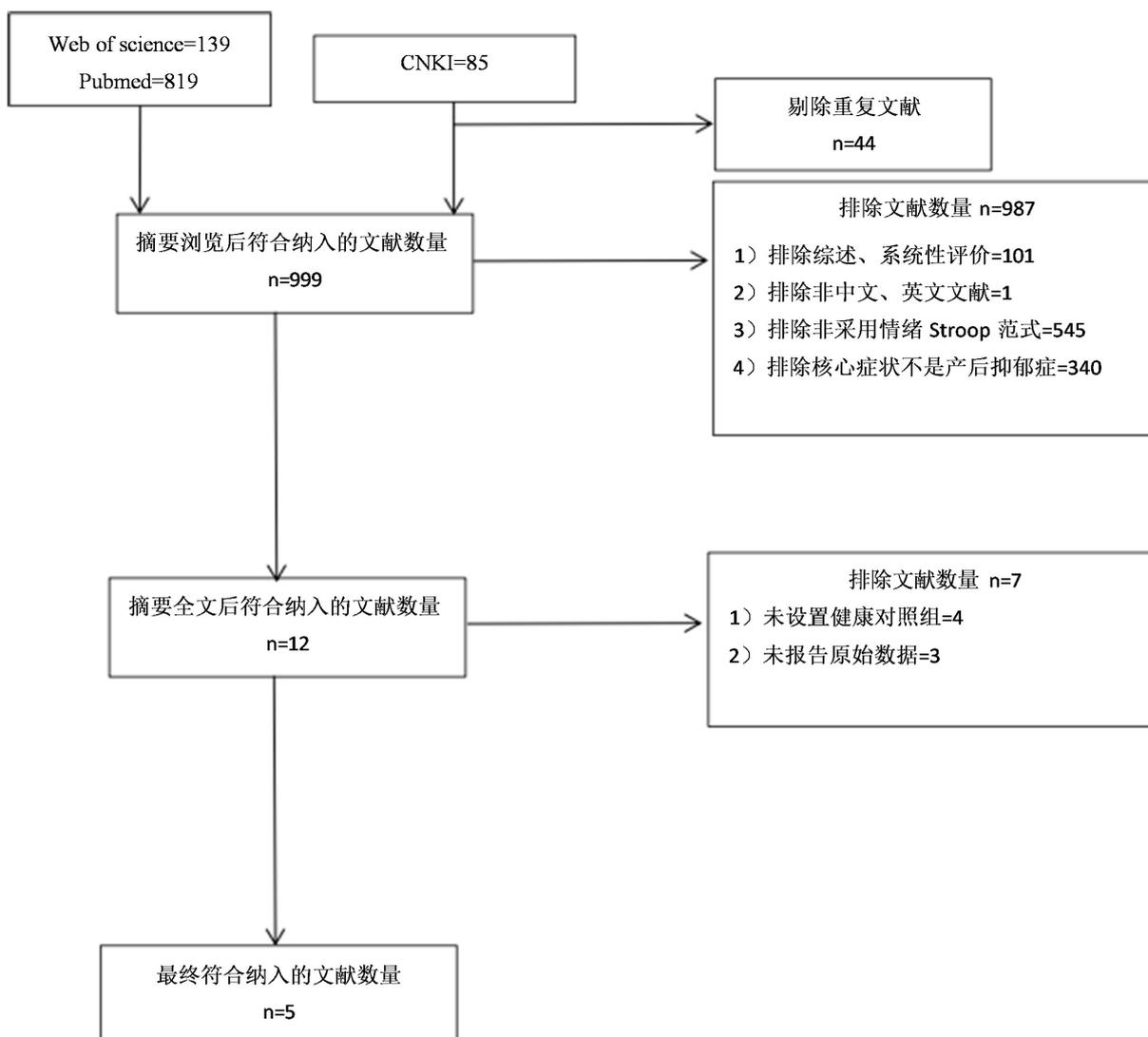
从研究的全文中提取了以下数据：1) 被试的人口统计学数据；2) 进行研究的国家；3) 招聘程序；4) 样本特性；5) 研究的纳入/排除标准；6) 诊断措施；7) 是否诊断；8) 采用的实验方法；9) 结果；10) 研究局限性。

## 3. 结果

我们在 Web of Science、PubMed、CNKI 中进行检索，共计有 1043 篇文献。在浏览标题、摘要和全文后进行筛选，共有 5 篇文献、781 名被试纳入本文。具体筛选流程如图 1。

其中有四项研究都是采用了颜色-情绪词 Stroop 的范式，要求被试在实验中忽略不同效价的情绪词的干扰，识别情绪词所展示的颜色，通过这种方式来测量被试被情绪刺激分散注意力的程度。而另一项研究则是用了成人面孔刺激：在该范式中，成年人的脸用不同的颜色显示，参与者被要求忽略这张脸，并标记它所呈现的颜色。具体实验范式见表 3。

行为实验研究结果较为一致地显示出，相较于健康被试，患有产后抑郁的被试在负性消极的刺激呈现组的反应时更长，准确率也更低；而在积极词汇的呈现组中，相较于正常被试，患有产后抑郁的被试的反应时则会更短。值得注意的是，在方帆(2021)的研究中，EPDS 高分组与低分组之间的实验反应时存



**Figure 1.** Specific flowchart of the inclusion process  
**图 1.** 纳入研究具体流程图

**Table 3.** Characteristics of the depression group included in the study  
**表 3.** 抑郁症组纳入研究特点

参考文献	年份	人数	诊断标准	实验类型	刺激效价	
Bao	2023	88	81	EPDS > 9	色 - 词 Stroop	积极/消极/中性
Choi	2017	33		EPDS ≥ 12	颜色 - 面孔	成人面孔
Edvinsson	2017	177	157	EPDS ≥ 12	色 - 词 Stroop	中性/消极/消极产科
Mason	2017	140		EPDS ≥ 9	色 - 词 Stroop	中性/消极/消极依恋
方帆	2021	105		EPDS ≥ 9	色 - 词 Stroop	积极/消极/中性

在与其他研究相似的趋势，但不具备统计学的差异。这可能是由于研究纳入的被试是经过 EPDS 自评得分的产妇，其 EPDS 对产后抑郁的诊断标准与明确确诊为产后抑郁症的产妇之间仍然有一定的差距，因此其情绪的负性认知偏向并不明显。而没有文献对产后抑郁症患者在进行情绪 Stroop 任务时同时进行

fMRI 的脑成像扫描。

## 4. 讨论

本文的结果表明产后抑郁症症状与情绪认知加工的认知偏差有关,与积极刺激相比,有抑郁症状的产妇对于消极刺激更敏感。患有产后抑郁症的产妇,在一定程度上存在情绪的负性注意偏差,这与在抑郁症患者上的研究结果趋势基本一致,即被诊断为抑郁症的个体对情绪刺激会表现出异常的注意偏向(Epp et al., 2012; Macleod, 1991)。抑郁症的特征是对于负面信息的认知注意偏差,尤其是在自我相关的情况下(Mathews & MacLeod, 2005),以及对处理积极刺激存在缺陷,这与对模棱两可的情绪信息的负面评价有关(Beevers, Wells, Ellis, & Fischer, 2009)。其中包括对他人情绪和面部表情等人际信息的扭曲解释(Bouhuys, Bloem, & Groothuis, 1995)。单极障碍(UD)患者在抑郁状态下(Bourke et al., 2010; Gotlib et al., 2004)或是在缓解期(Joormann & Gotlib, 2007; Weightman et al., 2014)都表现出了对悲伤的表达表现出更强的识别或注意偏向。关于面部表情识别的研究发现,抑郁症患者倾向于将中性或模糊的面部信息解释为负面信息(Hale, 1998; Mogg, Millar, & Bradley, 2000),通常而言,抑郁症患者倾向于将快乐的脸视为中性的,将中性的脸视为悲伤的(Gur et al., 1992),将悲伤的脸视为非常悲伤的(George et al., 1998)。此外,关于注意偏倚的研究表明,抑郁症患者选择性地注意面部表情中的特定情绪线索(即悲伤情绪)(Gotlib et al., 2004)。而对于产后抑郁症患者,情绪面孔刺激的研究多为识别情绪表达的加工,很少对于情绪面孔刺激冲突的行为实验研究。在一些对于识别情绪表达的研究中,相较于积极的婴儿面孔刺激,有抑郁和焦虑症状的产后妇女对悲伤的婴儿面孔更敏感(Arteche et al., 2011; Gil et al., 2011; Stein et al., 2010)。当使用成人面孔作为刺激时,这种敏感性就不那么明显了(Flanagan et al., 2011; Pearson et al., 2009)。对于产后抑郁症患者以情绪面孔作为刺激的情绪 Stroop 研究较少,实验范式多为颜色-情绪词的 Stroop 范式。肖艳丽在研究中分别使用儿童和成人情绪面孔图片作为刺激材料,抑郁情绪个体均未对负性刺激产生显著的注意偏向,同样只表现出注意偏向趋势。因此,情绪 Stroop 材料选取对孕妇抑郁情绪与注意偏向的研究还有待进一步探究。Roos 等(2012)一项针对孕妇和非孕妇的研究表明,与未怀孕的对照组相比,焦虑孕妇对恐惧面孔的选择性注意显著增加。大多数已发表的研究都使用了基于响应时间的范式;这种方法无法测量和区分特定的注意成分(Waechter et al., 2014)。数据显示,孕妇在最初的注意力定向和警惕阶段,对与婴儿相关的情绪图像存在注意偏倚,这与以往的研究相似(Lucion et al., 2017)。据报道,抑郁症患者对与情绪障碍相关的刺激存在注意偏倚(Peckham et al., 2010)。在目前的研究中,与健康的孕妇相比,有抑郁症状的孕妇最初会更快地将注意力转向与婴儿有关的图像。这一发现表明,定向机制不仅选择性地偏向于情绪刺激(以第一次注视的概率为指标),而且被这些刺激更快地触发(以更短的扫视潜伏期为指标)(Calvo et al., 2007)。

在一些产后抑郁与情绪处理相关的研究中显示,杏仁核本身反应性降低与婴儿相关的敌意有关(Moses-Kolko et al., 2010)。在负效词的情绪处理过程中,也观察到杏仁核的低激活(Silverman et al., 2011)。有产后抑郁症史的母亲在听到自己婴儿哭闹的声音或婴儿痛苦的照片时,眶额叶、额下回(IFG)、SFG 和 dACC 也表现出类似的低激活模式(Laurent & Ablow, 2012, 2013)。而对于情绪 Stroop 任务时,产后抑郁症患者的大脑激活与功能连接目前没有明确的研究。

## 参考文献

- 方帆(2021). *孕妇抑郁情绪与反刍思维的关系及其注意偏向研究*. 硕士学位论文, 广州: 南方医科大学.
- Abulaiti, A., Abudurexiti, M., Nuermaiti, A., & Kelimu, A. (2022). Analysis of the Incidence and Influencing Factors of Postpartum Depression and Anxiety: A Cross-Sectional Study in Xinjiang from 2018 to 2021. *Journal of Affective Disorders*, 302, 15-24. <https://doi.org/10.1016/j.jad.2022.01.069>

- Arteche, A., Joormann, J., Harvey, A., Craske, M., Gotlib, I. H., Lehtonen, A. et al. (2011). The Effects of Postnatal Maternal Depression and Anxiety on the Processing of Infant Faces. *Journal of Affective Disorders*, *133*, 197-203. <https://doi.org/10.1016/j.jad.2011.04.015>
- Beck, C. T. (2001). Predictors of Postpartum Depression: An Update. *Nursing Research*, *50*, 275-285. <https://doi.org/10.1097/00006199-200109000-00004>
- Beevers, C. G., Wells, T. T., Ellis, A. J., & Fischer, K. (2009). Identification of Emotionally Ambiguous Interpersonal Stimuli among Dysphoric and Nondysphoric Individuals. *Cognitive Therapy and Research*, *33*, 283-290. <https://doi.org/10.1007/s10608-008-9198-6>
- Bouhuys, A. L., Bloem, G. M., & Groothuis, T. G. G. (1995). Induction of Depressed and Elated Mood by Music Influences the Perception of Facial Emotional Expressions in Healthy Subjects. *Journal of Affective Disorders*, *33*, 215-226. [https://doi.org/10.1016/0165-0327\(94\)00092-n](https://doi.org/10.1016/0165-0327(94)00092-n)
- Bourke, C., Douglas, K., & Porter, R. (2010). Processing of Facial Emotion Expression in Major Depression: A Review. *Australian & New Zealand Journal of Psychiatry*, *44*, 681-696. <https://doi.org/10.3109/00048674.2010.496359>
- Brandon, A. R., Pitts, S., Denton, W. H., Stringer, C. A., & Evans, H. M. (2009). A History of the Theory of Prenatal Attachment. *Journal of Prenatal and Perinatal Psychology and Health*, *23*, 201-222.
- Calvo, M. G., Nummenmaa, L., & Hyönä, J. (2007). Short Article: Emotional and Neutral Scenes in Competition: Orienting, Efficiency, and Identification. *Quarterly Journal of Experimental Psychology*, *60*, 1585-1593. <https://doi.org/10.1080/17470210701515868>
- Carter, A. S., Garrity-Rokous, F. E., Chazan-Cohen, R., Little, C., & Briggs-Gowan, M. J. (2001). Maternal Depression and Comorbidity: Predicting Early Parenting, Attachment Security, and Toddler Social-Emotional Problems and Competencies. *Journal of the American Academy of Child & Adolescent Psychiatry*, *40*, 18-26. <https://doi.org/10.1097/00004583-200101000-00012>
- Chase, H. W., Moses-Kolko, E. L., Zevallos, C., Wisner, K. L., & Phillips, M. L. (2014). Disrupted Posterior Cingulate-Amygdala Connectivity in Postpartum Depressed Women as Measured with Resting BOLD fMRI. *Social Cognitive and Affective Neuroscience*, *9*, 1069-1075. <https://doi.org/10.1093/scan/nst083>
- Epp, A. M., Dobson, K. S., Dozois, D. J. A., & Frewen, P. A. (2012). A Systematic Meta-Analysis of the Stroop Task in Depression. *Clinical Psychology Review*, *32*, 316-328. <https://doi.org/10.1016/j.cpr.2012.02.005>
- Field, T. (2011). Postpartum Depression Effects on Early Interactions, Parenting, and Safety Practices: A Review. *Infant Behavior and Development*, *34*, 1-6.
- Flanagan, T. J., White, H., & Carter, B. G. (2011). Differential Impairments in Emotion Face Recognition in Postpartum and Nonpostpartum Depressed Women. *Journal of Affective Disorders*, *128*, 314-318. <https://doi.org/10.1016/j.jad.2010.07.021>
- George, M. S., Huggins, T., McDermut, W., Parekh, P. I., Rubinow, D., & Post, R. M. (1998). Abnormal Facial Emotion Recognition in Depression: Serial Testing in an Ultra-Rapid-Cycling Patient. *Behavior Modification*, *22*, 192-204. <https://doi.org/10.1177/01454455980222007>
- Gil, S., Teissèdre, F., Chambres, P., & Droit-Volet, S. (2011). The Evaluation of Emotional Facial Expressions in Early Postpartum Depression Mood: A Difference between Adult and Baby Faces? *Psychiatry Research*, *186*, 281-286. <https://doi.org/10.1016/j.psychres.2010.06.015>
- Goecke, T. W., Voigt, F., Faschingbauer, F., Spangler, G., Beckmann, M. W., & Beetz, A. (2012). The Association of Prenatal Attachment and Perinatal Factors with Pre- and Postpartum Depression in First-Time Mothers. *Archives of Gynecology and Obstetrics*, *286*, 309-316. <https://doi.org/10.1007/s00404-012-2286-6>
- Gotlib, I. H., Krasnoperova, E., Yue, D. N., & Joormann, J. (2004). Attentional Biases for Negative Interpersonal Stimuli in Clinical Depression. *Journal of Abnormal Psychology*, *113*, 127-135. <https://doi.org/10.1037/0021-843x.113.1.121>
- Graham, J., Salimi-Khorshidi, G., Hagan, C., Walsh, N., Goodyer, I., Lennox, B. et al. (2013). Meta-Analytic Evidence for Neuroimaging Models of Depression: State or Trait? *Journal of Affective Disorders*, *151*, 423-431. <https://doi.org/10.1016/j.jad.2013.07.002>
- Gross, J. J. (1998). The Emerging Field of Emotion Regulation: An Integrative Review. *Review of General Psychology*, *2*, 271-299. <https://doi.org/10.1037/1089-2680.2.3.271>
- Guintivano, J., Manuck, T., & Meltzer-Brody, S. (2018). Predictors of Postpartum Depression: A Comprehensive Review of the Last Decade of Evidence. *Clinical Obstetrics & Gynecology*, *61*, 591-603. <https://doi.org/10.1097/grf.0000000000000368>
- Gur, R. C., Erwin, R. J., Gur, R. E., Zwil, A. S., Heimberg, C., & Kraemer, H. C. (1992). Facial Emotion Discrimination: II. Behavioral Findings in Depression. *Psychiatry Research*, *42*, 241-251. [https://doi.org/10.1016/0165-1781\(92\)90116-k](https://doi.org/10.1016/0165-1781(92)90116-k)
- Hale, W. W. (1998). Judgment of Facial Expressions and Depression Persistence. *Psychiatry Research*, *80*, 265-274. [https://doi.org/10.1016/s0165-1781\(98\)00070-5](https://doi.org/10.1016/s0165-1781(98)00070-5)

- Hamilton, J. P., Farmer, M., Fogelman, P., & Gotlib, I. H. (2015). Depressive Rumination, the Default-Mode Network, and the Dark Matter of Clinical Neuroscience. *Biological Psychiatry*, 78, 224-230. <https://doi.org/10.1016/j.biopsych.2015.02.020>
- Joormann, J., & Gotlib, I. H. (2007). Selective Attention to Emotional Faces Following Recovery from Depression. *Journal of Abnormal Psychology*, 116, 80-85. <https://doi.org/10.1037/0021-843x.116.1.80>
- Laurent, H. K., & Ablow, J. C. (2012). A Cry in the Dark: Depressed Mothers Show Reduced Neural Activation to Their Own Infant's Cry. *Social Cognitive and Affective Neuroscience*, 7, 125-134. <https://doi.org/10.1093/scan/nsq091>
- Laurent, H. K., & Ablow, J. C. (2013). A Face a Mother Could Love: Depression-Related Maternal Neural Responses to Infant Emotion Faces. *Social Neuroscience*, 8, 228-239. <https://doi.org/10.1080/17470919.2012.762039>
- Lucion, M. K., Oliveira, V., Bizarro, L., Bischoff, A. R., Silveira, P. P., & Kauer-Sant'Anna, M. (2017). Attentional Bias toward Infant Faces—Review of the Adaptive and Clinical Relevance. *International Journal of Psychophysiology*, 114, 1-8. <https://doi.org/10.1016/j.ijpsycho.2017.01.008>
- MacLeod, C. M. (1991). Half a Century of Research on the Stroop Effect: An Integrative Review. *Psychological Bulletin*, 109, 163-203. <https://doi.org/10.1037/0033-2909.109.2.163>
- Mandelli, L., Souery, D., Bartova, L., Kasper, S., Montgomery, S., Zohar, J. et al. (2016). Bipolar II Disorder as a Risk Factor for Postpartum Depression. *Journal of Affective Disorders*, 204, 54-58. <https://doi.org/10.1016/j.jad.2016.06.025>
- Mathews, A., & MacLeod, C. (2005). Cognitive Vulnerability to Emotional Disorders. *Annual Review of Clinical Psychology*, 1, 167-195. <https://doi.org/10.1146/annurev.clinpsy.1.102803.143916>
- Mogg, K., Millar, N., & Bradley, B. P. (2000). Biases in Eye Movements to Threatening Facial Expressions in Generalized Anxiety Disorder and Depressive Disorder. *Journal of Abnormal Psychology*, 109, 695-704. <https://doi.org/10.1037/0021-843x.109.4.695>
- Moses-Kolko, E. L., Perlman, S. B., Wisner, K. L., James, J., Saul, A. T., & Phillips, M. L. (2010). Abnormally Reduced Dorsomedial Prefrontal Cortical Activity and Effective Connectivity with Amygdala in Response to Negative Emotional Faces in Postpartum Depression. *American Journal of Psychiatry*, 167, 1373-1380. <https://doi.org/10.1176/appi.ajp.2010.09081235>
- Murray, L., Fiori-Cowley, A., Hooper, R., & Cooper, P. (1996). The Impact of Postnatal Depression and Associated Adversity on Early Mother-Infant Interactions and Later Infant Outcome. *Child Development*, 67, 2512-2526. <https://doi.org/10.2307/1131637>
- Musters, C., McDonald, E., & Jones, I. (2008). Management of Postnatal Depression. *BMJ*, 337, a736. <https://doi.org/10.1136/bmj.a736>
- Numan, M. (2006). Hypothalamic Neural Circuits Regulating Maternal Responsiveness toward Infants. *Behavioral and Cognitive Neuroscience Reviews*, 5, 163-190. <https://doi.org/10.1177/1534582306288790>
- Pearson, R. M., Lightman, S. L., & Evans, J. (2009). Emotional Sensitivity for Motherhood: Late Pregnancy Is Associated with Enhanced Accuracy to Encode Emotional Faces. *Hormones and Behavior*, 56, 557-563. <https://doi.org/10.1016/j.yhbeh.2009.09.013>
- Peckham, A. D., McHugh, R. K., & Otto, M. W. (2010). A Meta-Analysis of the Magnitude of Biased Attention in Depression. *Depression and Anxiety*, 27, 1135-1142. <https://doi.org/10.1002/da.20755>
- Petri, E., Palagini, L., Bacci, O., Borri, C., Teristi, V., Corezzi, C. et al. (2018). Maternal-Foetal Attachment Independently Predicts the Quality of Maternal-Infant Bonding and Post-Partum Psychopathology. *The Journal of Maternal-Fetal & Neonatal Medicine*, 31, 3153-3159. <https://doi.org/10.1080/14767058.2017.1365130>
- Price, J. L., & Drevets, W. C. (2012). Neural Circuits Underlying the Pathophysiology of Mood Disorders. *Trends in Cognitive Sciences*, 16, 61-71. <https://doi.org/10.1016/j.tics.2011.12.011>
- Putnam, K. T., Wilcox, M., Robertson-Blackmore, E., Sharkey, K., Bergink, V., Munk-Olsen, T. et al. (2017). Clinical Phenotypes of Perinatal Depression and Time of Symptom Onset: Analysis of Data from an International Consortium. *The Lancet Psychiatry*, 4, 477-485. [https://doi.org/10.1016/s2215-0366\(17\)30136-0](https://doi.org/10.1016/s2215-0366(17)30136-0)
- Rigucci, S., Serafini, G., Pompili, M., Kotzalidis, G. D., & Tatarelli, R. (2010). Anatomical and Functional Correlates in Major Depressive Disorder: The Contribution of Neuroimaging Studies. *The World Journal of Biological Psychiatry*, 11, 165-180. <https://doi.org/10.3109/15622970903131571>
- Roos, A., Lochner, C., Kidd, M., van Honk, J., Vythilingum, B., & Stein, D. J. (2012). Selective Attention to Fearful Faces during Pregnancy. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 37, 76-80. <https://doi.org/10.1016/j.pnpbp.2011.11.012>
- Segal, Z. V. (1996). Cognitive Interference in Depressive and Anxiety-Based Disorders. In I. G. Sarason, G. R. Pierce, & B. R. Sarason (Eds.), *Cognitive Interference: Theories, Methods, and Findings* (pp. 325-345). Lawrence Erlbaum Associates.
- Silverman, M. E., Loudon, H., Liu, X., Mauro, C., Leiter, G., & Goldstein, M. A. (2011). The Neural Processing of Negative Emotion Postpartum: A Preliminary Study of Amygdala Function in Postpartum Depression. *Archives of Women's Mental Health*, 14, 355-359. <https://doi.org/10.1007/s00737-011-0226-2>

- 
- Smorti, M., Ponti, L., & Pancetti, F. (2019). A Comprehensive Analysis of Post-Partum Depression Risk Factors: The Role of Socio-Demographic, Individual, Relational, and Delivery Characteristics. *Frontiers in Public Health*, 7, Article No. 295. <https://doi.org/10.3389/fpubh.2019.00295>
- Stein, A., Arteché, A., Lehtonen, A., Craske, M., Harvey, A., Counsell, N. et al. (2010). Interpretation of Infant Facial Expression in the Context of Maternal Postnatal Depression. *Infant Behavior and Development*, 33, 273-278. <https://doi.org/10.1016/j.infbeh.2010.03.002>
- Tambelli, R., Trentini, C., Trovato, A., & Volpi, B. (2019). Role of Psychosocial Risk Factors in Predicting Maternal and Paternal Depressive Symptomatology during Pregnancy. *Infant Mental Health Journal*, 40, 541-556. <https://doi.org/10.1002/imhj.21791>
- van Doesum, K. T. M., Hosman, C. M. H., Riksen-Walraven, J. M., & Hoefnagels, C. (2007). Correlates of Depressed Mothers' Sensitivity toward Their Infants: The Role of Maternal, Child, and Contextual Characteristics. *Journal of the American Academy of Child & Adolescent Psychiatry*, 46, 747-756. <https://doi.org/10.1097/chi.0b013e318040b272>
- Viguera, A. C., Tondo, L., Koukopoulos, A. E., Reginaldi, D., Lepri, B., & Baldessarini, R. J. (2011). Episodes of Mood Disorders in 2,252 Pregnancies and Postpartum Periods. *American Journal of Psychiatry*, 168, 1179-1185. <https://doi.org/10.1176/appi.ajp.2011.11010148>
- Waechter, S., Nelson, A. L., Wright, C., Hyatt, A., & Oakman, J. (2014). Measuring Attentional Bias to Threat: Reliability of Dot Probe and Eye Movement Indices. *Cognitive Therapy and Research*, 38, 313-333. <https://doi.org/10.1007/s10608-013-9588-2>
- Weightman, M. J., Air, T. M., & Baune, B. T. (2014). A Review of the Role of Social Cognition in Major Depressive Disorder. *Frontiers in Psychiatry*, 5, Article No. 179. <https://doi.org/10.3389/fpsy.2014.00179>
- Wisner, K. L., Parry, B. L., & Piontek, C. M. (2002). Postpartum Depression. *New England Journal of Medicine*, 347, 194-199. <https://doi.org/10.1056/nejmcp011542>