Cutting-edge efforts to assess perinatal distress in real-time and real-world contexts

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statement of the problem
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01 "Crisis for perinatal mental health" - Osborne et al., 2021

02 Need to effectively identify and address perinatal distress in order to mitigate its prevalent & adverse effects

03 Call to shift to the identification, prevention, and mitigation of the full spectrum of concerns seen in "high-risk caregivers"

04 Heterogeneity in presentation and etiology regarded as a major obstacle to progress in research and clinical care

05 Tools are needed that can capture time-sensitive, person-specific processes and their multi-level determinants

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Ambulatory Assessment

"field methods to assess behavior, physiology, experience, and environment... in naturalistic or unconstrained settings" - SAA, 2021

01   Alleviates recall bias

02   Reduces demand characteristics

03   Temporally sensitive

04   Idiographic + nomothetic

05   Multimodal: biology, behavior, context

06   Active + passive data collection

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AA in the Perinatal Period

Can AA be used during this time of pronounced disruption?

01 Mobile technologies are generally acceptable in perinatal populations.

02 The majority of perinatal individuals own + regularly use smartphones.

03 Perinatal populations appear interested in using tech to support symptom tracking and clinical care.

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the present review

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01 Investigate the current state of research using AA in the perinatal period to examine psychological distress.

02 Studies included were: conducted among individuals who were pregnant or up to 1 year postpartum, used AA to measure mood/distress, published prior to August 2022

03 Studies that only assessed health behaviors or "stress" without a measure of mood were excluded.

04 Studies that only used qualitative or retrospective diaries were excluded.

05 Dissertations and study protocols were included.

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Study Characteristics

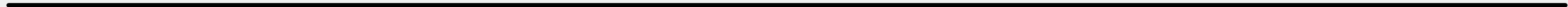**01** 16 EMA + 12 Daily Diary

02 Majority of studies were in pregnancy (57%), with 25% in the postpartum, and 18% spanning the perinatal period
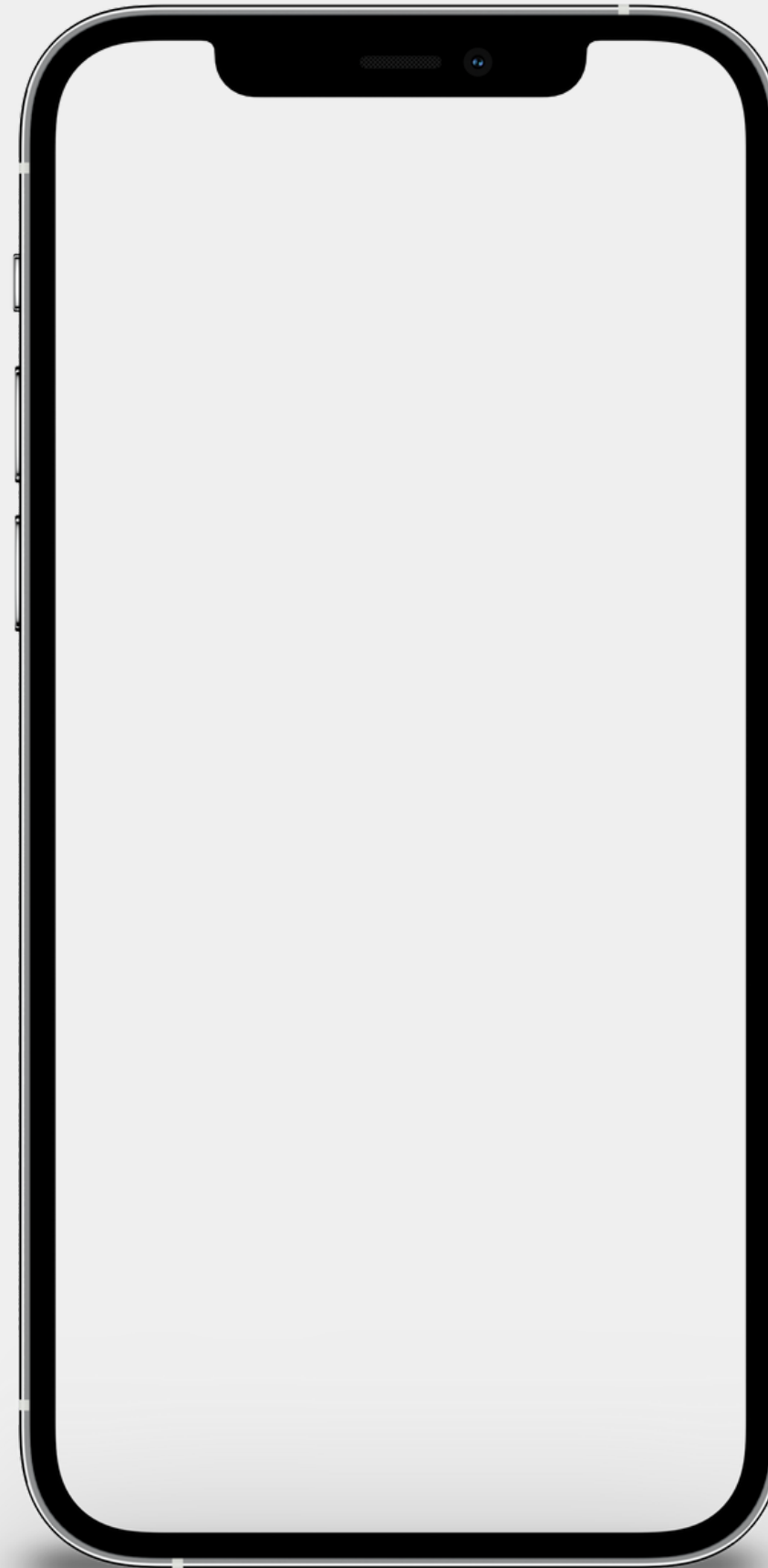
03 N's ranged from 1 to 254
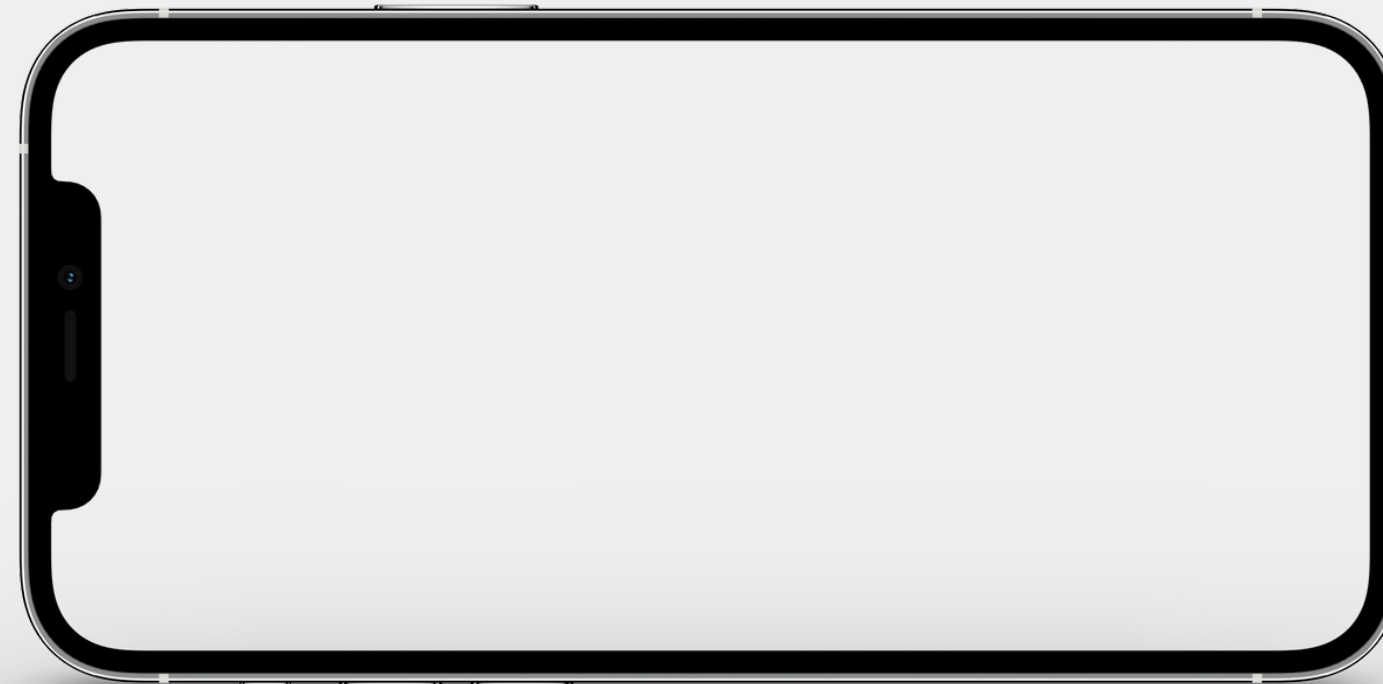
04 71% of studies recruited healthy perinatal individuals or couples

05 Few recruited high-risk or symptomatic populations

06 Sociodemographic information was limited across many studies.

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Study Aims

The aims and focal constructs were classified into 7 overarching themes.

01 links between mood, stress physiology, and obstetric outcomes

02 links between mood and health behaviors (e.g., sleep)

03 psychological mediators of perinatal well-being

04 presentation and mechanisms of perinatal distress

05 mechanisms and outcomes in clinical care

06 relational processes and their association with mood

07 paradigm development and feasibility

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Momentary outcomes

A range of psychological, behavioral, and biological outcomes were assessed.

01 **Specific mood states:** anxiety, happiness, sadness, fatigue

02 **Psychological symptoms:** depression, posttraumatic stress, substance use/relapse

03 **Subjective behavior:** physical activity or exercise, daily activities, coping skills, sleep quality and behavior, medication use, exercise, or eating

04 **Subjective experience** :stress, pain, perception of partner's moods, self-efficacy, parental mastery, attachment

05 **Contextual factors:** infant behaviors, physical location, stressful events, drinking cues, social context/interactions, or perinatal events

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Design Considerations

Paradigm Development

- Limited discussion of theory
- Prevalent use of smartphone apps
- Limited risk monitoring
- Mostly signal-based, fixed or semi-random delivery schedules

Data Obtained

- EMA protocols:
  - *Mode* = 14 days (*Range*=3-84)
  - *Mode* = 5 EMAs (*Range*=2-24)
- DD protocols:
  - *Mode* = 21 days (Range=7-56)
- Within person observations:
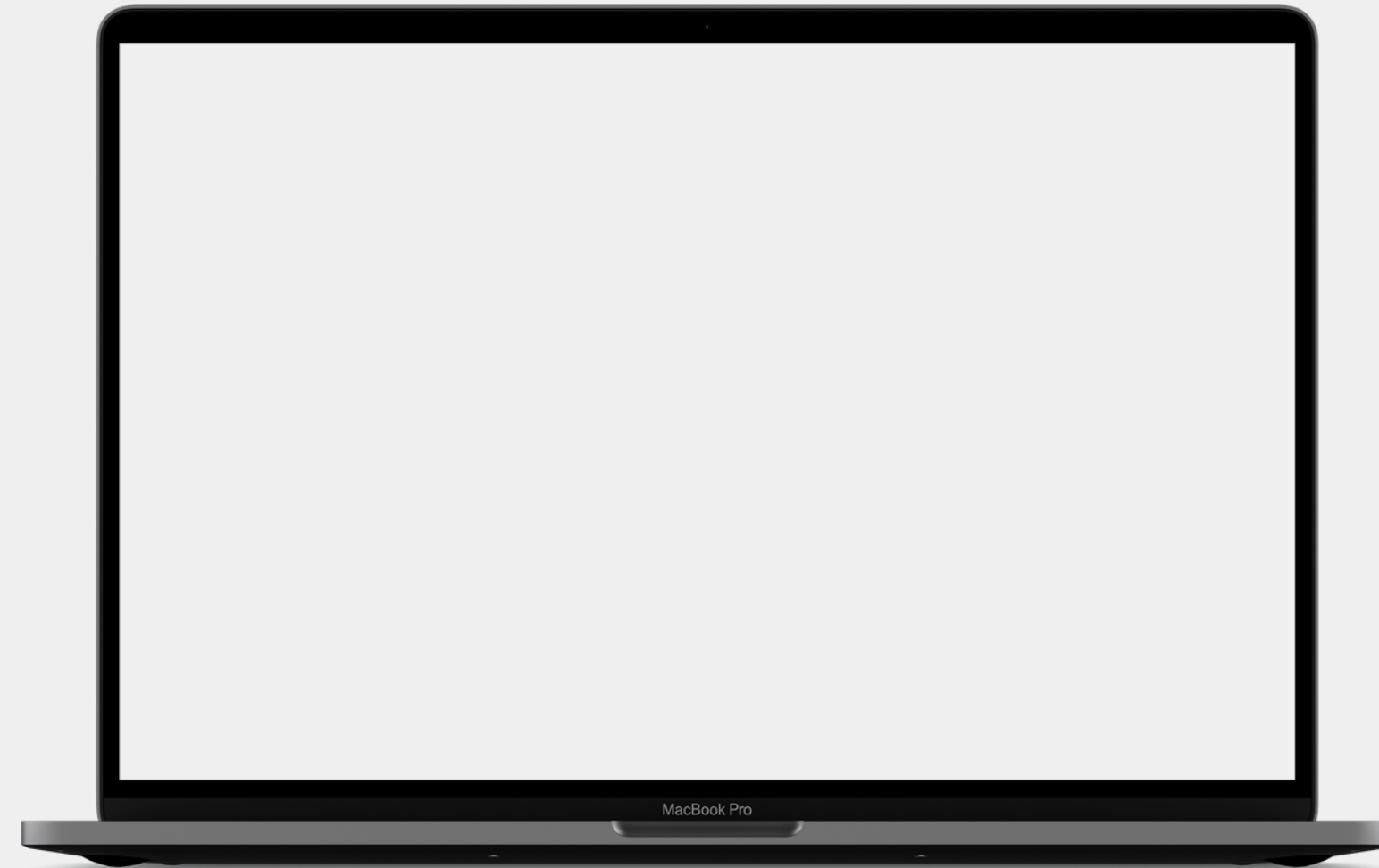 - Mode=64, *Range*=7-420

Adherence & Feasibility

- Few studies focused on feasibility and used qualitative methods
- Adherence reporting was limited:
  - *M*=81.0% (*SD*=14.1%)
  - EMA: *M*=73.3%, *SD*=13.6%
  - DD: *M*=87.7% (*SD*=11.4%)

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Data Analysis

a brief overview.

01 Frequent reliance on non-validated measures + few psychometric studies.

02 Few studies examined patterns of missingness, or described relevant analyses.

03 Multilevel/mixed modeling typically used, with almost no idiographic studies or examination of variability.

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Take Aways

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01 In the past 2 decades, a number of studies have used AA to examine psychological processes during the perinatal period.

02 Pregnancy is overrepresented in this work, with relatively few investigations extending into the postpartum.

03 Most studies have sought to capture ecologically valid mood data in healthy samples; yet, a handful suggest AA can be implemented in clinically relevant populations.

04 AA has been used to probe multiple levels of analysis outlined in biopsychosocial models, with recent designs integrating subjective self-report and passively sensed biological, behavioral, and contextual variables.

05 These findings suggest perinatal AA may be feasible, but existing studies have yet to capitalize on AA's potential to address questions related to hetereogenity in presentation and treatment response among high-risk populations.

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acknowledgements

mentors.

- Jonathan Abramowitz, PhD
- Crystal Schiller, PhD
- Katie Gates, PhD
- Tiffany Hopkins, PhD
- *And many more!*

funders.

- UNC Chapel Hill
- UNC Thomas Wadden Award
- NSF GRFP
- IOCDF Young Investigator Award

supports.

- Heidi Ojalehto, MA
- Dujana Buheis
- Gayathri Srikanth
- Brianna Vaghela
- Terrique Morris, BA
- Peyton Miyares, BA
- Dana Nguyen, BA
- Megan Butcher, BA
- *And many more!*

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Thank You!

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