



# Yourtime

Perinatal Mental Health Support in the  
Palm of Your Hand.



# Introduction

Maternal anxiety and depression are major public health issues with prevalence as high as 1:5 women<sup>1</sup>



Notably there has been a significant increase since Covid-19 with one study citing that, two thirds of women reported poorer mental health following the outbreak.<sup>2</sup>

<sup>1</sup>World Health Organization. Maternal mental health. Geneva World Health Organization; 2017. Available from [http://www.who.int/mental\\_health/maternal-child/maternal\\_mental\\_health/en/](http://www.who.int/mental_health/maternal-child/maternal_mental_health/en/)

<sup>2</sup>Martin-Key NA, Spadaro B, Schei TS, Bahn S. Proof-of-Concept Support for the Development and Implementation of a Digital Assessment for Perinatal Mental Health: Mixed Methods Study. J Med Internet Res. 2021 Jun 4;23(6):e27132

# The Problem

In Australia, approximately 300,000 women give birth each year, with **20% (60,000)** experiencing depression and/or anxiety before or after the baby is born<sup>3</sup>

The 2019 Price Water House commissioned report<sup>3</sup> estimated that **depression and anxiety during pregnancy and early motherhood cost the Australian economy \$877m.**

For South Australia this is roughly \$55m and directly affects over 5,650 people each year.



<sup>3</sup>PwC Consulting Australia 2019, *The cost of perinatal depression and anxiety in Australia*, viewed 13 May 2020, <[https://panda.r.worldssl.net/images/uploads/Cost-of-PNDA-in-Australia\\_-Final-Report-061119-compressed.pdf](https://panda.r.worldssl.net/images/uploads/Cost-of-PNDA-in-Australia_-Final-Report-061119-compressed.pdf)>.

# Priority in Maternity Care

Australian Government - developed the National Perinatal Depression Initiative.

Health care providers undertake routine screening for anxiety and depression, but only occurs at a single time point provides just a snapshot of health

Women commonly do not disclose or seek help.





# Promoting mental wellbeing

There is need for preventative strategies which are more cost effective and sustainable. Promoting positive mental wellbeing is important.

There is potential for digital tools which empower women to self-monitor their mental well being during pregnancy and early mothering



# Study Aim



To co-design and test a digital perinatal mental wellbeing tool to enable women to track their mental wellbeing over time, alert them to changes and assist them to recognize early signs of deteriorating mental wellbeing.

A secondary aim was to promote mental health by incorporating wellbeing prompts based on the 'five-ways to wellbeing'.<sup>4</sup>

<sup>4</sup>Aked. J., Marks, N., Cordon, C., & Thompson, S. Five Ways to Wellbeing: the evidence. London: New Economics Foundation (nef) 2008 [cited 2022 August 20]. Available from <https://www.artshealthresources.org.uk/wp-content/uploads/2018/11/2008-Five-ways-to-wellbeing-NEF.pdf>

# Preparatory study

Paper-based visual scale developed

The descriptors used in CMM tool are:

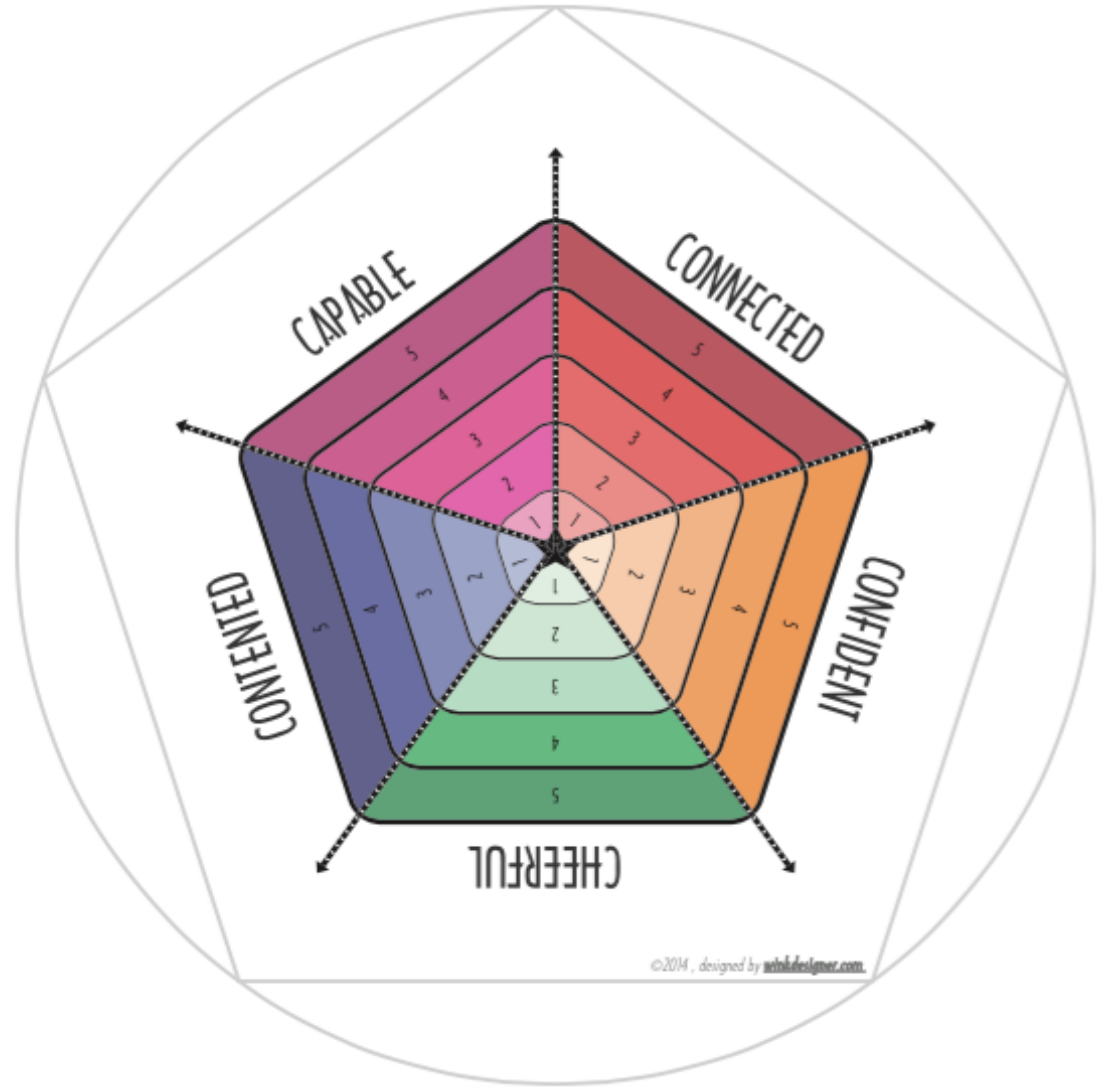
**Connected** (satisfying interpersonal relationships),

**Confident** (positive functioning),

**Cheerful** (positive affect),

**Contented** (hedonic perspective)

**Capable** (eudemonic perspective)



“In the last few days I have felt (insert the descriptive word)” then circle a number from 1 to 5, where 1 = none of the time and 5 = all of the time.

Initial correlation established between the paper-based version of the CMM with the Warrick Edinburgh Mental Wellbeing Scale<sup>5</sup>.

Further, correlation with 135 participants who completed both the CMM and the WEMWBS, confirmed a strong correlation between the two tools (Pearson correlation coefficient,  $r = 0.8179$  with statistical significance level at  $p < .01$ ).

## Capture my mood: a feasibility study to develop a visual scale for women to self-monitor their mental wellbeing following birth

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### Abstract

**Background.** A variety of practices have been developed to screen mothers for anxiety and depression during the antenatal and postnatal periods. However, there is ongoing debate about the appropriateness, timing and effectiveness of screening all women, with a limited number of rigorous evaluations. It is timely to re-think current maternal mental health surveillance and to develop and evaluate innovative approaches to monitoring wellbeing.

**Aim.** To ascertain a correlation between a newly developed Capture My Mood (CMM) tool and the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) and assess the acceptability of the tool during the early postnatal period.

**Method.** A mixed-methods approach was used to pilot the CMM tool alongside WEMWBS. Participants were recruited from a midwifery group practice and provided with a guide which explained the study and how to use the CMM tool. Participants were asked to complete the CMM tool in the early postnatal period. At completion of week two, participants completed the final CMM tool as well as the WEMWBS. Pearson's Correlation was used to calculate the  $r^2$  and  $p$  values to assess the correlation between the CMM and WEMWBS scores. Participants were asked to complete a short questionnaire to record their views. Ethical approval was gained from South Australia Health human research ethics committee and the UniSA ethics committee.

**Findings.** A total of 20 women was the estimated sample to ascertain a high correlation between the CMM tool and the WEMWBS. To allow for attrition rates, 30 women were invited to participate in this study. Some 12 women returned the completed CMM, WEMWBS and questionnaire within the time period of eight weeks. Findings indicate an acceptable correlation between the CMM tool and WEMWBS ( $r=0.57$ ,  $p=0.05$ ). Women found the tool easy to use and understood the five 'C' descriptors.

**Conclusion and implications.** This study has shown that the CMM tool correlates with the WEMWBS. Women found the simplicity of tool to be user-friendly and helpful in self-monitoring their mental wellbeing during the early postnatal period.

**Key words:** Mothers, mental health, wellbeing, anxiety, depression visual scale, postnatal care, self-monitoring, evidence-based midwifery

### Introduction

Mental health is an integral component of health; it is a state of well-being that is achieved when an individual realises their own abilities, can cope with the normal stresses of life, can work productively and is able to contribute to his or her community (WHO, 2016). A combination of social, psychological, and biological factors determine the level of mental health of an individual at any time. Interruptions to mental health and wellbeing may have significant consequences, such as depression in which an ongoing state of low mood and aversion to activity affects a person's thoughts, feelings, sense of wellbeing and behaviour (Herrman et al, 2004). On this basis, the promotion of mental health should be a priority for individuals, communities and societies throughout the

health problems (Steen and Steen, 2014). In Australia, up to 15% of mothers experience depression during the perinatal period (Puckering et al, 2010; Buist et al, 2008). A recent study reported that one in three women indicated a decline in mental wellbeing and depressive symptoms on at least one occasion from early pregnancy to four years postpartum (Woodhouse et al, 2014). Additionally, it has been reported that as many as 16% of women may require some degree of intervention for mental health concerns during the antenatal and postnatal period (NICE, 2014). When undiagnosed and in the absence of appropriate care, depression can pose serious health consequences to both mother and child (Steen et al, 2015; Glover, 2014; Raposa et al, 2014; Darcy et al, 2011).

Research indicates that women with depression after birth

# Mixed methods with co-design

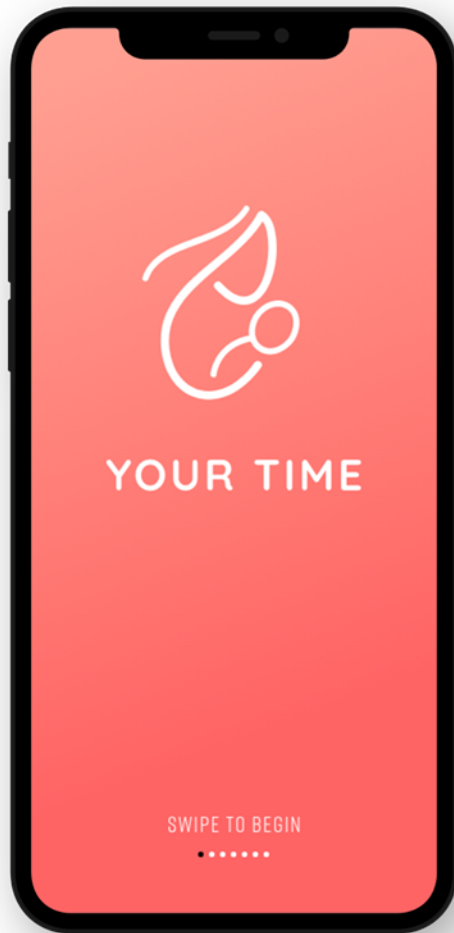
A sequential mixed methods approach undertaken in two stages. The interdisciplinary, co-design project brought together researchers and students from Communication Design, Match Studio and Midwifery, as well as mothers as end users, to design and develop a prototype App.

1. Co-design workshops in partnership with Match Studio (a creative research hub at the University of South Australia)
2. Fit for purpose pilot utilising an anonymous purpose designed questionnaire sought feedback on the tool in relation to acceptability, usability appropriateness, usefulness and satisfaction.

UniSA Research Themes Investment Scheme provided seed funding to codesign, develop and evaluate the prototype App (\$40,000)

Ethical approval was gained from the University of South Australia Human Research Ethics Committee no. 202005

# Stage one



6 women responded – 4 participated

- All women had babies within the last year,
- 3 attended the session with their baby.
- 3 women were first-time mothers
- 3 were Caucasian and one woman identified as being a Torres Strait Islander.

3 design students, 2 psychology students, one design academic, 2 midwifery researchers and a research assistant also attended.

The workshop conversation aimed to generate and develop ideas for digitalising the tool and the content, structure, and a design for the app.



# Findings

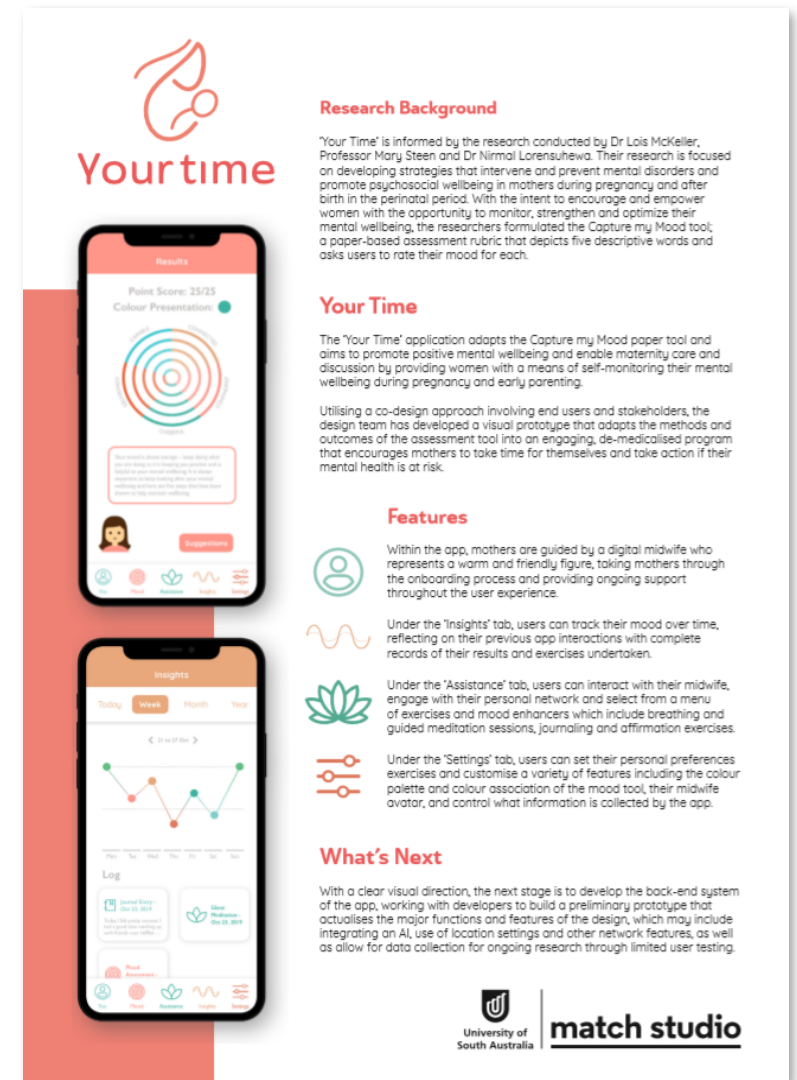
**Ease of use:** an App that could be used with one hand, with all aspects easily accessible in one App.

**Personalised:** choice over the design and colour

**Networks:** a need to connect with other mothers

**Activities:** mindfulness, affirmations, journal

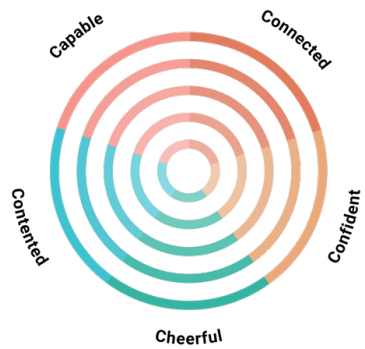
**Flexible measures:** not wanting to be forced to choose a certain number on a scale but rather to include a sliding bar that could sit between the scale points.





# Yourtime App

In response **YourTime** App developed with the aim:



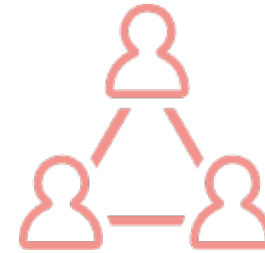
Prompt women to check in on their wellbeing



Track their mood over time, days, weeks, & months



Empower women to look after their mental health & provide means to recharge emotionally



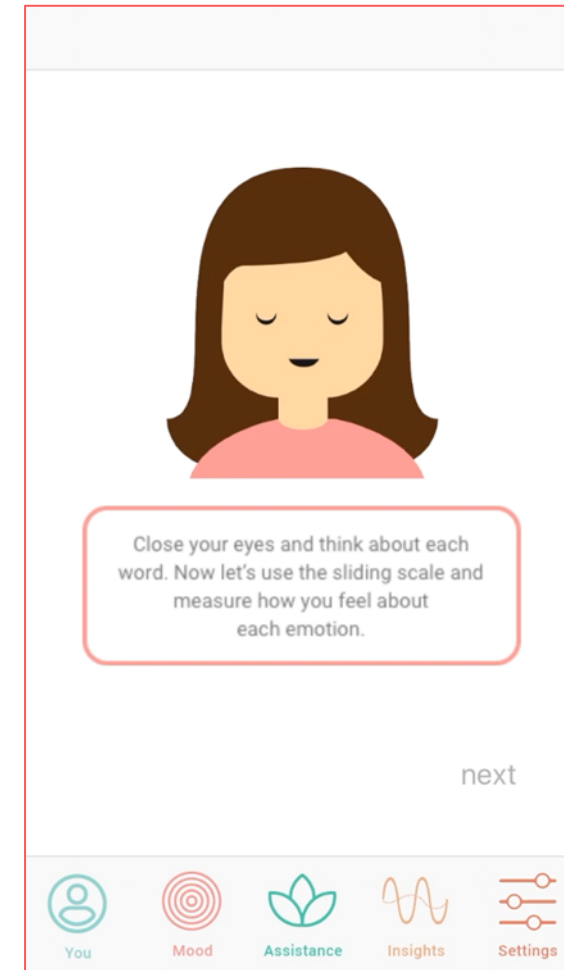
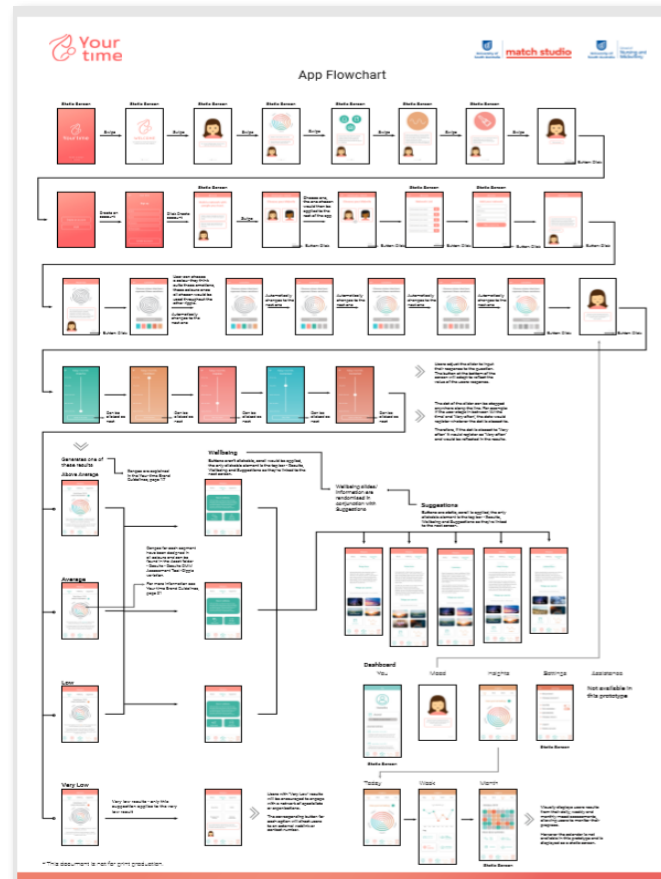
Connect pregnant women and new mums with peer networks



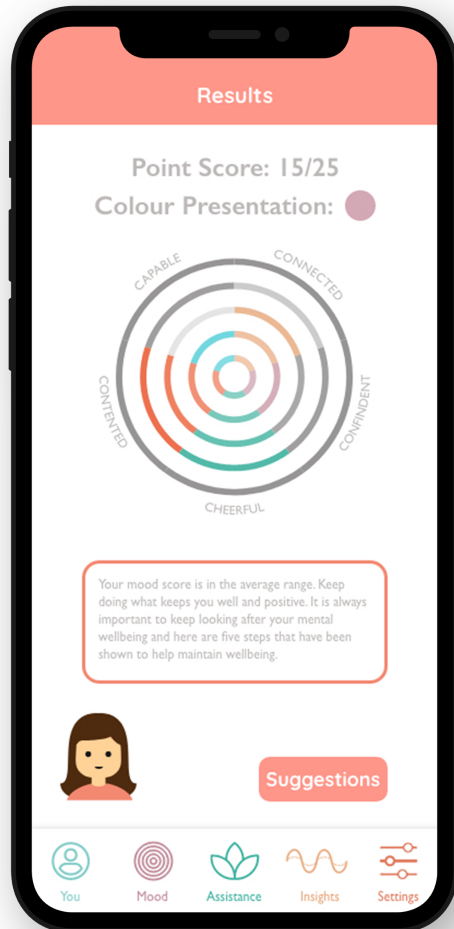
Provide educational support and links to services when more help is needed

# Proof of Concept

A company was contracted to develop the prototype app in order to complete a fit-for-purpose evaluation tested with end-users



# Stage two – Fit for purpose



14 end-users

- All identified as women
- Majority >31 years (85.8%)
- 85.3% educated to at least university level
- 2 women were pregnant, 5 were first-time mothers, 8 had previous babies and one did not respond.
- All women were born in Australia (table 1).

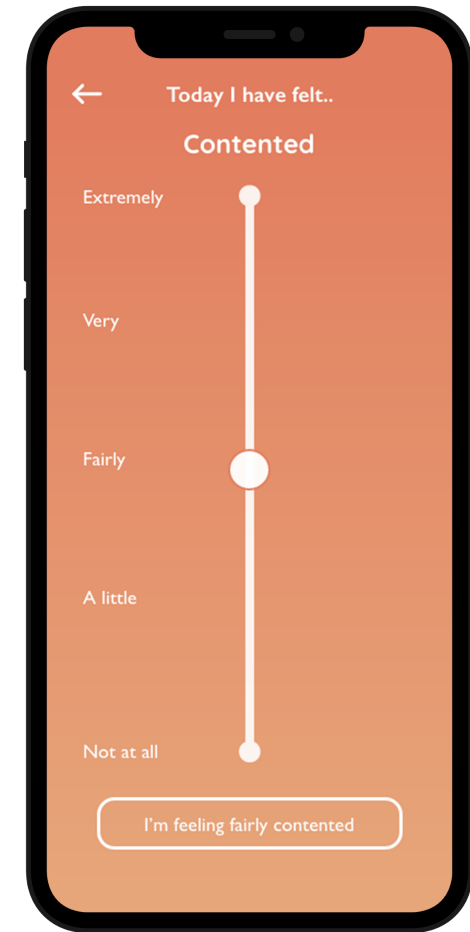
# Stage two

Statement/question	yes		No		Total
	%	n	%	n	
I think the YourTime App is appealing:	83.33	10	16.67	2	12
Did you like having a midwife avatar to guide you through the App?	85.72	12	14.29	0	12
I found the YourTime mood scale easy to use	75.92	10	23.08	3	13

# Stage two

Participants were asked:

- were instructions adequate: 10 (71.4%) strongly agreed/agreed, 3 women (21.4%) disagreed with one disagreeing strongly.
- was the app easy to use: 8 (57.1%) strongly agreed/agreed that it was, 3 (21.4%) were unsure and 3 (21.4%) disagreed.
- about personalising the app: most (71.4%) strongly agreed/agreed that being able to choose a colour pallet would help them personally identify with the app.
- would the App be helpful in monitoring their mood: 5 (35.7%) women strongly agreed, 6 (42.9%) agreed and 3 (21.4%) were unsure.

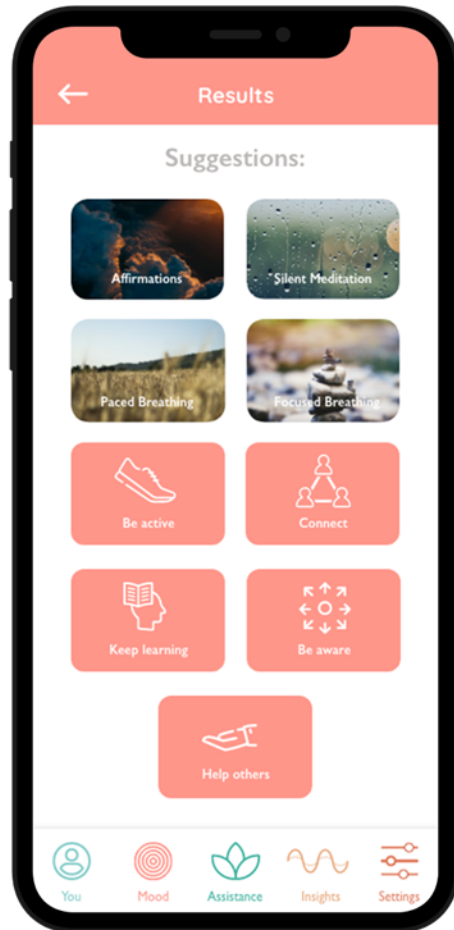


# Stage two

Aspects of the app participants would use regularly

	%	n=14
Mediation (paced breathing):	71.43	10
Breathing (relaxed breathing and deep breathing):	92.86	13
Journaling (keep a record of how you were feeling):	50.00	7
Affirmations (positive written statements):	85.71	12
Network (being able to add contacts):	57.14	8

# Stage two



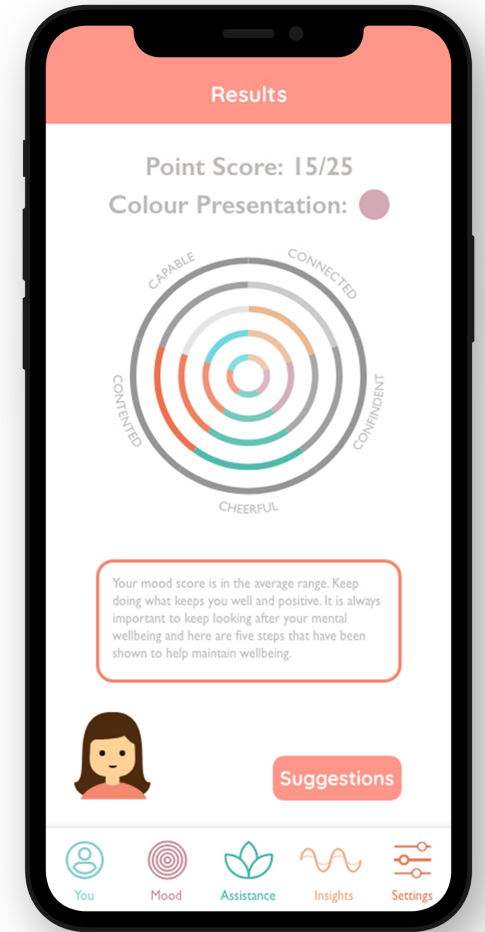
Participants were asked:

- would they follow the education prompts in response to their wellbeing score: 9/11 (81%) stated yes, 2/11 (18.1%) said no.
- were the list of services in the app helpful in knowing where to get help: 12 women responded, four (33.3%) strongly agree/agreed, five (41.7%) were unsure and two disagreed (16.7%), one (8.3) strongly disagreed.
- would they utilise any of the services in response to a 'low wellbeing' score, 6/9 responses (66.7%) stated they would utilise these services if they had a low wellbeing response.
- how often they would use the app each week: 11 women stated they would use the app at least 3 times a week



# Stage two

- ❖ All participants (100%) agreed that the app would 'benefit women by alerting them to changes in mental wellbeing'
- ❖ 10/13 (77%) strongly agreed/agreed the app had potential to positively affect wellbeing for women during pregnancy and after birth, the remaining participants were unsure.
- ❖ 12 (85.7%) women agreed with the mood outcome they received while trying out and testing the app.



Participants were asked for their overall impression and feedback

“Good app and I really like the concept – I needed something like this 6-months after birth”

“As someone who had prenatal depression having this all in one app is great”

“It is easy and quick to record and gave a good response in the insights sections”

“User friendly with the tracking function being particularly useful for me”

\*Verbatim quotes from participants

The participants were also asked for ways to improve the app.

“More feedback, maybe a tracker to include if you do exercises or meditate and how these correlate to your mood”

“More ‘new’ mum focussed. Could users add a person they elect to monitor [their wellbeing]”

“Less wordy, more friendly, actual links to information, services and support”

“Less pages on pages, simpler navigation or home page”

\*Verbatim quotes from participants

# Conclusion

**YourTime** – an App that places perinatal mental health in the palm of a woman's hand

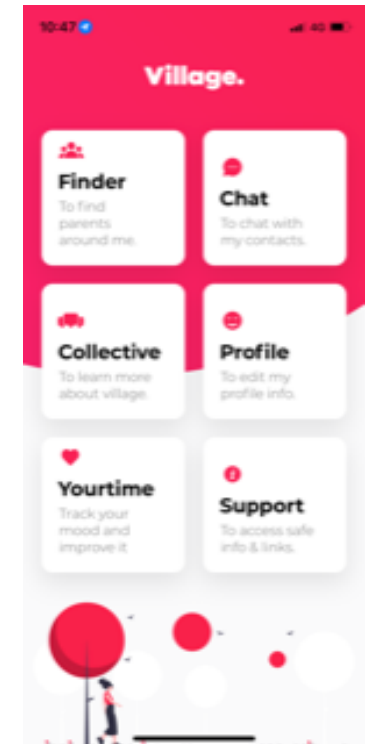
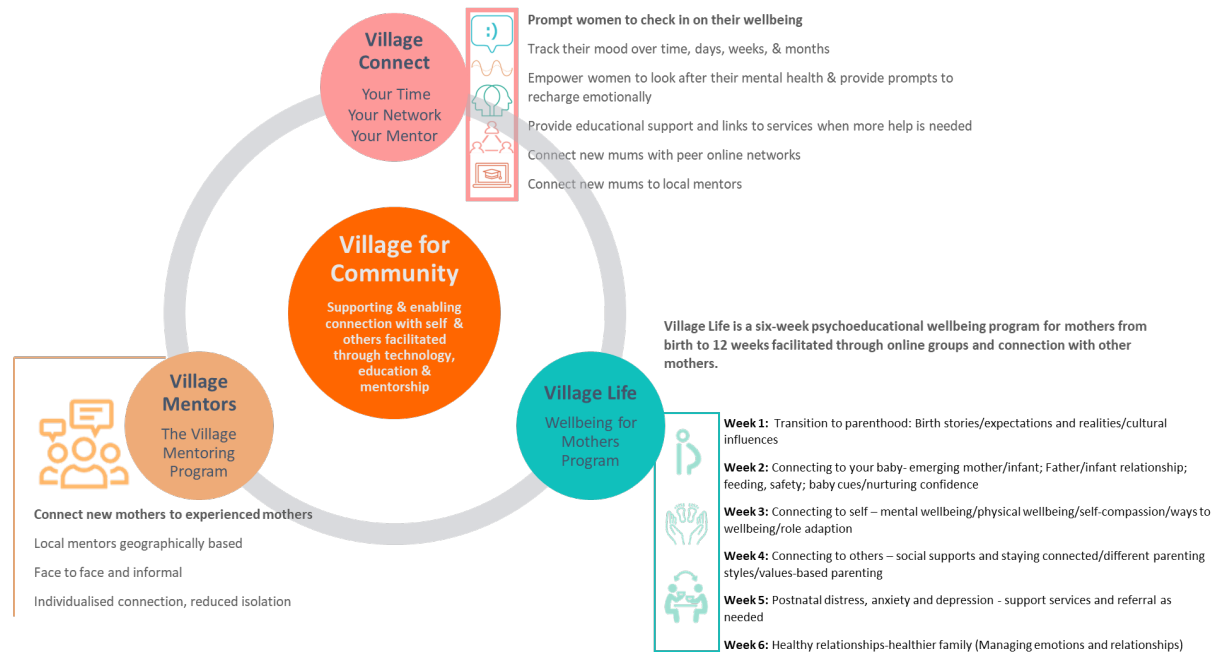
Responds to priorities to promote positive mental wellbeing during pregnancy and early mothering by providing a digitalized tool that enables women to self-monitor and track their mood, assisting them to recognize early signs of deteriorating mental wellbeing.



# What next

**YourTime** –version 2.0 embedded within the Village Foundation App- user testing

**Village for community** – A holistic, three-pronged approach to connect mothers with self, community and professional services through technology (Village Connect), education (Village Life) and mentorship (Village Mentoring)



# The Team



**Professor Lois McKellar**

- Associate Professor of Midwifery
- Role: Project lead



**Mr. Benjamin Altieri**

- Masters Student (Design)
- Role: Lead Designer



**Dr. Jane Andrew**

- Founding Director of Match Studio
- Role: Codesign / Managing stakeholder participation



**Dr. Samantha Charlick**

- Academic Researcher
- Role: Academic researcher



**Professor Mary Steen**

- Professor of Midwifery
- Role: Co-researcher



**Dr. Tiffany De Sousa Machado**

- CEO Village Foundation
- Role: Partner organisation



**Professor Ian Gwilt**

- Professor of Design
- Role: Design research / Design practice expertise



Thank you

