

Queensland Centre for Perinatal and Infant Mental Health

Together in Mind: Research Report 2020-21



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Together in Mind: Research Report 2018-2019

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Email: Together.in.Mind@health.qld.gov.au

P: 07 32663100

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Table of Contents

Together in Mind Acknowledgments.....	p.4
Together in Mind Summary.....	p.6
Introduction/Background.....	p.9
Research groups.....	p.10
Intervention.....	p.11
Research methodology	p.12
Participants.....	p.13
Data management.....	p.15
Results.....	p.15
Discussion.....	p.19
Recommendations.....	p.20
Glossary.....	p.21
References.....	p.22
Appendix	
Appendix 1.....	p.25
Appendix 2 (Mater).....	p.26
Appendix 3 (Darling Downs).....	p.30

An investigation of a collaborative interagency service model of an intensive Day Program for mothers with a perinatal mental illness and their infant children under 12 months of age.

'Together in Mind'

Final Research Report 2017-2021

HREC/15/QRCH/236

This is the final research report to be submitted and concludes the above study. It is based on the findings as reported in the following two research reports

- The Perinatal and Infant Mental Health Day Program: A Research Project 2016-17
- 'Together in Mind' Research Report 2017-18

ACKNOWLEDGEMENTS

'Together in Mind' is a perinatal and infant mental health day program developed for perinatal mothers with a moderate to severe mental illness with an infant under 12 months of age. This Queensland multisite research project follows the recommendations taken from research previously undertaken in 2009 in Metro North Hospital and Health Service (HHS) and 2016 in two Queensland regional HHS and was made possible through the support of the following individuals, organisations and funding bodies.

The program is funded through the Queensland Mental Health Plan: *Continuing care to recovery 2016-2021* which endorsed the implementation and recurrent operation of 'Together in Mind' programs across thirteen Queensland Hospital and Health Service sites.

Seven Hospital and Health Services were selected for implementation and research in 2017-18:

- Cairns
- Townsville
- Gold Coast
- Sunshine Coast
- Metro North
- Metro South
- West Moreton

A further two sites were included and received HREC approval to be included in 2018-19:

- Mater Health
- Darling Downs

A further 4 sites are to be implemented by 2021 which will not be included in the research study.

Instrumental to the success of the project are the Adult Mental Health, Child and Youth Mental Health and Child Health clinicians from the above sites who, with the support of their service managers, attended training and collaboratively deliver three programs per year in their HHS. Their enthusiasm, commitment and professionalism enabled delivery of the programs and research outcomes.

We acknowledge the clinicians from the Queensland Centre for Perinatal and Infant Mental Health Centre, Child and Youth Mental Health, Children's Health Queensland Hospital and Health Service (QCPIMH, CYMHS, CHQ HHS) who provided their skill and knowledge in training, clinical support and program delivery and resource development.

Dr William Bor (MBBS, DPM, and FRANZCP) - Officer in Charge, Academic Research Unit, Child and Youth Mental Health Service, Centre for Children's Health Research, South Brisbane - provided support in the development of the research strategy and statistical analysis in 2016, 2018 and 2019.

Above all, we would like to acknowledge the families who volunteered to participate in the Together in Mind research project. Their engagement and feedback is invaluable to the recommendations for further development of the program. Most importantly, it is a testament to the participants' commitment to the wellbeing of themselves, their infant/s and families.

Chief Investigators

Dr Elisabeth Hoehn - Medical Director, Queensland Centre for Perinatal and Infant Mental Health (QCPIMH)

Dr Hoehn has been working in Child and Youth Mental Health for more than 20 years, primarily in community settings. Her area of special interest lies in perinatal and infant mental health where she works in a child centred, family focused model of care. This involves working collaboratively with other service providers and across sectors to optimise outcomes for the child and their family.

Cate Rawlinson – Strategy and Service Development Leader, QCPIMH

Cate is a psychologist working primarily in the Child and Youth Mental Health field in both New South Wales and Queensland. Her roles over the past 20 years have included counsellor, program coordinator, senior project manager and research officer. In her current position Cate has responsibility for oversight of the Together in Mind research project.

Adrienne Irvine – Project Coordinator PIMH Day Program, QCPIMH

Adrienne is a social worker with 40 years of experience working in areas of child and family welfare, adult and child and youth mental health, project management and state-wide service development. She has an interest in early intervention programs that maximise outcomes for children's development and the social-emotional wellbeing of their families.

Dr William Bor (MBBS, DPM, and FRANZCP) – Officer in Charge, Academic Research Unit, Child and Youth Mental Health Service, Centre for Children's Health Research, South Brisbane.

Dr Bor's work includes a range of clinical consultation, research and teaching roles within Children's Health Queensland as well appointments as Senior Lecturer University of Queensland and Honorary Member Mater Research Institute.

SUMMARY

The Queensland Mental Health Plan: *Connecting Care to Recovery* 2016-21 endorsed the implementation of 'Together in Mind', a perinatal and infant mental health day program, in thirteen Hospital and Health Service sites across Queensland. The Queensland Centre for Perinatal and Infant Mental Health (QCPIMH) is tasked with implementing the programs and continuing the research undertaken with a pilot program conducted in Metro North Hospital and Health Service (HHS) in 2009 and a research program conducted in Townsville and Cairns and Hinterland HHS in 2016. It is planned to collect data from each site over its first year of operation incorporating 3 groups per site between 2017-2021.

Seven sites were implemented in 2017-18 with a further two programs implemented in 2018-19. Research data was successfully collected from these 9 sites (3 groups per site as reported in the research report 2018-19). The intention was to continue to collect data from the final four sites implementing groups 2020-21 (Mackay HHS, Central West HHS, Northwest HHS and Torres and Cape HHS).

Due to COVID (March 2020 – December 2020) groups were unable to be implemented and data could not be collected from these new sites. Each site will run one group in 2021 from which insufficient data can be collected for a valid or reliable outcome. For this reason, and the fact that sufficient data has been previously collected on 89 samples, it was decided that the research project will discontinue.

The program is designed as an intensive collaborative interagency community-based program for perinatal mothers with a moderate to severe mental health diagnosis and their infants aged under 12 months. The program provides a safe therapeutic holding environment in which mothers develop strategies to manage their illness and explore and develop their relationship with their infant. Partners and support persons are invited to attend a two-hour session midpoint in the program.

The following Hospital and Health Service sites were implemented 2017-18:

- Cairns and Hinterland
- Townsville
- Gold Coast
- Sunshine Coast
- Metro North
- Metro South
- West Moreton

2018 -19

- Mater Health
- Darling Downs

QCPIMH delivered two days of intensive training in the program model to participating adult mental health (AMH), child and youth mental health (CYMHS) and child health (CH) clinicians from each of the above sites. On completion of the training a clinician from each of the collaborating services delivered up to three programs per year per site.

Research data 2017-19

Please see individual data collected for Mater (Appendix 2) and Darling Downs HHS (Appendix 3).

The data analysis for this report provides the cumulative data collected from the Mater and Darling Downs sites run in 2018-19 added to the previous 2017-18 research data. Due to the small number of participants attending the 2018-19 groups (28 mother-infant dyads), the qualitative analysis reports on the cumulative results from all research groups run in 2017-19.

- 104 mothers registered to attend 'Together in Mind' across nine sites across Queensland
- 94 mother-infant dyads attended group sessions
- 89 matched pairs completed pre and post measures
- 34 partners attended the partner/father session (44% of eligible partners)
- Mater Health and Darling Downs HHS each ran 3 groups per site (2018-19) with a total of 28 mother-infant dyads (14 dyads per site) from which pre and post qualitative measures and post program feedback surveys were completed and added to the data collated from 2017-18.

RESEARCH

HREC/15/QRCH/236

Clinician rated and self-report pre and post quantitative measures were used to test the hypotheses that mothers with a moderate to severe perinatal mental illness attending 'Together in Mind' with their infant/s will show improvements in:

- maternal emotional wellbeing
- the maternal-infant relationship
- maternal knowledge, competence and confidence in parenting
- social connection for participants
- maternal use of mental health and health and community services for continuity of care.

Participants and partners attending sessions and clinicians delivering the program completed post program qualitative surveys.

Research Outcomes (2017-19)

1. Quantitative results

Following a review of the quantitative measures used in the 2016 research study, the Principle Research Officer applied for HREC approval in 2017 to continue with five of the previously used ten measures and increase the research sites from two to seven.

HREC approval to include Mater and Darling Downs was sought and approved in 2018 without further changes to the study protocol. Cumulative results from the 2017-18 and 2018-19 groups were independently analysed by Dr. William Bor, CYMHS Academic Research Unit, Children's Health Research Centre, South Brisbane, Queensland in 2018 and 2019.

In brief, the following measures and research outcomes show statistically significant results with high, medium and small effect sizes for the 2017/18/19 cohort as follows:

- Participants' **overall psychiatric symptomology improved** as measured by the clinician rated Health of the Nation Outcome Scale (HoNOS) resulting in a large effect size ($d = 0.78$; $p < .000$)
- Participants' self-rated **anxiety, stress and depression improved**, as measured by the Depression Anxiety and Stress Scale (DASS 21)) showing a slight decrease in the overall effect size from medium in 2017-18 ($d = 0.5$ $p = <.001$) to a smaller effect size in 2018 -19 ($d = 0.41$; $p <.000$)
- Participants' self-rated **parenting confidence improved**, as measured by the Karitane Parenting Confidence Scale (KPCS) showing a medium effect size ($d = 0.67$; $p <.000$)
- The **quality of the parent-infant relationship improved**, as self-rated by participants using the Maternal Postnatal Attachment Scale (MPAS) showing a medium effect size ($d = 0.44$; $p < .000$)
- Participants' ratings of their **infants' social-emotional development improved**, as measured by the Ages and Stages Questionnaire: Social-Emotional (6 months) ($d = 0.83$; $p <.001$)

2. Qualitative results (2018-19) Mater and Darling Downs HHS research groups.

Participant satisfaction

28 post program feedback surveys were collected from participating mothers. The responses show a high correlation with those shown in the 2017-18 report.

- Mothers reported that they found the program helpful and would recommend the program to other mothers in similar circumstances (100%)
- Mothers indicated that the program had improved their parenting confidence (85%)
- Mothers reported improvement in their emotional wellbeing (85%)
- Mothers described the group space as safe and non-judgemental, with staff who respected their privacy and helped them feel understood (100%)

Sample Participant comments:

"I now have strategies to help manage my anxious thoughts, so they don't escalate and cause further issues".

"I'm more patient and enjoy my baby's company now".

"It (the group) has really built my confidence and has made me feel so excited to be a mum".

"The group has made me feel more comfortable and made me feel like I'm a good mum"

"I've noticed that I'm feeling a lot more confident with interacting with her and looking at her. I can think about her without getting anxious".

"I spend more time having one on one time and helping her explore her world"

"I realise now that I can truly see my baby for the first time".

Partner Satisfaction

13 partners/fathers attended partner sessions from Darling Downs HHS.

- Partners indicated that their knowledge of perinatal and infant mental health improved (90%)
- Partners indicated that they felt more confident in supporting their partner experiencing perinatal mental illness (100%)
- Partners said the session helped them think about their own health and wellbeing (90%)
- Partners said the session increased their knowledge of services that can assist them, their partner and their family (100%)

Clinician Feedback

Clinicians involved in delivering 'Together in Mind' completed a post survey questionnaire on their experience of delivering the program.

- Clinicians endorsed the collaborative model as an effective intervention for mothers with a mental illness and their infants (100%)
- Clinicians indicated that their knowledge of perinatal and infant mental health had improved through the program (100%)
- Clinicians indicated that their confidence in working with mothers with a mental illness had improved through the program (100%)

Clinicians agreed that the collaborative experience was invaluable in building networks, understanding the roles of other services and providing a streamlined approach to service delivery. Many indicated that their clinical practice has changed by having a greater focus on the infant and awareness of the infant's relationship with parents/caregivers. Issues for clinicians centred on increased workload, program sustainability and coordination, and an identified gap at discharge in referral pathways for infant mental health services.

For further information the following detailed reports are available from Together.in.Mind@health.qld.gov.au

- The Perinatal and Infant Mental Health Day Program Research Report (2015-16)
- The perinatal and Infant Mental Health Day Program (Together in Mind) Research Report (2017-18)
- Together in Mind Training Report (2016 -18)
- Report on Clinician Survey Responses (2016 - 18).

INTRODUCTION

In recognition of the important and increasing need for perinatal and infant mental health services, the Queensland Mental Health Plan: *Continuing Care to Recovery* 2016-21 established funding to deliver:

1. Queensland's first four-bed mother-baby unit at Robina Hospital, Gold Coast Hospital and Health Service (GCHHS)
2. Ten community perinatal/infant mental health positions
3. A small telepsychiatry service
4. Thirteen 'Together in Mind' programs across selected Queensland Hospital and Health Services (HHS)

Together with existing services, these programs and positions support the basic infrastructure for a continuum of care in Queensland in the specialised area of perinatal and infant mental health (PIMH).

The Queensland Centre for Perinatal and Infant Mental Health (QCPIMH) has been tasked with the implementation of the above community positions, telepsychiatry service and 'Together in Mind' programs in consultation with relevant HHS executives and services.

Background

Perinatal and infant mental health refers to the emotional and psychological wellbeing of women, their infants, partner and families from preconception through pregnancy up to two years postpartum¹. Numerous factors determine how well a parent transitions into this new phase as a positive or negative experience: the parent's own experience of childhood; perceptiveness, responsiveness and flexibility in the parenting role; parent-infant interactions and relationship; the physical, social and emotional wellbeing of the parent; and availability of social supports.

It is estimated that 16% of women^{2,3} and 10% of men^{4,5} will develop a significant mental illness in the perinatal period. A woman in the perinatal period may have a pre-existing clinical diagnosis of mental illness such as bipolar disorder or schizoaffective disorder, or she may develop a mental illness specific to this period such as postnatal depression or puerperal psychosis (1-2 in 1 000 births).

There is growing evidence of the negative impacts of poor mental health outcomes on not only the perinatal mother but also her infant and family^{6,7,8}. For example, men's incidence of postnatal mental illness significantly increases when his partner has a perinatal mental illness. Evidence suggests that parents with adverse childhood experiences may suffer from a range of mental health problems and have more negative views of their child as they transition into parenthood⁹. Milgrom, Ericksen, McCarthy, and Gemmil found that 70% of women with postnatal depression have relationship difficulties with their infants¹⁰. The perinatal period is critical for the future development of the infant across all domains¹¹ with 40% to 60% of children whose parent has a mental illness being at risk of disrupted mental wellbeing¹².

Evidence shows that treating maternal mental illness alone does not improve child development and mental health outcomes^{13,14,15,16, 17}. Interventions that focus on improving the parent's mental health, developing secure parent-child relationships, and helping families establish safe and supportive social connections, are more likely to result in improved outcomes for families including better mental health outcomes for the infant^{18,19,20}.

Service delivery for mothers with a perinatal mental illness is typically 'siloe'd', resulting in significant gaps in the continuum of care for these women and their infants. Improving services for families experiencing complex mental health issues in the perinatal period requires a coordinated and integrated approach in which not only services and cross-disciplinary health professionals but mothers, fathers and infants play active roles ^{21,22}.

'Together in Mind' uniquely addresses participants' mental health and the parent-infant relationship through a collaborative partnership of health services. Senior cross-discipline clinicians from adult mental health, child and youth mental health and child health services deliver the program together for mothers who attend with their infants. This model aims to promote improvement in the mother's mental health and the attachment relationship between mother and infant, leading to better physical, emotional and social development outcomes for the infant. As a 'step up/step down' service model, the program is considered a valuable component of the continuum of care, providing an intermediate level of support between community treatment and inpatient care.

To date, a literature review has found no comparison studies targeting a similar diagnostic cohort that offers a collaborative program where clinicians work alongside each other throughout the entire program.

Hypotheses

Participation in Together in Mind would:

- improve maternal emotional wellbeing in mothers with a moderate to severe mental illness
- improve the developing maternal-infant relationship
- improve maternal knowledge, competence and confidence in parenting
- improve social networks for attending mothers
- improve maternal use of mental health and health and community services for continuity of care.

Research groups

The 2017/18 and 2018/19 study groups follow two previous studies:

- A pilot project conducted in Metro North HHS (Brisbane) in 2009 ²³, in which twenty-one mother-infant dyads participated
- Six research groups conducted in two large regional sites (Cairns and Hinterland and Townsville HHS) in 2016 with twenty-four participants responding ²⁴.

Using pre- and post-program quantitative measures and post-program surveys these studies found that the program improved maternal mental health and responsiveness and connection to the infant, increased parenting confidence and competence, supported social connections, and improved engagement with ongoing support services. The sample size precluded more extensive analysis and recommended further research be undertaken with a larger cohort to demonstrate intervention outcomes. As a result of the recommendations, a research plan was developed to collect data from the first year's three programs as each new site is implemented (Appendix 1). Further information on the above studies is available through Together.in.Mind@health.qld.gov.au

Research

The 2016 study conducted in Cairns and Hinterland and Townsville HHS, while robust, did not garner the >30 responses needed to provide statistical power for the proposed inferential analyses. The planned implementation of thirteen program sites 2017-21 provided the opportunity to increase the sample size and determine the outcomes of the program across settings in Queensland.

To ensure consistency between the 2016 cohort and subsequent samples, the original research protocol was adhered to, with the exception that five of the original ten measures were discontinued. This change was due to: difficulty administering in the group environment (e.g. video of mother and

baby interactions); mothers' feedback (too many measures that were difficult to complete); and the learning that some measures did not reliably provide information pertinent to the study's hypotheses. To date, pre- and post-program quantitative and qualitative data were collected from eighty-nine mothers. Analysis continued to focus on clinical outcomes in terms of improved maternal mental health and the mother-infant relationship. Secondary objectives continued to identify the program elements that contributed to participants' perceived effectiveness (e.g. program duration, program delivery, environment, social support). A post-program questionnaire was completed by partners who attended the one-off partner session and clinicians who delivered the program. A comparison group was not used for these studies.

Children's Health Queensland HREC approval was given to the protocol amendments and continuation of the research project across the following sites in 2017-18:

- Cairns and Hinterland HHS
- Townsville HHS
- Gold Coast HHS
- Sunshine Coast HHS
- Metro North HHS
- Metro South HHS
- West Moreton HHS

2018-19

- Mater Health
- Darling Downs HHS

INTERVENTION

The research protocol required participants to provide informed written consent and undertake a mental health assessment to determine suitability for the program. Clinical governance was supported by three case reviews held prior to the program, at mid-point and at discharge. These reviews were attended by clinicians facilitating the program, with an adult and an infant psychiatrist present for clinical oversight. Case management remained with the treating team.

Participants attended a targeted program of psychoeducation and support five hours a day, one day a week, for six weeks. The program was delivered in small closed groups to build trust, safety and supportive networks. Session topics were addressed by clinicians from the three collaborating services and covered a range of issues, for example recognizing and managing your mental illness (adult mental health), strategies to manage every day parenting issues (child health), and managing emotional regulation of self and baby (infant mental health). Mothers were supported to gain an understanding of infant brain development and enact practical strategies to strengthen their sensitivity and attachment relationship with their infant. The sessions included videos, handouts and self-reflective journaling. In recognition of the impact of perinatal mental health issues for fathers and partners, a session was offered mid-point in the program to help fathers and partners develop their understanding of perinatal and infant mental health, learn strategies to support their partner and infant, and attend to their own emotional wellbeing

Funding

The Queensland Mental Health Plan provides recurrent funding of \$10,700 per site to run three Together in Mind programs per year. These funds support operational costs of running the program (e.g. venue hire, lunches, resources) and supports some Child Health clinical hours. Each HHS determines the use of these funds and is administered through Children's Health Queensland Hospital and Health Service (CHQ HHS) via QCPIMH. Some sites received funding to provide backfill for adult mental health and/or CYMHS facilitation hours for varying time periods. A number of sites, including Mater, received perinatal and/or infant mental health positions (2016-21) at which time the backfill funding ceased.

Service Level Agreements (SLA) are completed between each HHS and CHQ HHS outlining program key performance indicators and reporting requirements. There are no specific research funds attached to the project. The project coordinator, clinician training and resources are funded through QCPIMH (CYMHS CHQ HHS). Statistical analyses and reports are provided by Dr William Bor, CYMHS Academic Research Unit, Children's Health Research Centre, South Brisbane.

Research Fidelity

Given the large number of sites and programs to be run in each site, maintaining research integrity has required considerable planning and vigilance. To support research fidelity and prevent "program drift" across sites ²⁵, the following strategies were used:

- intensive two-day training of clinicians in the program model and research protocols
- a well-developed and trialed intervention manual
- access to a central portal for accessing all program resources, handouts, videos etc. ensuring continuity and consistency across programs
- fidelity checklists completed at the end of each day to identify elements that were/were not completed, provided to the research coordinator for monitoring.

RESEARCH METHODOLOGY

After review of the 2016 research study, an amendment to the initial HREC approval (HREC/15/QRCH/236) was granted in 2017 approving discontinuance of five measures used in the 2016 study (Parenting Stress Scale [PSI 4], Mental Health Inventory [MHI], Modified Alarm Distress Baby Scale [m-ADBB], Parent-Infant Relationship Assessment Scale [PIR-GAS], and Brief Psychiatric Rating Scale Expanded Version 4 [BPRS]).

The following measures were retained:

Clinician-rated:

Maternal mental health

Health of the Nation Outcomes Scale (HoNOS) ²⁶. The HoNOS is a set of 12 scales, each one measuring a type of problem commonly presented by consumers in mental health care settings. A completed HoNOS score sheet provides a profile of 12 severity ratings and a total score. By comparing the severity of each problem recorded at the first rating with the ratings made on a second or subsequent occasion the clinician can measure outcomes following the intervention. A reduction in scores indicates improvement to the consumers mental health outcomes.

Self-reports:

Depression Anxiety and Stress Scale (DASS-21) ²⁷. DASS-21 is a set of three seven-item scales to measure depression, anxiety and stress. Each scale measures the severity of symptoms over the previous 7 days. The scales can be summed to produce a composite measure of general psychological distress or negative affect. A reduction in scores indicates improvement to the consumers mental health outcomes.

Karitane Parenting Confidence Scale (KPCS) ²⁸. The KPCS is an Australian scale measuring parental self-efficacy in parents of infants aged 0-12 months. Parents respond to 15 items using a 4-point Likert scale to indicate how confident they feel about managing a range of parenting situations. While the scale has yielded a three-factor structure – Parenting, Support, Child Development – its developers recommend the use of a whole-scale score to measure parenting confidence. Higher scores indicate higher confidence or self-efficacy.

Maternal Postnatal Attachment Relationship Scales (MPAS) ²⁹.

The MPAS is a self-report questionnaire measuring the early emotional bond between mother and infant and their attachment relationship. There are 19 items across three subscales measuring 'quality of attachment', 'absence of hostility' and 'pleasure in interaction'. Higher scores indicate a higher-quality relationship.

Ages and Stages Questionnaire: Social-Emotional (ASQ:SE)

2 months, 6 months and 12 months 30 The ASQ:SE is a screening tool to identify children aged 2 to 66 months whose social and/or emotional development requires further evaluation and intervention. Higher scores indicate higher levels of social-emotional difficulty. (The ASQ:SE 3 month measure was not available for the 2016 study).

Qualitative feedback

Qualitative Surveys:

- Clinician post-program questionnaire
- Participant post-program questionnaire
- Partner post-program questionnaire

Qualitative analysis of post-program participant questionnaires assessed participant satisfaction with program entry, content and processes. Suggestions for improvement were collated. Similar analyses were conducted on the post-program questionnaire completed by clinicians delivering the program. Partners were asked to comment on their learning about perinatal and infant mental health and other benefits derived from the partner session.

Participants 2017-19

Participants were referred primarily from mental health and child health services. Inclusion criteria required the women to have a moderate to severe mental health diagnosis and a non-ambulatory infant less than 12 months of age. The research design was developed to meet the needs of a general population: mothers who had a primary diagnosis of substance misuse or an intellectual disability or who were not fluent in English were excluded from the sample.

A total of 104 mothers registered for the program with 94 mothers attending between one and six sessions. Quantitative pre-and post-program measures were completed by 89 mothers with 71 mothers completing a qualitative post-program questionnaire. An average of 4.5 sessions were attended (range of 1-6 sessions) across the cohort.

Prior to commencing the program, participants were assessed by the adult mental health clinician and registered on the Consumer Integrated Mental Health Application (CIMHA) database. As Mater did not have access to CIMHA referral and registration was undertaken as per the usual protocols within the service. As shown in Table 1, diagnoses primarily related to depression and anxiety arising in the postnatal period. Secondary diagnosis was given to 46 participants. Infants were registered on CIMHA and were considered clients of the Child and Youth Mental Health Service (CYMHS) for the duration of the program to manage clinical governance, although they did not receive mental health diagnoses. Infants attending the Mater program were assessed by the participating infant clinician from QCPIMH. All participating mothers identified a prior history of mental illness with complex psychosocial issues currently impacting on their lives. Illness of the mother or infant were the primary reason for non-attendance. Individual sessions were offered to mothers to cover information in missed sessions wherever possible.

Table 1. Mental health diagnosis

Diagnosis (n = 94)	Principal Dx	Secondary)
Schizophrenia, schizotypal and delusional disorders	1	
F 30-39 Mood (affective) disorders. Includes: depressive disorders, bipolar affective disorder	43	8
F40 – 48 Neurotic, stress-related and somatoform disorders. Includes: Anxiety disorders, mixed anxiety and depressive disorders, obsessive compulsive disorder, stress-related disorders including Post Traumatic Stress Disorder	47	29
Behavioural syndromes associated with physiological disturbances and physical factors		
Disorders of Adult Personality and Behaviour	2	
Other		2
Category Axis 3 Contextual factors (Z Codes)	1	7
Total	94	

Demographics

Mothers were aged between 19 and 41 years with a mean of 30 years. The average age of infants was 4 months, with infants aged between 1 and 11 months. Most participating mothers (86%) were in a relationship with the baby's father.

Table 2 Demographics (n = 94)

Mother's age (years)	n = 94 (%)	Infant's age (months)	n = 94 (%)
18-25	24 (27)	1-3	51 (55)
26-35	54 (57)	4-7	32 (34)
36+	16 (16)	8-11	11 (11)
Total	94 (100)	Total	94 (100)
<i>Average</i>	<i>30 years</i>	<i>Average</i>	<i>4 months</i>
No of children		Marital status	
0-1	61	Single	8
2	19	Married	50
3+	14	De facto	31
		Divorced	1
		Separated	4
<i>Total</i>	<i>94 (100%)</i>	<i>Total</i>	<i>94 (100%)</i>
Nationality		Employment status	
Australian	68 (70)	Unemployed	49
Aboriginal and Torres Strait Islander	5 (5)		
Bosnia/Slovakia	2 (2)	Casual	1
		Part-time (with 1 job)	15
England	2 (2)	Part-Time (with more than 1 job)	12
China/Hong Kong	3 (3)	Full-time	2
India/Pakistan/Punjab	4 (4)	Retired	0
Kuwait	1 (1)	Not stated	15
NZ	3 (3)		

Philippines	3 (3)		
South Africa	1 (1)		
Syria	1 (1)		
Columbia	1 (1)		
<i>Total</i>	<i>94 (100)</i>	<i>Total</i>	<i>94 (100)</i>
Household Income		Education level	
Negative or Nil	8 (8.5)	Year 9	3 (5)
\$1 – 299	5 (5.5)	Year 10 or equivalent	7 (8)
\$300 – 599	4 (4)	Year 11 or equivalent	16
\$600 – 999	8 (8.5)	Year 12 or equivalent	19
\$1000 – 1499	18 (19.5)	Trade Certificate	16
\$1500 – 1999	21 (22.5)	Undergraduate degree	21
\$2000+	13 (13.5)	Postgraduate degree	3 (5)
Unstated	17 (18)	Unstated	9
Total	94 (100)	Total	94 (100)

Session attendance indicates a high level of retention with 67% of those mothers whose attendance was recorded attending 5-6 sessions.

Participant Session Retention								
6 sessions	5 sessions	4 sessions	3 sessions	2 sessions	1 session	Not recorded	Total	
41	22	11	9	1	1	9	94	

Data management and analysis

The quantitative data were coded, de-identified, and double-entered into an encrypted Excel Database, and screened for accuracy and verification. Errors were adjusted, missing entries were coded, and the database was validated for analysis through numerical summaries in R Commander. Data analysis was conducted by an external statistician using STATA software³¹. For analysis purposes, an alpha level of 0.05 was set to indicate significance.

As the data for the study population were not normally distributed, the non-parametric Wilcoxon signed-rank test was the predominant statistical test used to compare the pre- and post- intervention data. The data analysis compared the means for each measure, with the DASS analysed by subscale (Depression, Anxiety and Stress). The analysis indicated statistically significant improvements in maternal mental health, parenting confidence, mother-infant attachment and infant emotional-social development, suggesting that the 'Together in Mind program' is beneficial in improving the wellbeing of mothers with a moderate to severe mental illness and their infants. Further, the results indicate collaboration and early intervention contributes to strengthening the emerging development of the maternal-infant relationship within the context of complex maternal mental health issues.

RESULTS

The below tables show a comparison of the results from the 2017-18 research groups and the cumulative results from 2017-19. A high correlation between reduced mental health symptoms, parenting confidence and improved mother-infant relationships are noted.

Table 3 Results 2017-18

Self-administered <i>n</i> =61						
Measure	Pre-Intervention		Post-Intervention		z	P
	M	SD	M	SD		
DASS-21	55.18	27.27	13.47	25.60	3.981	0.0001*
<i>Depression</i>	15.90	11.60	12	10.31	3.355	0.0008*
<i>Anxiety</i>	16.49	13.13	11.11	9.45	3.368	0.0008*
<i>Stress</i>	23.90	9.88	18.45	8.96	3.734	0.0002*
KPCS	33.63	7.39	37.73	4.87	-5.456	0.0000*
MPAS	73.05	10.40	78.53	10.40	-4.507	0.0000*
Clinician rated						
HoNOS	7.75	3.60	4.62	4.11	5.423	0.0000*

n=41

ASQ:SE (6/12)	36.09	23.35	22.43	14.45	3.978	0.0001*
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ASQ: Insufficient data to extract 3 months and 12 months ASQ:SE outcomes.

*Denotes statistically significant change.

Table 4 Results 2017-19

Self-administered <i>n</i> = 89						
Measure	Pre-Intervention		Post-Intervention		z	P
	M	SD	M	SD		
DASS-21	56	26.50	11.68	25.86	4.262	0.0000*
<i>Depression</i>	16.17	10.75	12.85	10.18	3.499	0.0005*
<i>Anxiety</i>	16.53	12.21	12.15	10.02	3.680	0.0002*
<i>Stress</i>	24.15	9.81	19.21	9.068	4.294	0.0000*
KPCS	33.06	6.97	37.16	5.066	-6.378	0.0000*
MPAS	71.71	12.35	77.36	10.80	-5.572	0.0000*
Clinician rated						
HoNOS	7.89	3.73	4.72	4.054	6.630	0.0000*

n = 51

ASQ:SE 6/12	38.07	21.87	23.62	14.14	4.558	0.000*
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ASQ: Insufficient data to extract 3 months and 12 months ASQ:SE outcomes.

*Denotes statistically significant change

Clinician-Rated Measures

Health of the National Outcome Scale (HoNOS)

A significant decrease was observed from pre-program to post-program on the HoNOS total score in both samples indicating a reduction in mental health symptoms as rated by clinician observers. This finding was supported by self-reports on the DASS-21 indicating that participants subjectively experienced a decrease in symptoms and an increase in mental wellbeing.

Self-Report Measures

Depression Anxiety Stress Scale (DASS-21)

Significant differences were observed from pre-program to post-program across all three DASS-21 subscales. Participants reported reduced symptoms of depression, anxiety and stress, reinforcing the clinician-observed HoNOS results.

Karitane Parenting Confidence Scale (KPCS)

A significant difference was observed from pre-program to post-program on the Karitane Parenting Confidence Scale, indicating an increase in parenting confidence.

Maternal Postnatal Attachment Scale (MPAS)

Scores on the MPAS increased significantly from pre-program to post-program indicating improvements in the quality of the relationship between mother and infant.

Ages and Stages Questionnaire: Social-Emotional (ASQ:SE)

The ASQ:SE measures social-emotional development at 3 months, 6 months and 12 months. There were not enough infants aged 3 months or 12 months to assess changes in their social-emotional development potentially associated with the program across all research groups. Significant differences were observed from pre-program to post-program for infants who met criteria to be assessed using the ASQ:SE 6 months indicating a reduction in social-emotional difficulties.

Qualitative Results

1. Participant satisfaction 2017-19

Post-program feedback surveys were completed by 71 participating mothers. The survey is designed to capture mothers' experiences of program entry, safety, content, and self-reported improvements in parenting confidence and emotional wellbeing, as well as providing the opportunity for participants to suggest improvements to the program.

The feedback from the 2017/18/19 participants strongly supports the feedback provided by the 2016 research participants. Mothers consistently reported improvements in their emotional and social functioning and parenting confidence, and overall satisfaction with the program. In brief:

- Mothers reported that they found the program helpful and would recommend the program to other mothers in similar circumstances (100%)
- Mothers indicated that the program had improved their parenting confidence (85%)
- Mothers reported improvement in their emotional wellbeing (80%)
- Mothers described the group space as safe and non-judgemental, with staff who respected their privacy and helped them feel understood (100%)

Mothers reported that they found the program helpful and would recommend the program to other mothers in similar circumstances: *"Definitely!", "All first-time mums should do this program", "Absolutely. I look forward to the group every week. It grounded me"*. Ninety-five percent of mothers reported that their parenting confidence had improved "A Lot" or "Mostly": *"I am not as anxious. I am more confident. I communicate my feelings better", "My ability to read my baby's cues has increased by a long way", "I don't try to pull bub out of unhappiness. I now mirror his emotions and talk to him"*.

Many reported improvements in their emotional wellbeing: *"I am able to manage my stress more than before as I have learned some helpful techniques", "I feel more equipped to cope with my mental health issues", "My relationship with my partner is more open and understanding", "Very positive experience, has given me motivation to work on my mental health and parenting more proactively"*.

Participants reported 100% satisfaction with the welcoming environment, group safety and facilitation: *"Very friendly, kind, supportive and encouraging", "Everyone got involved with all the talks and were*

supportive of each other's viewpoints", "The ladies (facilitators) were great for mental, emotional and social support", "Fantastic facilitators who are supportive and knowledgeable".

In response to questions relating to program content and possible improvements, most mothers responded that they were happy with both the content and delivery of the topics and daily format. They reported that the program length was "just right" with a few suggesting a longer program and/or follow up support. Three mothers reported that the program was too long and could be broken into shorter days over a longer period. The sense of "belonging" and sharing issues with other mothers with similar mental health and parenting issues was frequently identified as a key factor in the program's success. The "hands on" approach and interactive modelling of infant care by clinicians was a strong theme throughout the responses.

Sample of participants' final comments 2017-18:

"Thank you very much to the ladies running this program. I have learnt a lot about myself and my baby. The skills I have learnt have already made me a happier and better mum".

"My big thanks to all the facilitators of the program – I hope this program goes on and helps more mothers".

Mater responses 2018-19:

"I am so glad I came to this program. It has helped me to grow as an individual and as a parent".

"This program is awesome"

"Thank you very much to the ladies running this program. I have learnt a lot about myself and my baby".

"The skills I have learnt have already made me a happier and better mum".

Darling Downs HHS 2018-19

"It was very helpful and informative, taught us lots of information on how to be calm and play with baby"

"Brilliant program with excellent teachers. Thank you so much for everything you have given me".

2. Partner Satisfaction

Of the 81 mothers in a relationship, thirty-four eligible partners (44%) attended a partner session. The sessions were facilitated by the adult mental health clinician supported by a male clinician where possible. There was a significant variation between sites that engaged partners (eg. Darling Downs HHS) while other sites were unable to engage partners to attend. Strategies are being developed to address this issue for future groups.

- Partners indicated that their knowledge of perinatal and infant mental health improved (90%)
- Partners indicated that they felt more confident in supporting their partner experiencing perinatal mental illness (100%)
- Partners said the session helped them think about their own health and wellbeing (90%)
- Partners said the session increased their knowledge of services that can assist them, their partner and their family (100%)

Partners stated that the program had increased their awareness of perinatal and infant mental health issues impacting on themselves, their partner and their infant, and that they had learnt strategies to support their partner in dealing with her mental health issues: *"My attendance at this session has opened my eyes to all the different things that are involved in perinatal and infant mental health" and " It educated me on the effects of mental health on the parents during a toddlers upbringing".*

A strong interest was expressed in infant brain development and how fathers and partners can positively influence their child's development and wellbeing: *"Understanding my child's mental health*

needs and how I impact and can improve their development” and “Learning how time spent with baby can grow/develop baby’s brain”.

3. Clinician Feedback 2018-19

Clinicians responded to a written survey on their experience of delivering the program, changes in knowledge and confidence in working with perinatal and infant mental health, issues and barriers to delivering the program, program content and suggestions for program improvements. The responses matched the previous study outcomes.

- Clinicians endorsed the collaborative model as an effective intervention for mothers with a mental illness and their infants (100%)
- Clinicians indicated that their knowledge of perinatal and infant mental health had improved through the program (100%).
- Clinicians indicated that their confidence in working with mothers with a mental illness had improved through the program (100%).

Clinicians endorsed the program as an effective intervention model which enhances the continuum of care for perinatal mothers with a mental health diagnosis, their infants and families. Clinicians agreed that the collaborative experience was invaluable in building networks, understanding the role of other services and providing a streamlined approach to service delivery. Many indicated that their clinical practice had changed by developing new knowledge and skills leading to a greater focus on the infant and the relationship with the infant’s caregivers. Clinicians highlighted improved case management with information gained from seeing mothers with their infants over an extended timeframe, and participants building trust with services resulting in improved access to referral services.

DISCUSSION

Endorsed by the Queensland Mental Health Plan: *Connecting Care to Recovery* (2016-21), seven HHS were selected to implement ‘Together in Mind’ programs in 2017/18. Mater and Darling Downs HHS were implemented in 2018/19. Following the successful pilot trial of the program in 2009 (MNHHS) and the research trial undertaken in 2016 (CHHHS and THHS) sufficient evidence indicated the value of this program for mothers with a moderate to severe mental health diagnosis, their infants and families. Similarly, reports from the three services delivering the program highlighted the benefits of collaboration, knowledge transfer and improved service delivery in this specialised area of perinatal and infant mental health.

To continue to monitor and measure the outcomes of ‘Together in Mind’, a research plan was developed to collect and analyse data from the first three groups delivered in each of thirteen approved sites. This will enable a large body of evidence to be collated and analysed to identify strengths and trends in the program itself and across various environments (metropolitan, regional and rural). The research undertaken in 2017/18/19 continued the research protocol developed for the 2016 study except that five measures were removed resulting from participant feedback and/or low utility. The aim of this study was to continue to focus on assessing improvements to maternal mental health, parenting confidence and knowledge and the developing maternal-infant relationship.

There is now robust evidence to support ‘Together in Mind’ as an effective sustainable intervention for perinatal mothers with a moderate to severe mental health diagnosis, infants and families. The combined results from the 2017/18/19 cumulative studies provide 89 matched pre and post measures showing statistically significant results for participants attending the program. Improvements in measures show high to medium and low effect sizes further demonstrating the impact of the program on maternal mental health, parenting confidence and mother-infant relationships. The therapeutic alliance developed between clinicians and mothers supported participants to engage in ongoing services and other referral pathways: *“Most of the mums in our group continued to attend and ones that were not already linked in with support services (e.g. EIPS/CYMHS), or initially refused to be referred, were happy to be referred post program. The growth observed in the mums was more than I expected would occur after 6 weeks”.*

Workforce capacity in perinatal and infant mental health has been enhanced with 145 clinicians trained to deliver the 2017/18/19 programs. As each site is implemented, clinicians attend training focused on both the process and content of the program with an emphasis on keeping the baby “in mind”. Clinicians consistently report increased awareness/observation of the infant, infant development and the context of the infant’s relationship with the caregiver. Developing new knowledge and skills for use in clinical practice, supported by the building of collaborative networks, is reported to lead to improved service delivery and efficiencies. More importantly, services are beginning to identify the value of interventions that support parenting in the earliest stages of a child’s life and the need for positions and services to address this need. This is evidenced by the “flow on” effect of some HHS increasing the number of programs to be delivered beyond the mandated three per year and making plans to address identified gaps in perinatal and infant mental health positions.

The evidence gathered for this phase of the research study (2017/18/19) confirms ‘Together in Mind’ as an intensive collaborative model of care that supports the continuum of care in perinatal and infant mental health.

RECOMMENDATIONS

Many of the recommendations discussed in *The Perinatal and Infant Mental Health Day Program: A Research Project 2016-17* and the *Together in Mind Research Report 2017-18* have been met, reviewed and/or are being implemented. The principal recommendation that “collaborative PIMH Day Programs are implemented as a ‘stepped care’ service model in Queensland HHS, for women with moderate to severe perinatal mental health issues” has been actioned by the Queensland Mental Health Plan (2016-21).

Given the positive outcomes identified for mothers, infants, and partners attending and clinicians delivering the program, it is recommended that the ‘Together in Mind’ program:

- Continue to be delivered in the existing nine sites at 3 programs per year
- Implement the final 4 sites prior to June 2021
- Continue to collect, collate and analyse the data from the 4 sites to be implemented to 2021. The information will be added to the existing body of data from this report with information disseminated through conferences and journal articles with acknowledgement of participating sites.
- Individual sites to continue to collect data from ongoing groups from which a body of evidence and research opportunities may be developed both individually and collectively over time.
- ‘Together in Mind’ to be adapted to meet needs of Aboriginal and Torres Strait Islander families and other cultural groups.

Glossary

AMH: Adult Mental Health

ASQ:SE: Ages and Stages Questionnaire: Social Emotional

BPRS: Brief Psychiatric Rating Scale

CCHS: Community Child Health Service

CHHHS: Cairns and Hinterland Hospital and Health Service

CH: Child Health

CHQ HHS: Children's Health Queensland Hospital and Health Service

CIMHA: Consumer Integrated Mental Health Application (Data Base)

CYMHS: Child and Youth Mental Health Service

DASS-21: Depression, Anxiety and Stress Scale

GCHHS: Gold Coast Hospital and Health Service

HoNOS: Health of the Nation Outcome Scale

HREC: Human Research Ethics Committee

KPCS: Karitane Parenting Confidence Scale

m-ADDB: Modified Alarm Baby Distress Scale

MHI: Mental Health Inventory

MHAODB: Mental health Alcohol and Other Drug Branch

MNHHS: Metro North Hospital and Health Service

MPAS: Maternal Postnatal Attachment Scale

MSHHS: Metro South Hospital and Health Service

PSI 4: Parenting Stress Index (4th Ed)

PIMH: Perinatal and Infant Mental Health

PIR-GAS: Parent-Infant Relationship Global Assessment Scale

QCPIMH: Queensland Centre for Perinatal and Infant Mental Health

SSA: Site Specific Authorisation

SCHHS: Sunshine Coast Hospital and Health Service

STATA: STATA statistical software: Release 14

THHS: Townsville Hospital and health

WMHHS: West Moreton Hospital and Health Service

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APPENDIX 1

Together in Mind Program Sites

Implementation Date	Metropolitan	Regional HHS	Rural/remote HHS	Research Data collection year
2017-18	Metro North Metro South	Townsville Cairns West Moreton (Ipswich) Gold Coast Sunshine Coast		2017-18
2018-19	Mater Health (South Brisbane)	Darling Downs		2018-19
2019-21			Mt. Isa Torres & Cape Mackay TBC	2019-20

Research questions for consideration:

Primary questions:

1. Does attending a collaborative day program - Together in Mind - improve maternal mental health, maternal-infant relationships and parenting confidence?
2. What are the factors that influence/hinder program success?

Secondary question:

3. Does Together in Mind have similar outcomes across metropolitan, regional and rural/remote locations?

Research proposal

1. QCPIMH complete data collection and analysis (2017-18) as per the current SLA to end June 30, 2018 for the following HHS: Metro North, Metro South, West Moreton, Gold Coast, Sunshine Coast, Cairns and Townsville. Forward collated data to Dr. William Bor for analysis and reporting post June 2018.
2. QCPIMH undertake research data collection and analysis from Mater Hospital and Darling Downs HHS from July 1, 2018- June 30, 2019.
3. QCPIMH undertake data collection from a further four HHS from July 1, 2019 - June 30, 2021.
4. QCPIMH (in consultation with appropriate groups) adapt Together in Mind programs for Aboriginal and Torres Strait Islander families, multicultural families, special needs families and young parents under the age of 18 years.
5. QCPIMH to develop a research protocol that meets the above family groups.
6. QCPIMH to explore employment of a part-time research officer to assist with research activities.

APPENDIX 2

Mater Project ID: 29836

Project Title: An investigation of a collaborative interagency service model of an intensive Day Program for mothers with a perinatal mental illness and their infant children under 12 months of age.

RGO Review reference: MSSA/RG-18-160

HREC Review Reference: HREC/15/QRCH/236

MATER RESEARCH DEVIEW

The Mater was identified as a key site in which to deliver the Together in Mind program due to its location within the catchment area of South Brisbane. Under the Queensland Mental Health Plan: *Continuing care to recovery* 2016-21, a perinatal position was appointed to Mater Health Services in 2018-19. This position is required to support the delivery of the Together in Mind program as well as provision of general perinatal mental health services to families in the catchment area. The Mater Together in Mind program is supported by the Queensland Centre for Perinatal and Infant Mental Health (QCPIMH) through program coordination, training and the allocation of an infant mental health clinician to support program delivery. An infant psychiatrist is also made available for case reviews. Child Health nurses were made available through the Mater Parenting Support Centre.

Funding for the perinatal position (\$148,000) and operational costs of \$10,700 for Together in Mind is provided through the Mental Health Alcohol and Other Drugs Branch. As part of the Together in Mind research plan, the Mater program is required to collect demographic data and research measures for the first year of program delivery across 3 programs to support the HREC approved multisite study (2017-21). This information was collated by the project coordinator QCPIMH and included in the multisite data as per the attached report. In total, 9 sites were implemented between 2017-19 with a further 4 sites to be established by June 2021. Programs are ongoing post the research year with the intention of being embedded as part of standard perinatal and infant mental health practice in each location.

Mater data 2018-19

- Mater ran 3 programs with a total of 14 mothers and infants attending (28 participants).
- Partners did not attend the partner/father session offered for each group.
- The Health of the Nation Outcomes Scale (HoNOS) is used by mental health services as a measure of pre and post mental health treatment outcomes and recorded on the Consumer Information Mental Health Data Base (CIMHA). Mater did not have access to CIMHA and attempts to record this data via paper questionnaires provided limited results for this measure.
- The results from the Mater cohort supported the cumulative findings of the research programs conducted across all previous sites showing statistically significant results in improved maternal mental health, parenting confidence and mother-infant relationship development.

Conclusion

The Mater Together in Mind program was successfully implemented as a collaborative interagency program focusing on the mental health and wellbeing of mothers with a moderate to severe mental illness and their infants. Partners were not easily engaged in the partner sessions and further work is to be initiated in this area. The Mater provided a safe and welcoming environment for mothers and infants with clinicians working together and modifying their initial introduction and data collection methods to be more time effective and productive over the year.

While the sample is small, the outcomes indicate positive results for those participating in the program evidenced by:

- ✓ improved qualitative measures,

- ✓ positive post program feedback
- ✓ high retention rate of mothers to the groups
- ✓ reported satisfaction from clinicians delivering the program

Post program referrals were also high ensuring that mothers remained engaged with services and ongoing support including referral to infant mental health and child health services.

An independent analysis of the Mater group measures was not undertaken due to the small sample size but was included in the cumulative analysis for 2017-19.

Raw data on the Mater program (2018-19) is identified below:

Group Location	Mater Parenting Support Centre	Range
Number of groups run	3	3 x 6 days = 18 days
Participant numbers	14 dyads (mother and infant)	28 participants
Average age of mother	29.9 years (range	20-37 years
Average age of infant	3.5 months	1-6 months
Average number of sessions attended	5.45 sessions	1-6 sessions
Average participant number per group	4.66	
ATSI	0	
Australian	9	
Other nationality	5	
Married / De Facto	13	
Single /separated/divorced	1	
Partners attended	0	
Primary diagnosis (ICD 10)	(F30 - 39) Mood and depressive disorders = 6 (F40 – 48) Anxiety disorders =8	
HoNOS	Not accurately collected due to CIMHA being unavailable	

RAW SCORE RESULTS

Clinician rated - Health of the Nation Outcome Scale (HoNOS)

Pre	Total	Post	Total
5		1	
6		2	
11		0	
8		1	
2		2	
3		2	
2		2	
2		1	
3		1	
1		6	
2		6	
4		11	
3		3	
2		1	
	54		39

Maternal Self-report

Depression Anxiety Stress Scale (DASS-21)

PRE				POST			
Depression	Anxiety	Stress	Total	Depression	Anxiety	Stress	total
10	24	30	64	0	4	16	20
14	6	18	38	2	4	10	16
16	6	20	42	0	0	8	8
6	6	16	28	0	2	2	4
8	2	0	10	2	2	8	12
4	8	24	36	24	30	36	90
4	10	26	40	4	2	16	22
14	16	24	54	14	12	14	40
22	22	28	72	24	22	24	70
12	36	36	84	14	10	26	50
14	6	18	38	2	4	14	20
14	8	38	60	14	8	26	48
20	14	12	46	26	18	26	70
14	8	14	36	14	8	14	36

Karitane Parenting Confidence Scale (KPCS)

Pre	Post
38	45
24	36
99	37
35	43
41	42
39	29
29	31
21	32

38	37
28	28
28	34
35	37
39	40
40	44

Maternal Postnatal Attachment Scale

PRE MHOS	MQOA	MPIA	Total	POST MHOS	MQOA	MPIA	Total
16.2	34.2	15	65.4	20.2	38	16	74.2
12.5	29.1	10	51.6	17.2	38	22	77.2
19.6	32.7	23	75.6	22.2	36.7	24	82.9
17.3	38	22	77.3	18.5	45	21	84.5
20.9	43.6	24	88.5	18.9	40.8	25	84.7
20.2	40.8	22	83	12.3	35.8	13	61.1
10.6	30.4	24	65	14.9	36.7	24	75.6
18.2	23.3	14	57.7	15.9	32.8	24	72.7
17.3	39.4	24	80.7	19.9	40.8	25	85.7
9	29	16	54	9	34.1	12	55.1
13.6	26.7	13	53.3	16.2	32.9	17	66.1
8.6	33	15	56.6	10.6	28.1	14	52.7
23.6	45	23	91.6	23.6	41	24	88.6
24	40.8	21	85.8	22.6	40.9	24	87.5

MHOS = Maternal absence of hostility
MQOA = Maternal quality of attachment
MPIA = Maternal pleasure in activities with child

ASQ:SE

Pre 2 months	Post	Pre 6 months	Post
999	999	20	15
75	15	999	999
999	999	35	20
20	5	999	999
40	30	999	999
999	999	35	40
50	999	999	999
999	999	50	30
999	999	40	30
999	999	50	20
999	999	35	50
999	999	45	75
999	999	35	15
5	20	999	999

Key
99- incomplete
999 – not applicable or available

APPENDIX 3

Darling Downs SSA Reference: SSA/18/QTDD/56

Project Title: An investigation of a collaborative interagency service model of an intensive Day Program for mothers with a perinatal mental illness and their infant children under 12 months of age.

CHQ HREC Reference: HREC/15/QRCH/236

Darling Downs HHS

Darling Downs HHS was identified as a key site in which to deliver the 'Together in Mind' program within a large regional area of Queensland. A perinatal mental health nurse is employed within the adult mental health service and CYMHS and Child Health provided the required clinicians. Under the Queensland Mental Health Plan: *Continuing care to recovery 2016-21*, an infant position was appointed in 2019. An adult and child psychiatrist were made available to support the case reviews from Darling Downs HHS.

Operational costs of \$10,700 for Together in Mind is provided through the Mental Health Alcohol and Other Drugs Branch. As part of the 'Together in Mind' research protocol, demographic data and research measures are collected for the first year of program delivery across 3 programs to support the HREC approved multisite study (2017-21). An analysis of the data collected from Darling Downs was not undertaken due to the small sample size. This information was collated by the project coordinator QCPIMH and included in the multisite data as per the attached report. In total, 9 sites were implemented between 2017-19 with a further 4 sites to be established by June 2021. Programs are ongoing post the research year with the intention of being embedded as part of standard perinatal and infant mental health practice in each location.

Darling Downs data 2018-19

- Darling Downs ran 3 programs with a total of 14 mothers and infants attending (28 participants).
- 13 partners attended the partner/father sessions offered for each group.
- The results from the Darling Downs cohort supported the cumulative findings of the research programs conducted across all previous sites showing statistically significant results in improved maternal mental health, parenting confidence and mother-infant relationship development.

Conclusion

The 'Together in Mind' program was successfully implemented as a collaborative interagency program focusing on the mental health and wellbeing of mothers with a moderate to severe mental illness and their infants. Partners were engaged in the partner sessions with Darling Downs recording the highest attendance of all sites. The program provided a safe and welcoming environment for mothers and infants with clinicians working together and modifying their initial introduction and data collection methods to be more time effective and productive over the year.

While the sample is small, the outcomes indicate positive results for those participating in the program evidenced by:

- ✓ improved qualitative measures,
- ✓ improved HoNOS results from pre and post measurement
- ✓ positive post program feedback
- ✓ high retention rate of mothers to the groups
- ✓ High engagement of fathers
- ✓ reported satisfaction from clinicians delivering the program

Post program referrals were also high ensuring that mothers remained engaged with services and ongoing support including referral to infant mental health and child health services.

An independent analysis of the Darling Downs group measures was not undertaken due to the small sample size but was included in the cumulative analysis for 2017-19.

Results show a positive correlation between improved maternal mental health, parenting confidence and maternal-infant relationships.

Raw data on the Darling Downs program (2018-19) n = 14:

Group Location	Toowoomba	Range
Number of groups run	3	3 x 6 days = 18 days
Participant numbers	14 dyads (mother and infant)	28 participants
Average age of mother	26.5 years	20-37 years
Average age of infant	5.2 months	2-11 months
Average number of sessions attended	5.2 sessions	3-6 sessions
Average participating dyad	5 per session	
ATSI	0	
Australian	13	
Other nationality	1	
Married / De Facto	7	
Single /separated/divorced	7	
Partners attended	13	
Primary diagnosis (ICD 10)	(F30 - 39) Mood and depressive disorders = 8 (F40 – 48) Anxiety disorders =6	

RAW SCORE RESULTS

Clinician rated - Health of the Nation Outcome Scale (HoNOS)

Pre HoNOS	total	Post HoNOS	total
14		13	
6		4	
15		6	
10		3	
11		5	
14		6	
10		5	
10		5	
9		7	
13		13	
6		6	
12		12	
10		10	
8	148	6	101

Self-Report

Depression, Anxiety, Stress Scale (DASS-21)

PRE				POST			
Depression	Anxiety	Stress	Total	Depression	Anxiety	Stress	Total
14	18	16	48	22	30	32	84
34	34	40	108	22	26	30	78
18	28	26	72	22	28	24	74
28	30	34	92	18	14	26	58
28	32	32	92	20	20	20	60
18	10	20	48	26	20	22	68
4	6	16	26	2	2	6	10
18	28	38	84	10	20	26	56
28	22	38	88	32	20	32	84
16	8	28	52	22	22	38	82
22	20	30	72	20	12	16	48
14	20	18	42	24	42	24	90
16	12	16	44	10	2	20	32
40	26	36	102	22	20	28	70

Karitane Parenting Confidence Scale (KPCS)

PRE	POST
36	31
34	35
26	29
33	40
36	33
34	40
34	43
27	34
36	43
26	27
23	34
25	36
29	36
25	30

Maternal Postnatal Attachment Scale (MPAS)

PRE MHOS	MQOA	MPIA	Total	POST MHOS	MQOA	MPIA	Total
22.6	28.3	10	60.9	24	32	10	66
16	31.6	15	62.6	17.9	36.8	20	74.7
19.9	35.3	21	76.2	21.2	39.4	22	82.6
13.9	34.9	17	65.8	19.9	36.7	25	81.6
19.6	38.1	25	82.7	21.6	36.7	23	81.3
21.3	38	25	84.3	21.2	39.4	24	84.6
19.3	40.9	21	81.2	22.6	43.6	21	87.2
10.3	24.7	25	60	15.9	39.4	25	80.3
12.9	36.7	19	68.6	16.5	38	23	77.5
14.5	23.8	13	51.3	11.9	25.4	14	51.3
12.6	26.8	14	53.4	16.2	32.9	16	65.1
12.9	30	21	63.9	99	99	99	99
15.9	39.4	19	74.3	15.9	40.8	23	79.7
9.6	23.8	14	47.4	16.8	25.2	15	57

MHOS = Maternal absence of hostility
 MQOA = Maternal quality of attachment
 MPIA = Maternal pleasure in activities with child

ASQ:SE*

2 months		6 months	
PRE	POST	PRE	POST
999	999	99	999
999	999	999	999
999	999	99	99
999	999	999	999
999	999	99	999
999	999	99	999
999	999	5	15
30	999	999	999
999	999	15	999
999	999	70	65
50	999	999	45
50	999	999	35
999	999	15	30
35	25	999	999

*ASQ:SE 2months was unavailable for Group 1

Key

99 - not completed



Developed by the Queensland Centre for Perinatal and Infant Mental Health (QCPIMH), Children's Health Queensland Hospital and Health Service, with the support of the National Perinatal Depression Initiative.
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Contact us

a 31 Robinson Road | Nundah | QLD 4012 **t** 07 3266 3100
e PIMH@health.qld.gov.au **w** www.childrens.health.qld.gov.au/qcpimh