



SMS4dadsSA

SMS4dadsSA

Final Report

30 June 2019

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Government of South Australia
SA Mental Health Commission

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Table of contents

Table of contents	2
Executive Summary	3
What is SMS4dadsSA?	3
What did we do?	4
How did we go?	4
Background	6
What is the need?	7
Barriers for new fathers to accessing mental health services.....	7
What did the SA Mental Health Commission hear during public consultation on the SA Mental Health Strategic Plan 2017-2022?.....	7
What is SMS4dadsSA?.....	8
Objectives	10
Primary Aims	10
Partner organisations.....	10
Timeframe	10
Recruitment process	11
Message content.....	11
Escalation process	12
Participation data	14
Total numbers.....	14
Demographics & Measures	14
Geographic distribution	15
Measures	16
Survey Outcomes T1-T5.....	16
Experience of Messages from SMS4dadsSA.....	16
Fathers generally rated their experience of SMS4dads messaging very highly (Table B). Scores on 4 point Likert Scale ratings across all time points indicated high levels of satisfaction with the messages. The lowest ranking showed that 92% of fathers rated the messages about relationship with their partner very or somewhat helpful in the third trimester while satisfaction with these messages rose to 96-99% across the postnatal period.	16
Stress – At Enrolment.....	16
Dyadic Adjustment – At Enrolment.....	16
Antenatal Attachment – Third Trimester	17
Co-parenting Quality – 6 to 8 weeks Postnatal.....	17
Postnatal Attachment – 12 to 14 weeks Postnatal	17
Paternal Engagement – At completion (24 weeks Postnatal).....	17
Quantitative Outcomes	17
Key Survey Outcomes at Enrolment.....	17
Accessing Linked Information.....	18
Feedback on individual text messages.....	18
Example comments sent with responses to message surveys.	19
Mood checker	20
Survey & Interview Completion.....	20
Key Results.....	22
Reduction in fathers' isolation from health and parenting support.....	22

Increased perceptions of connection with their partner and from the wider society 23

Evidence illustrating the importance of these messages is provided in the following data from interviews..... 23

Participants will experience early identification and awareness around change in mood. 24

The importance of the messaging for father’s mental health was also illustrated by mothers during interview: 24

In Summary..... 24

Limitations 25

Budget..... 25

Reporting 25

What’s next? 26

Further information..... 26

References..... 26

Appendix 1: Table of Measures 27

Appendix 2. Table of Quantitative Outcomes 28

Executive Summary

What is SMS4dadsSA?

SMS4dadsSA was founded on previous research and capacity building by the Fathers and Families Team at the University of Newcastle in the development of SMS4dads. The SA Mental Health Commission contracted the University of Newcastle to run a pilot initiative based on the Fathers and Families Team’s previous work. This was in response to the over 2200 South Australians consulted during the development of the SA Mental Health Strategic Plan 2017 – 2022 where one of the dominant themes was around supporting new parents’ mental health.

SMS4dadsSA started in February 2018 and finished in June 2019. It was overseen by a group of partners who met regularly and served as a project steering committee. This committee was headed by the SA Mental Health Commission and included Newcastle University, Child and Family Health Service, Country SA and Adelaide PHNs, Flinders Foundation, Women’s and Children’s Local Health Network and community representatives selected through an EOI process.

SMS4DadsSA ran similarly to other SMS4Dads programs conducted previously by the Fathers and Families Team at University of Newcastle by sending text messages to expectant and new fathers enrolled in the program from 20 weeks gestation to 24 weeks after the baby’s birth. Messages provided information, encouragement and support as they focused on a father’s relationship with his baby, his partner and himself. Many of the messages contained links to further information while also being timed around the baby’s expected date of birth. The aim was to provide timely and relevant information that would reflect things that were likely to be happening when the text arrived. Fathers also received Mood Checker messages which asked them to reflect on how they were coping with specific issues that they were likely to

be experiencing at that time in their transition to parenthood. Mood Checker messages were linked to an application that would escalate fathers who reported that they were not coping to specialised phone support. Fathers were able to complete all their interactions with SMS4dadsSA, including enrolment, with their smartphone. At any time the fathers could exit the program by sending a “Stop” message.

What did we do?

The development of SMS4dadsSA included the following features:

- Messages (up to 171), many including linked information, were sent to 244 new dads.
- Regular surveys exploring participant experience of last message sent
- Pre, post and mid-program surveys and interview schedules
- A database to manage message delivery and track participation
- A website to manage enrolment
- A research protocol and ethics application

The project also included the following activities:

- Monitoring survey responses and interview scheduling.
- Monitoring and management of opt out requests.
- Collation, analysis and reporting of quantitative and qualitative data.
- Monitoring of linked information to ensure links were working

How did we go?

Enrolment in SMS4dadsSA met with expectations and fathers generally reported high levels of satisfaction with their experience of receiving the messages. Few fathers opted out of the project, with more than 80% receiving messages until completion. Over three quarters also sent feedback on individual messages and more than 50% responded to surveys during the project (See tables A -C). Fathers reported that the messages influenced their knowledge, their ideas about a fathers’ role, their behaviours in relationships with their new baby and their partner and prompted self-care. Response rates to surveys indicated that fathers were actively participating in the program while qualitative evidence demonstrated high levels of engagement for those who were able to participate in interviews.

Table A: Participation

	N	%
Enrolment	244	
Retention to Completion	202	82.8%
Responded to at least one survey	193	75.98%

Table B: Evaluation of the program

	Before the Birth (Third trimester)	After the Birth (Three time-points @ 4-6, 12-14 & 24 weeks)
Topic	<i>"Texts were very or somewhat helpful"</i>	
Becoming a new dad	98%	98 to 100%
Self-care	94%	96 to 99%
Relationship with baby	98%	98 to 100%
Relationship with partner	92%	96 to 99%

Table C: Evaluation of individual messages

Text back 1=Good, 2=OK, 3=A turn off	<i>"Last message was "good"</i>
	<i>76% (from 494 message surveys)</i>

During the course of the project 6 fathers (2.5% of participants) were escalated through the Mood Tracker application to engagement with phone support. It is therefore apparent that fathers, who may not have done well without the intervention, were connected to appropriate services through their involvement with SMS4dads.

The pilot project SMS4dadsSA has established that this scalable, cost effective intervention is acceptable to new fathers and that mothers understand and appreciate the benefits of the intervention. The SMS4dadsSA text-based intervention can be an effective way to support new dads and connect those that are not coping to appropriate support. Capacity in the present system could support the ongoing delivery of SMS4dadsSA to all new fathers in metropolitan, rural and remote locations across South Australia

Background

SMS4dads was based on more than 20 years of practice and research with fathers, and conceived by Associate Professor Richard Fletcher, as a way to efficiently provide support and timely information to fathers during their transition to parenthood. A growing body of evidence had illustrated important links between paternal mental health and an array of child and family outcomes while also finding that the incidence of paternal distress and depression in the perinatal period is comparable to that experienced by mothers (1-2). However, it was also apparent that fathers, as a group, form a hard to reach cohort that is poorly engaged with perinatal support or other health services (3). Experience elsewhere had demonstrated that text messaging could be an effective way to engage with hard to reach groups, including men, and SMS4dads was developed to engage with new fathers while providing them with information and support during their transition to parenthood.

With funding from beyondblue and Movember a feasibility study was commenced in 2015 where messages and linked information was sent to a large cohort of new dads from across Australia (n=520). During this phase of the project a database was developed to manage message scheduling while a mood tracking application was also developed and incorporated into the system. The database enabled a degree of automation in the message scheduling while also making it possible to time messages to the babies actual or expected date of birth; therefore scheduling messages to arrive when the information in the message would most likely match things that were happening in the family. The Mood Checker enabled fathers to indicate their level of distress and the application then connected those indicating concerning levels of distress to support services at Perinatal Anxiety and Depression Australia (PANDA) (4-5).

The results of the feasibility study provided evidence of the feasibility and acceptability of SMS4dads. Of those fathers enrolled (N=520), 21.5% scored >13 on K6 and the completion rate (85%) was similar between these and other fathers. Most fathers (63.1%) clicked at least one link and responses were received for 20.5% of mood tracker questions and the probability of reporting worse mood scores decreased over time. Fathers completing post study surveys (N=101) reported that messages helped them in their experience of becoming a new dad (92.8%), helped them develop a strong relationship with their new child (54.9%), and also helped in their relationship with their partner (79%) (6-7).

A growing understanding of links between paternal well-being child outcomes, maternal well-being and the long-term mental health of men led the South Australian Mental Health Commission to seek effective ways to work with fathers in the perinatal period. SMS4dads was identified as a potentially effective intervention that could reach fathers in metropolitan, regional and remote locations across the state with information and support.

What is the need?

For fathers, the early weeks and months of parenting a newborn infant can be marked by psychological distress, social isolation, and emerging difficulties in their relationships with their partners and infant. There is now a substantial body of evidence pointing to the risk that the transition to parenthood poses for the mental health of fathers and the consequences that that paternal distress, anxiety and depression at this time have for fathers, their children and their partners. A review of 43 studies involving 28,004 participants (1) has concluded that postpartum depression was apparent in about 10% of men in the reviewed studies, that paternal depression was linked to their partner's mental health and that the highest rates of depression occurred in the 3 to 6 month post-natal period. It is also evident that paternal perinatal depression is predictive of impaired development and increased psychiatric disorders in their children and that these effects are independent of those linked to the mental health of the infant's mother (2, 8).

Fathers may be better prepared for their transition to parenthood by being provided with information on key issues such as infant development, crying and settling, role and relationship changes, managing psychological distress, and understanding how to provide effective support for their partners at a time and setting which fits with their needs (9). However, the poor relationships that many men experience with health and education services make it difficult to provide fathers with this important information. The emergence of mobile communication technologies that enable the delivery of affordable, convenient, personalized, and engaging health information directly to men provides an opportunity to avoid many of the barriers to father inclusion by dissociating service delivery from the constraints of clinical environments (10).

Barriers for new fathers to accessing mental health services

There are now many services, online and face to face, that offer counselling and support to new parents however research has consistently concluded that Australian fathers, like fathers from around the world, are much less likely than mothers to access these services (11). Commitments, such as employment, make it difficult for many fathers to attend perinatal services and there is a lack of treatment programs specifically designed for fathers with perinatal depression (12). The evidence therefore points to the importance of creating alternative, soft entry, mechanisms where fathers can develop positive experiences of service provision.

What did the SA Mental Health Commission hear during public consultation on the SA Mental Health Strategic Plan 2017-2022?

The South Australian Mental Health Commission (the Commission) was established by the South Australian Government in October 2015 under the SA Public Sector Act 2009, with a key initial task of leading the

development of The Plan. More than 2270 South Australians shared their ideas on mental health and wellbeing. Among the key themes identified in The Plan was the importance of 'early in life' intervention, community education to reduce stigma and improve awareness of mental illness, services to support people in distress before they reach crisis, and tailored support at critical times of life changes.

The comments made by fathers in community forums and submissions to the Commission during The Plan's development included:

'This is a time when dads and mums are usually very busy and they may not have support available.'

'When stress builds up, dads may not know where to go, or who to ask.'

'Even with the internet, there are so many options, but it's not easy to find the right information.'

'Men communicate differently. We're not accessing or using the same peer resources or formal resources as women.'

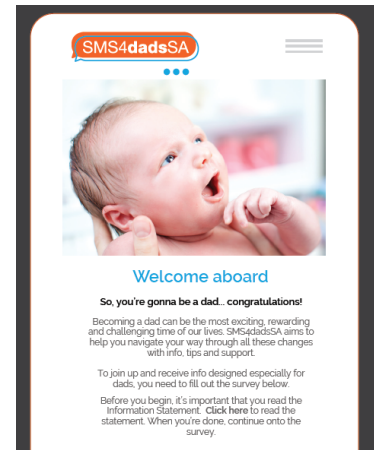
'Men should not need anything. You're not a real man if you have needs.'

Compared to other life stages, the transition to fatherhood and the early years of childrearing are periods in which men are at a substantially increased risk of experiencing psychological distress (13). About 47 per cent of fathers reported feeling stressed or anxious about 'having to be the rock', 55 per cent stated they 'didn't realise how much the relationship with their partner would change' and 53 per cent wished 'they knew more about parenting'. About 7 per cent of men claimed to have been diagnosed with depression/anxiety either during the first pregnancy, or in the first year after the birth of their first child (14).

What is SMS4dadsSA?

SMS4dadsSA was founded on previous work in the development of SMS4dads however a number of unique features were incorporated into the present intervention.

For SMS4dadsSA a new website was created to house the landing page and enrolment process linked to a Domain name www.sms4dadsSA.com.au. The SM4dads software was adapted to include regular feedback messages asking participants to rate a recent message. The links to further information and support were reviewed by a panel of SA clinicians and service managers and several links were replaced directing participants to South Australian sites. A two-stage escalation procedure was built into the Mood Checker: for identified parenting-related distress the father was linked to a dedicated father worker within CAMHS; and identified mental health distress was linked via a dedicated number to the Perinatal Anxiety and Depression Australia helpline.



SMS4dadsSA sent new dads, from 20 weeks pregnant to 24 weeks postnatal, approximately 14 informative and supportive messages, many including linked information, in every 28 day cycle. The messages focus on fathers' relationships with their child, their partner and themselves. Messages were scheduled to fit with things that were likely to be happening at the time when the message arrives and messages encouraging father child interaction were usually worded as though the baby was speaking to the father. For example the following message was scheduled to arrive during the 2nd week following the baby's birth:

4dad: Gaze at me, smile at me and gently stroke my head dad. Pretty soon I'll be smiling and trying to talk back.

Participants could join via the SMS4dadsSA webpage where they were provided with information about the study, completed a consent, demographic and other survey data.

Participants were also asked to complete the following surveys and interviews:

- Text based surveys ranking the last message sent and providing comment (N=11)
- Intermittent surveys (during late pregnancy*1 and postnatally *2) exploring:
 - Their experience of the project to date,
 - Their adjustment to parenting – psychological measures,
 - Those completing surveys were also asked to participate in a structured phone interview.
- A final, exit survey, where those completing the questionnaire were also asked to participate in a phone interview.

Mothers were also invited to complete surveys and interviews. Fathers completing the postnatal (6-8 week survey) and the final (exit) survey were asked if they would pass a survey request onto mothers. A text

including the survey link was then sent to consenting dads. Mothers completing these surveys were also asked if they would like to participate in a brief telephone interview.

Participants were regularly advised, as part of the messaging, that they could opt out at any time by sending a reply text stating “Stop”. Eligibility for SMS4dadsSA was limited to fathers who were over 18 years of age, who had a mobile phone, capable of receiving text messages, and whose new baby had not yet been born.

Ethics approval was received from Human Research Ethics Committees at The University of Newcastle (Ref: H-2016-0055) and Women’s and Children’s Hospital South Australia (Ref: HREC/18/WCHN/20).

Objectives

Primary Aims

The enrolment and engagement of fathers from across metropolitan and rural areas in South Australia in a pilot study on text-based support.

By providing the service (SMS4DadsSA) the following will be evident from participant data:

- Reduction in fathers’ isolation from health and parenting support (use of links),
- Increased perceptions of connection with their partner (conversations started) and from the wider society (texts make them feel they are being supported),
- Participants will experience early identification and awareness around change in mood.

Partner organisations

Adelaide PHN provided additional funding through their existing contract with PANDA to accommodate any additional work which might be incurred by participants of SMS4dadSA needing services through PANDA as one of the escalation points.

Child and Family Health Service incorporated their fatherhood workers into the escalation process.

Women’s and Children’s Local Health Network worked with SAMHC to enable recruitment into the program – through connecting SAMHC staff with midwives and prenatal staff.

Country SA and Adelaide PHNs facilitated information sharing throughout their networks about the program to help with recruitment.

Timeframe

- Project Commencement
 - 1st February 2018

- Project Protocol Design Completion
 - 19th February 2018
- Ethics Approval
 - April 2018
- Recruitment commenced
 - May 2019
- Recruitment Closed
 - December 2019
- Messaging Ceased
 - June 30 2019

Recruitment process

Fathers were invited to enrol in SMS4dadsSA through social media applications – including SA Mental Health Commission website, SAMHC Facebook and Twitter sites – and through traditional media (television, newspaper and radio), along with flyers and promotional material provided to antenatal clinics and distributed through perinatal services.

A dedicated secure website was developed (www.sms4dadSA.com) where participants could enter their demographic details (particularly their expected date of delivery, postcode and phone number), baseline data and complete the consent process. The website exported the required information to the messaging database where messages were scheduled and enrolments could be managed as required.

Once fathers enrolled they were sent messages, including interactive Mood Checker texts and requests to complete online surveys. Participants were regularly informed that they could opt out by texting STOP at any time.

Message content

The messaging database is housed on a secure server protected by the University of Newcastle's firewall. Messages and linked information are housed on the database and data exported from the enrolment information is used to schedule message delivery to fit with the stage of pregnancy or age of the baby.

A quality assurance process tests all links on a monthly basis to ensure that they are continuing to function as expected and those that are not working (due to sites being updated or taken down) are redirected as required.

Messages are designed to address fathers' relationships with their child, their partner and themselves.

Messages are therefore designed to; inform fathers about their child's development, promote father-child attachment and interaction, encourage positive interactions with their partners, alert fathers to the importance of their own mental health, and encourage fathers to enact behaviours that will support their own and their partner's well-being. Messages are preceded by a prefix '4dad' to alert the father that the text is from SMS4dadsSA.

Messages are written to come from the father's baby in utero encouraging him to imagine a developing relationship with their new baby. For example the following message was scheduled 2 weeks before expected date of birth:

4dad: My first poo is going to be black, sticky and look like tar. I'm working on it for you now dad. [Link to images of baby poos]

However some messages can achieve multiple aims. For example the following message, delivered 2 weeks after birth gives the baby a sense of humour, signals the dad's importance to the child, and encourages him to look after himself.

4dad: Hey dad. I am going to triple my weight in the first year of life. Don't let this happen to you too

Messages concerning support and interaction with their partner encourage fathers to think about the impact of pregnancy and parenting on their partner while suggesting ways that they could provide emotional or functional support. For example the following message was scheduled for 4 weeks after birth.

4dad: It can be tough to leave your partner and baby to go to work. Maybe texting can keep you in touch. [Txt STOP to OptOut]

Messages regarding paternal well-being often encouraged him to be aware of the importance of his own well-being, in the context of his fathering role, and to do what he could to look after himself.

4dad: Babies thrive in a low-stress environment. Your mood and your support for mum can make a big difference at this time. [Link to relevant page on Raising Children Network]

4dad: Angry? Frustrated? Intolerant? Not as good as you can be? Try eating well, getting some exercise to see how quickly these things can improve.

Escalation process

The previously described Mood Checker messages, and associated application, were sent to fathers every 3 weeks (approximately) with each Mood Checker message addressing an issue that was likely to be important for the father at the time when the message arrived. For example:

At 16 weeks before the birth:

*4Dad: Exercise can help your sleep and give you energy for coping with the changes in your life. "How are you going with exercise?" Click here [*MoodCheckerInteractiveLink*]*

At 4 weeks after the birth:

*4Dad: Most people feel stressed if their new baby cries a lot. How have you coped this week with settling your baby? Click here [*MoodCheckerInteractiveLink*]*

When fathers clicked on the interactive link they were asked how they were coping. If their responses indicated that they were coping well then they received encouraging feedback. If the father indicated that they were not coping the Mood Checker application advised him that it might be good to talk to somebody and asked him if he had someone to talk to. Fathers indicating high levels of distress and lacking someone to discuss their situation were escalated via a dedicated number to the Perinatal Depression and Anxiety Australia (PANDA) national helpline who called to triage their situation and offer support.

Participation data

Total numbers

Table 1: Participation Data.

Target Recruitment	250
Actual Recruitment**	244
Average Gestation at enrolment	30 Weeks
Average number of links received*	27.77
Average number of links clicked*	6.34
Average number of Mood Checker messages received*	7.36
Average number of Mood Checker links clicked*	2.07
Identified as ATSI	8 (3.2%)
Average number of message feedback requests sent*	5.55 (Total sent – N=1354)
Average number of message feedback responses	2.00 (33%) (Total received – N=488)
Average Message Rating	1.29 (1=great, 2=not sure, 3=Poor)
Escalations	6 escalations to PANDA
Exited early	42 (17.2%) – by 31 st May 2019 Average duration = 14.5 weeks before stopping
Completed	Those currently enrolled (n=202) are likely to go on to completion.

*Calculated 10 months after enrolment opened.

**Enrolment opened 1st May 2018 and closed 31st December 2018

Demographics & Measures

Table 2: Demographic Data

Age	The age of participants ranged between 20.60 to 53.66 years, with an average age of 33.52 (SD = 5.77).
Child number	Two-hundred and two participants (82.45%) reported the new baby as their first child and thirty-six participants (14.69%) confirmed it was not their first child. Seven participants (2.86%) preferred not to say.
Indigenous Status	Eight (3.27%) participants identified as Indigenous at enrolment with 229 identified as non-indigenous and 6 participants (2.45%) preferred not to say.

Geographic distribution

The majority of participants (87.7%) were from urban areas in South Australia and 12.3% from regional, identified by postcode. Only one participant was living in a very remote area.

Chart 1: Location of Participants by Postcode – State-wide

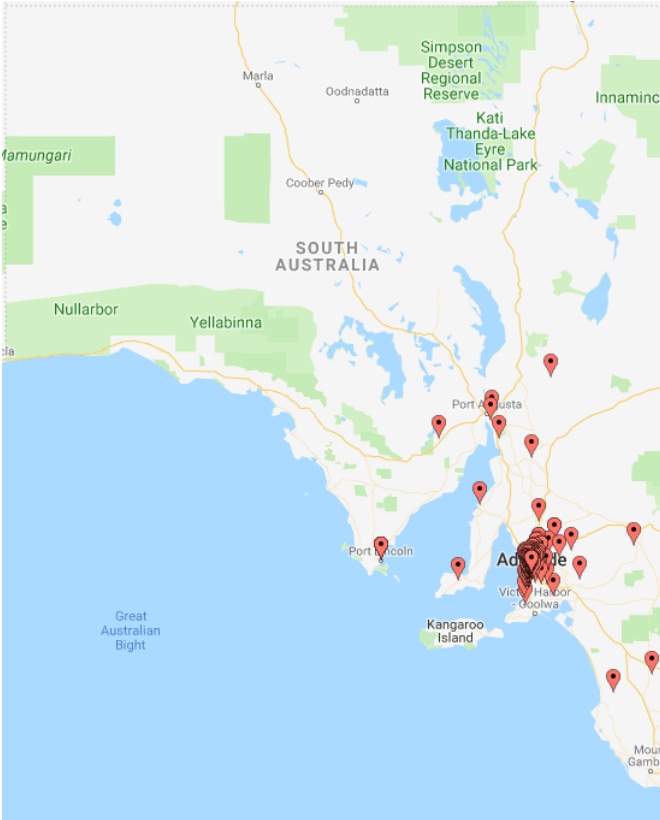
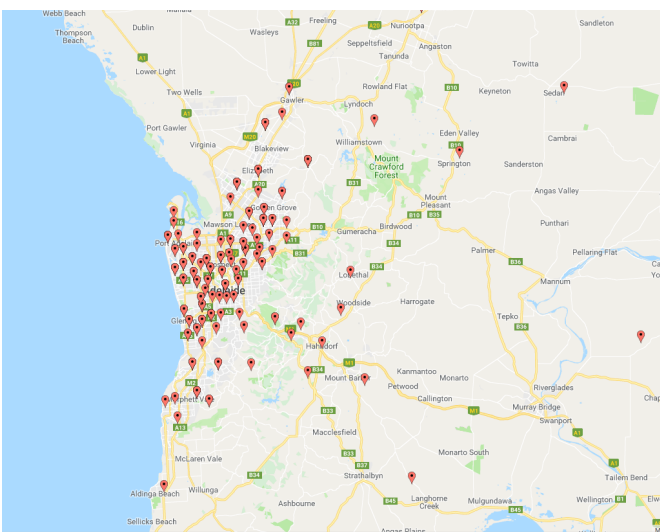


Chart 2: Location of Participants (by postcode) - Adelaide and surrounds



Measures

Participating fathers completed surveys, at various time points, across the study (Appendix 1). Items at enrolment explored factors such as psychological distress, beliefs about self-reliance, perceptions of relationship adjustment to change, and prosperity. Each survey after enrolment asked about stress, the fathers' experience of SMS4dads (9 items), and another factor that was likely to be important at the time of the survey. Items in the third trimester explored prenatal attachment, items 6-8 weeks after birth explored perceptions of co-parenting quality, and items at 12-14 weeks after birth asked about postnatal attachment. The final survey included the same scales as those in the enrolment questionnaire but replaced items concerning gender roles with items exploring paternal engagement.

Survey Outcomes T1-T5

Preliminary analysis of the data from each of these surveys is presented in Appendix 2. While the analysis of relations between survey outcomes is yet to be completed the preliminary analysis is presented in the following sections.

Experience of Messages from SMS4dadsSA

Fathers generally rated their experience of SMS4dads messaging very highly (Table B). Scores on 4 point Likert Scale ratings across all time points indicated high levels of satisfaction with the messages in all categories. While fathers had varying levels of confidence and a number reported being highly stressed or in distressing relationships, approval ratings on all messages were 96-99% across the postnatal period.

Stress – At Enrolment

K6 data indicated that 5 fathers (2.05%) recorded levels ≥ 20 (High stress) and 67 fathers (27.46%) scored ≥ 13 and < 20 indicating the likelihood of a mild to moderate mental health disorder. Results from the single item stress measure indicated that 20% (N=49) of participants reported high levels of stress with a score 4 or above (Mean = 2.63; SD = 1.02; Range = 1-5).

Dyadic Adjustment – At Enrolment

Thirty-six participants (14.65%) reported total scores < 20 indicating clinical distress in their relationship with their partner while another 87 (35.66%) reported scores in the borderline range (20-22) at enrolment.

Antenatal Attachment – Third Trimester

For those completing all items on this scale the average score was 69.33 (SD=4.73) which was similar to data from a normative sample (M=63.15; SD=7.12) used in the scale development

Co-parenting Quality – 6 to 8 weeks Postnatal

The average score on the co-parenting quality scale was 54.82 (SD=3.99) which is similar to data from fathers 6 months post birth in the scale development study (M=51.7, SD=6.5)

Postnatal Attachment – 12 to 14 weeks Postnatal

Mean score on the postnatal attachment scale was 82.09 (SD=5.85) which is similar to data from the normative same (M=79.24, SD=8.95) used in the scale's development, however the standard deviation in the present cohort is narrower.

Paternal Engagement – At completion (24 weeks Postnatal)

The paternal engagement scale was adapted from a previous study in Latino and Mexican American parents. There is no normative data for this scale that can reasonably be compared to a sample of Australian parents. The present found a mean score (13.05) and first standard deviation of 1.62 following a minimum of 24 weeks of messaging from SMS4dadsSA.

Quantitative Outcomes

Key Survey Outcomes at Enrolment.

Stress

- K6 data indicated that 5 fathers (2.05%) recorded levels > 20 (High stress) and 67 fathers (27.46%) scored between 13 and 19 indicating the likelihood of a mild to moderate mental health disorder.
- Results from the single item stress measure indicated that 20% (N=49) of participants reported high levels of stress with a score 4 or above (Mean = 2.63; SD = 1.02; Range = 1-5).

Dyadic Adjustment

- Thirty-six participants (14.65%) reported total scores <20 indicating clinical distress in their relationship with their partner while another 87 (35.66%) reported scores in the borderline range (20-22) at enrolment.

Accessing Linked Information

The following data on link access was retrieved up to 28th February 2019; 10 months after the launch of SMS4dadsSA.

At this time the average duration of enrolment for the 244 fathers was 18.7 weeks by which time participants had received an average of 65 messages with 23 containing links to further information.

Most of the fathers ($n=180$, 77.37%) had accessed at least one link with 56 (22.95%) accessing over 30% of the links that they had received. It was also encouraging to note that most of the fathers (60.66%) had accessed linked information on more than one occasion.

Feedback on individual text messages

The following data on message surveys was analysed up to 28th February 2019; 10 months after the launch of SMS4dadsSA

Feedback messages ask fathers to rate the last message that they had received (1=Good, 2=OK, 3=A turn off). They were also asked to provide a comment about the message if they wished to do so. In the total message set of 168 messages, there are 11 feedback requests, which equates to 6.5% of all messages.

At 28th February 2019 participants ($N=244$) had received an average 5.56 requests for feedback (Total = 1354) with 68% receiving between 3 and 8 requests. (See Table 3)

For the purposes of this component of the analysis messages were categorised by their major themes as either; Alcohol, Father-infant, Father-partner, Self-care (See table 4)

The following table summarises the feedback patterns and responses.

Table 3: Summary of Response Rate for Message surveys

Number of Requests Sent Response Rate					
Number of requests sent		Responded to at least 1 survey	Response rate per number of surveys sent	Rating	Reply included a comment
Average=5.56	Total=1354	182 (74.59%)	36.54% ($N=494$)	Good = 75.91% ($n=375$) OK = 21.05% ($n=104$) Turn off = 3.04% ($n=15$)	$N=61$, (12.35%)

Table 4: Summary of Participant Message Ratings by Message Type

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Responses By Message Type				
Type	Total Responses	Rating = Good	Rating = OK	Rating = Turn off
Alcohol	8	6 (75%)	2 (25%)	0
Father-Infant	142	111 (78.17%)	26 (18.31%)	5 (3.52%)
Father-Partner	115	78 (67.83)	35 (30.43%)	2 (1.73%)
Self-Care	176	142 (80.68)	30 (17.05%)	4 (2.27%)

Example comments sent with responses to message surveys.

From the 182 dads who responded to at least one message survey 48 (26.37%) provided comments on at least one occasion (Range=1 to 5). Comments were roughly equally divided across all categories with the large majority being positive although one father sent 3 comments stating that he was finding the messages repetitive and less helpful.

The dad texts seem to arrive at my lowest point. I appreciate the constant reminder that I am just human and need to take a deep breathe every now and then. The current growth leap is killing me. I fell asleep at work today and my eyes constantly burn. Just got to push through. (Self-Care)

Good message. Helps keep perspective when things aren't going right. (Father-Infant)

Good message - it worked! (Father-Partner)

I have appreciated all the texts. I find the facts about baby and pregnant mother interesting. I would recommend this service to other expecting dads. (Self-Care)

It made me think differently and prompted myself to do this. Thinking that she can't stop being pregnant at any time. Thank you! (Father-Partner)

A great idea that will never happen. (Self-Care)

Was one of the better texts! Very informative (Father-Infant)

Good message (Alcohol)

Keep them coming. All the small pieces of advice are good reminders and help a lot (Father-Infant)

It was nice to suggest taking time out with mates as that often falls by the wayside. The comment you are here for the long haul made me laugh, good one! (Self-Care)

Mood checker

This data is also provided to 28th February, 10 months after commencement.

An interactive Mood Check text is sent every three weeks to encourage fathers to monitor their mood by reflecting on how well they are coping with issues likely to be challenging them when the message arrives. An escalation procedure is built into this component of the program and links distressed fathers to mental health services.

If participants self-identify as not doing well through the mood check, they will be asked if they have someone to talk to. If they say no, they will be asked if they want someone to call and chat with them. If they say yes to this offer (in previous studies, this is anticipated to be less than 1 per cent of participants), their name and number will be provided to either PANDA or CAFHS to give them a call. These services are then responsible for calling the participant, triaging their needs and either providing phone support or referring them onto a suitable service.

Participant responses to the Mood Check are automatically recorded in the University of Newcastle system.

It has been encouraging to see how well fathers in this pilot study have engaged with the mood checker and how well the system has worked in escalating distressed fathers to additional support.

By this time participants had, on average, received between 5 and 6 mood checking messages and most of the fathers ($n=156$, 63.93%) had responded, by clicking on the mood checker message, on at least 1 occasion and 41.39% ($n=101$) had responded on more than one occasion. The average response rate (30%) indicating that 1 in every 3 mood checker messages was being utilised by participants.

First tier escalations through the Mood Checker are monitored through the University of Newcastle system and through feedback with the support services. By 28th February there had been 2 second tier escalations to support services through the Mood Checker application. However, further escalations are likely to occur because of the encouragement that SMS4dadsSA gives fathers to reflect on their mood, the knowledge provided about the importance of their mental health, and information provided on support services.

By May 30th 2019 there had been 6 escalations from SMS4dadsSA to PANDA

Survey & Interview Completion

Fathers completing the online survey at T2, T3, T4 and T5 were invited to participate in an interview. At times T3 and T4 participants were also invited to forward a text with a link to a survey to mum. Mothers completing interviews at time T3 or T5 were invited to participate in an interview.

Table 5: Survey and Interview Completion Data

When and Who	Survey Completions by: 20 th May 2019	Example Responses
<p>T2 Dad.</p> <p>In third trimester following 6-8 weeks of participation.</p> <p>166 dads (67.8%) were enrolled for long enough before birth to receive this survey.</p>	<p>Survey=56</p> <p>Interview=10</p>	<p><i>I've enjoyed it and getting little bits of other pieces of information that directly affect me</i></p> <p><i>...was a couple I did like which were around everyone's going to be emotional, everyone's going to feel teary and overwhelmed, and if you ever find it difficult go out and speak to a professional, of just sometimes taking each other on a date</i></p> <p><i>I think we've got a lot closer like rubbing her belly and talking to it. And I was already doing that quite compulsively. Yeah. So it didn't really trigger [it] I was just like, "Oh, woah. It's telling me to do this. This must be normal," because I was questioning myself whether it was normal to be talking to something that was inside of there so much</i></p>
<p>T3 Dad</p> <p>4-6 weeks after birth</p>	<p>Survey=70</p> <p>Interview=12</p>	<p><i>...the messages are very supportive. We've had a few hard days here and there, as you do with a newborn. And those messages have just, they helped so much.</i></p> <p><i>I didn't really understand what the soft spot on her head, I didn't really know anything about that</i></p> <p><i>There was another one. Just general support with mum and all that stuff, how I can help her. So yeah, that really, really helped. That really helped me a lot just to understand, hey, mum's going through some shit too. You've got to pull your finger out and just give her a hand.</i></p>
<p>T3 Mum</p> <p>4-6 weeks after birth</p>	<p>Survey=10</p> <p>Interview=3</p>	<p><i>...he'll ask a question, how are you feeling today, are you feeling tired? And I think that might come from the messages</i></p> <p><i>So, I think there must've been some sort of message about looking after yourself or being fit and active or something because he has started getting back to his routine of going back to the gym and stuff.</i></p> <p><i>I think, cause you know, he is coming and taking the boys outside or taking them for a walk or bathing them a lot more. He's even pops his hand up to do night feeds which has helped as well, whereas the first time round, it's not that he didn't wanna do it, I think he just felt, I don't know. It wasn't pointed out for him, maybe?</i></p>
<p>T4 Dad</p> <p>12-14 weeks after birth</p>	<p>Survey=48</p> <p>Interview=15</p>	<p><i>I'm out working and so she is bearing the brunt of everything so the ones that say take an hour out, give the baby to a responsible person for an hour and take time out for yourself is very important. I thought that was good, a very good thing to think about.</i></p> <p><i>I think this whole scheme is really good to acknowledge that the father is obviously a big part of the baby's life and the impact on not just the baby but my partner and then her mood</i></p> <p><i>It's given things for us to just talk about and when we get them, different ones that we haven't talked about or we just discuss them, yeah, conversations to give us information and help us</i></p>
<p>T5 Dad</p> <p>At completion</p> <p>24 weeks after birth</p>	<p>Survey=67</p> <p>Interview=16</p>	<p><i>So, the probably best example was interacting with [baby] ... I was a bit grumpy myself it was better to put him down or pass him onto the mother or something else. It was along those lines of, "Hey, if you're feeling like he's giving you a bit of problems then perhaps you need to just put him down and spend a bit of time to yourself." ... it came at a time when he was crying at about 3:00 in the morning or so, and I was like, "Oh, I've got to go to work. I'm tired. I don't really want to deal with you right now." And I think, I must have got it maybe that day or something, and I remember it sticking in my head.</i></p> <p><i>I think from the very start, it was just sort of like we got sort of warm up texts, like they were telling me about cues and all that stuff, really, really helpful. And like my brother in law, he's expecting as well, I said "Sign up for it mate, you will not regret</i></p>



		<p><i>it, they're really good, they help". And he goes "What do you mean?", I said "Without that help, we are left in the dark", I said, "But these, these help"</i></p> <p><i>Having that from the baby's point of view, it was kind of uplifting, because it was sort of like I was getting a text message from my daughter. Like she was sending me a text message, like "This is what you have to do if this is happening", or "You have to talk to me, or look at me, and look into my eyes" and all that sort of stuff, and I'm just like "Mate, this is crazy". It's good.</i></p> <p><i>I think every second week I reckon I got one at least, communicating with your partner and reassuring them. There was ... my wife, we had a bit of a stint of postnatal depression, and like nothing, nothing would cheer her up, like absolutely nothing, not even my ridiculously infamous sense of humour could cheer her up. But every time I told her, I said "Look, you're doing really good..."</i></p>
<p>T5 Mum</p> <p>At completion</p> <p>24 weeks after birth</p>	<p>Survey=4</p> <p>Interview=1</p>	<p><i>So when he receives them he would read them out, and often we'd be sitting on the couch, you know playing with [baby] or I'd be feeding her or something like that.</i></p> <p><i>So I think the messages kind of gave him a good starting post and good ideas about how to play with her when they're so little and something that he could do</i></p> <p><i>...it was something that he could do and was something that supported him and he felt supported, which I think made me feel, I guess, much more confident</i></p> <p><i>I don't think it would've been anywhere near as effective if it had have been sort of an email or anything like that. I think text messages, especially the types of messages that they were, it was the perfect format.</i></p>

Key Results

The SMS4dadsSA pilot study aimed to enrol 250 fathers from across metropolitan and rural areas in South Australia. The initial enrolment window of two months was extended and enrolments were sought until 30 December 2018. In all 244 fathers enrolled in the pilot study. Although retention was not an explicit aim of the project the program SMS4dadsSA demonstrated high acceptability as by 30th May 2019 only 42/244 17.2% had exited the program before completion. Those who did text 'Stop' to opt out had received on average 62 messages over a period of 15.0 weeks.

The degree to which SMS4dadsSA was able to achieve its stated aims of reducing isolation, enhancing interaction with their partner, facilitating mood awareness and early identification of distress are addressed in the following:

Reduction in fathers' isolation from health and parenting support

A reduction in isolation was evidenced by data representing participation (clicks on linked information, responses to surveys, and engagement with the mood checker application). These metrics are supported by illustrations of support from post intervention interviews and comments attached to survey responses.

- By 18 weeks of participation 77% of fathers had accessed at least 1 episode of linked information while 56% had accessed 30% of the links that they had received.

- By 28th February 2019 75% of fathers had replied to at least one post message survey with the highest rate of response generated from messages regarding self-care (81%), closely followed by messages about father-child interaction (78%)
- By this time 64% had also responded to at least 1 mood checker message by clicking on (selecting) an option that best described their present mood.
- The following comments illustrate the support that SMS4dadsSA provided to new fathers during their transition to parenthood.

"...the messages are very supportive. We've had a few hard days here and there, as you do with a newborn. And those messages have just, they helped so much. Great program, I look forward for every txt message :)"

"Baby was born on the 25th of September. All messages have been very useful and helpful. And real life tips! Thanks"

Increased perceptions of connection with their partner and from the wider society

Messages highlighting the importance of their relationship with their partner, encouraging them to reflect on this relationship and encouraging fathers to provide encouragement and support were well received. Seventy-eight fathers replied to surveys about these messages with 68% rating the messages as "Good" and 35% rating them as "OK" and only 2% rating the father-partner messages poorly.

Evidence illustrating the importance of these messages is provided in the following data from interviews...

"I'm out working and so she is bearing the brunt of everything so the ones that say take an hour out, give the baby to a responsible person for an hour and take time out for yourself is very important. I thought that was good, a very good thing to think about."

"It's given [us] things for us to just talk about and when we get them, different ones that we haven't talked about or we just discuss them, yeah, conversations to give us information and help us."

"I think every second week I reckon I got one at least, communicating with your partner and reassuring them. There was ... my wife, we had a bit of a stint of postnatal depression, and like nothing, nothing would cheer her up, like absolutely nothing, not even my ridiculously infamous sense of humour could cheer her up. But every time I told her, I said "Look, you're doing really good..."

And from comments in reply to surveys about texts focused on father-partner interaction:

"I love these messages their great"

"Good message - it worked!"

"It is very relevant to this time of pregnancy for us Thanks and keep them coming"

"It made me think differently and prompted myself to do this. Thinking that she can't stop being pregnant at any time. Thank you!"

Participants will experience early identification and awareness around change in mood.

The evaluation relied on evidence from surveys about messages focused on self-care, comments provided in association with those responses and mood checker usage to illustrate the influence that SMS4dadsSA had on early identification and awareness around changes in mood

By 28th February the majority of fathers (64%) had interacted with the mood checker application on at least one occasion while 42% of participants had engaged with the mood checker on more than one occasion. However, fathers were also sent messages about self-care and some of the responses to surveys about these messages (N=142) also provided comments about their experience of the self-care messages:

"Loving the messages. Keep them coming. Thanks!!"

"I am enjoying the messages and it has prompted me to start reading to my son"

"The dad texts seem to arrive at my lowest point. I appreciate the constant reminder that I am just human and need to take a deep breathe every now and then. The current growth leap is killing me. I fell asleep at work today and my eyes constantly burn. Just got to push through."

"Helpful information and a good resource."

The importance of the messaging for father's mental health was also illustrated by mothers during interview:

So, I think there must've been some sort of message about looking after yourself or being fit and active or something because he has started getting back to his routine of going back to the gym and stuff.

...it was something that he could do and was something that supported him and he felt supported, which I think made me feel, I guess, much more confident

Although there were likely to be positive influences on the mental health of participating fathers - where the messages may have stimulated fathers to take better care of themselves, form early relationships with their babies, and work more effectively in their parenting partnerships – it was also important that six fathers, who may not have otherwise connected with support services, made direct contact with appropriate services as a result of their involvement with SMS4dadsSA.

In Summary

SMS4dadsSA was able to achieve the intended aims of reducing the isolation that many fathers experience in their transition to parenthood, facilitating connection and quality interaction with their new baby and

with their partner, informing fathers about the importance of their mood, encouraging them to reflect on their mood, and connecting fathers with appropriate support services when they thought they were no longer coping.

Limitations

There are limitations that need to be noted about this pilot project..

Recruitment was slower than expected and did not reach the level of penetration that was hoped for in regional and rural areas. The investigators believe that these outcomes were influenced by the newness of the program and a consequent lack of embeddedness that SMS4dadsSA had in the delivery of perinatal services. The integration of such an innovative program into practice can be expected to take time, especially in centres that are harder to reach. However, encouraging data from the present pilot is likely to play a role in facilitating acceptance and providing staff with incentive to promote this highly efficient and highly scalable program to families in their service.

Although qualitative data demonstrates direct influence of SMS4dadsSA on particular participants the nature of the present study cannot support conclusions regarding influence across the cohort. A large study with inbuilt mechanisms for controlling and comparing data sets could explore the possible influence of SMS4dadsSA on a range of outcomes such as paternal mental health and access to services, parenting partnerships and father-child relationships.

Budget

See Previous statement

Reporting

Table 6: Summary of achievement of reporting obligations.

Report number	Due Date	Acceptance
First Quarterly Report	30/4/2018	Accepted
Second Quarterly Report	31/7/2018	Accepted
Third Quarterly Report	31/10/2018	Accepted
Fourth Quarterly Report	31/1/2019	Accepted

Fifth Quarterly Report	30/4/2019	Accepted
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What's next?

The SMS4dadsSA pilot study demonstrated that support and information can be delivered at low cost to South Australian fathers-to-be and new fathers from mid-way through the pregnancy until the infant is 24 weeks of age. What is required is a commitment to operate the SMS4dads program at scale.

Further information

Contact details for future reference:

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Appendix 1: Table of Measures

Measures at Baseline	<p>Prosperity (15)</p> <p>Prosperity was rated on a six-item scale ranging from 1 (prosperous) to 6 (very poor). The average score was 2.9 (SD =0.73). Most participants rated their level of prosperity between 'very comfortable' (2) and 'just getting by' (4), with the majority reporting being 'reasonably comfortable' (3).</p> <p>Brief Dyadic Adjustment Scale (BDAS) (16)</p> <p>The BDAS is a four-item measure where each item is rated on a scale from 1 (all of the time/extremely unhappy) to 6/7 (never/perfect). The maximum score is 25. Participants who</p>
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	<p>score 20, 21, or 22 are described as “borderline”, scores under 20 as “clinically distressed”, and scores over 22 as “non-distressed”.</p> <p>Kessler Psychological Distress Scale (K6) (17)</p> <p>The K6 is a six-item measure where each item is rated on a scale from 1 (all) to 5 (none). The maximum score is 30. Participants who score <12 are likely to be well, People scoring in the range (13-19) are likely to have a mild to moderated mental health disorder and those who score in the high range (20-30) are likely to have a severe mental health disorder.</p> <p>Reliance Items (18)</p> <p>Two Reliance items were adapted from the Conformity to Masculine Norms Inventory (CMNI) measure, consisting of 144 items. The two items measure the degree to which one’s attitudes, beliefs and behaviours agree or disagree with traditional and non-traditional masculine gender roles. Each item is rated on a scale from 1 (strongly disagree) to 4 (strongly agree).</p> <p>Single Item Stress Measure (19)</p> <p>The single item stress measure is rated on a scale from 1 (not at all) to 5 (very much). The maximum score is 5. Participants who score 4 or above indicate higher levels of stress.</p>
Interim Measures	<p>T2 – Third Trimester (26 items)</p> <ul style="list-style-type: none"> • 9 items exploring the fathers experience of SMS4dadsSA • Paternal Antenatal Attachment Scale (16 items) (20) • Single Item Stress Measure (18) <p>T3 – 6-8 weeks after expected date of birth (24 items)</p> <ul style="list-style-type: none"> • 9 items exploring the fathers experience of SMS4dadsSA – same as T2 • Coparenting Relationship Scale (14 items) (21) • Single Item Stress Measure (18) <p>T4 – 12-14 weeks after expected date of birth (30 items)</p> <ul style="list-style-type: none"> • 9 items exploring the fathers experience of SMS4dadsSA – same as T2 & T3 • Paternal Postnatal Attachment Questionnaire (19 items) (22) • Single Item Stress Measure (18)
Measures at completion	<p>T5 – Final Survey (23 items)</p> <ul style="list-style-type: none"> • Items exploring the fathers experience of SMS4dadsSA (N=9) • Paternal Engagement Scale (4 items) (23) • Brief Dyadic Adjustment Scale (4 items) – Same as T1 • Kessler K6 – (Same as T1)

Appendix 2. Table of Quantitative Outcomes

	T1 (N=244)	T2 (N=49)	T3 (N=67)	T4 (N=37)	T5 (N=50)
Have the texts been helpful in becoming a new dad? (1=very helpful to 4=Not helpful at all)		M=1.67	M=1.43	M=1.27	M=1.3
Over the last month, you have been sent texts about your own self-care and well-being. How did they go with you? (1=very helpful to 4=Not helpful at all)		M=1.81	M=1.46	M=1.57	M=1.60
Over the last month, you have been sent texts about your new baby. How did they go with you? (1=very helpful to 4=Not helpful at all)		M=1.49	M=1.42	M=1.24	M=1.40
Over the last month, you have been sent texts about your relationship with your partner. How did they go with you?		M=1.76	M=1.51	M=1.49	M=1.62

(1=very helpful to 4=Not helpful at all)					
Some of the messages included links to obtain further information, if you clicked on them were they useful? (1=very helpful to 4=Not helpful at all) 5=not applicable		M=1.52	M=1.57	M=1.56	M=1.74
What about the Mood Check, was it useful? (1=very useful to 4=Not useful at all)		M=1.93	M=1.96	M=1.78	M=1.91
Have you talked to your partner about the texts? (1=A little bit to 4=A lot)		M=2.51	M=2.61	M=2.81	M=2.70
How much did you learn about your baby's development through SMS4dadsSA? (1=A great deal to 5=nothing at all)		M=2.76	M=2.79	M=2.49	M=2.38
Stress means a situation in which a person feels tense, restless, nervous or anxious or is unable to sleep at night because his mind is troubled all the time. Do you feel this kind of stress these days? (1=Not at all to 5=Very Much)	M=2.63	M=2.33	M=2.44	M=2.21	N/A
Kessler K6* Items Scored 1-5 (Min=6, Max score 30)	M=10.83 SD=3.51				M=10.92 SD=3.33
BDAS* (Min=4, Max=16) High score=Poor Adjustment	M=7.00 SD=2.53				M=8.67 SD=2.72
Reliance (Min=2, Max=8) 2=Highly likely to seek support/help – 8=highly unlikely	M=4.57 SD=1.53				
Antenatal Attachment*		M=69.3 SD=7.12			
Co-parenting Relationships Scale* (Min=14, Max=98)			M=54.82 SD=3.99		
Postnatal Attachment* (Min=19. Max=95)				M=82.09 SD=5.85	
Paternal Engagement Scale*					M=13.05 SD=1.62

*See section on Demographics and measures for Scale Description

**Data not available at time of reporting – Project concludes 30/6/2019