

**Tweddle Child and Family Health Service
Day Stay Program
Research and Evaluation**

**FINAL
REPORT**

Presenting characteristics, program outcomes and satisfaction of families admitted to Tweddle Child and Family Health Service Day Stay Program: a prospective cohort study

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Executive summary

- ❖ The DSP is addressing a high level of need in parents who are experiencing substantial distress associated with physical and emotional health problems and the demands of caring for an infant;
- ❖ Unsettled infant behaviour in admitted families is significantly more problematic than in the general community and is contributing to considerable family distress;
- ❖ The DSP is providing services to a parents in a range of socioeconomic circumstances;
- ❖ In order to align the DSPs with Victorian government state policy to prioritise service provision for vulnerable families, attention should be paid to improving integration of DSPs with other services for high-need groups;
- ❖ Attendance at the DSP is associated with improvements on all measures of parent and infant wellbeing, especially in those presenting with greater distress;
- ❖ Better outcomes in parents with higher educational achievement suggests the need to modify DSP materials and learning strategies to assist parents with less formal education more effectively;
- ❖ The quality of staff care was almost universally endorsed as exemplary and client satisfaction with the DSP is high;
- ❖ Opportunities for specific program improvements include addressing parent confusion about the appropriate age for introduction of solid foods to an infant's diet;
- ❖ The low uptake by clients of referrals to other community services after discharge suggest the need to investigate barriers to using these services and devise solutions to assist parents that can be incorporated in the DSP;
- ❖ The DSP services occupy an important place on the spectrum of care for Victorian parents between universal and specialist services;
- ❖ DSPs offer opportunities for prevention of emotional health and parenting problems and therefore for health service cost savings.

1. Background and Introduction

1.1. Health service context

Early childhood is a priority area for the Victorian Government. Recent policy and legislative changes are intended to promote earlier intervention and more timely and effective services for vulnerable children and families. The Victorian Early Parenting Strategy is consistent with the public health model of family care, which places emphasis on universal approaches such as the Maternal and Child Health nursing service, which is available free to all families with infants under the age of five (1).

The second tier of the public health model includes early parenting services, which are designed as intensive secondary services. The early parenting sector provides day stay, residential, group and home-based services, which focus on infant health and development and promotion of family wellbeing and parent-infant emotional attachment. The early parenting services are provided for families in need of additional assistance and focussed on prevention and early intervention to assist families on a voluntary basis and reduce the need for referral to tertiary services (1).

As part of the Victorian Early Parenting Strategy, the Victorian Government Department of Human Services has conducted a review of the role of and services provided by the early parenting sector. The review recommended that, in order to make clear decisions about future service directions, a stronger evidence base about the long term outcomes of early parenting services be developed (1).

Consistent with this recommendation and as part of its commitment to a regular review and priority-setting agenda, in 2011 the Board of Tweddle Child and Family Health Service identified the need to assign funds to conduct an independent review of its Day Stay Service.

1.2. Tweddle Child and Family Health Service

Tweddle Child & Family Health Service is a not-for-profit public sector early parenting centre that was established through a philanthropic trust in the 1920s. It is now funded through the Victorian Government Department of Human Services to provide a range of specialist development and support services for parents and families living in Victoria. Tweddle's programs aim to facilitate learning and skill development in parents to assist them to initiate and maintain positive change in their parenting capacities.

Tweddle is part of the secondary level of services that offer short term specialist parenting and early intervention programs for families with children aged 0-4 years. Services are offered free-of-charge to parents from a wide range of socioeconomic and cultural backgrounds, living in metropolitan and rural areas in Victoria. Tweddle's highest priority is the provision of services to vulnerable or isolated families and to parents of infants and young children assessed as at risk.

Families who attend Tweddle are commonly experiencing more complex parenting difficulties than are manageable in the primary care, universal health system but not so complex that they require tertiary services such as hospitalisation or specialist psychiatric care. Tweddle's education and support programs aim to enhance existing parenting competencies and confidence to nurture and protect their children. Tweddle staff encourage partners or support people to participate actively in the programs.

Experienced and highly skilled maternal and child health nurses, midwives, and early childhood professionals, work in teams to assist families with young children to manage their parenting concerns. Tweddle offers residential, day stay and home visiting programs and also provides an intensive parenting assessment and skill development residential program for families with infants who are at high risk.

Tweddle has a commitment to evidence-based practice and offers leadership in the Australian parenting services field through its support of research and evaluation projects located in its services. This investigation of the Day Stay Program contributes to Tweddle's development of evidence-based service delivery.

1.3. Tweddle Day Stay Program

The Day Stay Program (DSP) service at Tweddle was established in 1992. Day stay only programs operate from the Maribyrnong site and have been established off-site in six municipalities. These programs support and enhance the services offered by other health professionals to assist families within their own community and promote community connectedness. Tweddle programs have good local recognition and are highly regarded and used by families in these communities. A goal of the program is to link families to supports within their community and to integrate the program with key services such as mental health, maternal and child health, general practitioners, and family support agencies.

Groups of 4 families are admitted together to the 7-hour Day Stay program. The education-based program is intended to assist parents to gain skills and confidence to manage early parenting difficulties including transition to parenting, realistic expectations about child developmental stages, feeding, settling, establishment of a flexible daily pattern of care, safety, play and parent physical and emotional well-being.

Day stay programs are managed jointly by Tweddle and the organisation providing the service. It is recommended that these programs operate one day per week, 48 weeks per year and are closed on public holidays and for four weeks over the Christmas-New Year period.

1.3.1 Program Documentation

The program is described in detail in two documents. The Day Stay Program Manual (2) is designed to provide staff members with up-to-date and relevant information to establish and operate a Day Stay Program. The Tweddle Day Stay Program Model of Service (3) provides a detailed account of policies and procedures for staff orientation, family admission, program delivery, quality improvement and evaluation, the model of care, the program schedule and

resources for conducting the program. Both documents are available from Tweddle.

1.3.2 Staffing

The recommended staffing ratio is 1:2 (two staff members to four families), composed of one maternal and child health nurse plus one other staff member with early childhood, mothercraft, lactation consultant, mental health, drug and alcohol, domestic violence or family planning qualifications and experience.

1.3.3 Locations

Until 2010 Tweddle provided early parenting day stay programs at Craigieburn, Geelong, Maribyrnong, Melton, Terang and Wyndham. These venues offer a comfortable, inviting and functional environment, including a lounge room large enough for babies to play safely and for parent discussion groups, space for private consultation, office space, kitchen, appropriate heating and cooling, access to bathroom and hand washing facilities and storage space.

Terang: In the south-west of the state, Tweddle provides a service in Terang in partnership with the Terang & Mortlake Health Services. It is designed for families with babies up to 4 years.

Craigieburn: Until 2010, this service was offered in Craigieburn in partnership with Northern Health at Craigieburn Health Service one day a week for families with children up to 1 year of age.

Maribyrnong: The service is available two weekdays and alternate Saturdays for families with children up to 4 years of age. (DHS funded)

Melton: Tweddle provides a two-day-per-week service at Melton Health in collaboration with Djerriwarrh Health Services. This service caters for families with children up to 12 months of age.

Geelong: Tweddle in collaboration with the Raphael Centre, St John of God Hospital. The service is available for families with babies up to 12 months of age and operates one day (DHS funded).

Wyndham: This service is offered in Werribee and is available one day a week for families with children up to twelve months of age (DHS funded).

1.3.4 Triage

Access into Day Stay Programs varies between sites. Parents wanting to attend Tweddle programs can self-refer by telephoning the service directly. Clients wishing to attend the Craigieburn, Wyndham and Footscray (Maribyrnong) day stay programs are triaged into the service via the Tweddle intake team at Footscray. Nurses with extensive experience in either maternal and child health or early childhood conduct an assessment interview, which is entered into the Client Assessment and Intake System (CAIS) computer program. CAIS allocates parents to a relevant service according to the nature and severity of their presenting

needs. Intake to the Geelong program is managed through the Raphael Centre, St John of God Hospital and to the Melton and Terang sites through individual intake processes.

1.3.5 Attendance

Attendance varies by location of the services.

Table 1 Participation in day stay programs in 2007 – 2008.	
Location	Families (n)
Melton	252
Geelong	157
Terang	148
Craigieburn (commenced September 2007)	90
Maribyrnong	471
Wyndham	64
Total	1182

Source: Tweddle 2008 Annual Report.

1.3.6 Aims and objectives of the Day Stay Program

The aim of the program, as specified in the Tweddle Day Stay Program Model of Service, is to assist parents to gain information and skills about their parenting concerns and improve their parenting confidence.

The objectives of the program are that parents will:

- explore alternative ways of managing their parenting concerns;
- receive coaching in interpreting their child's cues;
- explore factors that have contributed to their loss of confidence and be referred to services in their community.

The anticipated outcome is that parents will identify and implement changes to their parenting behaviours and improve their parenting confidence (3).

2. Day Stay Research Project

The study was initiated on request of the Tweddle Board who have a continued commitment to the generation of evidence to improve clinical practice and inform organisational planning. The investigation is consistent with the goal of the Early Parenting Strategy of the Victorian Government Department of Human Services to improve responses of the early parenting service sector to better meet the needs of vulnerable children and families in Victoria (1).

The investigation was designed to address the question posed by the former Manager of the Tweddle Day Stay Program service: *What is the role of the Tweddle Day Stay Service in the continuum of care for young families in Victoria?*

2.1. Objectives

To inform the Tweddle Board of Management about future directions for the Day Stay Program (DSP), the study findings will describe the level of need that is being addressed in the Day Stay Programs, the short-term health and wellbeing outcomes and the satisfaction of the families who attend the program.

2.2. Aims, research questions and scope

The aim of the study was to examine:

1. the health and social circumstances of clients attending the Tweddle DSP
2. the presenting needs of clients attending the Tweddle DSP
3. the outcome of the program; specifically:
 - have there been improvements in clients' mental health and their infants' behaviour since attending the program?
 - how do clients evaluate the program?

The study was designed to assess the quality of the service as it pertains to the clients who attend the DSPs. It is outside the scope and not the intention of the study to investigate organisation, staffing, resourcing, sustainability or organisational context of the DSP at Tweddle.

2.3. Methods

2.3.1 Ethics

Ethics approval was obtained from the School of Population Health Human Ethics Advisory Group, the University of Melbourne Human Research Ethics Committee (Date of approval: 13 July, 2010; Ethics ID: 1033203) and from the Children, Youth and Families, Research Coordinating Committee, State Government of Victoria, Department of Human Services (Date of approval: 19 May, 2010; Ref ID: ADF/10/7057). Separate approval was obtained from the Northern Hospital, who manage research ethics for Craigieburn Health Service (Date of approval: 25 May, 2010; Ref ID: A13/10). Copies of approval letters are available on request.

Participation in the study was voluntary and informed consent was obtained. Any information obtained in connection with this project that can identify participants

will remain confidential. It will not be disclosed, except as required by law. The data are stored separately from the files containing contact information and stored at Monash University in password-protected computer files, accessible only by research staff directly involved in the research. Data will be held for seven years after the last relevant publication, when it will be destroyed. In any report or publication of the findings, only pooled group information from which no individual can be identified will be provided.

2.3.2 Study Design

The study was a prospective longitudinal cohort, or single group pre-and post-test design. Participants were assessed twice: once prior to admission to the Day Stay Program and once 4 – 8 weeks after discharge from the program.

Recruitment of participants to the study took place from the Day Stay Programs whose intake is managed at the Footscray site using the CAIS electronic database.

2.3.3 Setting

The intention was to conduct the study at all 6 Day Stay sites. However the logistics of recruitment and data collection necessitated some modification to this plan. The 7-hour, structured Day Stay program is a busy single admission, which does not allow time for participants to complete research-related questionnaires. Experience has shown that inviting potential research participants to complete comprehensive questionnaires prior to admission to a health service and return them via post or submit them during admission is unsuccessful. An alternative means of data collection was therefore required. During the study design phase, considerable discussion occurred with Tweddle staff and the researchers to establish the optimal methods of data collection.

The priorities were to minimise participant burden and to maximise accuracy and completeness of data. It was agreed that these two priorities could best be met by the collection of data from three sources. Study participants would agree to complete a brief study-specific questionnaire prior to or on the day of admission and a brief telephone interview after discharge, and to extraction of relevant data from information held in their medical record, which is routinely collected by Tweddle as part of the intake procedure.

Admission to Maribyrnong, Wyndham and Craigieburn sites is managed by Tweddle using CAIS. The other three sites manage admission through their own processes using different data collection and storage systems. The Craigieburn Day Stay Program closed prior to commencement of recruitment. The study was therefore conducted at Maribyrnong and Wyndham.

2.3.4 Participants and recruitment

Clients were identified by the TWEDDLE intake team as being eligible for the study if they were 18 years old or over, with English proficiency sufficient to give informed consent to participate and complete a written questionnaire and a telephone interview, and had accepted a place at either Maribyrnong or Wyndham

Day Stay Programs with an infant under 12 months old. A recruitment protocol that posed minimal additional burden on Tweddle frontline, intake and day stay staff was agreed.

2.3.4.1 Sample size

A sample size of 100 will provide prevalence estimates of study parameters, specified in the study aims, with a margin of error of 10%. To allow for an estimated attrition of 15%, the intention was to recruit 115 participants.

2.3.5 Data sources

There were three data sources:

Baseline data were derived from

1. two components of the Tweddle client record:
 - electronic records in CAIS;
 - paper registration, maternal and infant history forms.
2. brief self-report study-specific questionnaire to collect data not available from 1 above.

Follow-up data was derived from

3. computer assisted telephone interview (CATI) conducted by trained researchers.

2.3.5.1 Tweddle Client Record

Tweddle staff routinely collect information from clients at intake and record it in CAIS, an electronic database which assists with triage. Information is also collected on paper forms from clients on the day of the admission.

CAIS: Source of referral, experience of distressing family events in the past year, infant details including gender, gestational age at birth, mode of birth, birth complications and weight; primary caregiver health including sleep pattern and current or previous feelings of depression or anxiety, and the quality of relationship of the parent- infant relationship and perception of infant behaviour and parenting.

Registration form: sociodemographic characteristics including country of birth, Aboriginal or Torres Strait Islander identity, marital status, language spoken at home, participant or partner pension or health care card.

Mother's history form: reproductive history including numbers of pregnancies, children, and adverse pregnancy events, details of most recent pregnancy, including pregnancy or labour complications and expectations and complications in the post-natal period, experience of distressful life events in the previous twelve months, enjoyment of parenting, health service and medication use, number of adults and children in the household, education level, current or previous employment and details about who made the decision to come to Tweddle.

Child's history form: illnesses or medical conditions since birth, current health and development and type of feeding.

Full details of data sources are provided in Appendix I.

2.3.5.2 Study-specific questionnaire

This collected demographic information including postcode and participant and baby's date of birth. General health was assessed using a single question "In general, would you say your health is: excellent/ very good/ good/ fair/ poor?" derived from the SF-36 (4). Mental health was assessed with Kessler 6 (5) and the Edinburgh Postnatal Depression Scale (EPDS) (6). Infant behaviour was assessed with the Baby Behaviour Scale (7).

2.3.5.3 Follow-up telephone interview

Participant identity was confirmed using baby's date of birth and postcode. Repeat administration of the general health question, Kessler 6 and EPDS assessed physical and mental health, and the Baby Behaviour Scale assessed infant behaviour. Questions from the Tweddle client record were used to assess feelings about parenting and to enable comparison with baseline findings. The quality of the intimate partner relationship is a known correlate of mental health and was assessed using the Intimate Bonds Measure (IBM) (8). Health service use and medication since attending the day stay program were recorded.

Evaluation of the service used fixed-choice, study-specific questions, which were constructed after discussions between researchers and TWEDDLE staff. Questions assessed participants' perceptions of their admission and perceived value of the Day Stay program. Some questions invited open-ended responses.

2.3.5.4 Comparison population data

The measures used in the study were chosen both because they are reliable and widely used and because there are relevant population norms to which this study sample can be compared. In particular we used items from the 2009 Victorian Child Health and Wellbeing Survey, a Victorian statewide survey conducted by the Data Outcomes and Evaluation Division, Department of Education and Early Childhood Development in 2009. This study had a response fraction of 75% and used a computerised assisted telephone interview (CATI) system to survey primary caregivers of 5025 randomly selected Victorian children aged under 13 years (9).

Other comparison population data sources are Birth in Victoria 2007 and 2008 (10);

2.3.6 Standardised measures

Standardised, validated, published, self-report measures were used to enable comparison of the study sample with relevant population norms.

2.3.6.1 Participants' general and mental health

Self-reported general health

The general health question is a single item from the short-form 36 questionnaire (4), which is commonly used in population health research and for which relevant comparison data are available.

Edinburgh Postnatal Depression Scale (EPDS)

The EPDS is a widely-used 10-item self-rating scale for screening for probable depression, using 4 response options (0-3) and yielding a total score of 0-30 (6). It has been validated in Australia against diagnostic interviews. A score of greater than 12 yields a sensitivity of 100%, a specificity of 95.7% and a positive predictive value of 69.2% for depression (11).

Kessler 6

The Kessler 6 is a six-item self-rating scale (5) used to detect serious mental illness. Five response options for each question (scored 1 – 5) generate a total score between 6 and 30. A higher score indicates more distress and a score of 19 and over signifies a high risk of mental disorder (12). Data were compared with the Victoria Child Health and Well-Being Survey (VCHWS) (9) for comparison with Victorian parents reported in *The State of Victoria's Children Report 2006*,

2.3.6.2 Relationship with intimate partner

The Intimate Bonds Measure (IBM) (8) assesses the quality of the relationship with the intimate partner. Two subscales are derived: The Care subscale assesses sensitivity, warmth, emotional responsiveness, trust, physical gentleness and kindness (Cronbach alpha = 0.94 and correlation with clinical interview ratings of quality of relationship $r = 0.68$). The Control subscale assesses coercion, dominance, exertion of power and extent of criticism (Cronbach alpha = 0.89 and correlation with clinical interview rating of quality of relationship of $r = 0.74$) (8). The intimate partner construct assessed with the IBM is regarded as stable across time. The intervention did not address partner relationship specifically. Therefore, in order to minimise participant burden prior to admission to the DSP, data on this measure were collected in the follow-up interview.

2.3.6.3 Infant behaviour

Seven study-specific questions (the "Baby Behaviour Scale") assessed the duration of infant crying, frequency of night time waking, ease of soothing and settling and number and length of day time sleeps in a 24-hour period during the last two weeks (7). Three of the seven questions are rated on a three-point scale (0-2) and the remaining four questions have four fixed-choice response options (0-3). Maternal confidence was assessed with a single question: 'In general, how do you feel about looking after your baby now?' with four fixed choice response options 'Very worried', 'Sometimes worried', 'Fairly confident' and 'Very confident'. Scores on individual items are summed to generate a total score between 0 and 21. Higher scores indicate more unsettled infant behaviour.

2.4. Procedure

2.4.1 Recruitment

A standard pre-admission pack of materials is posted to all women who are offered and accept attendance at a Tweddle Day Stay Program. A letter of invitation to participate in the study, a plain language statement, a consent form and a brief study specific questionnaire were included in the pre-admission pack. Prior to admission to the Day Stay program, those agreeing to participate signed a standard consent form, provided contact details for the purpose of follow up and completed the study specific questionnaire.

During admission to the DSP, staff reminded clients about the study. Clients who had not received an invitation to participate in the mail, or did not bring their invitation with them, received another envelope containing study materials and were offered a second opportunity to participate. Clients placed their sealed envelope (whether materials had been completed or not) in the locked box provided.

2.4.2 Participation and follow-up

Study participation involved giving permission for researchers to extract data from the client record, completing the baseline study-specific questionnaire and a telephone interview within 8 weeks after discharge from the DSP.

Trained telephone interviewers contacted participants to assess their continued willingness to participate and arrange a suitable time to conduct the interview. Where necessary, at least three repeated attempts were made to reach participants by telephone.

2.4.3 Participant compensation

To compensate for participants' time and inconvenience, a shopping voucher to the value of AUD 25 was posted to those who completed all stages of the study.

2.4.4 Data extraction from the Tweddle client record.

Relevant data were extracted from specific sources in participants' client records in batches by Tweddle (RV) and research (SMcC) staff working together.

2.4.5 Data management and analysis

All data were managed and analysed by the researchers at Monash University.

2.4.5.1 Data coding

Time elapsed between DSP attendance and the follow up telephone interview was recorded in weeks.

Primary outcomes

To address the research question to assess whether mental health and infant behaviour improved after attendance at the DSP, the primary outcomes were defined as changes in mean EPDS and Baby Behaviour scores between baseline and follow-up.

Sociodemographic characteristics

Participant age was recorded in years and infant age in weeks. Country of birth was categorised as Australia or other and language spoken at home as English or other. Marital status was assessed as married, defacto, separated or single and entered as a categorical variable. Educational attainment was recorded as completed primary, secondary or tertiary level and categorised into a binary variable (Tertiary versus Year 12 or less). Current paid employment status was assessed as employed or not in paid employment and employment fraction as full-time or part-time. Current or previous occupations were coded according to the Australian and New Zealand's Standard Classification of Occupations (ANZSCO) (13). Pension or health care card holder was entered as a categorical variable. Socioeconomic position (SEP) was defined using the Index of Relative Social Advantage and Disadvantage (IRSAD) of the Socio-Economic Indexes for Areas (SEIFA) (14) and was derived from participant residential postcode.

Participant health and circumstances

Self-rated health was assessed as "excellent, very good, good, fair or poor" (4). Participants rated their sleep pattern as "unsure, good, average, poor, very poor or extremely poor". A question about experience of distressing events in previous 12 months was asked in both CAIS and the mother's history form. Participants endorsed items from a list including "none; unemployment; separation; eating disorder; miscarriage; financial difficulties; moving house; physical illness; domestic violence; alcohol/ drug addiction; death of someone else or other". These two data sources were combined, duplicates were removed and individual events were summed. Presence or absence of a distressing life event was re-coded as a binary variable (none versus one or more).

Reproductive history

Numbers of pregnancies and children were recorded; experience of adverse pregnancy events, including miscarriage, stillbirth, sudden infant death, illness or injury, and birth complications were recorded as yes or no. Mode of birth was recorded as spontaneous vaginal, caesarean or assisted vaginal and re-coded into a binary variable (caesarean or assisted versus spontaneous vaginal). Continuing concerns about pregnancy or birth and post-natal concerns, expectations and complications were each recorded as yes or no. Method of infant feeding was coded as fully, partially or not breastfed and re-coded into a binary variable (fully versus partially or none).

Maternal mental health

Self-reported history and current feelings of depression and anxiety were recorded as yes or no. Scores for EPDS (6) and Kessler 6 (5) were calculated. Clinically significant symptoms, defined as EPDS scores over 12 (for clinical samples) and over 9 (for community samples) (6) and Kessler 6 scores over 19 (15) were

computed and entered as categorical variables. Changes in EPDS and Baby Behaviour Scale scores between baseline and follow-up were computed and entered as continuous variables.

Partner relationship and social support

Total and subscale (Care and Control) scores for the Intimate Bonds Measure (8) were calculated. Levels of perceived support from partner, family or friends and community sources were each rated on a 5-point scale: very low, low, average, high and unsure/NA and entered as categorical variables.

Infant characteristics

Baby's date of birth, sex and gestational age in weeks were recorded. Prematurity (gestational age at birth less than 37 weeks) and low birth weight (less than 2500 grams) were computed and entered as categorical variables. Presence of medical conditions, defined as respiratory problems, skin rashes; eczema, thrush, ear infection, gastro, allergies, nappy rash, reflux or other condition since birth were recorded as individual binary variables and recoded into a single binary variable: one or more illnesses versus none). Presence of developmental concerns was recorded as yes or no. Age of commencement on solid food, if relevant, was recorded in months. Number of infant's siblings was computed from mother's number of children.

Health service and medication use

Attendance at maternal and child health (MCH) nurse, general practitioner, paediatrician, psychologist/counsellor, social worker or child care worker and current medication use were each recorded as yes or no. Source of referral to the Tweddle DSP was entered as self, MCH nurse, midwife, friend/family or other. The decision to attend Tweddle DSP was entered as being made by self, partner, jointly or other. Total number of health services was computed and entered as a continuous variable.

Concerns about parenting and infant behaviour

Perceived satisfaction with parenting role, infant behaviour and parent-infant relationship over the previous 2 weeks were recorded on 5 point scales (happy, neutral, unhappy, very happy and extremely unhappy). Parenting enjoyment was scored on a five-point scale (not enjoying it at all, not enjoying it very much, mostly enjoying it, very much enjoying it and extremely enjoying it). Items on the Baby Behaviour Scale (7) were recorded on individual 4-point scales. Individual item scores were summed and a total score computed as a continuous variable. Individual items were reported as frequencies (n; %) and total score as a continuous variable.

Evaluation of Tweddle DSP

Program-specific questions were rated on individual fixed-choice response options and entered as categorical data. Open-ended responses were transcribed.

2.4.5.2 Data analyses

Descriptive statistics

Data were entered into SPSS v 19 for statistical analysis. Total scores and relevant cut-off scores on standardised scales were computed. Normality tests were conducted on continuous data. Internal consistencies of numerical measures were established and reported as Cronbach's alpha statistic. Descriptive statistics were computed using mean (SD) for normally distributed variables and frequency distributions for categorical data.

Tests of significant differences with comparison data and over time

Non-parametric one-sample binomial and chi-square tests were used to establish all significant differences in baseline variables from population-based comparison data. Baseline characteristics of participants retained in the study were compared with those lost to follow-up using Pearson chi-square and Fisher's exact test for multinomial and binomial categorical variables respectively; Mann-Whitney tests for non-normally distributed and t-tests for normally distributed continuous variables.

Changes in primary outcomes after attendance were calculated and reported as mean differences (95% confidence interval for the difference).

Multiple regression analyses:

Multiple regression analyses were conducted in order to examine the factors associated with changes in the primary outcomes, assessed as EPDS and Baby Behaviour Scale scores, between baseline (T1) and follow-up (T2) time points. The outcomes were the difference (T2-T1) in EPDS scores and the difference (T2-T1) in Baby Behaviour Scale scores. First, factors potentially associated with outcomes as hypothesised were checked in bi-variable analyses. Variables with p-values < 0.2 were included in the models. Model statistics including regression coefficients, 95% CIs, and p-values are presented. Negative coefficients indicate greater improvements in the outcomes and positive coefficients indicate deteriorations in outcomes.

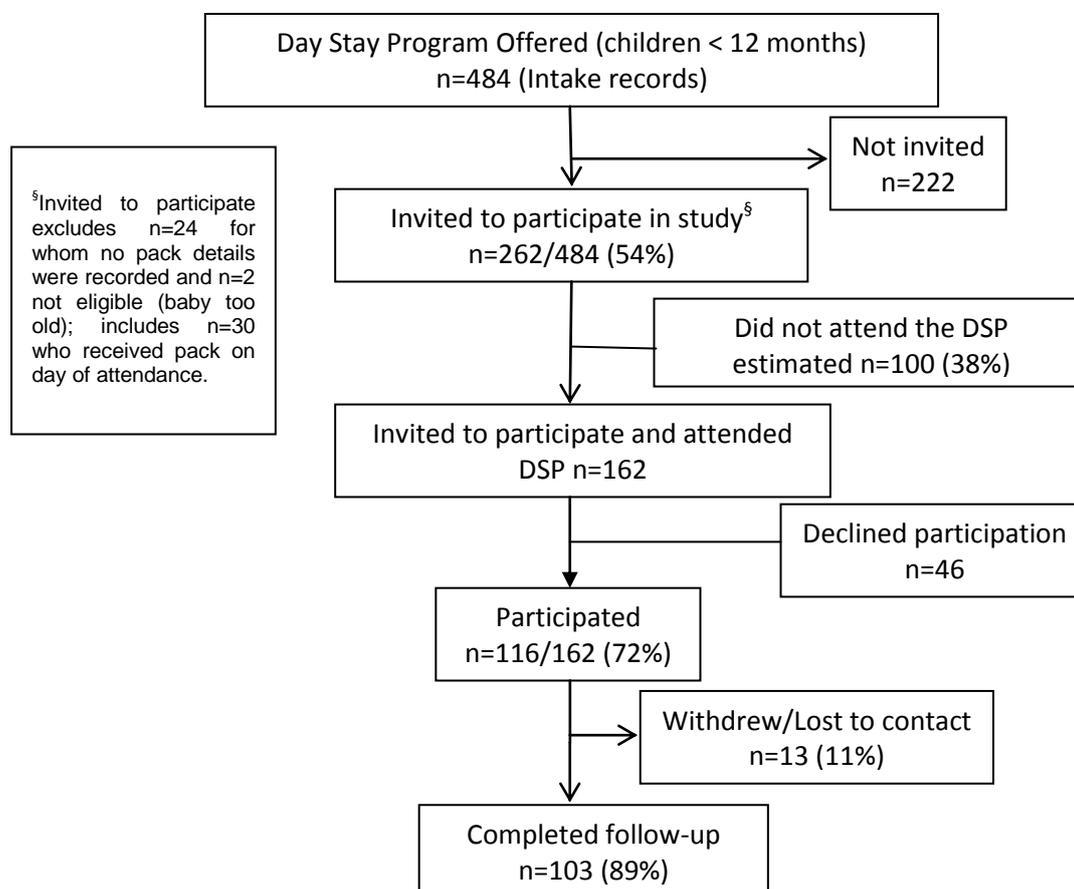
3. Results

The study took place between 1 August 2010 and 30 October 2011. During recruitment, Tweddle intake staff provided the study information pack to clients with infants under 12 months of age who accepted a place at a DSP at either Maribyrnong or Wyndham. Clients attending the DSP at the Craigieburn site were not invited to participate. This is because the Craigieburn DSP closed during the interval between the Northern Hospital Human Research Ethics Committee's approval to commence the study and initiation of recruitment. Follow-up interviews were completed in November 2011. The planned time to recruit the required number of participants, which was based on numbers of clients attending DSP services provided by Tweddle during the planning stage, was a substantial underestimate. However, recruitment continued until the required number of participants (n=115) had entered the study.

3.1. Recruitment and participation

The protocol for recruitment of participants to the study was designed to be integrated into Tweddle usual practice, to avoid additional staff and client burden on the day of DSP admission and to ensure that all potential participants were given the opportunity to participate. In practice, not all were invited, and as is usual, some clients cancelled or did not attend the DSP. Estimates of the total numbers of places offered and the numbers who cancelled or did not attend during the study period were provided by Tweddle (Figure 1).

Figure 1: Recruitment and participation



The study sample can be regarded as generally representative of clients who attend the Maribyrnong and Wyndham programs, and can be generalized with some confidence to all clients admitted to DSPs at these sites.

Inspection of the Tweddle client records revealed that 2 participants were men. The two male participants had a mean age of 36 years; were married, were in the second highest IRSAD percentile, did not have pension/ health care card and spoke a language other than English at home, although only one reported being born overseas. One had a tertiary degree and was working fulltime while the other did not report his highest education attainment, was not currently in paid employment and identified himself as the primary carer of the child. They attended the DSP with their infant and their reported scores on health and other measures were not significantly different from the rest of the sample. They were therefore included in the analysis.

3.2. Sociodemographic characteristics

In order to compare the study participants with parents of infants in Victoria, comparison with relevant data was made where possible. Comparison samples are from the Births in Victoria 2007-2008 (10), clients admitted to the Tweddle Footscray residential program (16, 17), Australian women who gave birth in 2002-2004 assessed as part of the beyondblue National Postnatal Depression Program (18), relevant Australian populations (19, 20), a large community sample of 875 parents of 4 month old infants attending western metropolitan Melbourne local government immunisation clinics (7) and the 2009 Victorian Child Health and Wellbeing Survey (9, 21).

The proportion of parents attending Tweddle DSPs who were born in Australia is greater than the proportion in the general population, a finding that is consistent with other studies of this type (16, 18). No participants identified as ATSI, which is not surprising, given the very small proportion in the overall Victorian population. Almost all of the sample was either married or living in a defacto relationship, which is significantly more than all women giving birth in Victoria (2007-2008) (10) and a Tweddle residential service sample, where 86% of the sample were married or in a de facto relationship and 14% were single, separated or widowed (16). Although the definitions of “post-secondary” and “tertiary” might not be equivalent, the study sample appeared to have significantly higher educational achievement than Australian women of comparable age (20), a Victorian community sample of mothers of infants (18) and a sample from the Tweddle residential unit (16). Although the data are not directly comparable, a smaller proportion of study participants than parents in Victoria were dependent on a health care card or pension (9). Participants in this study were also less likely to be in paid employment than those in the Tweddle residential sample (16). Participants were drawn from all socioeconomic sectors in the community and the full range of occupational classifications but there was a (non-significant) tendency for lower status classifications to be under-represented compared with community samples (Table 3.2).

Table 3.2 Sociodemographic characteristics

Characteristic	n responses	Sample	Comparison	p
Mean (SD) age (years)	115	32.3 (4.9)	30.8 ^a 32.2 (4.9) ^b	0.02 0.91
Aboriginal/ Torres Strait Islander n (%)	86	0	1.0% ^a	
Born in Australia n (%)	114	86 (75.4)	72.8% ^a 86.6 ^c 85 ^b	0.30 0.01
Language spoken at home n (%) Other than English	114	14 (12.3)		
Marital status n (%) Married De facto Separated Single	109	77 (70.6) 28 (25.7) 2 (1.8) 2 (1.8)	73.4 ^a 13.5 ^a 0.4 ^a 12.0 ^a	<0.001
Education attainment n (%) Primary Secondary Tertiary (Post-secondary)	113	29 (25.7) 84 (74.3)	40.0 ^{d*} 17.6 ^{c*} 67.0 ^{b*}	<0.001
Current employment status n(%) No No (study part time) Yes (maternity leave) Yes Full-time Part-time	113	63 (55.8) 1 (0.9) 34 (30.1) 15 (13.3) 3 (20.0) 12 (80.0)	31 4.0 ^b 27.0 ^b	
Occupation (ANZSCO) Managers Professionals Technician & Trade Workers Community and Personal Service Workers Clerical and Administrative Workers Sales Workers Machinery operators & drivers Labourer Unknown	108	11 (10.2) 47 (43.5) 3 (2.8) 14 (13.0) 23 (21.3) 7 (6.5) 0 1 (0.9) 2 (1.9)	10.1 ^{e*} 30.0 ^{e*} 5.1 ^{e*} 11.9 ^{e*} 25.1 ^{e*} 9.8 ^{e*} 1.2 ^{e*} 5.5 ^{e*} 1.4 ^{e*}	0.06
Pension/ Health care card Participant (n (%)) Partner (n (%))	108 103	17 (15.7) 3 (2.9)	27.0% ^f	-
Socioeconomic Position ^d (IRSAD) (n (%)) Lowest 20% 21-40% 41-60% 61-80% Highest 20%	114	11 (9.6) 6 (5.3) 16 (14.0) 50 (43.9) 31 (27.2)	7.6 ^g 10.4 ^g 8.5 ^g 48.8 ^g 24.7 ^g	0.08

^a (10)^b (16). *Post-secondary^c (18). *Bachelor degree or above

^d (20). Data for females aged 25-34.*Tertiary

^e (22). *Women aged 25-34 years

^f (9); proportion of children listed as dependents on health care cards.

^g (7)

3.3. Health

Just over half of the sample described their health as excellent or very good, which is significantly worse overall health than that reported by parents in the Victorian Child Health and Wellbeing Survey (9) and than Australian women aged 25-34 (23). Overall health was somewhat better than all Australian women aged 15 and above in the National Health Survey 2007-08 (24) and a sample of women admitted to the Tweddle residential program (17). More than half of the sample described their sleep pattern as poor. This suggests that caring for an infant coexists with substantial physical morbidity in parents who attend Tweddle DSPs.

Almost three quarters were first time parents, participants were no more likely to have given birth to their most recent child by caesarean section than all mothers who gave birth in Victoria in 2007-2008. Almost a quarter had experienced an adverse pregnancy event, but only a small minority reported a birth complication. However, a substantial number had ongoing concerns about their postpartum health and adjustment and almost a third reported complications during this time. Participants identified problems which were related to the mother, the baby, the partner or other family members. Mother's health problems included mastitis and nipple thrush, milk supply, maternal sleep, weight loss, broken and bleeding stitches or wound infection, third degree tear, episiotomy or caesarean surgery, retained placenta removed at 6 weeks postpartum, slow physical and emotional recovery from the birth vertigo, high blood loss and anaemia, hyperthyroidism, borderline hypertension, uterine fibroid, fissures and stomach aches; family conflict, stress and feelings of sadness, overwhelming anxiety and postnatal depression and emotional difficulties with extended families. More than half of the sample reported experiencing at least one distressing life event in the previous 12 months.

Infant problems included extreme prematurity, pneumonia, weight loss due to mother's low milk supply, staph infection, jaundice, low blood sugar, tongue tie and breastfeeding problems. Comparison with population breastfeeding prevalence is difficult because prevalence varies with infant age. However, almost a quarter of participants were fully breastfeeding and nearly one half were partly breastfeeding at the time of admission, suggesting that, at a mean infant age of 26.5 weeks (approximately 6 months), breastfeeding in this sample is relatively common compared to the general population (Table 3.3).

Table 3.3 Health and reproductive history

n (%)	n	n;%	Comparison %	p
Maternal Health				
General health question n(%) Excellent/Very good	116	61 (52.6)	69.0 ^a ; 47.0 ^b ; 62.0 ^c ; 57.3 ^d ; 24.0 ^a	<0.001
Good		50 (43.1)	7.0 ^a	
Fair/ Poor		5 (4.3)		
How would you describe your sleep pattern? n(%)	116			
Unsure		6 (5.2)		
Good		2 (1.7)		
Average		21 (18.1)		
Poor		59 (50.9)		
Very poor		15 (12.9)		
Extremely poor		13 (11.2)		
Experienced distressing life events in the last 12 months n (%)	113	64 (56.6)	46.0 ^e	
Reproductive history				
Number of pregnancies n(%)	113			
One		66 (58.4)	33.4 ^f	<0.001
Two		30 (26.5)	29.7 ^f	
Three or more		17 (15.2))	36.9 ^f	
Total children n(%)	114			
One		82 (71.9)		
Two		27 (23.7)		
Three or more		5 (4.4)		
Adverse pregnancy events n(%)	114	24 (21.1)		
Mode of birth n(%)	115			
Normal		73 (63.5)	55.4 ^f	0.04
Caesarean		35 (30.4)	30.6 ^f	
Assisted		7 (6.1)	14.0 ^f	
Birth complications n(%)	115	6 (5.2)		
Continuing concerns n(%)	112	16 (14.3)		
Was the post-natal period as you expected it to be? n(%)	109			
Not as expected		70 (64.2)		
Were there any complications during this time? n(%)	111	34 (29.3)		
Breastfeeding n(%)	113			
Fully		27 (23.9)	61 ^e	
Partly		46 (40.7)		

^a (21); ^b (17); ^c (23); women aged 25-34 years; ^d (24); women aged 15 years and above; ^e (16). Infant having "some breastfeeds" (mean infant age 31 weeks); ^f (10);.

3.4. Mental health and social support

The mental health of the sample was assessed using several self-report measures. The study sample mean EPDS score and the proportions scoring more than 9 and more than 12 (clinically significant symptoms of depression in community and clinical samples respectively) were both significantly higher, indicating worse mental health, than two community comparison samples (7, 18):. However the degree of psychological distress in this sample was not as severe as in the sample admitted to Tweddle residential programs (16). Interestingly, somewhat larger proportions reported present or past feelings of depression or anxiety than were identified as being probably depressed using > 12 on the EPDS, but a smaller proportion than was identified as probably depressed using the cut-off EPDS > 9.

The Kessler 6 measure was used in this study to enable comparisons to be made between the study sample and parents in the community who participated in the Victorian Child Health and Wellbeing Survey (9). The K6 is designed to detect high risk of serious mental disorder. The results show that the proportion of participants identified as at risk of serious mental illness is very similar to parents in Victoria (Table 3.4.1).

Overall, the results show that clients of Tweddle DSPs are experiencing psychological distress symptoms of a magnitude that warrants clinical attention.

Table 3.4 1 Participant mental health

	Number of valid responses	Study Sample	Comparison	p
EPDS * score	114			
Mean (SD)		8.9 (4.5)	5.5 ^a ; 11.3 ^b	<0.001
n (%) >9		53 (46.5)	16.7 ^a ; 15.4 ^c ;	<0.001
n (%) >12		24 (21.1)	7.6 ^c ; 39.0 ^b	<0.001
Mean Kessler 6 *score	115	11.6 (3.5)		
Total (mean(SD))				
n (%) at risk of mental disorder (>18)		4 (3.5)	3.7 ^d	0.5
Current feelings of depression or anxiety	116			
n (%)		28 (24.1)		
Previously feelings of depression or anxiety	116			
n (%)		32 (27.6)		

^a (7)

^b (16)

^c (18)

^d (9)

*EPDS: Cronbach α = 0.839; Kessler 6: α = 0.747.

Both the quality of the relationship with the intimate partner and the availability of social support are known to act protectively or to increase risk of mental health problems in the life stage when caring for an infant (25). Each was assessed in this study by a self report measure. The quality of the relationship was assessed using the well-validated Intimate Bonds Measure (8). Both the mean Care subscale score, which assesses partners as warm, considerate and affectionate and the mean Control subscale score, assessing a relationship as critical and dictatorial, were significantly better in the study sample than the population norm (8) and than a sample of women admitted to the residential service (16).

Despite this positive assessment of the partner relationship, more than half of the study participants rated the support that they were receiving from their partner in the work of infant care and household management as low or very low. Few participants were receiving substantial support from friends or family and even fewer endorsed their community as a source of support (Table 3.4.2). These findings are consistent with those in the sample admitted to the residential service (16). It appears that attendance at the DSP is a means of addressing substantial need for additional parenting support and countering feelings of social isolation.

Table 3.4.2 Partner, family and community support

	Number of valid responses	Study Sample	Comparison	p
Mean (SD) IBM				
Care	99	31.5 (4.9)	26.7 (7.4) ^a	<0.001
Control	94	5.3 (5.5)	27.1 (8.3) ^b 7.9 (6.9) ^a 9.6 (8.3) ^b	<0.001 <0.001 <0.001
Partner support	116			
Very low		37 (31.9)		
Low		27 (23.3)		
Average		26 (22.4)		
High		23 (19.8)		
Unsure/ N/A		3 (2.6)		
Family/ friend support	116			
Very low		43 (37.1)		
Low		29 (25.0)		
Average		28 (24.1)		
High		14 (12.1)		
Unsure/ N/A		2 (1.7)		
Community support	116			
Very low		36 (31.0)		
Low		23 (19.8)		
Average		14 (12.1)		
High		10 (8.6)		
Unsure/ N/A		33 (28.4)		

^a(16). Data from 68 partnered women

^b(8)

3.5. Infant characteristics at admission

Consistent with Tweddle's triage policy, which prioritises DSP places for younger infants, those admitted to DSPs were on average younger than those admitted to the residential unit. Admitted infants were no more likely to be premature or have low birth weight than other Victorian born infants. Two thirds of infants were reported as having experienced a medical condition since the birth (respiratory problems, skin rashes; eczema, thrush, ear infection, gastro, allergies, nappy rash, reflux or other condition) and there was a parent report of an infant developmental concern in a substantial minority of infants. There was no further information available in the child record about the nature of developmental concerns. The distribution of infant age of introduction of solid foods indicates that the majority of parents are doing so prior to the recommended 6 months of age (26). Although this is likely to be consistent with community norms, the wide disparity may indicate parental confusion because of recent changes in the recommended age for introduction of solid foods into an infant's diet (Table 3.5).

Table 3.5 Infant characteristics

n (%)	Number of valid responses	Study Sample	Comparison	p
Sex	114			
Male		67 (58.8)	51.5 ^a	0.07
Female		47 (41.2)	48.5 ^a	
Mean (SD) infant age (weeks)	115	26.5 (11.74)	31 (11.7) ^b	<0.001
Gestational age	113			
Pre-term (<37 weeks)		5 (4.4)	7.9 ^a 6.0 ^b	0.12 0.31
Birth weight	114			
<2500g		6 (5.3)	6.5 ^a	0.37
>2499g		108 (94.7)	93.5 ^a	
Illnesses or medical conditions since birth	115	76 (66.1)		
Health development concerns	108	18 (16.7)		
Eating solid food	113			
No		41 (36.3)		
Yes		72 (63.7)		
Age of commencement (months)	66			
4.0		16 (24.2)		
4.5		5 (7.6)		
5.0		23 (34.8)		
5.5		12 (18.2)		
6.0		8 (12.1)		
>6		3 (3.0)		

^a (10)

^b (16)

3.6. Prior health service and medication use

As expected, participants reported contact with a variety of health services prior to attending Tweddle DSP. Of the 7 listed services, participants endorsed a mean (SD) = 2.2 (0.98) (range -0 – 5) services which they had attended since the birth of the baby. Contact with a MCH nurse was near universal, and smaller proportions had consulted a general practitioner. Almost a quarter of participants were currently taking medication and small proportions had contact with a counselor or social worker. The question used to assess the sources of referral to the DSP had been completed in only 24% of CAIS records and therefore reliable conclusions are difficult to make. Most participants made the decision to attend Tweddle DSP either alone or with their partner (Table 3.6).

Table 3.6 Health services and medication

n (%)	Valid responses (n)	Study Sample
Health service contact	112	
MCH Nurse		101 (90)
General Practitioner		91 (81)
Paediatrician		21 (18.8)
Psychologist/ counsellor		8 (7.1)
Social worker		4 (3.4)
Child care		15 (13.4)
Other		11 (9.8)
Medication use	113	26 (23.0)
Referral Source	116	
Self		8 (6.9)
MCHN/Midwife		7 (6.0)
GP		3 (2.6)
Friend/family		4 (3.4)
Other		6 (5.2)
Not completed		88 (75.9)
Decision to attend Tweddle made by:	113	
Myself		65 (57.5)
My partner		1 (0.9)
Together		42 (37.2)
Other		5 (4.5)

3.7. Presenting concerns

3.7.1 Parenting

This section assessed the presenting concerns of parents attending Tweddle DSPs. No comparison data are available for these questions, but most parents in the study sample described themselves as happy with the job of being a parent and their relationship with their child. However, fewer reported being happy with their child's behaviour and less than half were enjoying parenting.

Table 3.7.1 Parenting concerns

	Number of valid responses	Study Sample n (%)
How happy are you with the job of being a parent? Happy Neutral Unhappy Very unhappy Extremely unhappy	116	110 (94.8) 4 (3.4) 2 (1.7) 0 0
How happy are you with the way you get along with your child? Happy Neutral Unhappy Very unhappy Extremely unhappy	116	106 (91.4) 7 (6.0) 3 (2.6) 0 0
How do you feel about your child's behaviour? Happy Neutral Unhappy Very unhappy Extremely unhappy	116	88 (75.9) 20 (17.2) 8 (6.9) 0 0
What is the level of your parenting enjoyment over the last two weeks? Not enjoying it at all Not enjoying it very much Mostly enjoying it Very much enjoying it Extremely enjoying it	101	0 12 (11.9) 40 (39.6) 32 (31.7) 17 (16.8)

3.7.2 Infant sleep and settling

Infant sleep and settling behaviours (n=106) were assessed with Baby Behaviour Scale (BBS) and mean (SD) BBS scores were compared with a sample of 875 parents attending local government immunization clinics with their four month old infants (7). Not surprisingly the infants admitted to DSPs were reported as exhibiting significantly more unsettled (mean; SD = 10.9; 2.96) than those in the community (mean= 6.1; mean difference= 4.8 (95%CI: 4.26; 5.40); p <.001).

Comparisons of individual items on this scale are shown in Table 3.7.2. Infants admitted with their parents to the DSP were reported as having shorter daytime sleeps, as crying inconsolably for longer periods, as more difficult to soothe, as waking more often at night and as more difficult to settle back to sleep, as having fewer daytime sleeps, and as more difficult to look after than infants in the community.

The Baby Behaviour Scale also assesses parental confidence about infant care, which was significantly lower in parents attending DSPs than those in the community sample.

Table 3.7.2 Unsettled infant behaviour and parenting concerns

Baby Behaviour Scale*	N	Study n (%)	Comparison (%)*	p
In general, how do you feel about looking after your baby now Very worried Sometimes worried Fairly confident Very confident	116	0 22 (19.0) 67 (57.8) 27 (23.3)	0.5 2.9 34.7 62.0	<0.001
In general, does your baby cry for episodes that last 5 minutes or less Between 5 and 10 minutes 10 minutes or more	115	39 (33.9) 42 (36.5) 34 (29.6)	64.6 28.3 7.1	<0.001
In general, when your baby is crying, would you say (s)he is Always easy to soothe Mostly easy to soothe Sometimes hard to soothe Usually hard to soothe	114	11 (9.6) 44 (38.6) 47 (41.2) 12 (10.5)	34.7 49.8 13.7 1.7	<0.001
On average, how many times does your baby wake during the night (7pm to 7am)? Not at all Once or twice Three or more times	114	4 (3.5) 43 (37.7) 67 (58.8)	20.3 59.8 19.9	<0.001
When your baby wakes overnight, does (s)he generally settle easily back to sleep? Yes Sometimes No Not applicable	115	35 (30.4) 52 (45.2) 26 (22.6) 2 (1.7)	64.6 13.7 1.4 20.3	<0.001
In general, how many sleeps does your baby have during the day (7am to 7pm)? None One Two or three More than three	113	2 (1.8) 10 (8.8) 87 (77.0) 14 (12.4)	0.3 4.0 71.1 24.6	<0.001
During the day (7am to 7pm), on average how long is each sleep? 45 minutes or less Between 45 and 90 minutes 90 minutes or more	112	71 (63.4) 33 (29.5) 8 (7.1)	35.0 52.5 12.6	<0.001
In general, how easy to look after would you say your baby is? Very easy Sometimes easy Sometimes challenging Often challenging	115	21 (18.3) 32 (27.8) 50 (43.5) 12 (10.4)	68.1 20.8 10.6 0.5	<0.001

* (7) n=875; *Baseline Baby Behaviour Scale: Chronbach α = 0.613.

3.8. Follow-up

Follow-up telephone interviews were completed with 103 participants. Most (81; 79%) had attended the Maribyrnong DSP and the remainder (21; 21%) had attended the Wyndham program.

3.8.1 Retention

Of the 116 participants who agreed to participate in the study and completed the questionnaire, 103 (89%) were followed up by 8 weeks after attending the program, a very good retention fraction. The median time to follow-up was 7, range 2 – 25 weeks. One participant completed only part of the follow-up interview and two were interviewed after a long period of trying to establish contact because they were overseas. Thirteen participants (11%) were either unable to be contacted after three repeated attempts or withdrew from the study.

3.8.2 Limitations of study design

The “single group pre- and post-test” design used in this study limits the conclusions that can be drawn about the effect of the DSP program on the outcomes of interest. Improvements in indicators of parent and infant wellbeing might be expected to occur spontaneously with the passage of time, growing infant developmental capacities and recovery from the birth. Inferences about the cause of any observed improvements in wellbeing cannot be made with confidence without a similar group who did not attend the program with whom to compare those who did attend.

3.8.3 Attrition bias

There were no differences in baseline characteristics between participants who were successfully followed up and those who were either lost to contact or withdrew from the study. The two groups had similar mean parent and infant ages and proportions of participants who were born in Australia or speak English at home. Although not statistically significantly different, there was a suggestion that participants who were lost to follow-up had lower educational attainment and were more likely to be in receipt of a pension or health care card, which is consistent with other studies of this type. EPDS scores and self- reports of depression, anxiety and parenting enjoyment were similar in both groups (Table 3.8). Any bias in the findings caused by attrition of the sample is therefore likely to be minimal.

Table 3.8 Comparison of followed-up with lost to follow-up participants

Baseline characteristic	Lost to follow-up (n=13)	Completed follow-up (n=103)	p
Mean (SD) participant age (years)	31.0 (4.4)	32.4 (4.9)	0.33
Mean (SD) infant age (weeks)	28.0 (11.2)	26.3 (11.8)	0.56
Mean (SD) EPDS score	10.6 (6.1)	8.7 (4.3)	0.13
Mean (SD) Baby Behaviour Scale	11.7 (3.4)	10.8 (2.9)	0.33
Born in Australia n(%)	9 (75)	77 (75.5)	1.00
English spoken at home n(%)	11 (91.7)	89 (87.3)	1.00
Marital status n(%)			
Married	6 (50)	71 (73.2)	0.14
Defacto	5 (41.7)	23 (23.7)	
Separated	0 (0)	2 (2.1)	
Single	1 (8.3)	1 (1.0)	
Level of education			
Secondary	5 (41.7)	24 (23.8)	0.18
Tertiary	7 (58.3)	77 (76.2)	
Participant receives Pension	4 (36.4)	13 (13.4)	0.07
Socioeconomic Position (percentile)			
Lowest 25%	4 (30.8)	8 (7.9)	0.09
26 – 50%	1 (7.7)	10 (9.9)	
51 – 75%	5 (38.5)	44 (43.6)	
Highest 25%	3 (23.1)	39 (38.6)	
General health			
Excellent/very good	5 (38.5)	56 (54.4)	0.31
Good	8 (61.5)	42 (40.8)	
Fair/poor	0	5 (4.9)	
Now depressed or anxious	3 (23.1)	25 (24.3)	1.00
Previously depressed or anxious	4 (30.85)	28 (27.2)	0.75
Enjoyment of parenting in last 2 weeks			
Not enjoying it very much	1 (10)	11 (12.1)	0.65
Mostly enjoying it	4 (40.0)	36 (39.6)	
Very much enjoying it	2 (20.0)	30 (33.0)	
Extremely enjoying it	3 (30.0)	14 (15.4)	

3.9. Improvements in health, wellbeing and infant behaviour after DSP attendance

3.9.1 Mental health

All indicators of mental health showed significant improvements between baseline and follow-up (Table 3.9.1 and 3.9.2). Of the 101 EPDS scores collected at both baseline and follow up, 80 (79%) had declined, 15 (15%) had increased and 6 (6%) had remained unchanged. Importantly, the mean EPDS scores of the study sample (5.0) had returned to community norms (5.5 (7); $p > .05$). Similarly, 60

(59%) of the sample had a reduced KESSLER 6 score at follow-up, 22 (22%) had a higher score and 20 (20%) had the same score at admission and follow-up.

Table 3.9.1 Mental health at admission and at follow up (n=103⁺)

Measure	Admission (T1)		Follow-up (T2)		Difference (T2-T1)	
	N*	Mean (95%CI)	N	Mean (95%CI)	N	Mean (95%CI)
EPDS score**	101	8.7 (8.1; 9.7)	103	5.0 (4.3; 5.7)	101	-3.7 (-4.5; -2.9)
Kessler 6 score**	102	11.4 (10.9; 12.2)	103	9.8 (9.3; 10.4)	102	-1.5 (-2.1; -.8)

* N: Valid responses

⁺participants who completed baseline and follow-up assessments; *some missing data

**Kessler 6: Cronbach α = 0.733; EPDS: α = 0.799;

The proportion of participants with scores in the clinical range had also significantly improved and was similar to community norms (Table 3.9.2).

Table 3.9.2 Changes in proportions with scores in the clinical range

	Number of valid responses	Study Sample	Comparison	p
EPDS score n (%) >9	103	15 (14.6)	16.7 ^a 15.4 ^b	0.33 0.46
n (%) >12		6 (5.8)	7.6 ^b	0.31
Kessler 6 score n (%) at risk of mental disorder (>18)	103	1 (1.0)	3.7 ^c	

^a(7)

^b(18)

^c(9)

The factors associated with improvements in mental health after admission were modelled in multiple regression. Of all the factors included in the model, two made a significant contribution to change in EPDS score, and both were associated with improvements in mood. First, participants whose EPDS score at baseline was higher, had a significantly greater improvement in mood at follow-up. Second, compared with participants with lower educational attainment (Year 12 and less) those with tertiary qualifications had significantly greater improvements in mood after admission (Table 3.9.2).

Table 3.9.3 Factors associated with difference (T2-T1) in EPDS scores between baseline (T1) and follow-up (T2)

Factor	Coefficient	95% CI	p-value
Education (1:Tertiary; 0:Year 12 and less)	-1.87	-3.64 ; -0.1	0.03
EPDS score at baseline	-0.59	-0.77 ; -0.41	<0.001
Work(1: Employed; 0: not in paid employment)	-0.81	-2.25 ; 0.64	0.3
English at home (1: Yes; 0: No)	-1.54	-3.95 ; 0.88	0.2
Distressing event (1: Yes; 0: No)	-1.74	-3.91 ; 0.44	0.1
Baby Behaviour score at baseline	-0.08	-0.35 ; 0.2	0.5
Birthweight (1: Low; 0: Normal)	1.01	-1.48 ; 3.51	0.4
Time to follow-up (month)	-0.67	-1.76 ; 0.41	0.2
Mother's age	0.47	-2.96 ; 3.91	0.8
Baby's age	-0.19	-0.46 ; 0.08	0.2

These findings suggest that the program was more successful for participants who were experiencing greater levels of psychological distress just prior to admission than for those with scores in the lower range. For each unit increase in EPDS score at baseline, there is more than half a unit improvement (decrease) in score at follow-up only (for example a 10 point higher score at baseline is associated with a 5 point reduction in EPDS score at follow-up). This might be explained by the fact that those with higher scores have more “room” for symptom improvement, known as a “floor effect” than those whose scores were lower at the outset.

The program also appears to be suitable for people with experience in formal learning settings, who gained a greater benefit from participation than those with fewer years of formal education. The relative advantage of higher education is substantial: participants with post-secondary education had an almost two fold relative improvement in their EPDS score at follow-up compared with those with year 12 standard of education or less. As well as the generally protective effect on well-being of higher socioeconomic status and better education, it is possible that participants with higher educational attainment might be able to make more effective and sustained use of the infant behaviour management strategies that they learned during admission than those with less education.

3.9.2 Health, parenting and parent-child relationship

Consistent with findings about mental health, there were significant improvements in self-assessed general health, sleep patterns and perceptions about parenting (Table 3.9.4). However, there were no significant changes in perceptions of the parent-child relationship or behaviour, which were in general assessed positively at baseline. Parents were enjoying their parenting role significantly more after than

before attending the program. There appeared to be a slight decline in participants' assessment of their job as a parent at follow-up for which several possible interpretations emerge. It may be that the meaning of this question is unclear, that social desirability acts as a barrier to disclosure of negative self-perceptions about parenting competence around the time of admission, or that exposure to the program itself leads some people to engage in critical reflection after attendance. Whatever the case, this finding offers the opportunity to review the wording of the question to assess whether this is a genuine finding or an artefact of the way the question is asked.

Table 3.9.4 Changes in self-assessed health, parenting and child relationship

n=103			
n (%)	Admission	Follow-up	p
General health			
Excellent/Very good	56 (54.4)	68 (66.0)	0.06
Good	42 (40.8)	30 (29.1)	
Fair/Poor	5 (4.9)	5 (4.9)	
Sleep pattern			
Good	2 (2.1)	27 (26.7)	<0.001
Average	18 (18.6)	33 (32.7)	
Poor	53 (54.6)	24 (23.8)	
Very poor	13 (13.4)	11 (10.9)	
Extremely poor	11 (11.3)	6 (5.9)	
How happy are you with the job of being a parent?			
Happy	97 (94.2)	85 (83.3)	0.03
Neutral	4 (3.9)	15 (14.7)	
Unhappy	2 (1.9)	2 (2.0)	
Very unhappy	-	-	
Extremely unhappy	-	-	
How happy are you about the way you get along with your child?			
Happy	94 (91.3)	98 (96.1)	0.18
Neutral	6 (5.8)	3 (2.9)	
Unhappy	3 (2.9)	1 (1.0)	
Very unhappy	0	0	
Extremely unhappy	0	0	
How do you feel about your child's behaviour?			
Happy			0.67
Neutral	80 (77.7)	74 (72.5)	
Unhappy	15 (14.6)	22 (21.6)	
Very unhappy	8 (7.8)	6 (5.9)	
Extremely unhappy	0	0	
What is the level of your parenting enjoyment over the last 2 weeks?			
Extremely enjoying it	14 (15.4)	18 (18.8)	<0.001
Very much enjoying it	30 (33.0)	36 (37.5)	
Mostly enjoying it	36 (39.6)	39 (40.6)	
Not enjoying it very much	11 (12.1)	3 (3.1)	
Not enjoying it at all	0	0	

3.9.3 Infant behaviour

Infant behaviour had also significantly improved. Of the 92 participants for whom data were available, 69 (75%) Baby Behaviour Scale scores had declined by follow-up, 16 (17%) scores had increased and 7 (8%) scores had remained unchanged between the two time points. Although the mean Baby Behaviour Scale (8.4) at follow-up remained significantly higher than the community comparison of 4 month old infants (6.1 (7); $p < 0.001$), it had declined significantly in infants who attended a Tweddle DSP, indicating improved sleep and settling approaching community norms (Table 3.9.5).

Table 3.9.5 Infant behaviour at admission and at follow up

Measure	Admission (T1)		Follow-up (T2)		Difference (T2-T1)	
	N	Mean (95%CI)	N	Mean (95%CI)	N	Mean (95%CI)
Baby Behaviour Scale score**	95 ⁺	10.8 (10.4; 11.5)	100	8.4 (7.7; 8.9)	92	-2.4 (-3.0; -1.8)

* N: Valid responses

⁺ participants who completed baseline and follow-up assessments with complete data

** Baby Behaviour Scale: Cronbach $\alpha = 0.668$.

Responses to individual Baby Behaviour Scale items at baseline and follow-up were compared. There had been significant improvements on all but one item, including, importantly the item rating parental confidence. Infants were assessed as crying less, easier to soothe and settle, waking less frequently overnight and having longer daytime sleeps. Only the number of daytime sleeps had not changed between the two time points. Most infants were still having two or three sleeps during the day, which is appropriate in this age group (Table 3.9.6).

Table 3.9.6 Changes in baby behaviour (n=103)

n (%)	Admission	Follow-up	p
In general, how do you feel about looking after your baby now?*			
Very confident	23 (22.3)	42 (41.2)	<0.001
Fairly confident	60 (58.3)	50 (49.0)	
Sometimes worried	20 (19.4)	10 (9.8)	
Very worried	0	0	
In general, does your baby cry for episodes that last:			
5 minutes or less	34 (33.3)	65 (63.7)	<0.001
Between 5 and 10 minutes	39 (38.2)	26 (25.5)	
10 minutes or more	29 (28.4)	11 (10.8)	
In general, when you baby is crying, would you say (s)he is:			
Always easy to soothe	10 (9.9)	21 (20.8)	<0.001
Mostly easy to soothe	40 (39.6)	52 (51.5)	
Sometimes hard to soothe	41 (40.6)	28 (27.7)	
Usually hard to soothe	10 (9.9)	0	
On average, how many times does your baby wake during the night (7pm to 7am)?			
Not at all	4 (4.0)	11 (10.9)	0.002
Once or twice	37 (36.6)	47 (46.5)	
Three or more times	60 (59.4)	43 (42.6)	
When your baby wakes overnight, does (s)he generally settle easily back to sleep?			
Not applicable (does not wake)	1 (1.0)	11 (10.8)	<0.001
Yes	34 (33.3)	49 (48.0)	
Sometimes	45 (44.1)	29 (28.4)	
No	22 (21.6)	13 (12.7)	
In general, how many sleeps does your baby have during the day (7am to 7pm)?			
More than three	14 (13.9)	12 (11.8)	0.84
Two or three	78 (77.2)	83 (81.4)	
One	7 (6.9)	6 (5.9)	
None	2 (2.0)	1 (1.0)	
During the day (7am to 7pm), on average how long is each sleep?			
90 minutes or more	8 (8.0)	11 (10.8)	<0.001
Between 45 and 90 minutes	28 (28.0)	60 (58.8)	
45 minutes or less	64 (64.0)	31 (30.4)	
In general, would you say your baby is:			
Very easy to look after	19 (18.6)	31 (30.4)	0.01
Sometimes easy to look after	31 (30.4)	26 (25.5)	
Sometimes challenging to look after	43 (42.2)	40 (39.2)	
Often challenging to look after	9 (8.8)	5 (4.9)	

* It is worth noting that this finding is inconsistent with that reported in 3.9.2 above and confirms likely problems with the way that question was asked.

The factors associated with improvements in infant behaviour assessed on the Baby Behaviour Scale were modelled in multiple regression. Two factors made a significant contribution to the change score. Infants who had more unsettled behaviour (high Baby Behaviour Scale scores) at baseline benefited more (showed greater improvements in sleep and settling) at follow-up than those with less problematic behaviour at admission. Specifically, for one unit increase in Baby Behaviour Scale at baseline there was just under half a unit improvement (decrease in score) at follow up. This finding suggests that the program is achieving its goal of changing behaviour management in unsettled infants.

There also appears to have been improvement in infant behaviour over time: the longer the elapsed time between DSP attendance and the follow-up interview, the greater the improvement in infant behaviour that had occurred. For each additional month elapsed between attendance and follow-up, there was more than one unit improvement (decrease) in Baby Behaviour Scale score. The improvements might have taken place spontaneously with the passage of time and growing infant maturity, or they might have resulted from the time taken for parents to establish new strategies for successful infant sleep and settling or new patterns of infant care before the benefits became apparent (Table 3.9.7).

Table 3.9.7 Factors associated with difference (T2-T1) in Baby Behaviour scores between admission (T1) and follow-up (T2)

Factor	Coefficient	95% CI	p-value
Baby Behaviour score at baseline	-0.39	-0.61 ; -0.18	<0.001
Time to follow-up (month)	-1.04	-1.87 ; -0.21	0.02
Breastfeeding (1: Fully; 0: Partly/ none)	-1.17	-2.73 ; 0.39	0.14
Working (1: Employed; 0: not in paid employment)	0.84	-0.28 ; 1.96	0.14
EPDS score at baseline	-0.06	-0.2 ; 0.07	0.36
Birth (1: c/s/assisted; 0: spontaneous vaginal)	-0.74	-1.95 ; 0.48	0.23
Birthweight (1: Low; 0: Normal)	0.94	-1.28 ; 3.16	0.40
Baby illness (1: Illness; 0: None)	-0.74	-1.89 ; 0.41	0.21
Baby age (month)	-0.04	-0.3 ; 0.22	0.77

3.10. Health service and medication use

A stated aim of the DSP at Tweddle is to link families into other health and social services in their local communities. In consultation with clients during the DSP admission, Tweddle DSP staff therefore make a practice of referring clients to other services as appropriate. Participants were asked about the health services they had had contact with since their attendance at the DSP. Participants reported

having used up to 4 different health services and a mean (SD) of 2 (1.14) services. This is similar to the number of services with which they had contact at baseline. Other health services listed by participants as having been used included mental health specialists, residential early parenting centres, complementary therapies, hospital emergency departments and telephone help lines. Substantially fewer participants reported taking medication at the follow-up interview (7%) than had done so in the baseline assessment (23%) ($p < 0.001$).

Almost one quarter of participants had been referred by staff during their DSP admission to another service, including MCH nurse, GP, paediatrician, social worker, counsellor or psychologist and the Tweddle residential program. Some participants had been given *beyondblue* pamphlets for use by their partners. Only half of these participants had taken up their referral. This finding confirms unpublished evidence from the Tweddle Psychology service (Personal communication, 2007) suggesting that Tweddle clients infrequently act on advice to seek other forms of professional care.

Reasons for not following up on a referral for other professional assistance were recorded for some participants. Reported reasons for not attending their MCH nurse included dissatisfaction with their nurse, too long a gap between visits, the inability to get a date for an appointment and improvements their infant's night-time sleep and settling. A partner did not take up a referral to a psychologist because of his reluctance to talk about his feelings with someone unknown to him. Reasons for not attending the Tweddle residential program as suggested related to the perception that this service is for more problematic cases (Table 3.11.1).

Table 3.11 1 Health service and medication use since DSP attendance

(n=103)	n (%)
Referral by DSP to health service	22 (21.4)
Uptake of referral	11 (50)
Health services used	
MCH nurse	64 (62.7)
Family doctor	68 (66.7)
Paediatrician	23 (22.5)
Social worker	4 (3.9)
Child care	13 (12.7)
Other health services	32 (31.4)
Medication usage since attending Day Stay program	7 (6.9)

3.11. Participant evaluation of the Tweddle Day Stay Program

The DSP was evaluated by participants using a variety of items in the follow-up interview, designed in consultation with Tweddle staff and including some items used in a prior evaluation of the Tweddle residential service. Items were designed to investigate client satisfaction and the degree to which the service is achieving its goals.

Tweddle triage policies aim to refer parents with younger infants to the DSPs and it is therefore pleasing that most participants agreed that attending the program

came at an appropriate time in their and their baby's life. Considerable time is taken by staff prior to and during admission to establish realistic goals for a client's attendance and create a shared understanding of how the DSP might assist them to meet their goals. Only just over one third of partners attended the DSP but when they did attend they participated in a variety of ways including fully with the mother, practicing the settling strategies or observing these demonstrations. One spoke to the psychologist. Most clients were very happy or somewhat happy with their involvement in planning their program but only two thirds agreed that their goals had been achieved.

DSP-related reasons offered as explanations for this finding included that some participants had babies with overnight sleep problems, which a day stay program might be able to solve and that the program was too short, disorganised or provided mixed messages on sleeping techniques. Participant-related reasons included clients' assessment of their own overly-optimistic expectation of solving their baby's feeding, instead of sleeping problems, their lack of specific goals, their inability to follow advised techniques or their attendance for only part of the day.

Staff at the DSPs aim to telephone all clients shortly after discharge to assess wellbeing and answer questions. The majority of study participants reported having received a telephone call from DSP staff; 80% within 6 weeks of attending the DSP, half (48%) of which were within the first week after discharge (Table 3.12.1).

Table 3.12 1 Perceptions of Day Stay Program (n=103)

	n (%)
Attended the day stay program at an appropriate time:	
in baby's life	86 (84.3)
in participant's life	87 (85.3)
Feelings about their involvement in program planning and management	
Not at all happy	10 (10)
Somewhat happy	35 (35)
Very happy	55 (55)
Partner's participation during the program *	
Did not have a partner	1 (1.0)
Partner did not attend	65 (63.7)
Attending partner practised strategies discussed	28 (27.5)
Attending partner participated in a group session	29 (28.4)
Attending partner participated in other ways	4 (3.9)
Goals achieved	60 (60)
Call received from Tweddle staff since the program	81 (80)

*Can endorse more than one item

Most participants evaluated all aspects of the DSP as helpful or very helpful There was more qualified endorsement of the quality of provision of alerts to other community services and of the education sessions. These aspects of the program might benefit from review and revision. (Table 3.12.2).

Table 3.12.2 Perceptions of the helpfulness of Day Stay Program (n=102)

n (%)	Not at all helpful	A little helpful	Moderately helpful	Very helpful
Understanding/support of staff	1 (1.0)	9 (8.8)	28 (27.5)	64 (62.7)
Staff presence during baby care	2 (2.0)	17 (16.7)	17 (16.7)	66 (64.7)
Education sessions	10 (9.9)	13 (12.9)	29 (28.7)	49 (48.5)
Sharing experiences with others	15 (16.1)	6 (6.5)	34 (36.6)	38 (40.9)
Alerts to community services	43 (43)	21 (21.0)	24 (24.0)	12 (12.0)
Assistance received	7 (6.9)	18 (17.6)	26 (25.5)	51 (50.0)
Education received	12 (11.8)	14 (13.7)	31 (30.4)	45 (44.1)
Support received	2 (2.0)	15 (14.7)	20 (19.6)	65 (63.7)

Participants were invited to make other general comments about the program, and, again most were very positive. Some suggested modifications to provide for earlier admission of younger babies, more father involvement and more opportunity for discussion of questions raised. It was suggested that advance warning of the follow-up telephone call would enable parents to prepare questions to ask to assist advice tailored to changing infant needs, and an opportunity for follow-up if sleeping techniques prove unsuitable or did not work, especially overnight. Two participants felt that they had received insufficient support, were misunderstood and abandoned and that the advice about techniques they received was conflicting.

Some participants found the material hard-to-understand and too vague, the admission to be lacking in structure and facilitation and questioned whether the information provided was up-to-date. Others found the information too general, and the staff too busy, the techniques inappropriate and the program too narrow and not customised enough. Advice on specific infant problems such as reflux was missing. Some of the concerns about client expectation of the program would be addressed by the suggestion to provide information about the schedule in advance of admission. Take-home printed materials about the strategies promoted during admission, for later reference, was suggested as a way of providing ongoing assistance for parents. Not unexpectedly, participants would like a shorter waiting list, earlier admission, a longer admission, more staff, more government funding and more promotion for this much-needed, highly-recommended program, which one participant suggested should be compulsory for all new mothers.

Notwithstanding these general reflections on the DSP service, the DSP staff themselves should be congratulated on the warmth and sensitivity of their care and the quality of the support that they give. Participants almost universally rated these highly and 43 participants made other comments about their reasons for affirming the service. These included the helpful advice on breastfeeding and solid feeding techniques, staff expertise, the knowledge and confidence they gained, the value of the Tweddle book, discussion of other concerns, handouts on sleep cycle, the small group which provided opportunity to practice, the sympathetic staff, personally-tailored and flexible program, helpful information about other services, the "contained" environment and the private room and relief from stress that they experienced.

4. Discussion

4.1. Strengths and limitations of the study design and dataset

The results of this study give important insights into the nature and severity of the presenting problems of families who are admitted to the Day Stay Parenting Service operated by Tweddle Child and Family Health Service, and the perceived value to parents of the service. The longitudinal design of the study, which was conducted by independent researchers, the collection of data using relevant standardised measures, from a sample which is large enough to provide statistically precise estimates and the high retention at follow-up together ensure that the findings are reliable and able to be generalised with confidence.

This study examined an existing, short-admission service, and there were some compromises in study protocol, which were necessary to maximise client participation and minimise the burden on participants and staff. Only two of the five Day Stay services were able to be included and the need to integrate invitations to participate in the study into standard procedures for admission meant that, in practice, not all clients who attended were offered the opportunity to participate in the study. However almost three quarters of those who were invited to participate, actually did so and, once recruited, almost all participants were retained and completed the follow-up interview. The results can be generalised most confidently to the Maribyrnong and Wyndham services, but it is likely that differences in clientele between services are small.

A common limitation of studies of this kind is the need to use the single group pre- and post-test design. The lack of a group who did not attend the service, to whom results could be compared, limits the degree to which any observed improvements in indicators of interest can be attributed to attendance at the service. However, the availability of relevant comparison population groups provides useful information about DSP clients compared with other population-based samples of Victorian parents. The use as data sources of some standard Tweddle intake questions in place of study-specific questions limits some of the comparisons that can be made. However, the findings have provided important opportunities for review of these data sources and modification of standard procedures where indicated.

4.2. Findings

4.2.1 Clients

The most striking finding is the level of need that is being addressed by the Day Stay Service. Many participants reported current health problems and on average their health status appears to lie somewhere between that of community samples and those who are admitted to Tweddle's residential program. This suggests that the DSP intake process is working effectively to identify the level of health need and triage appropriately.

Only just over one third of partners attended the DSP, which suggests that advertising and DSP promotional activities might emphasise that fathers are

welcome, their attendance is valued and that they will be supported and have their needs addressed.

It would appear that an imperative to target services to the more vulnerable in the community is difficult to achieve in the current model of care. Participants were better educated, in higher status occupations and fewer were born overseas than in the general population. This might result from sample selection bias, where the socially less advantaged are less likely to participate a feature of most studies of this type. However it does emphasise that the more middle class or advantaged groups can also be vulnerable. Anecdotal information suggests that these services are becoming more acceptable to parents who are second generation migrants because they are attending in larger numbers than in their parents' generation.

The finding that the more advantaged socially are attending might also suggest that attention should be paid at intake to ensure that those of lower socio-economic and educational status are triaged to the residential service. This is consistent with a new direction at Tweddle where beds will be allocated for vulnerable parents referred by ChildFirst, identified at hospital discharge, or elsewhere as vulnerable because of young age, substance abuse or social isolation.

It appears that attendance at the DSP is a means of addressing substantial need for additional parenting support and countering feelings of social isolation. An apparent conflict between participants rating their intimate partner relationship as better than average but reporting that their partners provide low levels of practical and emotional support might be explained by workplace changes, which are placing increasing demands on workers during family time. It might also indicate a normative understanding that caring for an infant and running a household is women's work to which partners are not expected to contribute.

4.2.2 Outcomes

It is encouraging that the biggest improvements associated with the program were in the group with worse distress as measured by higher EPDS score at baseline. This might be explained by the fact that this group has more room for improvement than the better-off group. However it does mean that the broad range including a high level of presenting need is being addressed in the DSP.

The finding that better outcomes occurred in better educated clients suggests that attention should be paid by Tweddle staff to developing the DSP specifically to meet the needs of clients with different or less highly developed learning styles.

4.2.3 DSP Programs

Most participants evaluated all aspects of the DSP highly and regarded level of care provided by the staff as highly professional and sensitive. However, the findings suggest several opportunities for DSP program review and improvement. First, developing and strengthening teaching strategies specifically to meet the needs of clients with different or less highly developed learning styles should be a priority. The current program is said to be quite didactic in approach. Program modifications might include simplifying written take-home materials and providing

more supported practice of new skills and opportunities for individual explanation during the admission.

Second, specific new topics for inclusion in the program are to address poor parental understanding of the appropriate age of introduction of solid food to infant diets. There is a key opportunity for Tweddle to provide clear and consistent education on this matter and the DSP could be reviewed in this light.

Third, the low uptake of referral to other services after discharge and the reported lack of promotion of these services during the DSP are of potential concern given that a key objective of the DSP is to improve links to other community resources. It appears that client dissatisfaction with other available services is one factor relevant to low uptake, but other reasons warrant exploration. This could be achieved by adding a question to the routine follow-up telephone interview and requiring that, for a period of time, staff conducting the interview record the answers to this question. The summarized findings could then be used as a basis of developing an additional component to the DSP to discuss strategies for overcoming barriers to using other existing services that are relevant to clients.

4.2.4 Context of services for parents in Victoria

The findings of this study suggest that the Tweddle DSPs form an important part of the spectrum of services for parents of infants in Victoria. They respond effectively to needs that are more complex than can be met in universal maternal and child health services but generally do not require residential admission. The DSPs are responding effectively to high level of physical and emotional health need and a range of vulnerabilities. The DSP evidence-based program appears to provide a non-stigmatising solution to parental distress, which is common in the community. DSPs offer important potential benefits for prevention of more serious family problems and consequent health care cost savings.

4.3. Conclusions

Tweddle's DSPs provide a highly valued service, which is addressing a high level of need in the Victorian parent community and are achieving their goals for the most part very effectively. Some specific elements of DSP admission processes, program content and approach warrant review and modification.

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Appendix

I Data collection – sources and timing

Measures	Baseline					Follow up Telephone interview
	Study specific questionnaire	CAIS	Tweddle Client record			
			Mother history	Child history	Registration form	
Sociodemographic characteristics						
Maternal Age (years)	√					
Aboriginal/ Torres Strait Islander origin					√	
Country of birth					√	
Language spoken at home					√	
Marital status					√	
Education attainment			√			
Current employment			√			
Work description ANZSCO			√			
Pension/Health care card					√	
Socioeconomic Position ^a (Postcode (IRSAD))	√					√
Maternal Health						
General health question	√					√
Sleep pattern						
Distressing life events in the last 12 months		√	√			
Reproductive history						
Number of pregnancies			√			
Number of children			√			
Adverse pregnancy events			√			
Mode of birth		√				
Birth complications		√				
Other prolonged concerns since pregnancy and/ or labour?			√			
Postnatal expectations			√			
Postnatal complications			√			
Breastfeeding				√		
Partner, family and community support						
Intimate Bonds Measure						√
Partner support		√				
Family/friend support		√				
Community support		√				
Infant Factors						
Infant's date of birth	√					√
Infant's sex		√				
Gestational age at birth		√				
Birth weight		√				
Infant health				√		
Infant development				√		
Introduction of solid				√		

foods						
Health services and medication use						
Health service visited			√			√
Medication use			√			√
Referral Source		√				
Tweddle attendance decision			√			
Maternal Health						
EPDS	√					√
Kessler 6	√					√
Current self-report depression or anxiety		√				
Previous self-report depression or anxiety		√				
Concerns about parenting and infant behaviour						
Perceived quality of parenting role		√				√
Quality of parent-infant relationship		√				√
Perception of infant's behaviour		√				√
Parenting enjoyment			√			√
Infant sleep and settling						
Baby Behaviour Scale	√					√
Evaluation of Day Stay Program						
Program location						√
Appropriateness of timing						√
Referral to other health service						√
Partner's participation						√
Tweddle staff follow-up						√
Goals achieved						√
Involvement in program planning						√
Feelings of being helped						√
Feelings of being educated						√
Feelings of being supported						√
Understanding and support of nursing staff						√
Presence of staff while caring for baby						√
Education sessions						√
Sharing experiences with others						√
Learning about community services						√
Open –ended comments						√

