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Early Childhood Intervention

Assessing the Impact of *Preparing For Life* at 24 Months

By the *PFL* Evaluation Team, UCD Geary Institute

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Preparing For Life:
Early Childhood Intervention

Assessing the Impact of *Preparing For Life* at Twenty-four Months

EVALUATION OF THE *'Preparing For Life'*
EARLY CHILDHOOD INTERVENTION PROGRAMME

By
PFL EVALUATION TEAM AT THE UCD GEARY INSTITUTE
December, 2013

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Noel Kelly,

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Executive Summary

Preparing For Life (PFL) is a prevention and early intervention programme which aims to improve the life outcomes of children and families living in North Dublin, Ireland, by intervening during pregnancy and working with families until the children start school. The *PFL* Programme is being evaluated using a mixed methods approach, incorporating a longitudinal randomised control trial design and an implementation analysis. The experimental component involves the random allocation of participants from the *PFL* communities to either a high support treatment group or a low support treatment group. Both groups receive developmental toys, as well as access to preschool, public health workshops, and a support worker. Participants in the high treatment group also receive home visits from a trained mentor and have group parent training via the Triple P Positive Parenting Programme. The *PFL* treatment groups are also being compared to a 'services as usual' comparison group (LFP), who do not receive the supports of the *PFL* Programme. This is a summary of the findings of the evaluation when the *PFL* children were approximately twenty-four months of age.

Recruitment and Baseline Characteristics

In total, 233 pregnant women were recruited into *PFL* between January 2008 and August 2010. Randomisation resulted in 115 participants assigned to the high treatment group and 118 participants assigned to the low treatment group. In addition, 99 pregnant women were recruited into the comparison group. The population-based recruitment rate was 52%. Baseline data, collected before the programme began, was available for 104 high and 101 low *PFL* treatment group participants respectively, and 99 comparison group participants. Tests of baseline differences between the high and low *PFL* treatment groups found that the two groups did not differ statistically on 97% of the measures analysed, indicating that the randomisation process was successful. The aggregate *PFL* group and the LFP comparison group did not differ statistically on 75% of the measures; however, the comparison group was of a relatively higher socioeconomic status.

Findings from the Six Month Report

The six month evaluation of *PFL* indicated that the programme was progressing well. In total, 257 six month interviews (n*Low* = 90; n*High* = 83; n*LFP* = 84) were completed. As found in other studies of home visiting programmes, there were limited significant differences between the high and low treatment groups (14%) and the low treatment and comparison groups (11%) at six months. Many of the relationships were in the hypothesised direction, with the high treatment group reporting somewhat better outcomes than the low treatment group. There were significant findings in the domains of parenting, quality of the home environment and social support, which correspond directly to information provided by the *PFL* mentors. However, the programme had no significant impact on pregnancy behaviour, infant birth weight, breastfeeding or child development at six months. While attrition from the programme was low and participant satisfaction was high, the level of engagement was less than anticipated with parents in the high treatment group receiving 14 home visits between programme entry and six months. Mothers with relatively higher cognitive resources received more home visits and may have benefited more from the programme at six months than those with lower cognitive resources.

Findings from the Twelve Month Report

In total, 247 twelve month interviews (n*Low* = 83; n*High* = 82; n*LFP* = 82) were completed. Limited significant differences between the high and low treatment groups (8%) were found. Note that the measures used at the six and twelve month evaluations differed, therefore outcomes between the two time points may not be directly compared. The high treatment group reported somewhat better outcomes than the low treatment group. Based on the literature, we hypothesised that treatment effects at twelve months would be found in the domains of child health, parenting, and maternal health. The results suggest partial support for our hypotheses. Although there were no significant effects in the domain of parenting,

effects were found for maternal and child health. Counter to our hypotheses, significant treatment effects were found in the domains of child development and social support. This is noteworthy as previous studies of home visiting programmes do not report effects in these domains at twelve months. Although the findings from the dynamic analyses were limited, they revealed that children in the high treatment group had significantly better fine motor skill development between six months and twelve months than those in the low treatment group. Additionally, children in the high treatment group were significantly less likely to experience parental oppression of their power and independence by twelve months. The level of attrition between six and twelve months was extremely low, however engagement was lower than prescribed with the high treatment groups receiving 7 programme visits on average between six and twelve months. Overall, participant satisfaction with the programme was high, and although the risk of contamination was high there was little evidence of contamination between high and low treatment groups at twelve months.

Findings from the Eighteen Month Report

In total, 225 eighteen month interviews (n*Low* = 74; n*High* = 80; n*LFP* = 71) were completed. Overall, the findings from the eighteen month evaluation were consistent with similarly timed evaluations of other home visiting programmes, which typically identify limited significant effects at eighteen months. 21/152 (14%) of the outcomes analysed showed significant differences between the high and low treatment groups. Based on the literature, we hypothesised that treatment effects at eighteen months would be found in the domains of home environment, parenting, child health, and child development. The results suggest support for our hypotheses as significant effects were found in each of these domains. We also found limited effects in the domains of social support and maternal health which is noteworthy as other home visiting programmes do not report findings in these areas at eighteen months. There were no significant effects found in the childcare domain. Attrition and disengagement were low between twelve and eighteen months - no attrition was experienced in the high treatment group or the comparison group and only 2% attrition was experienced in the low treatment group during this time. As experienced in other periods, engagement was lower than prescribed with the high treatment groups receiving 6 programme visits on average between twelve and eighteen months.

Twenty-four Month Report

The aim of this report is to determine whether the *PFL* Programme had an impact on parent and child outcomes at and before twenty-four months, and to provide a detailed review of implementation practices regarding the participants' and mentors' perceptions of the programme, attrition, dosage, participant engagement, and programme effectiveness.

Impact of *PFL* at Twenty-four Months: Main Results

In total, 239 (n*Low* = 84; n*High* = 82; n*Comp* = 73) twenty-four month interviews were completed. The main analyses compared the outcomes of the high treatment group to the outcomes of the low treatment group across eight domains; child development, child health, parenting, home environment, maternal health and wellbeing, social support, childcare, and household factors and socio-economic status (SES), incorporating 166 outcome measures.

Table ES.1 summarises the *PFL* results at six, twelve, eighteen, and twenty-four months. Based on the literature, we anticipated moderate positive effects on child development and child health. Regarding parenting, we hypothesised that *PFL* parents would be more likely to engage in positive parenting practices. Several home visiting programmes have found positive effects on the home environment therefore similar findings were anticipated within *PFL*, however it should be noted that at twenty-four months, few measures of the home environment were measured. As reported in other studies, we expected to find limited programme effects in the areas of maternal health and wellbeing, social support, childcare, and household factors and SES.

The significant findings in the domains of child development and child health supported, and exceeded, our hypotheses, such that the number of significant positive outcomes in these domains doubled compared to the eighteen month results. This is a key finding as the programme impacted on multiple areas of the child's physical and social development. There were also positive findings in the areas of parenting and home environment, which supported our hypothesis. Additionally, counter to our hypotheses, there were a number of positive, significant differences between the high and low treatment groups in five of the six remaining domains. Consistent with the literature, there were more significant findings at twenty-four months than at previous time points. Positive significant differences between the high and low treatment groups were observed on 21% of measures, and 5 of the 29 step-down categories (17%) remained significant in the multiple hypotheses analysis, including aspects of child development, child health, and household factors and SES.

Specific individual factors included the following. Children in the high treatment group exhibited stronger cognitive development and problem-solving skills and fewer problem behaviours such as dysregulation, sleep problems, or clinically significant levels of internalising and externalising problems. Children in the high treatment group were healthier, and were less likely to have asthma or to have had a chest infection in the previous six months. They also had a healthy, varied diet, although they were more likely to eat fatty foods daily, and spent fewer hours in formal childcare. Mothers in the high treatment group visited their GPs more often, and those who were pregnant were more likely to have planned their pregnancy. High treatment group mothers also reported higher self-efficacy and were more likely to rate their baby favourably when compared to other babies. They were less likely to experience clinically significant levels of parenting stress, received a lot of support from relatives, and participated in more social groups than low treatment mothers. High treatment mothers were more likely to be homemakers and more likely to have engaged in education after secondary school, although these may not be true programme effects. Regarding the child's family, mothers in the high treatment group were more likely to be in a relationship with the child's father, and experienced fewer parenting problems. Families in the high treatment group were also less likely to have a social worker working with them, but were more likely to report an addiction problem in the family.

The findings at twenty-four months represent the largest proportion of significant individual tests reported in the four reports to date.

Table ES.1 - Summary of Main Findings at Six, Twelve,Eighteen, & Twenty-four Months

PFL Low – *PFL* High	Proportion of Measures Significantly Different							
	Six Months		Twelve Months		Eighteen Months		Twenty-four Months	
	Individual Tests	Multiple Hypothesis Tests	Individual Tests	Multiple Hypothesis Tests	Individual Tests	Multiple Hypothesis Tests	Individual Tests	Multiple Hypothesis Tests
Child Development	0% (13)	0% (2)	7% (28)	20% (5)	16% (25)	0% (6)	34% (41)	22% (9)
Child Health	10% (30)	0% (3)	17% (23)	0% (4)	24% (17)	67% (3)	47% (17)	50% (2)
Parenting	23% (22)	20% (5)	0% (16)	0% (2)	20% (10)	50% (2)	18% (17)	0% (3)
Home Environment	36% (22)	50% (2)	0% (6)	0% (1)	33% (21)	67% (3)	50% (2)	~
Maternal Health & Wellbeing	5% (20)	25% (4)	4% (28)	25% (4)	5% (19)	0% (3)	6% (16)	0% (3)
Social Support	38% (13)	0% (2)	43% (7)	0% (2)	8% (12)	0% (3)	10% (19)	0% (4)
Childcare	7% (14)	0% (2)	~	~	0% (16)	0% (2)	0% (7)	0% (1)
Household Factors & SES	0% (26)	0% (5)	3% (32)	0% (5)	8% (23)	0% (5)	13% (47)	29% (7)
Total Statistically Different	14% (23/160)	12% (3/25)	8% (11/140)	9% (2/23)	14% (21/152)	19% (5/27)	21% (34/166)	17% (5/29)

Additional Twenty-four Month Analyses Results

Additional analyses were conducted to explore different aspects of the data not captured in the main analysis. These included a comparison of the twenty-four month outcomes of the low treatment group to the comparison group, and the twenty-four month dynamic analysis which examined changes in child and parent outcomes over time.

Overall, the mixed results of the low treatment group and comparison group analysis support the study design as they suggest that the low treatment group is not systematically better than the comparison group across most domains. Of the 166 items analysed, there were statistically significant findings in the hypothesised direction for 15 measures (9%) and there were 20 statistically significant differences in the non-hypothesised direction (12%). These results indicate that the low treatment group is not outperforming the comparison group. This suggests that either contamination between the high and low treatment group is minimal, or that the low treatment supports are having minimal effect on the participants.

A number of standardised instruments used to evaluate the programme were collected at multiple time points. This allowed us to compare the outcomes of the high and low treatment groups over time in order to track changes in child and parent outcomes. Overall, very few significant findings emerged from the dynamic analysis at twenty-four months. Only one of the 40 (2.5%) measures analysed was significant in the hypothesised direction: between twelve and twenty-four months the high treatment group experienced a significantly larger increase than the low treatment group in satisfaction with the programme.

Process Evaluation Results

As part of the *PFL* process evaluation, qualitative research was conducted with mentors and parents to investigate their perceptions of *PFL*. Individual semi-structured interviews were conducted with mentors (n=5) and three separate focus groups were held with high treatment mothers (n=18). The findings from both the interviews and the focus groups were analysed separately using the method of thematic analysis outlined by Braun & Clarke (2006). Three main themes emerged from the analysis of the individual mentor interviews: being an effective mentor (theme 1), the challenge of engagement (theme 2), and speaking from experience: mentor perceptions of the *PFL* Programme (theme 3). Mentor narratives focused primarily on the first theme - how to be an effective mentor - exploring the main day-to-day tasks required of the role, finer details about how to deliver the programme effectively, and the different factors that supported them in programme delivery such as setting appropriate boundaries, and receiving support from the *PFL* team. Regarding the second theme, the challenge of engagement, encouraging participants to attend scheduled visits and to remain committed to the programme was a central concern for mentors. They addressed this issue either through maintaining persistence in scheduling sessions, using humour, or through simply finding ways to occupy their time when sessions were missed and all other avenues had been attempted. Finally, as all mentors at the time of interview had 2-5 years' experience in the mentor role, they had each developed a set of ideas and perceptions about the *PFL* Programme, based on their own experience (theme 3). The main perceived benefit of the programme for mothers was the opportunity to be listened to, and to receive personal emotional support. Effects on children were discussed less frequently. Mentors were aware that *PFL* was part of a research programme, and noted the various ways in which this set them apart from service delivery staff working in a non-experimental design. Overall, the mentors' thoughtful, rich accounts reflected a sense of ownership of and pride in their roles and the programme itself. They felt very positive towards the programme and were keen to contribute to its implementation to ensure that it had every opportunity to succeed.

Four themes emerged from the focus groups with participants in the high treatment group. In terms of the basic elements of the programme (theme 1), parents greatly valued the practical help and information they received from their mentors. The materials, activities, and courses offered by *PFL* were popular among parents, who described the advantages of each. Mothers felt that they had good relationships with their mentors (theme 2), and valued the sensitive way in which mentors delivered the *PFL* Programme to them. *PFL* played a useful role in parents' lives (theme 3), through fostering improved parenting skills

and providing a protective element for mothers. Programme effects on children were also reported. The fourth, more minor theme to emerge related to the journey through *PFL* (theme 4). Parents described their *PFL* experience in a series of stages, from initial reticence about the programme, to a stage of acceptance and enjoyment, followed by preparation to exit the programme. Finally, parents commented on future directions, making recommendations about the potential roll out of the programme to specific groups and areas.

PFL Implementation Analysis at Twenty-four Months

ATTRITION

The level of official attrition from *PFL* between baseline and twenty-four months was 15% across the whole sample. Importantly, there was no attrition in the high or low treatment groups between eighteen and twenty-four months, and only 1% attrition among the comparison group. Official attrition between programme intake and twenty-four months was slightly higher among the high treatment group (19%) than among the low treatment group (16%), and it was lowest among the comparison group (10%). In addition to those who dropped out, 13% of the sample did not complete a twenty-four month interview, either because the interview could not be scheduled at a suitable time, or because the participants disengaged from the study. The non-completion rates across the high and low treatment groups were 10% and 13% respectively, while the corresponding rate for the comparison group was 16%. However it is important to note that more twenty-four month interviews were conducted than eighteen month interviews, indicating a level of re-engagment among previously disengaged participants. Total non-completion (attrition and disengaged) at twenty-four months was the same for both the high and low treatment groups group (29%) and slightly lower among the comparison group (26%).

In order to test for non-random attrition, we compared the baseline characteristics of those who participated in the twenty-four month survey to those who did not. Overall, there is weak evidence to suggest that there are systematic differences between these groups. In general, more disadvantaged participants were more difficult to contact or more likely to have dropped out of the programme by twenty-four months. For example, mothers in the high treatment group who were employed at baseline were less likely to be classified as disengaged or dropped-out at twenty-four months. However, as noted in previous reports, the majority of individual characteristics were not associated with attrition from the programme.

ENGAGEMENT

Families in the high treatment group received an average of 33 home visits from the *PFL* mentors between programme intake and twenty-four months, with each visit lasting one hour on average. The number and duration of visits were similar across each time period. However a smaller proportion of prescribed home visits were delivered at twenty-four months than in the previous period. On average, participants met their mentor just under once a month between eighteen and twenty-four months. Few individual participant characteristics were associated with the frequency or duration of home visits. Mothers who entered the programme earlier in pregnancy had more home visits and subsequently spent more time in the programme. In addition, mothers with higher cognitive resources participated in more home visits and had visits of a longer duration. This suggests that engagement may be related to the mother's ability to understand the programme materials and recognise the potential need for the programme in their lives. Factors such as age, marital status, employment status, and socio-emotional functioning were not associated with engagement in *PFL*.

SATISFACTION

Overall participant satisfaction with the programme at twenty-four months was high. As expected, the high treatment group reported greater satisfaction with the programme compared to the low treatment group. However, the low treatment group still reported relatively high levels of satisfaction despite the minimal supports received. In terms of the areas in which the participants were most satisfied, the high treatment group reported the greatest satisfaction with the programme in general, followed by the amount of help received and feelings about the child's progress. The high treatment group participants reported the lowest

level of satisfaction with whether the programme had improved their relationship with their partner and feelings about improvements in their child's behaviour.

CONTAMINATION

A contamination analysis was conducted to determine whether the low treatment group received all or part of the services designed for the high treatment group. The indirect measures of contamination indicated that the potential for contamination in the *PFL* Programme was high, as participants in both the high and low treatment groups reported knowing multiple neighbours with similarly aged children, and the majority of participants in both groups claimed to share their *PFL* materials with others. However, the direct measure of contamination suggests that these practices did not translate into improved parenting knowledge for those in the low treatment group. These findings indicate that the level of contamination in the *PFL* Programme was quite low and does not bias the twenty-four month results.

Conclusion

The twenty-four month evaluation of *Preparing For Life* suggests that the programme is progressing very well. While the literature reports moderate findings on certain domains at twenty-four months, the evaluation of *PFL* identified significant findings in the hypothesised direction for all eight domains. There were a number of positive, significant findings in the areas of child development and health. Additionally there were some limited findings in five of the other six domains; parenting, home environment, maternal health and wellbeing, social support, and household factors and SES. There were no significant positive findings in the childcare domain. The qualitative process evaluation indicated that the mentors and participants had clear, thought-out perceptions about *PFL*. Mentors spoke about the factors which influenced effective programme delivery and the challenge of engagement, while mothers described the meaning of *PFL* in their lives, outlining a personal journey from initial reticence to sadness as their time in the programme came to an end. The programme was also successful regarding the retention of participants, with several participants re-engaging with the evaluation at twenty-four months. Importantly, there was no attrition from the high or low treatment groups, and only 1% attrition from the comparison group between eighteen and twenty-four months.

The reports of the six, twelve, eighteen, and twenty-four month *PFL* evaluations can be found at the following website under publications: http://geary.ucd.ie/preparingforlife

The Life of Kirsty, an Average PFL Child, at Twenty-four Months

Kirsty has just turned two and lives with her older brother and her mam and dad who are unmarried but in a committed relationship. Her dad is unemployed and her mam works part-time. Kirsty is a lively, active toddler and her development is on track. She enjoys problems solving tasks and is starting to develop a vocabulary, for example, she can communicate her needs verbally and play imaginative games. She does not go to a crèche, but is looked after by her grandmother on a regular basis. Her mam is happy that she has few behavioural or sleep problems. She is in good health and has not had any chest infections in the last six months. There is a smoker in Kirsty's family, which means she is exposed to cigarette smoke and a member of her family also struggles with addiction. Kirsty eats a wide variety of different foods, most of which are healthy, though she does eat more fatty foods than is recommended.

Kirsty and her mam see their mentor about once a month, in their home. Kirsty's mam is happy to be part of *PFL*. Kirsty's mam has a good relationship with her mentor, and feels she can talk to her and will be listened to in a non-judgemental way. She also likes the researchers who come to the house, but finds the interviews a bit long at times. Kirsty's mam feels confident in her parenting skills and is less stressed about parenting matters compared to her friends. When she praises Kirsty, she makes sure to tell her why she is being praised. She has noticed that some of her friends praise their children, but unlike her, they do not tell them why. Although she is relatively healthy, she has been to the GP twice in the last six months. She has support from Kirsty's dad and her extended family.

Chapter One

Background of the *PFL* Programme Twenty-four Month Evaluation

1.1 Introduction

This report is the fourth in a series of reports which presents the result of the *PFL* evaluation. The report '*Preparing For Life* Early Childhood Intervention: Assessing the early impact of *Preparing For Life* at Six Months' contains relevant background information about the programme and serves as the foundation for this report [1]. The six month report included a detailed description of the *PFL* intervention and evaluation, the *PFL* logic model, and an explanation of the theoretical underpinnings of home visiting interventions. The six, twelve, and eighteen month reports include a discussion of the outcomes at those time points for other home visiting interventions, in addition to the results of the impact and implementation evaluation at those time points for *PFL*. The present report focuses on information specific to the twenty-four month evaluation, including new measures utilised as part of the twenty-four month interview, the results of the impact evaluation at twenty-four months, and new implementation data collected between eighteen and twenty-four months. The results of a qualitative study investigating the programme from the mentors' and parents' perspectives are also included. In addition, as there are now multiple waves of *PFL* data, the results of longitudinal analyses (dynamic analyses), which examine the impact of the programme on changes in child and parent outcomes over time, are also presented.

Chapter 1 of this report provides a brief summary of the recruitment process, the analysis of baseline data, and the results of the evaluation at six, twelve, and eighteen months. It then presents a review of relevant findings from the literature on the impact of home visiting programmes at twenty-four months of age. An updated hypothesis is presented, as well as information regarding the collection of twenty-four month interview data. A description of the remainder of the report concludes this chapter.

1.2 Recruitment & Baseline Analysis

In total, 233 pregnant women were recruited into the *PFL* Programme between January 2008 and August 2010. Randomisation resulted in 115 participants assigned to the high treatment group and 118 participants assigned to the low treatment group. In addition, 99 pregnant women were recruited into the comparison group *(LFP)*. The population based recruitment rate was 52%. Baseline data, collected before the programme began, were available for 104 and 101 high and low *PFL* treatment group participants respectively, and for 99 comparison group participants. Tests of baseline differences between the high and low *PFL* treatment groups found that the two groups did not-statistically differ on 97% of the measures analysed, indicating that the randomisation process was successful. The aggregate *PFL* group and the LFP comparison group did not-statistically differ on 75% of the measures; however, the comparison group was of a relatively higher socioeconomic status.

Full details of the recruitment methods and baseline analysis are available in Chapter 2 of '*Preparing For Life* Early Childhood Intervention: Assessing the Early Impact of *Preparing For Life* at Six Months'.

[1] This report can be found at the following website under publications: http://geary.ucd.ie/preparingforlife

1.3 Summary of Six Month Evaluation

The six month evaluation suggested that the programme was progressing well. In total, 257 six month interviews (n*Low* = 90; n*High* = 83; n*LFP* = 84) were completed. Analysis of the six month data across eight domains revealed there were limited significant differences reported between the high and low treatment groups (14%). This was consistent with the programme evaluation literature which finds few treatment effects at this stage. Many of the relationships were in the hypothesised direction, with the high treatment group reporting somewhat better outcomes than the low treatment group. There were significant findings in the domains of parenting, the quality of the home environment, and social support, which correspond directly to information on the *PFL* Tip Sheets delivered to participants during this period.

Specifically, children in the high treatment group compared to those in the low treatment group had more appropriate eating patterns, had a higher level of immunisation rates, had more parental interactions, and parent-child interactions were of a higher quality. Additionally, children in the high treatment group were exposed to less parental hostility, a safer home environment, and more appropriate learning materials and childcare. Moreover, mothers in the high treatment group were more likely to be socially connected in their community and less likely to be hospitalised after birth. The results of the multiple hypotheses tests strengthen these findings by showing that the high treatment group reported higher scores on the quality of the home environment and in the domain of maternal physical health, and lower scores on parental stress compared to the low treatment group. The interaction and subgroup analysis revealed that the programme had differential impacts with some groups benefiting more from the programme than others. For example, there was suggestive evidence that the programme benefited mothers with relatively higher cognitive resources, mothers with multiple children, and families who have experienced familial risk. It is important to note that the programme had no significant impact on key factors such as pregnancy behaviour, child birth weight, breastfeeding, and child development.

These lack of effects may be attributed to dosage and timing. Participants, on average, received 14 home visits between baseline and six months, thus the intervention may not have been sufficiently intensive to generate significant treatment effects at this early stage. These results were also supported by the findings from the qualitative interviews which highlighted the small changes in behaviour and attitudes in the participants witnessed by the mentors. They acknowledged that these changes, while small, may be indicative of cumulative effects for the parents, children and community in the future. Despite these relatively modest effects, the low level of attrition (10% dropped-out and 8% disengaged) and high participant satisfaction were indications that programme engagement was high which may result in positive future outcomes.

The results comparing the low treatment group to the comparison community group confirmed the integrity of the RCT design. As expected, the *PFL* Programme is not having a significant impact on the outcomes of the low treatment group (only 11% of the differences between the low treatment group and comparison group were significant in a positive direction). This finding echoes the results of the contamination analysis which suggest that despite the high risk of contamination within the community between the high and low treatment groups, contamination was not a significant issue at this stage of the study.

1.4 Summary of Twelve Month Evaluation

Overall, the twelve month evaluation suggested that the programme was progressing well regarding the retention of participants and programme satisfaction, yet the limited impact results were in line with evaluations of other home visiting programmes, which typically identify few significant effects at this time period. Although there were less significant differences reported between the high and low *PFL* treatment groups than at six months, measures which focus on different aspects of the domains of interest were utilised at each time point. Therefore, it is not possible to make a direct comparison between findings from the two reports on some domains, most notably parenting and home environment.

At twelve months, 8% of the variables measured were statistically significant in the hypothesised direction and 6% were significant in a non-hypothesised direction. As the report adopted an acceptance level of 10% regarding statistical significance, it is possible that the 8% of positive findings and the 6% of negative findings were random. Overall these findings are consistent with previous evaluations of home visiting programmes that report limited results at twelve months (Gomby, Curloss, & Behrman, 1999).

The majority of the relationships in the analysis were in the hypothesised direction, with the high treatment group reporting somewhat better outcomes than the low treatment group. We hypothesised that treatment effects would be found in the domains of child health, parenting, and maternal health. The results suggested partial support for our hypotheses as there were some significant findings in the domains of child and maternal health. However, there were no significant results found in the parenting domain at twelve months. Moreover, the programme appeared to have little significant impact on the home environment and household factors/SES. Counter to our hypotheses, significant treatment effects were found in the domains of child development and social support. This is noteworthy as previous studies of home visiting programmes do not report effects in these domains at twelve months. There were findings in the non-hypothesised direction in all domains except social support. One potential explanation for the differences between findings at six months and findings at twelve months is that many of the measures which were significant at six months were not included in the twelve month survey (e.g. the HOME). While some measures (ASQ, WHO-5, and satisfaction with father involvement, for example) were present in both the six and twelve month surveys, there were a number of measures which were used at six months and not at twelve months and vice versa. In the parenting domain for example, parental locus of control, attachment, and stress were measured at six months, whereas at twelve months, the parenting domain consisted of parenting knowledge and parenting attitudes. Therefore, comparing changes in significance on the same measures over time may be a more appropriate means of monitoring changes in the effectiveness of the programme rather than the percentage of significant results at each time point.

Overall, the results of the dynamic analysis reported few significant differences between the high and low treatment groups regarding changes in outcomes between baseline and twelve months and six and twelve months. While 7% of the results were significant in the hypothesised direction, a further 7% were significant in a non-hypothesised direction, overall indicating few improvements across time in parent or child outcomes during the first year of life. Again, few studies identify such significant dynamic effects during this early stage of programme delivery.

With regards to dosage and timing, participants, on average, received seven home visits between six and twelve months, which is lower than anticipated yet equivalent to the number of visits delivered during the first six months, averaging just over 1 visit per month over the postnatal period. In total, the participants in the high treatment group received an average of 21 visits between recruitment at the 22nd week of pregnancy and when the infant turned twelve months, which represents just over half of all prescribed home visits planned, based on fortnightly visits. However, there was minimal attrition between six and twelve months (two participants) and participant satisfaction was high, indicating that while engagement among participants is relatively low, they are satisfied with the level of support they are receiving and they are choosing to remain in the programme.

The results comparing the low treatment groups to the comparison community can be interpreted as confirming the integrity of the RCT design. There were significant differences in the hypothesised direction on 12% of the measures analysed, however there were also effects in the non-hypothesised direction. For example, parents in the low treatment group read more to their children than those in the comparison group, while no significant difference was found in reading between the high and low treatment groups. Similarly, the low treatment group reported better child cognitive functioning than those in the comparison group, while no difference was detected between the high and low treatment groups. These findings suggest that some common programme components, such as the developmental and reading packs, may have an impact on both the high and low treatment group participants. However, as there were a number of results in the non-hypothesised direction in the comparison of the low treatment and comparison groups, this suggests that the *PFL* Programme is not having a significant impact on most of the outcomes for the low treatment group. This finding echoes the results of the contamination analysis which suggest that despite the high risk of contamination within the community between the high and low treatment groups, contamination was not a significant issue at twelve months.

1.5 Summary of Eighteen Month Evaluation

Overall, the eighteen month evaluation findings were consistent with similarly timed evaluations of other home visiting programmes, which typically identify limited significant effects at eighteen months. A number of significant differences were found at six and eighteen months between the high and low *PFL* treatment groups, which is most likely due to the use of the same measures at both time points (e.g. the HOME). Fewer significant findings were reported at twelve months, which is likely due to the use of measures which focus on different aspects of the domains of interest at this time point.

In total, 14% of the outcomes analysed were significant in the hypothesised direction at eighteen months, while 6% of the outcomes were statistically significant in the non-hypothesised direction, such that the low treatment group was outperforming the high treatment group on these measures. However, the majority of the relationships in the analysis were in the hypothesised direction, with the high treatment group reporting better outcomes than the low treatment group. We hypothesised that treatment effects would be found in the domains of home environment, child health, and parenting. The results suggest support for our hypothesis, as significant findings were found in all of these domains. Consistent with the literature, there were limited significant findings in the child development and maternal health domains at eighteen months. However, significant effects were found for gross motor skills, personal-social competence and cognitive development, despite other evaluations of home visiting programmes failing to identify significant findings in these realms at eighteen months. The programme appeared to have little significant impact on childcare. Counter to our hypothesis, significant treatment effects were found in the domain of social support. This is noteworthy, as other studies of home visiting programmes do not report effects in this domain at eighteen months.

Overall, the results of the dynamic analysis reported few significant differences (7%) between the high and low treatment groups regarding changes in outcomes between baseline and eighteen months, six and eighteen months, and twelve and eighteen months. Significant results were found in the hypothesised direction for child fine motor skills between six and twelve months, with scores for the high treatment group increasing over time while the scores for the low treatment group decreased between the two time points. Significant findings were also found for two of the HOME subdomains between six and eighteen months. In both instances scores between six and eighteen months for both the high and low treatment groups declined over time, however the decline in scores was less pronounced for the high treatment group. These findings are consistent with the literature as few studies identify significant dynamic effects during this stage of programme delivery.

An investigation of dosage and timing of visits indicated that the average number of home visits was broadly similar over time. This suggests that a regular pattern of visits has been established between the mentors and participants. In total, the participants in the high treatment group received an average of 27 visits between recruitment at the 22nd week of pregnancy and when the infant was eighteen months. This

represents just over half of all prescribed visits delivered and is consistent with the majority of home visiting programmes which typically find that 50% of visits do not take place. At 15%, the level of attrition from *PFL* between baseline and eighteen months was quite low across the whole sample. Importantly, attrition was minimal between the twelve and eighteen month interview rounds, with no attrition experienced in the high treatment group or the comparison group and only 2% attrition in the low treatment group.

The results comparing the low treatment group to the comparison group can be interpreted as confirming the integrity of the RCT design. Similar to the results at twelve months, parents in the low treatment group read more to their children than those in the comparison group, while no significant difference was found in reading between the high and low treatment groups. The low treatment group also reported better child use of combined words than the comparison group, while no differences were detected on this measure between the low and high treatment group participants. However, there were more significant results in the non-hypothesised direction than the hypothesised direction, suggesting that the low treatment group is not doing systematically better than the comparison group overall. These results suggest that the low treatment group is an appropriate comparison for the high treatment group and that some common programme components such as the developmental and reading packs may have an impact on both the high and low treatment group participants.

1.6 Evidence on Short-term Effectiveness of Home Visiting Programmes

The six, twelve, and eighteen month reports reviewed the evidence on the effectiveness of home visiting programmes on outcomes observed up to eighteen months of age. This section reviews the evidence on outcomes reported between eighteen and twenty-four months. Several evaluations of home visiting interventions measure or report outcomes assessed when the toddler is twenty-four months old. To date, these evaluations have yielded mixed results.

Table 1.1 reflects the outcomes from home visiting programmes from eighteen to twenty-four months postpartum. The primary source of information for the table was the Home Visiting Evidence of Effectiveness (HomVEE) website (http://homvee.acf.hhs.gov/). This site was launched by the U.S. Department of Health and Human Services to conduct a thorough and transparent review of the home visiting research literature and provide an assessment of the evidence of effectiveness for home visiting programme models that target families with pregnant women and children from birth to age five. Trained reviewers evaluated randomised controlled trials and quasi-experimental designs for each model and authors were given the opportunity to respond to missing information.

The table below contains results from studies that were rated as either "high" or "moderate" on the HomVEE website :[2]

(1) High: random assignment studies with low attrition of sample members and no reassignment of sample members after the original random assignment, and single case and regression discontinuity designs that meet the What Works Clearinghouse (WWC) design standards, or
(2) Moderate: random assignment studies that due to flaws in the study design or analysis (e.g. high sample attrition) do not meet the criteria for the high rating, matched comparison group designs, and single case and regression discontinuity designs that meet WWC design standards with reservations.

In addition, the *PFL* evaluation team conducted an extensive literature search according to the criteria outlined by HomVee and added further studies of relevance. The table below presents the findings observed between eighteen and twenty-four months postpartum from both the HomVee website and the search by the *PFL* evaluation team of studies published after 1989.

[2] Studies rated as "low" by HomVEE have not been included.

Table 1.1 Evaluations of Early Outcomes for Home Visiting Programmes at 18-24 Months.

Outcome	Author	Sample Size	Programme
Child Development & School Readiness	Roggman & Cook (2010)	161	Early Head Start
	Love et al. (2001)	814-966	Early Head Start
	Roggman, Boyce, & Cook (2009)	161	Early Head Start
	Caldera et al. (2007)	249	Healthy Families America
	Kitzman et al. (1997)	1082	Nurse Family Partnership
	Olds et al. (2002)	406	Nurse Family Partnership
	Wagner & Clayton (1999)	375	Parents as Teachers
	Drotar, Robinson, Jeavons, & Lester Kirchner (2009)	330-354	Parents as Teachers
	Wagner, Cameto, & Gerlach-Downie (1996)	196	Parents as Teachers
	Wagner & Spiker (2001)	259-266	Parents as Teachers
Child Health	Koniak-Griffin et al. (2003)	101	Early Intervention Program for Adolescent Mothers
	Duggan et al. (1999)	564	Healthy Families America
	Caldera et al. (2007)	249	Healthy Families America
	Duggan et al. (2007)	268	Healthy Families America
	Kemp et al. (2011)	166	Maternal Early Childhood Sustained Home Visiting Program
	Kitzman et al. (1997)	671	Nurse Family Partnership
	Wagner & Clayton (1999)	365	Parents as Teachers
	Wagner et al. (1996)	192-194	Parents as Teachers
	Wagner & Spiker (2001)	265	Parents as Teachers
Positive Parenting Practices	Love et al. (2001)	966	Early Head Start
	Roggman & Cook (2010)	161	Early Head Start
	Koniak-Griffin et al. (2003)	90	Early Intervention Program for Adolescent Mothers
	Duggan et al. (1999)	564	Healthy Families America
	Duggan et al. (2007)	246	Healthy Families America
	Caldera et al. (2007)	249	Healthy Families America
	Kemp et al. (2011)	174	Maternal Early Childhood Sustained Home Visiting Program
	Kitzman et al. (1997)	672	Nurse Family Partnership
	Wagner & Clayton (1999)	350-367	Parents as Teachers
	Wagner & Spiker (2001)	254-268	Parents as Teachers
Reductions in Child Maltreatment	Duggan et al. (2004)	643	Healthy Families America
	Caldera et al. (2007)	268	Healthy Families America
	DuMont et al. (2008)	992	Healthy Families America

	Measures used	Sig. Finding Between 18-24 Months	Effect
	Child aggression	None	None
	BSID MDI (Bayley Scales of Infant Development – Mental Development Index), MacArthur CDI (Communicative Development Inventories), Bayley BRS (Behaviour Rating Scale), CBCL (Child Behaviour Checklist), parent-child structured play	None	None
	BSID MDI	None	None
	BSID, CBCL, NCAST (Nursing Child Assessment Satellite Training)	BSID percentage in normal cognitive limits [0.24], BSID cognitive score [0.29], CBCL percentage in normal internalising range [0.40], CBCL internalising score [0.36], CBCL percentage in normal externalising range [0.22]	Favourable
	NCAST, BSID, CBCL	None	None
	PLS-3 (Preschool Language Scale), BSID MDI, CBCL	PLS-3 (language delay) [0.40]	Favourable
	DPII (Developmental Profile II), BSID	BSID (social development scale)	Unfavourable
	BSID, CBRS (Comprehensive Behaviour Rating Scale)	None	None
	DPII	None	None
	DPII, ASBI (Adaptive Social Behaviour Inventory)	None	None
	Hospitalisations, ER visits, immunisations	Number of days & episodes of infant hospitalisations, percentage never using ER for health problems	Favourable
	Hospitalisations, immunisations, primary care provider information	Has a primary care provider who knows family's concerns about child	Favourable
	Health care, well-child visits, immunisations	Has health care coverage [0.40]	Favourable
	Hospitalisations, emergency care	None	None
	Respiratory infection, gastroenteritis, immunisations	None	None
	Immunisations, number of well child visits	None	None
	Visits to doctor, treatment for illness, injury treatment	None	None
	Regular source of medical care, doctor visit as part of 'Well-baby' care	None	None
	Health insurance, well-child visit, immunisations, injury treatment, emergency room visit	None	None
	Parent-child structured play, bedtime routine, KIDI (Knowledge of Infant Development Inventory), safety indicators	Percentage who read to child as part of bedtime routine, KIDI	Favourable
	Physical punishment	None	None
	NCATS	None	None
	NCAST, PSOC (Parenting Sense of Competence Scale)	PSOC parenting efficacy	Favourable
	NCAST, AAPI (Adult Adolescent Parenting Inventory)	None	None
	KIDI, AAPI, Teti scale, NCAST, PC-CTS (Parent Conflict – Conflict Tactics Scale), developmental delay	Teti scale maternal self-efficacy [0.19]	Favourable
	HOME (The Home Observation for Measurement of the Environment) subscales	HOME responsivity [0.26]	Favourable
	AAPI, HOME, NCAST	AAPI (beliefs associated with child abuse), HOME (emotional/ cognitive stimulation)	Favourable
	KIDI, PSOC, HOME	HOME (acceptance of child behaviour subscale)	Unfavourable
	Parental knowledge, PSOC, AAPI, Parent Observation Scale, Language literacy numeracy promotion scale, activities with child, NCAST	None	None
	PC-CTS	None	None
	Injuries, medical care, hospitalisations	None	None
	PC-CTS	PC-CTS (frequency of serious physical abuse)	Favourable

Outcome	Author	Sample Size	Programme
Reductions in Child Maltreatment Continued...	Duggan et al. (2007)	309	Healthy Families America
	Kitzman et al. (1997)	671	Nurse Family Partnership
Home Environment	Love et al. (2001)	966	Early Head Start
	Duggan et al. (2007)	246	Healthy Families America
	Caldera et al. (2007)	249	Healthy Families America
	Kitzman et al. (1997)	672	Nurse Family Partnership
	Koniak-Griffin et al. (2003)	90	Early Intervention Program for Adolescent Mothers
	Duggan et al. (1999)	564	Healthy Families America
	Wagner & Spiker (2001)	254-268	Parents as Teachers
	Wagner et al. (1996)	195	Parents as Teachers
Maternal Health	Barnet, Rapp, DeVoe, & Mullins (2010)	148	Computer-Assisted Motivational Intervention (CAMI)
	Love et al. (2001)	966	Early Head Start
	Koniak-Griffin et al. (2003)	101	Early Intervention Program for Adolescent Mothers
	Duggan et al. (1999)	567	Healthy Families America
	Duggan et al. (2004)	643	Healthy Families America
	Duggan et al. (2007)	249	Healthy Families America
	John Hopkins University (2005)	325	Healthy Families America
	Kemp et al. (2011)	208	Maternal Early Childhood Sustained Home Visiting Program
	Kitzman et al. (1997)	671	Nurse Family Partnership
	Wagner & Clayton (1999)	371	Parents as Teachers
	Olds et al. (2002)	490	Nurse Family Partnership
Social support	Anisfeld, Sandy, & Gutterman (2004)	289	Healthy Families America
	Anisfeld et al. (2004)	289	Healthy Families America
	Duggan et al. (1999)	567	Healthy Families America
Household Factors and SES	Duggan et al. (1999)	567	Healthy Families America
	Anisfeld et al. (2004)	512	Healthy Families America
	John Hopkins University (2005)	249	Healthy Families America
	Kitzman et al. (1997)	671-681	Nurse Family Partnership
	Koniak-Griffin et al. (2003)	90	Early Intervention Program for Adolescent Mothers
	Olds et al. (2002)	427	Nurse Family Partnership
	Wagner et al. (1996)	192-195	Parents as Teachers
	Wagner & Clayton (1999)	363-371	Parents as Teachers
Reductions in Juvenile Delinquency, Family Violence, and Crime	Duggan et al. (2004)	643	Healthy Families America

Favourable impact. A statistically significant impact on an outcome measure in a direction that is beneficial for children and parents

	Measures used	Sig. Finding Between 18-24 Months	Effect
	CPS (Child Protective Services) reports, PC-CTS	PC-CTS (psychological aggression [0.14], mild physical assault frequency [0.18], common corporal punishment [0.2])	Favourable
	Health care encounters, hospitalisations, injuries	Total number health care encounters (injuries/ingestions), number outpatient visits (injuries/ingestions), number days hospitalised (injuries/ingestions)	Favourable
	HOME	HOME total score	Favourable
	HOME	HOME poor quality home environment (score <33) [0.37]	Favourable
	HOME	Poor total HOME score [0.37]	Favourable
	HOME	HOME (emotional/ cognitive stimulation)	Favourable
	HOME	None	None
	HOME, partner violence, maternal substance use	Partner violence (incidence resulting in injury)	Favourable
	HOME	None	None
	HOME	HOME (appropriate play materials subscale)	Unfavourable
	Repeat Birth	Repeat Birth [0.53]	Favourable
	Health status, PSI (Parenting Stress Index), CIDI (Composite International Diagnostic Interview), FES (Family Environment Scale)	None	None
	Repeat pregnancy, social competence	None	None
	CLSS (Community Life Skills Scale), confidence in adult relations	None	None
	CES-D (Center for Epidemiologic Studies Depression Scale), PSI, MHI (Mental Health Index), CAGE (Alcoholism questionnaire), drug use	None	None
	Alcohol and drug use	None	None
	Repeat birth	None	None
	Smoking behaviour, maternal physical and mental health, social support, family functioning, stressful life events, maternal experience	None	None
	Subsequent pregnancy, spontaneous abortion, therapeutic abortion, subsequent live birth, MHI, Pearlin mastery	Subsequent pregnancy (0-24 months postpartum) [0.28], subsequent live birth (0-24 months postpartum) [0.28], Pearlin mastery	Favourable
	Mother had additional births	None	None
	Subsequent pregnancies and births, longer interval between pregnancies	Subsequent pregnancies [0.28] and births [0.30], longer interval between pregnancies	Favourable
	Referrals to services, MSSI (Maternal Social Support Index)	Referral to family planning	Favourable
	Referrals to services	Referral to parenting education or training	Unfavourable
	MSSI	None	None
	Education, employment	None	None
	Education, receipt of public assistance	Increased education by year or more since baseline [0.51]	Favourable
	Poverty level, employment	None	None
	Postpartum employment and welfare payments	None	None
	Education	None	None
	Educational achievement, postpartum employment	Months employed (13-24 months postpartum)	Favourable
	Marital status, household composition, employment, welfare receipt	Married	Unfavourable
	Marital status, household composition, employment, education, welfare receipt, household income	None	None
	CTS	None	None

Unfavourable or ambiguous impact. A statistically significant impact on an outcome measure in a direction that may indicate potential harm to children and/or parents.

Effect size statistics are only included for those studies which report a relevant figure. When an effect size is reported and not precisely described it is assumed to be a Cohen's *d* statistic calculated using pooled variance. Odds ratios have been transformed to Cohen's *d* effect sizes according to the following formula: $d = LogOddsRatio\frac{\sqrt{3}}{\pi}$

CHILD DEVELOPMENT

In the area of child development, a variety of standardised measures were used across the different evaluations. These included the Bayley Scales of Infant Development, Child Behaviour Checklist, Communicative Development Inventories, Nursing Child Assessment Satellite Training, Developmental Profile, Comprehensive Behaviour Rating Scale, and the Adaptive Social Behaviour Inventory. Overall 2 of the ten studies reviewed had a favourable impact on some dimension of child development at twenty-four months, and one had an unfavourable impact. Two studies using the Bayley Scales of Infant Development at twenty-four months reported significant differences as a result of the home visiting intervention. In an evaluation of the Parents as Teachers programme, Wagner and Clayton (1999) found that home visiting had an unfavourable impact on child development which was reflected by poorer scores for the social development scale. However, Caldera and colleagues (2007) reported favourable treatment effects in their evaluation of the Healthy Families America programme, whereby intervention children had better cognitive outcomes. Additionally, significant, favourable treatment effects were found on internalising and externalising scores for the Child Behaviour Checklist at twenty-four months (Caldera et al., 2007). One other study, an evaluation of Nurse Family Partnership conducted by Olds et al. (2002), reported favourable treatment effects for language using the Preschool Language Scale at twenty-four months.

Three evaluations of the Early Head Start intervention programme did not report significant findings using similar measures of child development (Love et al., 2001; Roggman, Boyce, & Cook, 2009; Roggman & Cook, 2010). Furthermore, three other investigations of the Parents as Teachers programme, and one other investigation of the Nurse Family Partnership, found no significant outcomes for child development at twenty-four months (Drotar, Robinson, Jeavons, & Lester Kirchner, 2009; Kitzman et al., 1997; Wagner, Cameto, & Gerlach-Downie, 1996; Wagner & Spiker, 2001).

CHILD HEALTH

In the area of child health, 3 of the 9 studies reviewed had a favourable impact at twenty-four months. In an evaluation of an intervention programme targeting adolescent mothers, Koniak-Griffin et al. (2003) reported that the intervention had a favourable impact on episodes of infant hospitalisations and emergency room usage. Additionally, two investigations of the Healthy Families America intervention programme reported favourable treatment effects on health care outcomes, including families having health care coverage and a primary care provider who was aware about the family's concerns for their child (Caldera et al., 2007; Duggan et al., 1999). However none of the other studies in this domain reported significant outcomes at twenty-four months across a variety of child health indicators (Duggan et al., 2007; Kemp et al., 2011; Kitzman et al., 1997; Wagner & Clayton, 1999; Wagner et al., 1996; Wagner & Spiker, 2001). The Moving to Opportunity (MTO) Program was a US-based study which utilised a randomised controlled trial design to assess the impact on children and families of moving from an area of high poverty to an area of lower poverty (Orr, Feins, Jacob et al., 2003). Aspects of child health assessed for the interim evaluation included prevalence of asthma, obesity, frequency of accident or injury, and general health. As the interim findings related to children aged 5-11 they are not directly comparable to the present study, however, MTO is included in our literature review as it measured similar aspects of child health to the present study in an early intervention setting.

PARENTING

Parenting as an outcome of home visiting interventions between eighteen and twenty-four months was evaluated through investigating parental knowledge, parenting behaviours, safety indicators, parenting sense of competence, conflict, and discipline. There were mixed results across this domain with 5 of the ten studies reporting a positive effect on at least one measure of parenting. Two studies investigating the Healthy Families America evaluation reported positive treatment effects on parenting self-efficacy (Caldera et al., 2007; Duggan et al., 1999). Two investigations of the Parents as Teachers evaluation used similar measures, yet did not report significant outcomes (Wagner & Clayton, 1999; Wagner & Spiker, 2001). Similarly, Love et al. (2001) reported favourable treatment effects in relation to bedtime routine and parenting knowledge in their assessment of the Early Head Start programme, yet Wagner and Clayton (1999), and Caldera et al. (2007) did not report any treatment effect on parenting knowledge using

the same measure. Several studies used the Home Observation for Measurement of the Environment to assess aspects of parenting with mixed results. Kemp et al. (2011) and Kitzman et al. (1997) reported a positive treatment effect on parenting behaviours, including responsivity and the provision of emotional and cognitive stimulation. Conversely, Wagner and Clayton (1999) reported an unfavourable impact on acceptance of child behaviour.

REDUCTIONS IN CHILD MALTREATMENT

At twenty-four months, 3 out of the 5 studies reviewed reported favourable programme effects in relation to the reduction of child maltreatment. Kitzman et al. (1997) reported that the Nurse Family Partnership programme had a positive impact on injuries and ingestions. Similarly, results from the Healthy Families America programme suggested that the intervention had a positive impact on child maltreatment. Both DuMont et al. (2008) and Duggan et al. (2007) reported a lower frequency on several conflict tactics subscales, including physical assault and psychological aggression. However, Duggan et al. (2004) and Caldera et al. (2007) also evaluated the Healthy Families America programme at twenty-four months and did not report a positive impact on child maltreatment indicators.

HOME ENVIRONMENT

In the domain of the home environment, the principal outcome measure used at twenty-four months was the Home Observation for Measurement of the Environment (HOME Inventory). Five of the 8 studies reported that home visiting had a positive impact on the home environment at twenty-four months. Positive effects were found for total HOME scores and across a range of subscales including quality of the home environment, and emotional and cognitive stimulation. These favourable outcomes were also observed across different home visiting interventions including Healthy Families America, Early Head Start and Nurse Family Partnership. However, one study conducted by Wagner et al. (1996) found an unfavourable programme effect for the Parents as Teachers home visiting intervention in relation to appropriate play materials.

MATERNAL HEALTH & WELLBEING

There were few favourable findings in the domain of maternal health and wellbeing, with only 3 of the eleven studies reporting positive treatment effects. All three studies reported a favourable impact on repeat pregnancy (Barnet, Rapp, DeVoe, & Mullins, 2010; Kitzman et al., 1997; Olds et al., 2002). Kitzman et al. (1997) also reported a positive treatment effect for the Pearlin Mastery scale. However none of the other studies reported favourable outcomes in the domain of maternal health and wellbeing at twenty-four months (Duggan et al., 1999; Duggan et al., 2004; Duggan et al., 2007; John Hopkins University, 2005; Koniak-Griffin et al., 2003; Love et al., 2001; Wagner & Clayton, 1999).

SOCIAL SUPPORT

Three studies explored the impact of the Healthy Families America intervention on social support at twenty-four months, with mixed results. Anisfeld, Sandy, and Gutterman (2004) reported a favourable impact on referral to family planning; however they also reported an unfavourable impact on referral to parenting education or training. Duggan et al. (1999) did not report a significant impact in the domain of social support.

HOUSEHOLD FACTORS AND SOCIO ECONOMIC STATUS (SES)

The results for Household Factors and SES at twenty-four months are mixed. Five of the 8 studies did not report any significant outcomes in relation to a broad range of household and SES indicators including education, employment, marital status, and household composition. However, Anisfeld et al. (2004) reported a positive treatment effect on education at twenty-four months. Additionally Olds et al. (2002) reported a positive treatment effect for employment between thirteen and twenty-four months, while Wagner et al. (1996) reported an unfavourable impact on marital status.

At twenty-four months there appear to be more consistent outcome patterns across home visiting evaluations than at eighteen months. Many of the evaluations reported consistent favourable outcomes in the domains of home environment, parenting and child maltreatment, and these results are produced using similar measures across intervention programmes. However, it should be noted that there are still several domains where results are inconsistent such as child development and school readiness, household factors and SES, social support, and maternal health.

1.7 Hypotheses

The primary aim of the *PFL* Programme is to change parental knowledge, attitudes, and feelings leading to improved parenting behaviour, which will then positively impact on child development, ultimately increasing a child's school readiness. *PFL* also hypothesises that the programme will have an effect on other child and family outcomes (e.g. social support, service use, maternal health and wellbeing). Therefore, *PFL* may affect both primary and secondary outcomes. In effect, secondary outcomes may serve as mediators or explanatory factors that may help to clarify the relationship between the *PFL* Programme and any observed effects on parenting skills or child school readiness.

For the main results (high versus low treatment groups), our hypotheses regarding the effectiveness of the *PFL* Programme at twenty-four months are informed by the evidence described above. Results from previous studies indicate that at twenty-four months home visiting programmes have moderate positive effects on child development and health. Consistent with these findings we expect that the impact of *PFL* on both of these domains will also be moderate. Regarding parenting, based on the results from similar programmes, we hypothesise that *PFL* parents may be more likely to engage in positive parenting practices. As several home visiting programmes found positive effects on the home environment, we would expect similar *PFL* Programme results, however in the *PFL* evaluation at twenty-four months very few measures of the home environment were included. As reported in other studies, we expect to see limited programme effects in the realms of maternal health, social support, childcare, and household factors and SES. Consistent with the evaluation design, we anticipate few significant differences between the low treatment group and the comparison group.

1.8 Description of Twenty-four Month Survey & Data Collection Process

Between July 2010 and July 2013, a fifth research interview was conducted by the *PFL* Evaluation Team. The interviews took place when the *PFL* child was between two weeks before their twenty-four month birthday and up to six months after their birthday. In total, 239 twenty-four month interviews (n*Low* 84; n*High* = 82; n*Comp* = 73) were completed. The average age of the target child at the time of completion was 24.62 months old (*SD* = 4.99 weeks). The dropout rate between eighteen and twenty-four months was minimal. None of the high or low treatment group dropped out during this period, with 1% of high treatment and 8% of low treatment groups re-engaging with the evaluation. Only one of the comparison group participants dropped out between eighteen and twenty-four months. A comprehensive analysis of attrition rates may be found in Chapter 5 of this report.

The twenty-four month interviews lasted approximately one to one and a half hours and were conducted using a Computer Assisted Personal Interviewing (CAPI) technique on tablet laptops. The interviews were conducted by trained interviewers who were blinded to participant treatment status. Immediately prior to the interview, participants were asked to complete the Achenbach Child Behaviour Checklist (CBCL) and the MacArthur-Bates Communicative Development Inventory (CDI) on paper. Although home interviews were encouraged, participants had the option of conducting the interview either in the home or in a local community centre. The majority of participants completed the interview in their homes (81.7% high treatment group, 78.6% in the low treatment group, and 98.6% in the comparison community). Each participant was given a €20 shopping voucher after the twenty-four month interview was completed as a thank you for taking the time to complete the interview.

During the interview, the interviewer asked some of the questions that were asked previously as well as several new questions, particularly in relation to the *PFL* child. The repeated questions included family demographics and socio-economic profile, maternal physical and psychological health, substance use by the mother, family risk factors, parenting stress, cognitions and behaviours, attachment, use of childcare, child motor skills, cognitive development, behavioural and emotional functioning, social-emotional development, and child health. New questions added to the twenty-four month questionnaire included items related to social desirability, maternal antisocial behaviour, and child problem behaviour.

The twenty-four month survey was divided into ten modules, each containing questions with a common theme.

1. Your Child's Development: Part 1
2. Your Child's Health
3. Maternal Behaviour
4. Update on Your Life
5. Your Social Support Network
6. Your Health
7. Your Child's Development: Part 2
8. Your Thoughts on Parenting
9. Environment & Satisfaction with Programme
10. Closing

Similar to previous reports, this report focuses on eight domains incorporating 29 categories and 166 outcome measures. The domains and categories within each domain are – child development (Ages Stages Questionnaire, Brief Infant Toddler Social and Emotional Assessment, MacArthur-Bates Communicative Development Inventory, Developmental Profile-3, Achenbach Child Behaviour Checklist, and special services child is receiving), child health (child physical health, mother's health decisions for her child, and diet), parenting (Condon Maternal Attachment Scale, Parenting Stress Index, Parental Cognitions and Conduct Towards Infant Scale), home environment (smoking in the home and social worker involvement), maternal health and wellbeing (maternal physical health, maternal mental health, current substance use, Edinburgh Postnatal Depression Scale, Considerations of Future Consequences Scale), social support (father involvement, social support measures), childcare (childcare measures), and household factors and socioeconomic status (household factor measures, parental education, maternal antisocial behaviour, maternal employment, paternal employment, household finances, and expectations of future finances). Note that while the same domains as the previous reports are reported, the measures included in each domain may differ as different questions are asked in sequential interviews.

1.9 Aims and Overview of Report

This report has four aims. First, to determine whether the *PFL* Programme had an impact on parent and child outcomes at and/or before twenty-four months; second, to examine the impact of the programme on changes in mother and child behaviour over time through a dynamic analysis comparing outcomes at baseline, six months, twelve months, eighteen months, and twenty-four months; third, to evaluate the *PFL* implementation process through studying parent and staff experiences of the programme, and fourth, to provide a detailed review of implementation practices in the *PFL* Programme regarding attrition, dosage, and participant engagement.

The report is organised as follows. Chapter Two presents the results comparing the *PFL* high treatment group and the *PFL* low treatment group on all primary outcome domains (child development, child health, parenting) and secondary outcome domains (home environment, maternal health and wellbeing, social support, childcare, household factors, socio-economic status). Chapter Three presents a summary of the results comparing the *PFL* low treatment group to the community comparison group and a summary of the results from the dynamic analysis which examines changes in child and parent outcomes over time. Chapter Four presents the findings from a qualitative investigation of *PFL* with mentors and parents. Chapter Five presents an implementation analysis of the *PFL* Programme between programme intake and twenty-four months. Chapter Six summarises and concludes the results from the impact and implementation analyses.

Chapter Two

Main Results
High and Low Treatment Groups

2.1 Introduction

This chapter presents the main results comparing the twenty-four month outcomes of the high treatment group to those of the low treatment group. As there were no statistical differences, on average, between these groups before the programme began, any identified statistical differences between the two groups at twenty-four months are indicative of a programme effect. The analysis focused on eight main domains – child development, child health, parenting, home environment, maternal health and wellbeing, social support, childcare, and household factors and socioeconomic status. Although each report contains the same overarching eight domains, measures which focus on different aspects of these domains were utilised at each time point. Therefore, it is not always possible to make a direct comparison between the findings from the four reports on some domains unless the same measures are used. This chapter contains relevant literature for the few new measures which were not included in previous reports and considers the relevance and impact of previous home visiting programmes on all measures at twenty-four months. Each section also includes a description of the instruments used to measure the domain and the statistical results, in both text and table format, comparing the high and low treatment groups on that domain. Each section should be read in conjunction with the corresponding section in Chapter 3 of '*Preparing For Life* Early Childhood Intervention: Assessing the Early Impact of *Preparing For Life* at Six Months', Chapter 2 of '*Preparing For Life* Early Childhood Intervention: Assessing the Impact of *Preparing For Life* at Twelve Months' and Chapter 2 of '*Preparing For Life* Early Childhood Intervention: Assessing the Impact of *Preparing For Life* at Eighteen Months' as these will be referenced where relevant. These reports can be found at the following website under publications: http://geary.ucd.ie/preparingforlife.

The chapter proceeds as follows: Section 2.2 describes the methods used to conduct the analyses and information on how to interpret the outcomes tables presented in the report. Sections 2.3 to 2.11 present the results for each of the eight main domains under analysis.

2.2 Methods & Description of Outcome Tables

A full description of the methodology used to analyse each wave of outcomes data may be found in '*Preparing For Life* Early Childhood Intervention; Assessing the Early Impact of *Preparing For Life* at Six Months'. It describes the permutation method used for hypothesis testing[1], including conditional permutation testing, the step-down procedure which is used for multiple hypotheses testing, and the procedure for dealing with missing data[2].

[1] Note that due to an improvement in computing power, the permutation testing is now conducted with 100,000 replications.

[2] Overall, the extent of missing information in the twenty-four month data is very low; less than 7% of data were missing for any item in each psychometric scale, with the majority of scales missing less than 1% of data overall. In order to account for missing data, interpolation methods were used. Note that such methods were only used for standardised psychometric scales, as it is possible to utilise information within that scale to replace the missing data. In cases where data were missing on single item measures, observations with missing data were excluded from the analysis. On average, over 99% of data were present for single item measures.

The following information is included in the outcomes tables presented in this report and provides a reference for interpreting the results.

N	*N* represents the number of respondents who are included in the analysis.
M	*M* is the mean, or average value, of responses. This statistic represents the average response of all participants who answered the question of interest. For binary variables, this value can be interpreted as the proportion of the sample who reported being in the category described.
SD	*SD* is the standard deviation. This is calculated by summing the squared difference between each observed response and the average response. This sum is then divided by the total number of observations to derive the average squared difference between responses and the mean. The square root of the resulting figure gives the standard deviation. It serves as a useful indicator of how varied the responses were.
Low/High/ LFP	*Low/High/LFP* subscripts attached to the summary statistics (N, M, and SD) indicate the subgroups for which the summary statistics have been calculated.
Individual Test *p*[1]	The mean responses for the low treatment group and high treatment group are compared in multiple ways. In this chapter the data are first grouped by *PFL* treatment status (low treatment and high treatment) to examine twenty-four month differences within the *PFL* cohort. In Chapter 3 the low treatment group is compared to the comparison group. Classical statistical tests rely on the assumption that sample sizes are large, and produce inferences based on *p-value*s that are only valid for large samples. These tests can be unreliable when the sample size is small. As the sample size of *PFL* is relatively small, all the analyses comparing the twenty-four month outcomes of the high and low treatment groups use an alternative approach called Permutation-based hypothesis testing. This approach has been found to be appropriate for small samples and was used to analyse data for a similar evaluation of Perry Preschool Program by Heckman and colleagues (2010). The individual *p-value* represents the probability of observing differences between two groups by chance. In cases where there is a statistically significant difference between the two groups, a *p-value* is presented which indicates the likelihood that the group difference could have randomly occurred. A *p-value* of less than .10 is considered to be statistically significant. A *p-value* of less than 0.10 (10%), 0.05 (5%), and 0.01 (1%) conveys that the probability that the difference between the two groups is due to chance is less than 10%, 5%, or 1% respectively. Low *p-value*s (i.e., significant results) would be a positive outcome indicating that the high treatment group is outperforming the low treatment group. *p-value*s are presented for significant differences only. Differences that are significant in the non-hypothesised direction are denoted by *s~*. Non-significant differences are denoted by ns.
Step-down Test *p*[2]	As 166 outcome measures are considered in this report, it is possible that we may reject some of these null hypotheses by chance (i.e. we may identify a significant difference between the high and low treatment groups on certain outcomes when there is, in fact, no significant difference). Multiple hypothesis testing allows us to test for the joint significance of multiple outcomes at the same time, thus minimising the likelihood of finding treatment effects that are false. The multiple hypothesis method we use is called the Step-down procedure. To illustrate the Step-down procedure, consider the null hypothesis of no treatment effect for a set of, say, K outcomes jointly. The complement of the joint null hypothesis is the hypothesis that there exists at least one hypothesis out of K that we reject. We apply the analysis of Romano and Wolf (2005) and its extension by Heckman et al., (2010). Their methods control for overall error rates for vectors of hypothesis using family-wise error rate (FWER), the probability of yielding one or more false positives out of a set of hypotheses tests, as a criterion. The *p-value* from the Step-down test may be interpreted in the same manner as the individual *p-value* discussed above. Each *p-value* in the Step-down test represents the joint test of all outcomes included in that category. For example, the *p-value* corresponding to the first outcome represents a test of the joint significance of all outcomes included in that category. The next *p-value* corresponding to the second outcome in that category represents the test that all remaining outcomes in that category are jointly significant, excluding the first outcome. Similarly, the *p-value* corresponding to the third outcome in that category represents a test of the joint significance of all the outcomes remaining in that category, excluding the first two outcomes. Note that all outcomes in the tables are organised according to their individual test-statistic, such that the measure with the largest test-statistic is listed first and the outcome with the smallest test-statistic is listed last within that category. Thus, the ordering of the outcomes in the tables (within categories) is indicative of the strength of the treatment effects.
Effect Size *d*	*Effect size (d)* illustrates the magnitude of the difference between the groups. While the *p-value* allows the reader to determine whether or not there is a statistically significant difference between groups, it does not indicate the strength of the difference. As the strength of a relationship can provide valuable information, the effect size was calculated using Cohen's d. A Cohen's *d* ranging from 0.0 to 0.2 is deemed a small effect; values ranging from 0.2 to 0.8 represent a medium effect; and values greater than 0.8 illustrate a large effect (Gravetter & Wallnau, 2004).

2.3 Child Development

Child development is reflected in the level of skills expected at each stage of life. A commonality across theories of development is the concept of maturation, whereby skills and abilities emerge in line with the individual's level of growth. The rate of maturation that happens during infancy, particularly brain development, makes this time a critical period in the development of lifelong skills and abilities (Johnson, 2010). Healthy development in the earliest years helps to lay the foundation for lifelong wellbeing and learning (Center on the Developing Child at Harvard University, 2010). Assessing whether a child has met the milestones expected for his/her age is a method of identifying whether the child may be struggling and require additional support.

Children's development is shaped by the dynamic interplay between biology and experience (Shonkoff & Phillips, 2000). Emerging science in the field of epigenetics has demonstrated the complexity of this interaction, and points to the important influence of children's early experiences in shaping their developmental trajectories (Tremblay, 2010). Amongst the most important contributing factors to these early experiences are children's early relationships and environments. Children's early relationships with caregivers affect virtually all aspects of their development (NSCDC, 2004). Likewise, when young children grow up in environments of neglect, without appropriate levels of attention, responsiveness, and protection, they face significant risks to their immediate and long-term development (Carr, 2006; NSCDC, 2012). Educating parents about child development outcomes and milestones can influence their perception of their child's ability and impact the amount of stimulation they provide to their infant (Lee, 2005).

PHYSICAL DEVELOPMENT: GROSS AND FINE MOTOR SKILLS

Gross motor skills involve the coordination of large muscle groups (e.g. walking) while fine motor skills involve voluntary reaching and hand skills (e.g. pincer grasp between finger and thumb) (Fentress & McLeod, 1986). The development of these skills has a genetic component but is also influenced by nutrition, disease and trauma, and indirectly by socio-economic factors (Carr, 2006). As motor development is influenced in part by environmental factors it can be enhanced through experience and practice, particularly if the caregiver actively promotes progression. By twenty-four months, children will typically have mastered a number of gross and fine motor skills, and approximately 90% of children will be able to build a tower of two cubes, walk up steps and kick a ball forward (Bayley, 1993; Frankenberg & Dodds, 1967).

COGNITIVE DEVELOPMENT, PROBLEM SOLVING, COMMUNICATION AND LANGUAGE

Parents play a key role in the development of their infants' communication skills. Indeed, where the infant is exposed to a low level of maternal daily communication or negative communication, for example when their mother is depressed, it can impact upon their own communication skills and subsequent development (Tronick & Reck, 2009). At twenty-four months, they may possess up to 300 words (Fenson, Dale, Reznick, Bates, & Thal, 1994) and are adding to their vocabulary at a rate of up to 10-20 words per week (Berk, 2003, as cited in Ganger & Brent, 2004). At twenty-four months children may have the ability to combine words into short, simple sentences (Fenson, Pethick, Renda, & Cox, 2000), have the ability to recognise and partake in turn-taking when speaking, and understand the non-verbal cues that signify the beginning or end of another individual's speech pattern (Rutter & Durkin, 1987). By twenty-four months, infants possess the ability to solve problems through creating a symbolic internal representation of the problem and figuring out a solution, rather than using the trial and error method (Dosman & Andrews, 2012). They can also begin to engage in pretend, symbolic play (Dosman & Andrews, 2012) and it is reported that at this stage, mothers in particular can enhance their children's internal symbolic representations through playing with them (Bornstein, Haynes, O'Reilly, & Painter, 1996). There is a link between symbolic play and cognitive development (Russ & Kaugars, 2000), with evidence to suggest that cognitive development progresses at a faster pace in children when adults challenge them through play (Damast, Tamis-LeMonda, & Bornstein, 1996). Ito (2005) suggested that motor and cognitive learning tasks both require control and manipulation of internal neural representations. For motor tasks, an internal representation of the environment and place within the environment is required. For cognitive tasks, the representation is often

of more abstract symbols. Adolph (2008) proposed that as an infant learns to master motor skills they need to adapt and overcome constraints such as obstacles and changes in the environment.

PERSONAL, SOCIAL AND EMOTIONAL DEVELOPMENT

This refers to a child's ability to engage effectively in social interactions, to perceive and interpret social cues accurately, and to regulate emotional response (Denham et al., 2003). At twenty-four months, children are aware of themselves as distinct beings from others. They may accordingly demonstrate increased independence and empathy for others. By twenty-four months, children may have formed multiple attachment relationships, and separation anxiety, which typically peaks between 14 and 18 months, begins to reduce (Kagan, Kearsley, & Zelazo, 1978).

IMPACT OF HOME VISITING INTERVENTIONS ON CHILD DEVELOPMENT AT TWENTY-FOUR MONTHS

To date, studies of different home visiting programmes have not revealed a consistent impact on child development at twenty-four months. Two of the ten studies reviewed found positive programme impacts on child development at twenty-four months. In their evaluation of the Healthy Families America programme, Caldera and colleagues (2007) reported favourable programme effects. Children in the treatment group demonstrated improved cognitive outcomes, and significant, favourable treatment effects on internalising and externalising scores for the Child Behaviour Checklist at twenty-four months. Using the Preschool Language Scale in their evaluation of the Nurse Family Partnership, Olds et al. (2002) reported favourable treatment effects for language at twenty-four months.

Findings from other evaluations are mixed. Three evaluations of the Early Head Start Programme (Love et al., 2001; Roggman, Boyce, & Cook, 2009; Roggman & Cook, 2010), three investigations of the Parents as Teachers Programme (Drotar et al., 2009; Wagner, Cameto, & Gerlach-Downie, 1996; Wagner & Spiker, 2001) and one other evaluation of the Nurse Family Partnership (Kitzman et al., 1997) did not identify any significant treatment effects for child development at twenty-four months. Separately, in their evaluation of the Parents as Teachers Programme, Wagner and Clayton (1999) found that home visiting had an unfavourable impact on child development which was reflected in poorer scores on the social development scale.

2.3.1 Child Development Instruments

AGES AND STAGES QUESTIONNAIRE

Child development in the *PFL* evaluation was assessed using the twenty-four month version of the Ages and Stages Questionnaire (ASQ; Squires et al., 1999). The ASQ was designed as an effective screening measure for young children who were considered to be at risk for developmental delay. The ASQ child monitoring system consists of 19 screening questionnaires at specific age intervals ranging from four to sixty months of age and provides scores across five domains of child development, with each domain comprising six items. Communication (α=0.78) measures the child's understanding of language, naming of items and word combinations. The gross motor domain (α=0.60) measures the child's walking, running, and jumping movements. The fine motor domain (α=0.36) assesses the child's finger and hand movements, including stacking and threading. Problem solving (α=0.27) measures the child's ability to follow instruction, pretence, and problem solving. Finally, the personal-social domain (α=0.32) provides a rating of eating skills, solitary play, and self-awareness. During the interview, the interviewer asked the mother questions related to different activities her child is capable of. The mother responded by indicating if her child exhibits the behaviour regularly, sometimes, or not yet. If the mother did not know whether her child was capable of the behaviour, where appropriate, the interviewer asked her to test the behaviour during the interview using the ASQ toolkit. Domain scores represent the sum of all six items in that domain, resulting in a possible range of 0 to 60 with higher scores indicative of more advanced development.

In addition, the ASQ provides age-specific standardised cut-off points for each domain (communication =36.5; gross motor=36.0; fine motor=36.4; problem solving=32.9; and personal-social=35.6). In line with these cut-off scores, a binary variable was calculated for each domain illustrating if the child scored

below the cut-off point. Those children who scored below the cut-off point on a domain are considered to be at risk of developmental delay in that domain. Furthermore, an ASQ standardised total score was created, with a mean of 100 and standard deviation of 15, for each domain. These standardised scores for communication, gross motor, fine motor, problem solving, and personal-social were then summed and standardised again within the sample, to a mean of 100 and standard deviation of 15, to produce the ASQ standardised total score.

AGES AND STAGES QUESTIONNAIRE: SOCIAL-EMOTIONAL

Children's social-emotional development was assessed using the Ages and Stages Questionnaire: Social-Emotional (ASQ:SE; Squires, Bricker, & Twombly, 2003). The ASQ:SE (α=0.78) is a screening tool used alongside the ASQ to identify children from six to sixty months of age who are in need of further social and emotional behavioural assessment. Questions on the ASQ:SE pertain to self-regulation, compliance, communication, adaptive functioning, autonomy, affect, and interaction with people. During the interview, the interviewer asked the mother questions related to different behaviours the child displays. The mother responded by indicating if her child exhibited the behaviour most of the time, sometimes, or never. Additionally, the mother indicated if the behaviour was a concern for her. Scores on each item were rated on a 0 to 10 scale and an additional five points was added to the score for every indication that the behaviour was a concern for the mother. Scores were summed to provide a total ASQ:SE score, with a possible range of 0 to 285. Higher scores indicated that the child may be at risk of poor social-emotional development. In addition, the ASQ:SE provides a cut-off score of 50 and suggests that children with scores above this cut-off may be at risk. In line with this cut-off score, a binary variable was calculated to illustrate if the child was at risk of poor socio-emotional development.

MACARTHUR-BATES COMMUNICATIVE DEVELOPMENT INVENTORIES: TODDLER SHORT FORM

The MacArthur-Bates Communicative Development Inventories: Toddler Short Form, Form A (CDI: toddler short form, Form A; Fenson et al., 2000) is a parent report instrument for assessing language and communication skills in children. It provides norms for children aged sixteen to thirty-six months of age. The CDI inventories measure a range of early communicative and representational skills that are related to language development in typically developing and language-delayed children. The CDI consists of two sections; a vocabulary checklist, and a single question asking the mother whether the child can combine words.

Mothers were asked to complete the CDI with pen and paper before beginning the main part of the interview. The first section contained a 100-word vocabulary checklist. Mothers were asked to circle the words that their child says. The checklist provides a words produced score (α=0.98). These variables were then normed by age and gender, according to Fenson et al. (2000). The individual question was a binary variable with a yes or no response asking the parents whether the mother can combine words.

BRIEF INFANT-TODDLER SOCIAL AND EMOTIONAL ASSESSMENT

The Brief Infant-Toddler Social and Emotional Assessment (BITSEA; Briggs-Gowan & Carter, 2006) is a 42-item screening tool for social-emotional/behavioural problems and delays in competence in children aged twelve months to thirty-six months. This version is a shortened version of the Infant-Toddler Social and Emotional Assessment (ITSEA). The BITSEA yields a Problem score (α=0.85) and a Competence score (α=0.64). Competencies (11 items) include areas of attention, compliancy, mastery, motivation, pro-social peer relations, empathy, play skills, and social relatedness. The Problem behaviour score includes 3 subscales: externalising (6 items: α=0.74), internalising (8 items: α=0.56) and dysregulation problems (8 items: α=0.71). In addition, there are two scales which identify possible clinical problems: the Autism Spectrum Disorder (ASD) scale (17 items: α=0.10) which identifies whether the child may benefit from an assessment for ASD and the 'red flag' scale (14 items: α=0.69) items which indicates a potential clinically significant problem.

The interviewer asked mothers to verbally rate each item on a three-point scale (0=not true/rarely, 1=somewhat true/sometimes, 2=very true/often). Items were summed to obtain a Problem score whereby

higher scores indicate greater levels of social-emotional or behavioural problems and a Competence score whereby lower scores indicate possible delays/deficits. These scores were normed by child gender. In addition, the BITSEA provides cut-off scores which indicate a 'Possible Problem' or 'Possible Deficit/ Delay' respectively. There are different cut-off scores for different ages: twelve to seventeen months, eighteen to twenty-three months, twenty-four to twenty-nine months, and thirty to thirty-six months. At twenty-four months, the cut-off scores are a score greater than 14 for girls and 15 for boys for the Problem score; and less than 16 for girls and less than 15 for boys for the Competence score, which suggest that children with scores above/below these cut-offs respectively may be at risk. In line with these cut-off scores, binary variables were calculated to illustrate if the child was displaying potential problem or competence difficulties. In total the BITSEA yields nine scores: two domains, two domain cut-offs, and five sub-domains.

CHILD BEHAVIOR CHECKLIST

The Child Behavior Checklist for Ages 1½ -5 (CBCL; Achenbach & Rescorla, 2000) is a parent report instrument for assessing behaviour in children. It provides scores for a range of Internalising and Externalising problems for children aged eighteen months to five years. The CBCL consists of seven syndromes; emotionally reactive (α=0.77), anxious/depressed (α=0.72), somatic complaints (α=0.73), withdrawn (α=0.71), sleep problems (α=0.72), attention problems (α=0.64), aggressive behaviour (α=0.88), and an 'other problems' (α=0.80) category. These 8 categories map onto two subscales, Internalising (α=0.91) and Externalising Problems (α=0.90), and also a Total Problems score (α=0.95).

Mothers were asked to complete the CBCL with pen and paper before beginning the main part of the interview. The measure consists of 100 questions with the response options not true, somewhat/sometimes true, or very true/often true. These are scored as zero, 1 and 2 respectively. From the 100 questions, 8 raw scores are produced (7 syndromes and 'other' category, as above). Further, the raw scores of the emotionally reactive, anxious/depressed, somatic complaints and withdrawn subscales are totalled as an Internal Problems score. Correspondingly, the attention problems and aggressive behaviour syndromes are totalled to produce the External problems score. Finally, the totals of all seven syndromes plus the other problems subscale are combined to produce a Total Problems score. The clinical cut-off range was identified for each domain as follows: an Internal Problems score of above 17, an External Problems score of above 24, and a Total Problems score of above 60. The CBCL produces a total of fourteen scores: three domains, three domain cut-offs, and eight sub-domains.

DEVELOPMENTAL PROFILE-3: COGNITIVE SECTION

The Developmental Profile-3 (DP-3; Alpern, 2007) is a parent report measure of child development from birth to age twelve years and eleven months. The *PFL* evaluation includes the DP-3 cognitive section which measures cognitive abilities in an indirect manner (α=0.80). This is a 38 item scale, starting at number 1 and continuing until the stop rule is satisfied (i.e. when five consecutive no responses are recorded). Each of the items refers to tasks which require cognitive skill and are arranged in order of difficulty, for example: 'When an adult points to something, does the child usually look where the adult has pointed?' For each item, mothers were asked whether their child had carried out the task and responded yes or no accordingly. The yes responses were tabulated to create a continuous score whereby higher values indicated greater cognitive development. These scores were standardised according to the normative sample provided in the DP-3 manual. In addition, a binary variable was created to indicate those above the average score, that is, a score of above 115.

SERVICES RECEIVED

Participants were asked yes/no if their child was receiving any special services, specifically any services to help their child catch up in any area like speech or physical development, and a binary variable was created.

2.3.2 Child Development Results

Table 2.1 presents the results comparing the high and low treatment groups on the child development domain.

ASQ SCORES

Within the ASQ scores category, two of the six child development measures were in the hypothesised direction and one of these, ASQ Problem Solving Score, was statistically significant. The high treatment group scored an average of 48.60 on this subscale while the low treatment group scored an average of 46.55 ($p<.10$, $d=.20$) indicating that children in the high treatment group were more likely to display developmentally appropriate problem-solving skills than children in the low treatment group. The step-down test showed that the joint effect of all six measures in the ASQ Scores category was not-statistically significant.

ASQ CUT-OFF SCORES

Within the ASQ cut-off scores category, which measures the proportion of children at risk of development delay, three of the six measures were in the hypothesised direction. One of these differences was statistically significant. 7% of children in the high treatment group were at risk of developmental delay regarding problem solving skills, compared with 14% of children in the low treatment group ($p<.10$, $d=.23$). The step-down test showed that the joint effect of all six measures in the ASQ Cut-off Scores category was not-statistically significant.

COMMUNICATIVE DEVELOPMENT INVENTORY (CDI)

Within the CDI category, both variables were in the hypothesised direction, however neither were statistically significant. Furthermore, the step-down test showed that the joint effect of both measures in the CDI category was not-statistically significant.

BITSEA

Within the BITSEA category one of the two measures was in the hypothesised direction and was statistically significant. The high treatment group scored an average of 8.20 on the problem subscale while the low treatment group scored an average of 9.86 ($p<.10$, $d=.24$) indicating that children in the high treatment group were reported to display less problem behaviours. The step-down test showed that the joint effect of the BITSEA scores was not-statistically significant.

BITSEA CUT-OFF SCORES

Within the BITSEA cut-off score category one measure, the BITSEA Problem cut-off score, was in the hypothesised direction and this difference was statistically significant. 12% of the high treatment group were rated as having a 'possible problem', compared with 23% of the low treatment group ($p<.05$, $d=.28$). Furthermore, the step-down test showed that the joint effect of the BITSEA cut-off scores was statistically significant ($p<.10$). The joint effect finding was driven by the significant results found for the BITSEA Problem score cut-off.

BITSEA SUBDOMAINS

Within the BITSEA subdomains category four of the five measures were in the hypothesised direction and two were statistically significant. The high treatment group scored an average of 2.71 on the dysregulation subdomain, compared with the low treatment score of 3.49 ($p<.05$, $d= .29$), indicating that the high treatment group had less difficulty with negative emotionality, sensory sensitivities, and sleeping and eating behaviours. In addition, the high treatment group scored an average of 1.67 on the internal problems subdomain, compared with the low treatment score of 2.05 ($p<.10$, $d=.22$), indicating that the high treatment group had less anxious and withdrawn behaviours. The step-down test showed that the joint effect of the BITSEA subdomains was not-statistically significant.

CBCL DOMAINS

Within the CBCL category all three measures were in the hypothesised direction and one was statistically significant. The high treatment group scored an average of 25.11 on the total score while the low treatment group scored an average of 28.76 ($p<.10$, $d=.20$) indicating that children in the high treatment group were reported to display less behavioural problems. The step-down test showed that the joint effect of the CBCL scores was not-statistically significant.

CBCL DOMAINS CUT-OFF

Within the CBCL domains cut-off category, all three measures were in the hypothesised direction and all three were statistically significant. None of the high treatment group were rated at the clinical level for the CBCL total score, compared with 7% of the low treatment group ($p<.01$, $d=.39$), indicating the high treatment group were less likely to have an overall behavioural problem. None of the high treatment group were rated as having an external problem at the clinical level, compared with 4% of the low treatment group ($p<.10$, $d=.27$). Similarly, 2% of the high treatment group were rated as having an internal problem at the clinical level compared with 7% of the low treatment group ($p<.10$, $d=.22$). The step-down test showed that the joint effect of the CBCL domain cut-off scores was statistically significant. The joint effect finding was driven by the significant results found for the CBCL total problems cut-off ($p<.01$), external problems cut-off ($p<.10$), and internal problems cut-off ($p<.10$).

CBCL SUBDOMAINS

Within the CBCL subdomains category seven of the eight measures were in the hypothesised direction and two were statistically significant. The high treatment group scored an average of 1.95 on the sleep problems subdomain, compared with the low treatment score of 2.74 ($p<.05$, $d=.33$). In addition, the high treatment group scored an average of 7.38 on the other problems subdomain, compared with the low treatment score of 8.94 ($p<.05$, $d=.29$), indicating that the high treatment group had less other problems such as destroying toys, eating non-foods, skin problems, resisting toileting etc. The step-down test showed that the joint effect of the CBCL subdomains was not-statistically significant.

NON STEP-DOWN MEASURES

Three of the four non step-down measures were in the hypothesised direction. There were two statistically significant differences between the high and low treatment groups. The high treatment group scored an average of 116.51 on the DP-3 cognitive development scale, compared to the low treatment score of 112.57 ($p<.05$, $d=.27$). Furthermore, 66% of the high treatment group were scored as above average on the DP-3 compared to 54% of the low treatment group ($p<.10$, $d=.25$). These indicate that the high treatment group were displaying more advanced cognitive abilities than the low treatment group. As Figure 2.1 indicates, quantile regressions revealed that the effect was strongest for children who displayed relatively high cognitive abilities.

Figure 2.1 High & Low Treatment Scores for DP-3

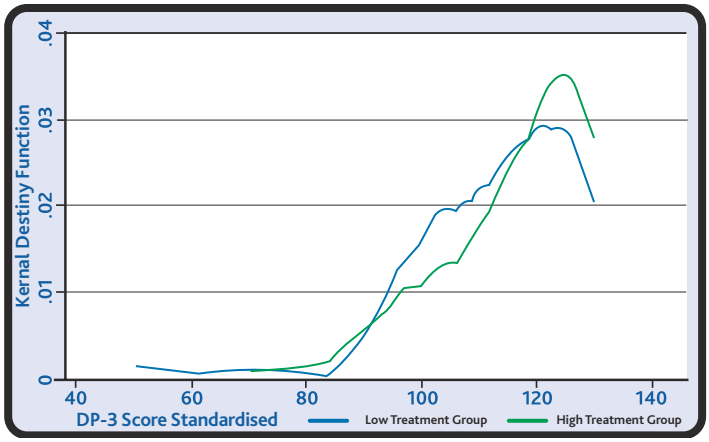


Table 2.1 - Results for High and Low Treatment Groups: Child Development

	Variable	N	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test p^1	Step-down Test p^2	Effect Size d
ASQ Scores										
	ASQ Problem Solving Score	166	(82/84)	48.60	(10.31)	46.55	(10.00)	$p<.10$	ns	0.20
	ASQ Fine Motor Score	166	(82/84)	48.78	(7.14)	47.32	(8.41)	ns	ns	0.19
	ASQ Communication	166	(82/84)	52.87	(12.50)	53.21	(12.09)	ns	ns	0.03
*	ASQ Social-Emotional Score	166	(82/84)	29.09	(21.17)	28.10	(27.62)	ns	ns	0.04
	ASQ Gross Motor Score	166	(82/84)	54.39	(8.29)	54.76	(8.39)	ns	ns	0.04
	ASQ Personal Social Score	166	(82/84)	51.04	(8.74)	52.08	(9.06)	ns	ns	0.12
ASQ Cut-off scores										
*	ASQ Problem Solving cut-off	166	(82/84)	0.07	(0.26)	0.14	(0.35)	$p<.10$	ns	0.23
*	ASQ Fine Motor cut-off	166	(82/84)	0.07	(0.26)	0.10	(0.30)	ns	ns	0.08
*	ASQ Personal Social cut-off	166	(82/84)	0.07	(0.26)	0.08	(0.28)	ns	ns	0.04
*	ASQ Social-Emotional cut-off	166	(82/84)	0.12	(0.33)	0.11	(0.31)	ns	ns	0.05
*	ASQ Gross Motor cut-off	166	(82/84)	0.06	(0.24)	0.04	(0.19)	ns	ns	0.12
*	ASQ Communication cut-off	166	(82/84)	0.11	(0.31)	0.07	(0.26)	ns	ns	0.13
Communicative Development Inventory (CDI)										
	Can Combine Words	165	(82/83)	0.93	(0.26)	0.88	(0.33)	ns	ns	0.16
	Vocabulary Words Produced NORM	166	(82/84)	40.22	(30.42)	39.33	(30.39)	ns	ns	0.03
Brief Infant-Toddler Social and Emotional Assessment (BITSEA)										
*	BITSEA Problem Score	166	(82/84)	8.20	(5.30)	9.86	(8.06)	$p<.10$	ns	0.24
	BITSEA Competence Score	166	(82/84)	18.18	(2.77)	18.36	(2.65)	ns	ns	0.06
BITSEA cut-off scores										
*	BITSEA Problem Score cut-off	166	(82/84)	0.12	(0.33)	0.23	(0.42)	$p<.05$	$p<.10$	0.28
*	BITSEA Competence Score cut-off	166	(82/84)	0.11	(0.31)	0.10	(0.30)	ns	ns	0.05
BITSEA subdomains										
*	BITSEA Dysregulation	166	(82/84)	2.71	(2.22)	3.49	(3.18)	$p<.05$	ns	0.29
*	BITSEA Internal Problems	166	(82/84)	1.67	(1.51)	2.05	(1.92)	$p<.10$	ns	0.22
*	BITSEA Red Flag	166	(82/84)	2.80	(2.39)	3.20	(3.22)	ns	ns	0.14
*	BITSEA External Problems	166	(82/84)	1.76	(1.92)	1.90	(2.37)	ns	ns	0.07
*	BITSEA Autism	166	(82/84)	3.51	(3.00)	3.49	(3.51)	ns	ns	0.01
Child Behaviour Checklist (CBCL) domains										
*	CBCL Total Score	166	(82/84)	25.11	(15.34)	28.76	(20.14)	$p<.10$	ns	0.20
*	CBCL Internal Problems	166	(82/84)	6.26	(4.96)	6.87	(6.22)	ns	ns	0.11
*	CBCL External Problems	166	(82/84)	9.52	(6.25)	10.21	(7.64)	ns	ns	0.10
Child Behaviour Checklist (CBCL) domains cut-off scores										
*	CBCL Total Score cut-off	166	(82/84)	0.00	(0.00)	0.07	(0.26)	$p<.01$	$p<.01$	0.39
*	CBCL External Problems cut off	166	(82/84)	0.00	(0.00)	0.04	(0.19)	$p<.10$	$p<.10$	0.27
*	CBCL Internal Problems cut off	166	(82/84)	0.02	(0.16)	0.07	(0.26)	$p<.10$	$p<.10$	0.22
Child Behaviour Checklist (CBCL) subdomains										
*	CBCL Sleep Problems	166	(82/84)	1.95	(2.01)	2.74	(2.67)	$p<.05$	ns	0.33
*	CBCL Other Problems	166	(82/84)	7.38	(4.66)	8.94	(5.99)	$p<.05$	ns	0.29
*	CBCL Emotionally Reactive	166	(82/84)	1.74	(1.99)	2.05	(2.33)	ns	ns	0.14
*	CBCL Attention Problems	166	(82/84)	1.96	(1.82)	2.18	(1.82)	ns	ns	0.12
*	CBCL Anxious/Depressed	166	(82/84)	1.89	(1.69)	2.08	(1.75)	ns	ns	0.11
*	CBCL Somatic Complaints	166	(82/84)	1.48	(1.77)	1.67	(1.80)	ns	ns	0.11
*	CBCL Aggressive Behaviour	166	(82/84)	7.56	(5.06)	8.04	(6.17)	ns	ns	0.08
*	CBCL Withdrawn	166	(82/84)	1.15	(1.34)	1.07	(1.71)	ns	ns	0.05
Non Step-down Measures										
	DP3: Cognitive Development standardised score	166	(82/84)	116.51	(13.30)	112.57	(16.12)	$p<.05$	-	0.27
	DP3: Cognitive Development Above average cut-off	166	(82/84)	0.66	(0.48)	0.54	(0.50)	$p<.10$	-	0.25
	ASQ Standardised Total Score	166	(82/84)	100.07	(16.07)	99.18	(16.49)	ns	-	0.05
*	Child receiving special services	166	(82/84)	0.06	(0.24)	0.02	(0.15)	ns	-	0.19

Notes: *'N'* indicates the sample size. *'M'* indicates the mean. *'SD'* indicates the standard deviation. [1] one-tailed (right-sided) *p-value* from an individual permutation test with 100,000 replications. [2] one-tailed (right-sided) *p-value* from a Step-down permutation test with 100,000 replications. *d* is Cohen's *d* Effect Size. * indicates the variable was reverse coded for the testing procedure. 'ns' indicates the variable is not-statistically significant. '$p<.01$', '$p<.05$' and '$p<.10$' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively. 's~'indicates that the variable was significant in a left-sided test. The variables are reported in order of the largest to the smallest t-statistic within each Step-down category.

2.4 Child Health

One of the main aims of many intervention programmes is to improve child health through activities designed to support families, coupled with access to enhanced community-based resources for parents and their children (MacKenzie, Shute, Berzins, & Judge, 2004). People living in disadvantaged areas suffer disproportionately from preventable health conditions, such as asthma, type 2 diabetes, dental morbidity, and injuries (Komro, Flay, & Biglan, 2011). A few evaluations of home visiting programmes have reported significant effects on child health at twenty-four months.

PHYSICAL HEALTH

By twenty-four months children are becoming braver in exploring their environments, increasing the likelihood that falls, physical accidents, and injuries may occur. Many other factors can also affect a child's physical health at twenty-four months. The contraction of illnesses and use of medication such as antibiotics can have implications for future child health (Cole Johnson et al., 2005; Marra et al., 2006). Three evaluations of early intervention programmes have found favourable effects on child health. In their investigation into the Early Intervention Program for Adolescent Mothers, Koniak-Griffin and colleagues (2003) reported that treatment children had fewer days and episodes of hospitalisation, and a higher percentage never used the ER for health problems at twenty-four months. Duggan and colleagues (1999) reported a favourable programme effect for Healthy Families America children having a primary care provider who is aware of the family's concerns about the child at twenty-four months. Meanwhile, in their evaluation of Healthy Families America, Caldera et al. (2007) reported that, at twenty-four months, treatment families were more likely to have health care coverage. The Moving to Opportunity Program evaluation (Orr et al., 2003) found no significant treatment effect on child general health, asthma, obesity, or whether or not the child had experienced an accident or injury requiring medical attention in the past year. However it should be noted that these measures were taken for children between five and eleven years of age, so the findings are not directly comparable to the *PFL* sample.

CHILD FEEDING

Appropriate nutrition levels and feeding behaviours are critically important to maintain good physical development and health not only in infancy but also in adulthood (Grantham-McGregor, Walker, & Chang, 2000; Twomey, Kiberd, Matthews, & O'Regan, 2000). Feeding difficulties can affect child nutrition, and toddlers need to consume a healthy diet consisting of the right amounts of dairy, fruit/vegetables, grains, fats and protein (Gottesman, 2002). Exposure to fruit and vegetables before two years of age has been shown to predict variety of food intake at school age, and this effect is stable between two and eight years of age (Skinner, Carruth, Wendy, & Ziegler, 2002). To date, no home visiting programme evaluation has reported an effect on child feeding at twenty-four months.

CHILD WEIGHT

Weight is a contemporaneous indicator of general health and nutrition. It reflects the combined effects of energy intake (food and diet) and energy output. At twenty-four months it is suggested that an average girl weighs around 11.5kg and an average boy weights 12.2kg (WHO growth charts: http://www.cdc.gov/growthcharts/who_charts.htm). To our knowledge there are no evaluations measuring the impact of home visiting on children's weight at twenty-four months.

2.4.1 Child Health Instruments

GENERAL HEALTH

A number of variables were used to assess child health. A variable representing the overall general health of the child was asked of the mother with response options given on a five-point scale ranging from excellent to poor. This measure was dichotomised to create a binary variable denoting whether the child had good health (good, very good, excellent) or not (poor, fair). The number of health problems the child had in the last six months was assessed by asking the mother whether her child had been taken to the GP,

health centre, or hospital accident and emergency department for any problems on a list of 13 possible options. A variable denoting the total number of health problems the child had was created by summing the number of child health problems endorsed by the mother. Three binary variables were created to determine whether the child had a chest infection or asthma in the last six months and whether the child had an accident in the last six months. A binary variable was also created based on whether or not the child had stayed overnight in hospital in the last six months for any illness.

APPROPRIATE FOOD

Mothers were asked how often their child ate grains, dairy, protein, fruit, vegetables, and other foods (including sugars and fats, sweets, crisps, etc.) and how often their child drank formula. These were scored as a continuous variable with 1 representing 'never' up to 9 representing 'more than six times a day'. The sugars and fats category was reverse scored to indicate that more of these foods was not beneficial, and a binary was created to indicate whether the child ate fatty foods on a daily basis or not. A binary variable was also created to reflect whether or not the child had a poor diet. Poor diet was defined as eating at least one of the following less than once a day: grains, dairy, protein, fruits or vegetables.

NON STEP-DOWN MEASURES

Mothers were asked if they knew their child's current weight, and if so, what it was. A binary variable was created to indicate whether the mother knew her child's weight or not. For those who did, weight (in kilograms) was reported.

2.4.2 Child Health Results

CHILD HEALTH IN LAST 6 MONTHS

Five of the six measures in the 'Child Health in Last 6 Months' category were in the hypothesised direction, and four were statistically significant. 7% of children in the high treatment group were reported to have asthma, compared with 21% of the low treatment group ($p<.01$, $d=.41$). 95% of the high treatment group were scored as having good, very good, or excellent health, compared to 85% of the low treatment group ($p<.05$, $d=.35$). The high treatment group were reported to have had on average, 1.20 health problems which required medical attention in the last 6 months, compared with 1.64 for the low treatment group ($p<.05$, $d=.34$). In addition, 26% of the high treatment group were reported to have had a chest infection in the last 6 months, compared with 38% of the low treatment group ($p<.05$, $d=.26$). Overall, the step-down test showed that the joint effect of all six measures in the Child Health in Last 6 Months category was statistically significant. The joint effect finding was driven by the significant results found for child has asthma ($p<.05$), child has good health ($p<.10$), and number of health problems in the last 6 months ($p<.05$).

APPROPRIATE FOOD

Six of the nine measures in the 'Appropriate Food' category were in the hypothesised direction, four of which were statistically significant. Children in the high treatment group were reported to eat more protein ($p<.05$, $d=.34$), more fruit ($p<.10$, $d=.25$), and more vegetables ($p<.10$, $d=.23$) than children in the low treatment group. 21% of children in the high treatment group were reported to have poor eating habits compared with 32% of the low treatment group ($p<.10$, $d=.25$). There was also one statistically significant difference in the non-hypothesised direction. 58% of the high treatment group were reported to eat fatty food daily, compared with 48% of the low treatment group ($p<.10$, $d=.21$). The step-down test showed that the joint effect of the seven measures in the Appropriate Food category was not-statistically significant.

NON STEP-DOWN MEASURES

One of the two measures in the non step-down category was in the hypothesised direction, but was not-statistically significant.

Table 2.2 - Results for High and Low Treatment Groups: Child Health

	Variable	*N*	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test p^1	Step-down Test p^2	Effect Size *d*
Child Health in Last 6 months										
*	Had asthma	165	(81/84)	0.07	(0.26)	0.21	(0.41)	p<.01	p<.05	0.41
	Child has good health	165	(81/84)	0.95	(0.22)	0.85	(0.36)	p<.05	p<.10	0.35
*	No. of health problems taken to GP/ health centre/casualty	165	(81/84)	1.20	(1.19)	1.64	(1.42)	p<.05	p<.05	0.34
*	Had chest infection	165	(81/84)	0.26	(0.44)	0.38	(0.49)	p<.05	ns	0.26
*	Stayed in hospital for at least one day	165	(81/84)	0.02	(0.16)	0.06	(0.24)	ns	ns	0.17
*	Had an accident	165	(81/84)	0.10	(0.30)	0.10	(0.30)	ns	ns	0.01
Appropriate Food										
	How often the child eats protein	165	(81/84)	5.95	(1.15)	5.58	(1.00)	p<.05	ns	0.34
	*Child has poor eating habits	165	(81/84)	0.21	(0.41)	0.32	(0.47)	p<.10	ns	0.25
	How often the child eats fruits	165	(81/84)	6.72	(1.19)	6.40	(1.34)	p<.10	ns	0.25
	How often the child eats vegetables	165	(81/84)	6.09	(1.13)	5.82	(1.15)	p<.10	ns	0.23
	How often the child eats dairy	165	(81/84)	6.67	(1.30)	6.55	(1.09)	ns	ns	0.10
	How often the child eats grains	165	(81/84)	6.44	(1.01)	6.39	(1.19)	ns	ns	0.05
*	How often the child eats other food (e.g. sugars and fats, etc., sweets, crisp, chips.)	165	(81/84)	5.43	(1.40)	5.25	(1.20)	ns	ns	0.14
	How often the child drinks formula	165	(81/84)	1.89	(2.06)	2.25	(2.38)	ns	ns	0.16
*	Child eats fatty foods (daily/not)	165	(81/84)	0.58	(0.50)	0.48	(0.50)	s~	ns	0.21
Non Step-down Measures										
	Current weight (kilograms)	49	(24/25)	13.11	(2.21)	13.01	(2.77)	ns	-	0.04
	Mother knows child's current weight	165	(81/84)	0.31	(0.46)	0.32	(0.47)	ns	-	0.03

Notes: *'N'* indicates the sample size. *'M'* indicates the mean. *'SD'* indicates the standard deviation. [1] one-tailed (right-sided) *p-value* from an individual permutation test with 100,000 replications. [2] one-tailed (right-sided) *p-value* from a Step-down permutation test with 100,000 replications. *d* is Cohen's *d* Effect Size. * indicates the variable was reverse coded for the testing procedure. 'ns' indicates the variable is not-statistically significant. 'p<.01', 'p<.05' and 'p<.10' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively. *'s~'* indicates that the variable was significant in a left-sided test. The variables are reported in order of the largest to the smallest t-statistic within each Step-down category.

2.5 Parenting

There is evidence to suggest that a number of aspects of parenting, such as the quality of parent-child attachment, and the way in which control and warmth are combined to form a parenting style, have had strong significant effects on children's later psychological adjustment (Carr, 2006). Many home visiting programmes emphasise improving parenting through supporting parents and strengthening parenting skills (Kendrick et al., 2000).

PARENTING BEHAVIOUR/ATTITUDES

Insensitive parental care as reflected by a tendency to adopt hostile, strongly restrictive, and punitive child rearing behaviours has been associated with the development of insecure attachment styles and future externalising problems in children (Boivin et al., 2005; Patterson, Reid, & Dishion, 1992). Furthermore, some parenting behaviours have been associated with the emergence of internalising problems. A meta-analysis found that specific parenting attitudes and behaviours such as parental rejection, warmth, aversion, and granting of autonomy, all significantly moderated child anxiety (McLeod, Wood, & Weisz, 2007).

PARENTING STRESS

A number of studies have reported that children of highly stressed parents are at risk of developing negative outcomes such as problem behaviours (Anthony et al., 2005; Noel, Peterson, & Jesso, 2008). Parenting is hypothesised to be more 'stressful' for parents who have less knowledge, less perceived competence, and fewer supports (Mash & Johnston, 1990). Parents and children's coping resources can be eroded by stressful events, whether individual major stress events, or an accumulation of minor stress events, leading to the continuation of negative family interaction patterns (Carr, 2006; Friedman & Chase-Lansdale, 2002). Thus an exploration of parenting stress is critically important to our understanding of family functioning (Deater-Deckard, 2006).

PARENTAL ATTACHMENT

Attachment style refers to the pattern of interactions between children and their caregivers (Ainsworth, Blehar, Waters, & Wall, 1978; Cassidy & Shaver, 1999), and a secure child-caregiver attachment style is considered optimal for healthy development. A range of positive developmental outcomes associated with a secure child-caregiver attachment style (Cassidy & Shaver, 1999), including improved cognitive outcomes, social interactions and school achievement, and fewer behavioural problems (Thompson, 2008). To date, developmental literature has focused on assessing the quality of attachment relationships formed between child and caregiver, while neglecting to investigate the caregiver's perspective on this relationship (Maas et al., 2012). Thus it is noteworthy that parental attachment can affect the way a parent interacts with the child, and may also affect child behaviour (Sharp et al., 1995). In keeping with the key elements of a secure attachment relationship, sensitive, responsive, and stimulating parenting is considered most likely to promote optimal psychological and behavioural functioning of the child (O'Brien, Johnson, & Anderson-Goetz, 1989).

IMPACT OF HOME VISITING INTERVENTIONS ON PARENTING AT TWENTY-FOUR MONTHS

A number of home visiting programmes have had some positive impacts on parenting at twenty-four month (Kemp et al., 2011; Kitzman et al., 1997; see Kahn & Moore, 2010 for a review). An evaluation of Early Head Start found that parents who were engaged in the programme were more likely to read to their children daily and at bedtime than parents in the control group (Love et al., 2001). They also displayed more supportive parenting behaviours, showing greater enjoyment, greater sensitivity, and less detachment than controls. Parents involved in the programme also showed an increased level of knowledge of infant-toddler development when compared to parents in the control group. However the evaluation also found that the groups did not differ on levels of maternal intrusiveness or negative regard for the child (Love et al., 2001). The Healthy Families Alaska programme found no significant differences between parents in the programme and the control group in terms of parenting stress, child rearing attitudes, or parent child interactions (Duggan et al., 2007). However a positive programme effect was found on maternal self-efficacy (Caldera et al., 2007). The Healthy Start Programme (HSP) in Hawaii found that at the second year follow up, treatment mothers experienced significantly less parenting stress and felt more competent in their parenting skills than control group parents, as indicated in their higher parenting efficacy scores (Duggan et al., 1999).

Other evaluations investigating the influence of home visiting programmes on parenting behaviours at twenty-four months found no significant results (Koniak-Griffin et al., 2003; Roggman & Cook, 2010; Wagner & Spiker, 2001). Furthermore, one home visiting evaluation at this time point found unfavourable results. The Parents as Teachers Programme found that a subgroup of the programme group received less positive scores than the control group on the HOME subscale which measures acceptance of children's behaviour (Wagner & Clayton, 1999). However there was a significant positive effect on the same HOME subscale for the combined intervention group, which combined the standard Parents as Teachers services with a comprehensive case management service for teen parents (Wagner & Clayton, 1999). The evaluation also examined parenting knowledge and attitudes, reporting small and inconsistent programme effects in these areas (Wagner & Clayton, 1999).

2.5.1 Parenting Instruments

PARENTAL BEHAVIOURS/ATTITUDES

The Parental Cognition and Conduct Toward the Infant Scale (PACOTIS; Boivin et al., 2005) is a 26-item multifaceted self-report tool yielding scales on five domains which measure parents' perceptions about their parental role and their involvement in certain parenting practices. The parental self-efficacy (6 items, α=0.77), and perceived parental impact (5 items, α=0.80) domains include statements pertaining to beliefs about parenting competence and their impact on the child, while the parental hostile-reactive behaviours (7 items, α=0.78), parental overprotection (5 items, α=0.63), and parental warmth (5 items, α=0.65) domains assess parents' involvement in different types of behaviour with their children. Mothers rated each item on an 11-point scale ranging from zero denoting not at all what I think, feel, or do to 10 meaning exactly what I think, feel, or do. Scores for each domain represent an average of the responses to each item in that domain, resulting in a scoring range from 0 to 10. Therefore, scores in the parental self-efficacy and perceived parental impact domains indicate a greater belief in parental ability and in the impact of parent behaviours on child behaviours. Higher scores in the parental hostile-reactive behaviours, parental overprotection, and parental warmth domains indicate greater use of these behaviours. Parental hostile-reactive behaviour and overprotection are seen by the authors of the measure as negative aspects of parenting, while warmth is seen as a positive dimension of parenting. Following the Quebec Longitudinal Study of Child Development, four additional questions were added to the PACOTIS scale. These additional questions (α=0.71) assess how the parent compares her baby to other twenty-four month old babies; specifically how endearing, curious, cute, and intelligent she perceives her baby to be, compared with other babies of the same age. Response options and scoring were the same as PACOTIS above.

PARENTING STRESS

The short version of the Parenting Stress Index (PSI; Abidin, 1995) consists of 36 items which are completed by parents. The PSI provides a total score (36 items, α=0.95) and three subscales measuring potential factors related to parental stress. Difficult child (12 items, α=0.89), which indicates behavioural characteristics of the child as perceived by the mother, parenting distress (12 items, α=0.90), and parent-child dysfunctional interactions (12 items, α=0.88). Mothers were asked to rate how much they agree or disagree with each item on a 5-point likert scale ranging from strongly disagree to strongly agree. Responses to both the overall stress score and the three subscales were summed to generate representative scores, resulting in a possible scoring range of 36 to 180 for the total stress score, and 12 to 60 for perceptions of child behavioural problems, parenting distress, and parent-child dysfunctional interactions. A binary variable was calculated to represent the proportion of mothers scoring above 90. Mothers scoring above this cut-off score were considered to have clinically significant stress levels.

PARENTAL ATTACHMENT

The Condon Maternal Attachment Scale (CMAS; Condon & Corkindale, 1998) is a 19-item (α=0.74) measure of the mother's subjective feelings toward her infant. The CMAS provides a total score of maternal attachment as it relates to the mother's pleasure in proximity to her child, her acceptance of the child and lack of resentment about the child's impact on her life, sense of competence, satisfaction and patience. Mothers were presented with each question and instructed to select the option that best represents how she feels. Responses to each question were rescaled to range from one to five, with higher scores representing stronger attachment. The total score was calculated by summing all items, providing a range of scores from 19 to 95. Additionally, three subscales comprising quality of attachment (9 items, α=0.65), absence of hostility (5 items, α=0.66), and pleasure in interaction (5 items, α=0.36) were calculated to represent the mean of responses to items in that subscale.

CONCERN ABOUT CHILD'S DEVELOPMENT

Participants were asked how worried they were about their child's language development and their child's behaviour, emotions and relationships. Response options were; not at all worried, a little worried, worried or very worried. A binary variable was created where responses of 'a little worried', 'worried' or 'very worried' were scored as '1' while parents who were 'not worried at all' were scored '0'.

2.5.2 Parenting Results

PARENTAL COGNITION AND CONDUCT TOWARDS THE INFANT SCALE

Five of the six subscales within the PACOTIS category were in the hypothesised direction and two were statistically significant. The high treatment group scored 8.74 for parental self-efficacy compared with the low treatment group score of 8.42 ($p<.05$, $d=.29$), indicating that the high treatment group mothers reported feeling more competent as parents. In addition, the high treatment group scored 7.04 on the baby comparison scale, compared with the low treatment group 6.41 ($p<.05$, $d=.29$), indicating that the high treatment group were more likely to regard their baby more favourably compared with other babies of the same age. Finally, the step-down test showed that the joint effect of the six PACOTIS subscales was not statistically significant.

PARENTING STRESS INDEX (PSI)

Two of the three PSI subscales were in the hypothesised direction, but there were no statistically significant differences. Furthermore, the step-down test showed that the joint effect of the three PSI subscales was not-statistically significant.

MATERNAL ATTACHMENT

One of the three CMAS subscales was in the hypothesised direction, however there were no significant differences between the high and low treatment group. In addition, the step-down test showed that the joint effect of the three CMAS subscales was not-statistically significant.

NON STEP-DOWN MEASURES

Four of the five non step-down measures were in the hypothesised direction, with one significant difference: 2% of the high treatment group reported clinically significant stress levels compared to 12% of the low treatment group ($p<.01$, $d=.37$).

Table 2.3 - Results for High and Low Treatment Groups: Parenting

	Variable	*N*	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test p^1	Step-down Test p^2	Effect Size *d*
Parental Cognition and Conduct Toward the Infant Scale (PACOTIS)										
	Parental Self-Efficacy	165	(81/84)	8.74	(0.96)	8.42	(1.23)	$p<.05$	ns	0.29
	Baby Comparison Score	165	(81/84)	7.04	(2.10)	6.41	(2.27)	$p<.05$	ns	0.29
	Parental Impact	165	(81/84)	7.97	(2.23)	7.50	(2.55)	ns	ns	0.20
	Parental Warmth	165	(81/84)	8.69	(1.38)	8.48	(1.55)	ns	ns	0.15
*	Parental Hostile-Reactive Behaviour	165	(81/84)	1.78	(1.53)	1.94	(1.61)	ns	ns	0.10
*	Parental Over-Protection	165	(81/84)	4.49	(2.34)	4.23	(2.08)	ns	ns	0.12
Parental Stress Index (PSI)										
*	Difficult Child	166	(82/84)	21.67	(6.64)	22.68	(7.10)	ns	ns	0.15
*	Parent-Child Dysfunctional Interactions	166	(82/84)	18.34	(5.42)	18.92	(6.19)	ns	ns	0.10
*	Parental Distress	166	(82/84)	25.90	(8.90)	25.71	(8.41)	ns	ns	0.02
Condon Maternal Attachment Scale (CMAS)										
	Quality of Attachment	165	(81/84)	4.61	(0.35)	4.57	(0.40)	ns	ns	0.12
	Pleasure in Interaction	165	(81/84)	4.16	(0.46)	4.18	(0.42)	ns	ns	0.05
	Absence of Hostility	165	(81/84)	4.36	(0.50)	4.40	(0.55)	ns	ns	0.06
Non Step-down Measures										
*	PSI Stress cut-off (90)	166	(82/84)	0.02	(0.16)	0.12	(0.33)	$p<.01$	-	0.37
	Worried about child's behaviour	166	(82/84)	0.10	(0.30)	0.06	(0.24)	ns	-	0.14
*	Total Parental Stress Score	166	(82/84)	65.91	(17.88)	67.31	(19.15)	ns	-	0.08
	Condon Maternal Attachment Score	165	(81/84)	84.16	(5.75)	84.03	(6.32)	ns	-	0.02
	Worried about child's language development	166	(82/84)	0.17	(0.38)	0.18	(0.39)	ns	-	0.02

Notes: *'N'* indicates the sample size. *'M'* indicates the mean. *'SD'* indicates the standard deviation. [1] one-tailed (right-sided) *p-value* from an individual permutation test with 100,000 replications. [2] one-tailed (right-sided) *p-value* from a Step-down permutation test with 100,000 replications. *d* is Cohen's *d* Effect Size. * indicates the variable was reverse coded for the testing procedure. 'ns' indicates the variable is not-statistically significant. '$p<.01$', '$p<.05$' and '$p<.10$' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively. 's~'indicates that the variable was significant in a left-sided test. The variables are reported in order of the largest to the smallest t-statistic within each Step-down category.

2.6 Home Environment

The home and family environment can have a strong impact on children during the early years (Caldwell & Bradley, 1984). Although the relationship between a child's home environment and development is complex, there is a body of evidence to suggest that factors relating to the home environment can impact children's overall development along with social, emotional, and cognitive developmental aspects of school readiness (Evans, 2006; Farah et al., 2008; Sharma & Nagar, 2009; WHO, 2009).

Two measures were included at twenty-four months to evaluate the home environment. These related to whether a social worker was involved with the family, and whether someone other than the child's mother/primary carer smoked in the household.

SOCIAL WORKER INVOLVEMENT

Families may be involved with a social worker for a variety of problems, including social and emotional problems as well as for issues such as domestic violence and child abuse (www.hse.ie, as accessed on 8th August, 2013). Thus, a family working with a social worker may be considered 'at risk'. Few studies have reported whether home visiting programmes have impacted or can impact the likelihood of a social worker

working with programme families. The Healthy Families New York (HFNY) evaluation used maltreatment reports, rather than social worker involvement, as an indicator of risk at twenty-four months. The results indicated that first-time mothers in the treatment group were significantly less likely than those in the control group to have reported committing acts of serious abuse (DuMont et al., 2008; DuMont et al., 2010). However the Healthy Families Alaska (HFAK) programme showed no programme effects on child maltreatment at twenty-four months (Duggan et al., 2007). The HFNY evaluation concludes that these results suggest that the specific populations engaged in a study may be an important factor in explaining the differential effectiveness of home visitation programmes (DuMont et al., 2008; DuMont et al., 2010).

SMOKING

A measure of whether anyone other than the child's mother smokes in the house was included to further evaluate the home environment. The literature suggests that second-hand smoke exposure during early childhood is related to a variety of health difficulties both during infancy and later in life (Been, Nurmatov, van Schayck & Sheikh, 2013; Gergen et al., 1998; Mannino, Albalak, Grosse, & Repace, 2003). While considering the effects of second hand smoke on children, most home visiting programmes target maternal smoking habits. Some of these programmes have reported a positive effect on reducing the amount of second-hand smoke children are exposed to – namely the Oklahoma Community-Based Family Resource and Support programme (CBFRS; Culp et al., 2007) and the Nurse Family Partnership (Olds et al., 2003). As such, these programmes are considered to be a relatively cost-effective and successful smoke exposure reduction strategy (Culp et al., 2007).

2.6.1 Home Environment Instruments

SOCIAL WORKER INVOLVEMENT

Participants were asked if there was a social worker working with the family, and a binary variable was created for yes/no.

CHILD EXPOSED TO CIGARETTE SMOKE

Participants were asked whether another person in the house, other than themselves, smoked and a binary variable was created for yes/no.

2.6.2 Home Environment Results

NON STEP-DOWN MEASURES

Both measures in the non step-down category were in the hypothesised direction, and one was statistically significant; 2% of the high treatment group had a social worker working with their family, compared with 8% of the low treatment group ($p<.05$, $d=.27$).

Table 2.4 Results for High and Low Treatment Groups: Home Environment

Variable		N	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test p^1	Step-down Test p^2	Effect Size d
Non Step-down Measures										
*	Social worker working with family	165	(82/83)	0.02	(0.16)	0.08	(0.28)	$p<.05$	-	0.27
*	Child exposed to cigarette smoke	165	(81/84)	0.38	(0.49)	0.46	(0.50)	ns	-	0.17

Notes: *'N'* indicates the sample size. *'M'* indicates the mean. *'SD'* indicates the standard deviation. [1] one-tailed (right-sided) *p-value* from an individual permutation test with 100,000 replications. [2] one-tailed (right-sided) *p-value* from a Step-down permutation test with 100,000 replications. *d* is Cohen's *d* Effect Size. * indicates the variable was reverse coded for the testing procedure. 'ns' indicates the variable is not-statistically significant. '$p<.01$', '$p<.05$' and '$p<.10$' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively. 's~'indicates that the variable was significant in a left-sided test. The variables are reported in order of the largest to the smallest t-statistic within each Step-down category.

2.7 Maternal Health & Wellbeing

Maternal health research has traditionally focused on health issues that arise during pregnancy and the early postnatal period (Kahn, Zuckerman, Bauchner, Homer, & Wise, 2002). The importance of maternal health during toddlerhood has recently been highlighted as a predictor of outcomes in early childhood (Cheng, Fowles, & Walker, 2006; Kahn et al., 2002; Mensah & Kiernan, 2010). Several studies have identified the impact of maternal physical health, mental health, and substance use during toddlerhood on early child outcomes including physical health, language and behaviour problems (Kahn et al., 2002; Mensah & Kiernan, 2010).

PHYSICAL HEALTH

The World Health Organisation recommends at least twenty-four months between a live birth and subsequent pregnancy to reduce the risk of negative health outcomes for mother and infant (WHO, 2005). Some increased maternal health risks have been associated with either short or long intervals between a live birth and subsequent pregnancy. A review of studies about the associations between birth intervals and maternal health (Conde-Agudelo, Rosas-Bermudez, & Kafury-Goeta, 2008) concluded that long intervals were associated with increased risk of pre-eclampsia (>60 months) and labour dystocia (>48 months), while shorter intervals (<24 months) were linked to increased risk of uterine rupture in certain cases, and uterine placental bleeding disorders. However, the authors recommended further research into this topic. Maternal physical health difficulties experienced during pregnancy and childbirth often persist into the early years of raising children (Kahn et al., 2002; Mensah & Kiernan, 2010). These difficulties are most commonly associated with children's learning, development and behaviour (Mensah & Kiernan, 2010). Specifically poor maternal physical health is associated with poor child physical health, tantrums and difficult peer interactions (Cheng et al., 2006). The more persistent the experience of poor maternal physical health, the greater the negative effects on child outcomes (Kahn et al., 2002).

MENTAL HEALTH

Maternal mental health is also an important determinant of child developmental outcomes (Atkinson et al., 2000; Black et al., 2007; Conroy et al., 2012; Goodman & Gotlib, 2002). Poor maternal mental health is directly associated with poor parent-child interactions, and may also have an indirect negative impact on children's cognitive, social and emotional development due to emotional unavailability of the parent (Atkinson et al., 2000; Conroy et al., 2012). This theory is supported by longitudinal studies which report significant negative associations between maternal depression and child development (Atkinson et al., 2000; Conroy et al., 2012). One important facet of maternal mental health is self-esteem, or how valuable an individual feels he or she is as a person (Tangney, Baumeister, & Boone, 2004). Research suggests that high maternal self-esteem could act as a buffer in a high stress environment, thus allowing the mother to maintain her ability to effectively parent the child even in the presence of stress (Surkan et al., 2008). Furthermore, parents with high self-esteem are more likely to engage in authoritative parenting (Aunola, Nurmi, Onastu-Arvilommi, & Pulkkine, 1999; Lutenbacher & Hall, 1998), a style of parenting commonly associated with positive child developmental outcomes (Steinberg, Lamborn, Dornbusch, & Darling, 1992).

Another aspect of parental mental functioning that may affect child outcomes is parents' consideration of future consequences (CFC). This refers to the extent to which individuals consider the future consequences of their behaviour (Strathman, Gleicher, Boninger, & Edwards, 1994). This area of research suggests that parents' future orientation has an impact on their children's economic behaviour; such that parents' financial conscientiousness was positively correlated with that of their children (Webley & Nyhus, 2006). Furthermore, CFC is related to the willingness to delay gratification (Klineberg, 1968), an ability that children will develop based on the behaviour they are exposed to (Bandura & Mischel, 1965). Research has indicated that children who are able to delay gratification at age four years have been later described as more successful in school and are better able to cope with stress and frustration than those who were not able to delay gratification (Mischel, Shoda, & Rodriguez, 1989).

SUBSTANCE ABUSE

There is a growing body of research which highlights the impact of post-natal exposure to substance use such as smoking, drinking and drug taking, and the lifestyle associated with these behaviours (Das Eiden, Peterson, & Coleman, 1999; Pattenden et al., 2006). Yolton et al. (2005) found that post natal exposure to tobacco smoke was associated with deficits in receptive vocabulary. Additionally, Schuler, Nair, and Black (2002) report that children exposed to drugs during pregnancy and raised in an environment with on-going maternal drug use were more likely to display problems in cognitive development than children exposed to drugs during pregnancy who were raised in a drug free environment.

IMPACT OF HOME VISITING INTERVENTIONS ON MATERNAL HEALTH AT TWENTY-FOUR MONTHS

Similar to previous time points, at twenty-four months home visitation appears to have limited significant impact on maternal health. Evaluations of several large scale home visiting interventions, including Healthy Families America and Early Head Start, had no significant impact on a range of maternal health measures at twenty-four months. The measures used in these evaluations include mental health, depression, substance use, stress and physical health (Duggan et al., 1999; Duggan et al., 2004; Duggan et al., 2007; Kemp et al., 2011; Koniak-Griffin et al., 2003; Love et al., 2001; Wagner & Clayton, 1999). However, several studies found that home visiting interventions had a significant positive impact on subsequent pregnancies, in that intervention group mothers were more likely to delay subsequent pregnancies (Barnet, Rapp, DeVoe, & Mullins, 2010; Kitzman et al., 1997; Olds et al., 2002). Additionally, when investigating the Nurse Family Partnership, Kitzman et al. (1997) found that intervention group mothers reported higher levels of mastery than control group mothers at twenty-four months.

2.7.1 Maternal Health & Wellbeing Instruments

GENERAL HEALTH

Mothers' current health status was assessed using a self-rated report of general health measured on a five point scale ranging from excellent to poor. This measure was dichotomised to create a binary indicator of ill health if the participant reported fair or poor health. The mother was considered to have good health if she indicated her current health was good, very good, or excellent. Participants were also asked how many times they visited the GP in the last six months (not including visits for their child).

Participants were asked if they were currently pregnant, and if so, whether the pregnancy was planned. If they were not pregnant, they were asked whether they used birth control, and asked to identify what type from a list. Valid methods of birth control included: 'I take birth control pills at least sometimes', 'I take birth control pills regularly' and 'I have my partner use condoms'. Participants were also asked if they had been pregnant since the birth of the *PFL* child, and if so, what the outcome had been.

CURRENT SUBSTANCE USE

Three binary indicators were used to assess whether participants smoked, drank alcohol or took drugs in the past six months. For yes responses to the smoking question, participants were asked how many cigarettes they smoked per day, and for a yes response to the alcohol question, participants were asked how often and how much they drank. A binary indicator was calculated indicating whether the participant consumed alcohol above the recommended level or not (that is, more than 14 units of alcohol per week on average). A binge drinking variable was created for participants who reported consuming more than 6 units in a sitting, at least once a week. Whether the participant changed her smoking habits was also calculated based on changes in reported smoking between eighteen and twenty-four months. Positive numbers indicate a reduction in smoking, whereas negative numbers indicate that the participant is smoking more. The average change is reported.

MATERNAL SELF-CONCEPT AND MENTAL HEALTH

Edinburgh Postnatal Depression Scale

The Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987) is a 10-item (α=0.90) measure designed to identify women who are at risk of depression. Mothers were asked to tick the option that best represents how she had been feeling over the previous seven days. The four responses to each question were rated on a zero to 3 point scale with higher scores indicating a greater likelihood of depression. The total score represents the sum of all responses and has a range of zero to 30. Additionally, a binary variable was created which indicates participants who scored 10 or higher on this measure, indicating a high risk of depression.

Rosenberg Self Esteem Scale

Maternal self-esteem was assessed using the Rosenberg Self Esteem Scale (RSE; Rosenberg, 1965), a six item (α=0.86) measure assessing maternal self-esteem on a continuous scale. Mothers were presented with statements about how they feel about themselves and were asked to rate how much they agree or disagree with each statement on a four point likert scale ranging from zero meaning strongly agree to three representing strongly disagree. Scores were created by summing responses to all items, providing a range of zero to 18 with higher scores representing higher self-esteem.

Maternal Consideration of Future Consequences

Maternal consideration of future consequences was measured using three items (α=0.77) from the Consideration of Future Consequences Scale (CFC; Strathman et al., 1994), a measure of the extent to which people consider distant versus immediate consequences of behaviours. Three items with the strongest factor loadings in a factor analysis using 2000 observations were chosen as they adequately capture the concept of an individual's consideration of future consequences. Mothers were presented with items regarding their consideration of future consequences (e.g., In general, I ignore warnings about future problems because I think these problems will be solved before they get critical) and asked to indicate how much the statement describes them on a five point scale ranging from not at all like me to very much like me. Scores on this measure were calculated by summing responses to all three items on this scale, and reversing the score, resulting in a possible range of scores from three to 15 with higher scores being indicative of higher consideration of future consequences. Individuals who score low on this measure are expected to focus more on immediate needs and concerns, while mothers who score high on this measure are expected to consider the future implications of their behaviour.

2.7.2 Maternal Health & Wellbeing Results

MATERNAL PHYSICAL HEALTH AND HEALTH BEHAVIOURS IN PAST 6 MONTHS

Neither of the measures included in the Maternal Physical Health and Health Behaviours in the Past 6 Months category were in the hypothesised direction. The high and low treatment groups differed significantly in the non-hypothesised direction on one measure. The high treatment group reported an average of 2.43 GP visits in the previous six months, compared with the low treatment group average of 1.78 (p<.10, d=.21). The step-down test showed that the joint effect of both measures in this category was not-statistically significant.

CURRENT SUBSTANCE USE

Three of the four measures in the Current Substance Use category were in the hypothesised direction, however there were no significant differences between the high and low treatment groups on any of the outcomes. In addition, the step-down test showed that the joint effect of the four measures in this category was not-statistically significant.

MATERNAL SELF-CONCEPT AND MENTAL HEALTH

One of the three Maternal Self-Concept and Mental Health measures was in the hypothesised direction, however, the difference was not-statistically significant. In addition, the step-down test showed that the joint effect of the three measures in this category was not-statistically significant.

NON STEP-DOWN MEASURES

Six of the seven measures in the non step-down category were in the hypothesised direction, with one significant difference in the hypothesised direction: 57% of the high treatment group who were pregnant reported that this current pregnancy had been planned, compared with 13% of the low treatment group ($p<.10$, $d=1.07$).

Table 2.5 - Results for High and Low Treatment Groups: Maternal Health and Wellbeing

	Variable	*N*	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test p^1	Step-down Test p^2	Effect Size *d*
Maternal Physical Health & Health Behaviours in Past 6 Months										
	Good health compared with other women	165	(81/84)	0.80	(0.40)	0.81	(0.40)	ns	ns	0.02
*	No. of GP visits	163	(80/83)	2.43	(3.54)	1.78	(2.43)	s~	ns	0.21
Current Substance Use										
*	Drank alcohol in past 6 months	165	(81/84)	0.78	(0.42)	0.83	(0.37)	ns	ns	0.14
*	More than 14 units of alcohol consumed per week	165	(81/84)	0.21	(0.41)	0.24	(0.43)	ns	ns	0.07
*	Currently a smoker	165	(81/84)	0.51	(0.50)	0.52	(0.50)	ns	ns	0.04
*	Drug use in past 6 months	165	(81/84)	0.04	(0.19)	0.04	(0.19)	ns	ns	0.01
Maternal Self-Concept and Mental Health										
*	Edinburgh Postnatal Depression Score for past 7 days	166	(82/84)	6.67	(5.09)	7.38	(5.68)	ns	ns	0.13
	Rosenberg Self-Esteem Scale	166	(82/84)	13.45	(2.91)	13.49	(2.96)	ns	ns	0.01
	Consideration of Future Consequences Scale	166	(82/84)	10.26	(2.92)	10.56	(3.15)	ns	ns	0.10
Non Step-down Measures										
	New pregnancy planned	15	(7/8)	0.57	(0.53)	0.13	(0.35)	$p<.10$	-	1.07
	Been pregnant since birth of *PFL* Child	165	(81/84)	0.17	(0.38)	0.11	(0.31)	ns	-	0.19
	Currently using a valid form of birth control	166	(82/84)	0.65	(0.48)	0.56	(0.50)	ns	-	0.18
*	Edinburgh Postnatal Depression cut-off (10)	166	(82/84)	0.23	(0.42)	0.31	(0.47)	ns	-	0.18
	Changed smoking between 18 and 24 months (Number of cigarettes)	70	(39/31)	0.90	(4.79)	0.42	(5.20)	ns	-	0.27
*	Binge drinking (> 6 units in any sitting at least once per week)	165	(81/84)	0.22	(0.42)	0.25	(0.44)	ns	-	0.07
*	Number of cigarettes per day	83	(41/42)	12.80	(6.78)	11.10	(5.96)	ns	-	0.27

Notes: *'N'* indicates the sample size. *'M'* indicates the mean. *'SD'* indicates the standard deviation. [1] one-tailed (right-sided) *p-value* from an individual permutation test with 100,000 replications. [2] one-tailed (right-sided) *p-value* from a Step-down permutation test with 100,000 replications. *d* is Cohen's *d* Effect Size. * indicates the variable was reverse coded for the testing procedure. 'ns' indicates the variable is not-statistically significant. '$p<.01$', '$p<.05$' and '$p<.10$' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively. 's~'indicates that the variable was significant in a left-sided test. The variables are reported in order of the largest to the smallest t-statistic within each Step-down category.

2.8 Maternal Social Support

SOCIAL SUPPORT

The availability and accessibility of emotional (e.g., caring, concern) and instrumental (e.g., money, transportation) support from partners, family members and friends is crucial in the positive adaptation to parenting (Deater-Deckard, 1998; Roggman, Moe, Hart, & Forthun, 1994). Of relevance to the *PFL* Programme, for both parents and children, social support is suggested to increase a personal sense of well-being and provides a forum for receiving advice on managing problems (Carr, 2006). Also, some findings imply that increased social support will reduce parental stress, thereby encouraging more nurturing and stimulating parenting (Green, Furrer, & McAllister, 2007; McLoyd, 1990).

Social support can come in many different forms, including the provision of supportive behaviours such as advice or reassurance, or through the provision of material goods (Hogan, Linden, & Najarian, 2002). Positive social support can come from different sources. Adolescent mothers were shown to have lower levels of parenting stress when emotional support was provided by friends (Passino et al., 1993). The Best Beginnings home visitation programme found at twenty-four months that perceived social support was significantly related to the number of relatives that a mother reported seeing weekly (Anisfeld et al., 2004). For first time mothers support from a spouse or partner is cited most frequently as being the strongest predictor of maternal wellbeing (Crnic et al., 1983). A range and variety of social support networks is important for maternal wellbeing, family functioning and child development.

VOTING BEHAVIOUR

Voting behaviour may provide insight into peoples' behaviours in interacting with public policy and an indication of their degree of citizenship (Harpham, Grant, & Thomas, 2002). Voting has also been linked with other types of social participation. For example in the UK, religion is still said to have an impact on voter turnout, with those who are more religious tending to have higher instances of voting (Kotler-Berkowitz, 2001). In Ireland, electoral turnout is reportedly associated with socioeconomic class, with greater turnout displayed by higher SES groups (Kavanagh, 2005). Voting behaviour was therefore assessed at the twenty-four month time point as a measure of social participation.

IMPACT OF HOME VISITING INTERVENTIONS ON SOCIAL SUPPORT AT TWENTY-FOUR MONTHS

There are many home visiting evaluations which report positive programme effects on maternal social support (Barlow, Coren, & Stewart-Brown, 2005; De la Rosa, Perry, Dalton, & Johnson, 2005; McCurdy, 2001). However, few studies report the impact of home visiting on social support outcomes at twenty-four months, and those that do report mixed results. The Best Beginnings home visitation programme was developed as part of the Healthy Families America (HFA) initiative and programme group families were offered intensive services including frequent home visits and an emphasis on linking families with medical and other needed services in the community (Anisfeld et al., 2004). The evaluation found that referrals to family planning services were more likely to result in the receipt of services among programme group families (Anisfeld et al., 2004). However, the study also found that the control group were more likely than the programme group to avail of parenting education/training programmes after referral (Anisfeld et al., 2004). The Healthy Start Programme in Hawaii measured support using the Maternal Social Support Index, and after two years of programme engagement the evaluation found no positive effects on maternal social support (Duggan et al., 1999).

2.8.1 Maternal Social Support Instruments

PARTNER SOCIAL SUPPORT

Mothers were asked questions relating to the father's level of involvement in his child's life, and her own level of satisfaction with that level of involvement. Mothers were also asked to rate on a four-point scale the amount of support they felt they received from the child's father and/or partner. Responses were dichotomised into binary variables indicating whether or not the participant received no/little/some

support, or a lot of support. If the mother was not in a relationship with the father, she was asked whether he paid child maintenance, and if so, whether this was paid regularly or not.

SOCIAL SUPPORT

Mothers were asked to rate on a four point scale the amount of support they felt they received from their parents, close relatives, friends, and neighbours. Responses were catagorised into no/little/some support, or a lot of support. The responses were used to generate four yes/no binary variables indicating whether or not the participant received a lot of support from her parents, relatives, friends and neighbours. Participants were also asked how often they met with friends/relatives who do not live with them. A binary variable was created, indicating whether she met with them most days/or less.

VOTING BEHAVIOUR

Participants were asked whether they voted in the last general election and in the last local/European elections. Binary variables were calculated indicating whether participants reporting voting or not in each election.

MOTHER'S PARTICIPATION IN ORGANISATIONS

Mothers were asked about their participation in local sports, political, community, church and social organisations, and evening classes. Responses were recorded on a four-point scale from often to never, where higher scores indicate higher participation. The average score is reported for each of the six categories, and a total participation score was summed, and ranges from 6-24.

2.8.2 Maternal Social Support Results

PARTNER SOCIAL SUPPORT

One of the three measures within the Partner Social Support category was in the hypothesised direction; however it was not-statistically significant. The step-down test showed that the joint effect of the three measures in this category was not-statistically significant.

SOCIAL SUPPORT

Two of the five measures included in the Social Support category were in the hypothesised direction with one significant difference. 37% of the high treatment group reported receiving a lot of support from their relatives compared with 26% of the low treatment group ($p<.10$, $d=.25$). The step-down test showed that the joint effect of the five measures in the Social Support category was not-statistically significant.

VOTING

Of the two measures in the voting category, both were in the hypothesised direction but neither was statistically significant. The step-down test showed that the joint effect of both measures in the Voting category was not-statistically significant.

SOCIAL PARTICIPATION

Three of the six measures in the Social Participation category were in the hypothesised direction, and one was statistically significant. The high treatment group scored 1.74 for participation in social groups, compared with 1.54 for the low treatment group ($p<.10$, $d=.23$). The step-down test showed that the joint effect of both measures in this category was not-statistically significant.

NON STEP-DOWN MEASURES

Two of the three measures in this category were in the hypothesised direction, however none were statistically significant.

Table 2.6 - Results for High and Low Treatment Groups: Social Support

Variable	*N*	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test p^1	Step-down Test p^2	Effect Size *d*
Partner Social Support									
Support from baby's father	155	(75/80)	0.69	(0.46)	0.63	(0.49)	ns	ns	0.14
How often does father have contact with child (daily/not)	163	(80/83)	0.66	(0.48)	0.69	(0.47)	ns	ns	0.05
Support from partner	123	(61/62)	0.79	(0.41)	0.82	(0.39)	ns	ns	0.09
Social Support									
Support from relatives	163	(81/82)	0.37	(0.49)	0.26	(0.44)	$p<.10$	ns	0.25
Support from parent	154	(77/77)	0.68	(0.47)	0.64	(0.48)	ns	ns	0.08
Support from friends	162	(81/81)	0.17	(0.38)	0.17	(0.38)	ns	ns	0.00
Support from neighbours	160	(79/81)	0.08	(0.27)	0.09	(0.28)	ns	ns	0.04
Meet friends (most days/less)	164	(81/83)	0.57	(0.50)	0.60	(0.49)	ns	ns	0.07
Voting									
Voted in last General Election	163	(79/84)	0.58	(0.50)	0.50	(0.50)	ns	ns	0.17
Voted in last Local Elections and European Elections	160	(77/83)	0.52	(0.50)	0.45	(0.50)	ns	ns	0.15
Social Participation									
Social groups	165	(81/84)	1.75	(1.01)	1.54	(0.87)	$p<.10$	ns	0.23
Evening classes	165	(81/84)	1.51	(0.92)	1.44	(0.90)	ns	ns	0.07
Church/Charity/Voluntary groups	165	(81/84)	1.54	(0.92)	1.50	(0.91)	ns	ns	0.05
Political groups	165	(81/84)	1.04	(0.19)	1.04	(0.19)	ns	ns	0.01
Sports groups	165	(81/84)	1.65	(1.01)	1.74	(1.14)	ns	ns	0.08
Community groups	165	(81/84)	1.28	(0.60)	1.39	(0.85)	ns	ns	0.15
Non Step-down Measures									
Child maintenance is paid regularly	44	(20/24)	0.80	(0.41)	0.75	(0.44)	ns	-	0.12
Total Social Participation Score	165	(81/84)	8.78	(2.67)	8.64	(2.95)	ns	-	0.05
Child's father pays maintenance	71	(34/37)	0.59	(0.50)	0.65	(0.48)	ns	-	0.12

Notes: *'N'* indicates the sample size. *'M'* indicates the mean. *'SD'* indicates the standard deviation. [1] one-tailed (right-sided) *p-value* from an individual permutation test with 100,000 replications. [2] one-tailed (right-sided) *p-value* from a Step-down permutation test with 100,000 replications. *d* is Cohen's *d* Effect Size. * indicates the variable was reverse coded for the testing procedure. 'ns' indicates the variable is not-statistically significant. '$p<.01$', '$p<.05$' and '$p<.10$' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively. 's~'indicates that the variable was significant in a left-sided test. The variables are reported in order of the largest to the smallest t-statistic within each Step-down category.

2.9 Childcare

There are many elements which influence the effects of childcare on child outcomes. These include SES and the home environment of the child, the quality and type of childcare, the duration (both in terms of how long the child has been attending childcare, and the number of hours per week) and child characteristics. There are a number of cognitive benefits and behavioural disadvantages associated with centre-based childcare.

The suggested optimal age to begin childcare is 2-3 years old, as children who attend at this age display the greatest academic benefit, while negative behavioural effects are more associated with children who attend childcare at a younger age (Barnett, 1995; Loeb et al., 2007). The number of hours attending centre-based childcare per week is reported to be the most consistent predictor of socio-behavioural problems in children who attended centre-based childcare (National Institute of Child Health and Human Development, 2002a). This study, which followed children from birth to two and a half years, found that up

to twenty-four months, spending longer time in centre-based childcare arrangements was associated with increased problem behaviours, but by thirty-six months this effect was greatly reduced (NICHD, 2002a).

The benefits of quality childcare on cognitive development and school readiness are particularly evident for children from low socio-economic background (Barnett, 1995; Geoffroy et al., 2010; Sylva et al., 2011; NICHD, 2002a). There remains a dearth of literature on informal childcare, which is likely due to its inconsistent nature; however it is reported that the cognitive benefits of formal childcare are not associated with informal childcare (Andersson, 1989) rendering it less preferable to formal arrangements.

There is very limited research on the impact of home visiting programmes on childcare uptake for children aged twenty-four months or younger.

2.9.1 Childcare Instruments

CHILDCARE

Participants were asked if they have used any type of childcare for the *PFL* child, that is, if anyone besides themselves looked after the child for more than 10 hours per week. This was used to create a binary measure indicating whether the child was in any type of childcare. Those who indicated that they used childcare in the last six months were then asked to choose what type of childcare they mainly used from a list including child's grandparent, parent/friends/other relatives, nanny/child-minder, or nursery/crèche. A binary variable was created indicating whether the participant used formal childcare (nursery/crèche) or not, and whether or not the child's grandparent provided childcare to them. Additionally, participants were asked how many hours per week their child was in childcare, whether they paid for this childcare and if so how much, as well as what age their child was when he/she first started in this type of childcare. The cost of childcare on an hourly basis was calculated from this information. In addition, participants were asked how satisfied they were with this childcare.

2.9.2 Childcare Results

CHILDCARE USE SAMPLE

All participants were asked about their childcare arrangements. Of the full treatment sample interviewed (n=165), 46% reported using either formal or informal childcare arrangements. The responses of this sub-sample are presented in Table 2.7. Three of the six measures in the Childcare Use Sample category were in the hypothesised direction, however none were statistically significant. There was one significant difference in the non-hypothesised direction. The high treatment group reported 18.99 hours of childcare per week, compared with 22.15 in the low treatment group ($p<.10$, $d=.36$). The step-down test showed that the joint effect of the six measures in the Childcare Use sample category was not-statistically significant.

NON STEP-DOWN MEASURES

The Childcare Whole Sample measure was not in the hypothesised direction.

Table 2.7 - Results for High and Low Treatment Groups: Childcare

Variable		*N*	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test p^1	Step-down Test p^2	Effect Size *d*
Childcare Use sample										
	Age started childcare	75	(35/40)	14.49	(7.13)	13.48	(5.91)	ns	ns	0.16
	Satisfaction with childcare	75	(35/40)	0.89	(0.32)	0.85	(0.36)	ns	ns	0.11
	Childcare cost per hour	69	(33/36)	2.25	(1.57)	2.18	(1.60)	ns	ns	0.04
	Uses formal childcare	76	(36/40)	0.81	(0.40)	0.85	(0.36)	ns	ns	0.12
*	Uses grandmother care	76	(36/40)	0.19	(0.40)	0.10	(0.30)	ns	ns	0.27
	Hours per week in childcare	75	(35/40)	18.99	(9.30)	22.15	(8.58)	s~	ns	0.36
Non Step-down Measures										
	Uses any type of childcare	165	(81/84)	0.43	(0.50)	0.48	(0.50)	ns	-	0.09

Notes: *'N'* indicates the sample size. *'M'* indicates the mean. *'SD'* indicates the standard deviation. [1] one-tailed (right-sided) *p-value* from an individual permutation test with 100,000 replications. [2] one-tailed (right-sided) *p-value* from a Step-down permutation test with 100,000 replications. *d* is Cohen's *d* Effect Size. * indicates the variable was reverse coded for the testing procedure. 'ns' indicates the variable is not-statistically significant. '$p<.01$', '$p<.05$' and '$p<.10$' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively. 's~'indicates that the variable was significant in a left-sided test. The variables are reported in order of the largest to the smallest t-statistic within each Step-down category.

2.10 Household Factors & SES

There is much evidence to suggest that household and socio-economic factors (SES) can impact children's development, their well-being and school readiness (Hirsch, 2007; Letourneau et al., 2011). Lower SES has been associated with increased internalising and externalising behaviours in children, and can negatively impact cognitive and language development (Kagan, 1992; Nagin & Tremblay, 2001). These relationships are generally indirect, acting through variables that influence the availability of resources (housing, medical care), lifestyle and attitudes (neighbourhood quality, accidents) and the social and emotional context in which the child develops (parenting skills, marital disharmony) (Fonaghy & Higgit, 2000; Foster et al., 2005). The impact of household and SES inequalities on children's skills and capabilities begins early in life and can have detrimental effects on their future success in school, their academic achievement and even their likelihood of employment later in life (Duncan et al., 2007; Hirsch, 2007; Najman et al., 2004; Rouse et al., 2005). A comprehensive review of the literature surrounding the area can be found in the six month *PFL* report.

A review of the literature provides mixed evidence on the impact of home visiting programmes on SES and household factors. A number of home visiting evaluations which assess household and SES factors at twenty-four months have found positive effects. The Best Beginnings programme located in New York city found that mothers involved in the programme were 150% more likely than the control group mothers to have advanced their education by the time their children were turned two (Anisfeld et al., 2004). In addition, women visited by nurses as part of the Nurse Family Partnership programme were employed for longer during the second year after the birth of their first child than the control group mothers. The effect was also greater for older women (Olds et al., 2002). In contrast, the Parents as Teachers programme found that although mothers involved in the programme were more likely to be married at enrolment, they experienced more divorce or separation during the course of the intervention. Furthermore, there was a significant increase in the marriage rate in the control group over the first two years of the programme (Wagner & Clayton, 1999). Finally, a number of home visiting evaluations have reported no programme effects on household or socio-economic factors (John Hopkins University, 2005; Kitzman et al., 1997; Koniak-Griffin, 2003). For example, Duggan et al. (1999) reported that the Healthy Start Programme had no effect on mother's life skills in the areas of education or employment at twenty-four months.

2.10.1 Household Factors & SES Instruments

HOUSEHOLD COMPOSITION, LONE PARENT STATUS, AND SIBLINGS

Participants were asked several questions related to their household composition including how many people live in the household, how many siblings the *PFL* child has and whether or not the child's grandparent lives in the household. Additionally, the participant reported her current relationship status from a list of seven options. This information was used to generate two separate binary indicators denoting 1) whether the participant was currently in a relationship (married, cohabitating, or boyfriend) or 2) married only. Furthermore, participants were asked if their current partner was the child's father and if this was the same partner they were with when the child was eighteen months old.

MATERNAL AND PATERNAL EMPLOYMENT

Several questions assessed the current work status of both the mother and the father. If there had been a change in work status since the eighteen month interview, participants were asked to select their current work status from a list of options including currently in paid work, in work but on leave, unemployed, student, looking after home/family, retired, not able to work due to disability/sickness, paid training, or unpaid training. Responses to this question were used to create 3 binary variables, representing the proportion of mothers and fathers in paid work which includes paid training versus not in paid work, the proportion of mothers and fathers currently unemployed, and the proportion of mothers who are currently looking after the family. Unemployed individuals were asked for how many months they have been without paid work. A binary variable denoting long term unemployment (greater than twelve months) was created. Participants also reported on whether they worked in full or part-time employment and the approximate annual income of both parents. Separate variables were created for annual wage of part-time and full-time mothers, and also for fathers' annual wage (one variable).

FAMILY FINANCES

Participants' perception of financial difficulty was assessed by asking them to consider the total income of their household, and to rate how difficult it was for the household to make ends meet on a seven point scale, ranging from with great difficulty to very easily. Responses to this variable were used to generate a binary variable indicating whether the participants make ends meet with difficulty or not. Participants were also asked to compare their current financial situation to twelve months ago and a binary variable was created indicating whether their financial situation had become better or worse over time. Finally, they were asked to predict how they thought their financial situation would change in the next twelve months, and a binary variable was created indicating whether they expected it to get better or worse.

Participants were asked whether or not they saved money on a regular basis, and were also asked for a detailed account of any social welfare payments currently received by any household members, from a list of 39 potential payments. Four binary variables were subsequently created; whether anyone in the household received any social welfare payments, whether anyone had a medical card, received one parent benefit or unemployment benefit. Participants also stated the household's weekly income from all sources, selecting from a scale where the lowest range was less than €50, and the highest was €1500 or more. As households differ in the number of people and composition, it would be misleading to compare household income across participants without accounting for the number of people living in the household. To overcome this issue a variable representing the household equivalised weekly income was created. This was calculated by assigning a weight to each household member. A weight of '1' is assigned to the first adult in the household, 0.66 to each subsequent adult (aged 14+ years) and 0.33 to each child (aged less than 14 years). The sum of the weights in each household gives the household's equivalised size – the size of the household in adult equivalents. The household equivalised weekly income is the reported household weekly income divided by the equivalised size of the household.

MATERNAL EDUCATION

Participants were asked about their current level of educational attainment; specifically whether they had completed the Junior Certificate, the Leaving Certificate, and whether they went on to further education or were still in education. Four binary variables were created from these. The total number of years in full time education was also calculated.

DOMESTIC RISK

Participants were presented with a list of eight potential domestic risks and asked to indicate if any of these factors had been an issue for anyone in their family. These included separation, parenting problems, domestic violence, abuse, suicidal thoughts, mental health issues, addiction and other risks. There was also the option of 'no risks', bringing the total number of possible responses to nine. A total number of domestic risks score was also calculated by summing the number of risks each participant indicated, excluding the 'no risk' option.

MATERNAL HISTORY OF ANTISOCIAL BEHAVIOR

The Maternal History of Antisocial Behavior Scale (Tremblay et al., 2004) is a 9-item (α=.66) measure of the mother's self-reported anti-social behaviour. There are 5 items (α=.55) relating to the time period before the end of secondary school and 4 items (α=.52) relating to the time period since leaving secondary school. These items related to specific behaviours such as 'skipping school at least twice in one year' and have a yes/no response. These responses were summed to provide a total score of antisocial behaviour during school age and post school (i.e. adult age). These were used to create two binary variables indicating whether the participant exhibited 2 or more antisocial behaviours during the school years and after the school years respectively.

2.10.2 Household Factors & SES Results

HOUSEHOLD FACTORS

Three of the five measures in the Household Factors category were in the hypothesised direction, however none indicated a statistically significant difference between the high and low treatment groups. In addition, the step-down test showed that the joint effect was not-statistically significant.

MATERNAL EMPLOYMENT

Three of the four measures in the Maternal Employment category were in the hypothesised direction, and two indicated a statistically significant difference. 35% of mothers in the high treatment group looked after the home or their family, compared with 17% of mothers in the low treatment group (p<.01, d=.44). 23% of mothers in the high treatment group were unemployed compared with 35% of the low treatment group (p<.10, d=.27). The step-down test showed that the joint effect of the four measures in the Maternal Employment category was statistically significant. This effect was driven by the two significant results found for looking after the home and unemployment.

PATERNAL EMPLOYMENT

None of the three measures in the Paternal Employment category were in the hypothesised direction or statistically significant. In addition, the step-down test showed that the joint effect of the three measures in the Paternal Employment category was not-statistically significant.

FINANCES

Two of the nine measures in the Finances category were in the hypothesised direction however none of the effects indicated a statistically significant difference. The step-down test showed that the joint effect of the nine measures in the Finances category was not-statistically significant.

MATERNAL EDUCATION

Two of the five measures in the Maternal Education category were in the hypothesised direction, and one indicated a statistically significant difference. 74% of mothers in the high treatment group had engaged in education after secondary school, compared with 60% of the low treatment group ($p<.05$, $d=.31$). The step-down test showed that the joint effect of the Maternal Education category was not-statistically significant.

DOMESTIC RISKS

Four of the ten measures in the Domestic Risk category were in the hypothesised direction, and one was statistically significant. 1% of the high treatment group reported that parenting problems had been an issue for their family, compared with 6% of the low treatment group ($p<.10$, $d=.26$). There was also a significant difference in the non hypothesised direction. 4% of the high treatment group reported that addiction had been an issue for their family, compared with none in the low treatment group ($p<.05$, $d=.28$). The step-down test showed that the joint effect of the Domestic Risk category was not-statistically significant.

ANTISOCIAL BEHAVIOUR

Both of the measures in the Antisocial Behaviour category were in the hypothesised direction, and one indicated a statistically significant difference. 17% of mothers in the high treatment group reported antisocial behaviour at school age, compared with 30% of the low treatment group ($p<.05$, $d=.30$). The step-down test showed that the joint effect of the Antisocial Behaviour category was statistically significant ($p<.05$), driven by the significant result found for antisocial behaviour at school.

NON STEP-DOWN MEASURES

Four of the nine measures which were not included in the above Step-down categories were in the hypothesised direction and one was statistically significant. 95% of the high treatment group reported that their partner was their child's father, compared with 87% of the low treatment group ($p<.10$, $d=.28$). There was also a significant difference in the non-hypothesised direction: mothers who worked part time in the high treatment group earned an average of €11,062, compared with €14,186 for the low treatment group ($p<.10$, $d=.53$).

Table 2.8 - Results for High and Low Treatment Groups: Household Factors and SES

	Variable	*N*	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test p^1	Step-down Test p^2	Effect Size *d*
Household Factors										
*	Number of siblings	152	(75/77)	1.19	(1.20)	1.25	(1.30)	ns	ns	0.05
	Has a partner	164	(80/84)	0.76	(0.43)	0.75	(0.44)	ns	ns	0.03
	Married	165	(81/84)	0.16	(0.37)	0.15	(0.36)	ns	ns	0.02
*	Resides with grandparent	163	(80/83)	0.24	(0.43)	0.24	(0.43)	ns	ns	0.01
	Household size	162	(80/82)	4.50	(1.75)	4.82	(2.11)	ns	ns	0.16
Maternal Employment										
	Looking after the family/home	151	(79/72)	0.35	(0.48)	0.17	(0.38)	$p<.01$	$p<.05$	0.44
*	Mother unemployed	151	(79/72)	0.23	(0.42)	0.35	(0.48)	$p<.10$	ns	0.27
	Mother improvement in work status (between 18 and 24 months)	147	(78/69)	0.04	(0.19)	0.03	(0.17)	ns	ns	0.05
	Mother in paid employment	150	(78/72)	0.36	(0.48)	0.38	(0.49)	ns	ns	0.03
Paternal Employment										
	Father improvement in work status (between 18 and 24 months)	100	(55/45)	0.04	(0.19)	0.04	(0.21)	ns	ns	0.04
*	Father unemployed	105	(55/50)	0.40	(0.49)	0.36	(0.48)	ns	ns	0.08
	Father in paid employment	104	(55/49)	0.55	(0.50)	0.59	(0.50)	ns	ns	0.09
Finances										
	Household current financial situation compared to 12 months ago	164	(80/84)	0.63	(0.49)	0.56	(0.50)	ns	ns	0.13
*	Unemployment Benefit	166	(82/84)	0.34	(0.48)	0.37	(0.49)	ns	ns	0.06
	Household financial situation over the next 12 months	161	(78/83)	0.78	(0.42)	0.80	(0.41)	ns	ns	0.03
*	In receipt of One Parent Family benefit	166	(82/84)	0.44	(0.50)	0.40	(0.49)	ns	ns	0.07
	Saves regularly	164	(80/84)	0.39	(0.49)	0.43	(0.50)	ns	ns	0.08
	Equivalised weekly household income	152	(75/77)	216.44	(96.17)	226.34	(112.88)	ns	ns	0.09
*	In receipt of Social Welfare	166	(82/84)	0.88	(0.33)	0.85	(0.36)	ns	ns	0.10
*	Medical Card	166	(82/84)	0.74	(0.44)	0.69	(0.47)	ns	ns	0.12
*	Difficulty making ends meet	163	(80/83)	0.33	(0.47)	0.27	(0.44)	ns	ns	0.13
Maternal Education										
	Post secondary school education	165	(81/84)	0.74	(0.44)	0.60	(0.49)	$p<.05$	ns	0.31
	Years in full time education	158	(78/80)	12.49	(1.51)	12.34	(1.48)	ns	ns	0.10
	Leaving Certificate complete	160	(79/81)	0.47	(0.50)	0.48	(0.50)	ns	ns	0.03
	Currently in education	165	(81/84)	0.09	(0.28)	0.11	(0.31)	ns	ns	0.07
	Junior Certificate complete	160	(79/81)	0.89	(0.32)	0.91	(0.28)	ns	ns	0.09

Continued On Next Page.

Table 2.8 - Results for High and Low Treatment Groups: Household Factors and SES (Continued)

Variable	N	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test p^1	Step-down Test p^2	Effect Size d
Domestic Risks									
* Parenting problems	166	(82/84)	0.01	(0.11)	0.06	(0.24)	p<.10	ns	0.26
* Abuse	166	(82/84)	0.00	(0.00)	0.02	(0.15)	ns	ns	0.22
* Suicidal thoughts	166	(82/84)	0.02	(0.16)	0.04	(0.19)	ns	ns	0.07
No risks	166	(82/84)	0.70	(0.46)	0.69	(0.47)	ns	ns	0.01
* Bereavement/Death	166	(82/84)	0.13	(0.34)	0.13	(0.34)	ns	ns	0.01
* Domestic violence	166	(82/84)	0.04	(0.19)	0.02	(0.15)	ns	ns	0.07
* Separation	166	(82/84)	0.09	(0.28)	0.06	(0.24)	ns	ns	0.10
* Mental health issues	166	(82/84)	0.12	(0.33)	0.08	(0.28)	ns	ns	0.13
* Other risks	166	(82/84)	0.02	(0.16)	0.00	(0.00)	ns	ns	0.22
* Addiction	166	(82/84)	0.04	(0.19)	0.00	(0.00)	s~	ns	0.28
Antisocial Behaviour									
*Antisocial behaviour at school age	165	(81/84)	0.17	(0.38)	0.30	(0.46)	p<.05	p<.10	0.30
*Antisocial behaviour as adult	165	(81/84)	0.04	(0.19)	0.05	(0.21)	ns	ns	0.05
Non Step-down Measures									
Partner is the child's father	124	(61/63)	0.95	(0.22)	0.87	(0.34)	p<.10	-	0.28
* Mother long-term unemployed	148	(77/71)	0.13	(0.34)	0.21	(0.41)	ns	-	0.22
Mother's annual wage (full time only)	20	(8/12)	25305.35	(7393.47)	21948.09	(7988.04)	ns	-	0.46
Mother in part-time employment	54	(26/28)	0.69	(0.47)	0.57	(0.50)	ns	-	0.25
Same partner as 6 months ago	124	(61/63)	0.93	(0.25)	0.95	(0.21)	ns	-	0.08
* Domestic Risk Total Score	166	(82/84)	0.48	(0.93)	0.42	(0.81)	ns	-	0.07
Father's annual wage	44	(23/21)	24115.89	(11100.65)	25983.93	(12749.04)	ns	-	0.16
* Father long-term unemployed	104	(54/50)	0.22	(0.42)	0.14	(0.35)	ns	-	0.21
Mother's annual wage (part-time only)	32	(18/14)	11062.46	(4263.79)	14185.54	(7913.40)	s~	-	0.53

Notes: *'N'* indicates the sample size. *'M'* indicates the mean. *'SD'* indicates the standard deviation. [1] one-tailed (right-sided) *p-value* from an individual permutation test with 100,000 replications. [2] one-tailed (right-sided) *p-value* from a Step-down permutation test with 100,000 replications. *d* is Cohen's *d* Effect Size. * indicates the variable was reverse coded for the testing procedure. 'ns' indicates the variable is not-statistically significant. 'p<.01', 'p<.05' and 'p<.10' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively. 's~'indicates that the variable was significant in a left-sided test. The variables are reported in order of the largest to the smallest t-statistic within each Step-down category.

2.11 Main Results Summary: High & Low Treatment Groups

Consistent with the programme evaluation literature, limited significant findings were expected to be observed on most domains between the high and low treatment groups at twenty-four months, with most effects expected in the areas of parenting and the home environment. However, contrary to expectations most significant effects were found in the areas of child development and child health. At this stage of programme implementation there has been an average of 33 visits by programme staff to each family in the high treatment group. Most of the outcomes were in the hypothesised direction with the high treatment group reporting somewhat better outcomes than the low treatment group. The significant findings are summarised here.

CHILD DEVELOPMENT

Children in the high treatment group and children in the low treatment group differed significantly on almost all child development domains.

- Children in the high treatment group scored higher than children in the low treatment group and were less at risk of being developmentally delayed on the ASQ Problem Solving scale.
- Children in the high treatment group scored lower than children in the low treatment group on the BITSEA problem score. This result was driven by the dysregulation and internal problem sub-domains and indicates few problems in this area for children in the high treatment group.
- Children in the high treatment group were less likely to be at the cut-off point for behavioural problems, as measured by the BITSEA scale. The BITSEA cut-off score step-down category was significant as a result of this finding.
- Children in the high treatment group scored lower on the CBCL total score than children in the low treatment group indicating fewer behavioural problems. This result was driven by the sub-domains of sleep problems and other problems.
- Children in the high treatment group were less likely to be at the cut-off point for total CBCL behaviour problems, CBCL external behaviour problems and CBCL internal behaviour problems. The CBCL cut-off score step-down category was significant as a result of these findings.
- Children in the high treatment group scored higher on the DP-3 scale of cognitive development, and were more likely to score above the average cut-off than children in the low treatment group.

CHILD HEALTH

Children in the high treatment group and children in the low treatment group differed significantly in the child health domains:

- Children in the high treatment group were less likely to have had asthma or a chest infection in the previous 6 months than children in the low treatment group.
- Children in the high treatment group were more likely to have better general health than children in the low treatment group.
- Children in the high treatment group had fewer health problems that required medical attention than children in the low treatment group. The child health in last 6 months step-down category was significant as a result of the findings for asthma, good health and number of health problems.
- Children in the high treatment group were more likely to eat greater amounts of protein, fruit and vegetables, more likely to eat fatty foods daily and less likely to have poor eating habits overall compared to children in the low treatment group.

PARENTING

Mothers in the high treatment group and mothers in the low treatment group did not differ significantly across many of the parenting domains including parental stress and maternal attachment. However, the following significant differences were identified:

- Mothers in the high treatment group reported higher self-efficacy and were more likely to rate their baby favourably when compared to other babies than mothers in the low treatment group.
- Mothers in the high treatment group were more likely to be below the cut-off point for parental stress compared to mothers in the low treatment group.

HOME ENVIRONMENT AND SAFETY

There was one significant difference between the high treatment group and low treatment group in the home environment domain:

- Families in the high treatment group were less likely to have a social worker working with them and their family than those in the low treatment group.

MATERNAL HEALTH

Mothers in the high treatment group did not differ significantly from mothers in the low treatment group across health domains such as general health, substance use, self-concept and mental health and post-natal depression. However, two significant differences between the two groups were identified:

- Mothers in the high treatment group visited their GP more often than mothers in the low treatment group.
- Mothers in the high treatment group who were pregnant were more likely to report that their pregnancy had been planned, compared to pregnant mothers in the low treatment group.

MATERNAL SOCIAL SUPPORT

Mothers in the high treatment group did not differ significantly from mothers in the low treatment group in terms of social support across such domains as father support, support from friends, parents or voting behaviour. However, two significant differences were identified:

- Mothers in the high treatment group were more likely to receive a lot of support from their relatives than the low treatment group.
- Mothers in the high treatment group participated more in social groups than mothers in the low treatment group.

CHILDCARE

Children in the high treatment group did not differ significantly from children in the low treatment group in the majority of childcare domains. There was one significant difference between the high and low treatment group in this domain:

- The high treatment group reported less hours per week in childcare than the low treatment group.

HOUSEHOLD FACTORS AND SES

Families in the high treatment group did not differ significantly from families in the low treatment group in terms of household size, marital status, paternal employment or finances. There were a number of significant differences between the high and low treatment group in this domain:

- Mothers in the high treatment group were less likely to be unemployed than those in the low treatment group.
- Mothers in the high treatment group were more likely to classify themselves as looking after the home or family than those in the low treatment group.
- Mothers in the high treatment group were more likely to have engaged in education after leaving secondary school.
- Families in the high treatment group were less likely to report that parenting problems were an issue, but more likely to report that addiction was an issue, than families in the low treatment group.
- Mothers in the high treatment group were less likely to report that they had exhibited anti-social behaviour when at school, compared to mothers in the low treatment group. The anti-social behaviour step-down category was significant as a result of this finding.
- Mothers in the high treatment group were more likely to report that their partner was their child's father.
- Mothers in the high treatment group that worked part-time earned less when compared to mothers in the low treatment group that worked part-time.

SUMMARY

Overall, 166 outcome measures were assessed at twenty-four months. Of these one-tailed tests, 99 (60%) were in the hypothesised direction such that the high treatment group had better outcomes than the low treatment group, and 35 (21%) of these differences were statistically significant. These differences were found across all domains except childcare. 60 (36%) of the measures were in the non-hypothesised direction, such that the low treatment group had better outcomes than the high treatment group, and 5 (3%) of these were statistically significant. These differences were found across child health, maternal health, childcare, and household factors and SES. A number of positive effects were found in the domains of child development and child health. Of the 29 step-down measures, 5 were significant; child socio-emotional development, child behaviour problems, child health in the last 6 months, maternal employment and maternal anti-social behaviour.

Chapter Three

Comparison Group and Dynamic Results Summary

This chapter presents summaries of additional results comparing the twenty-four month outcomes of the low treatment group to the comparison group. It also reports the twenty-four month dynamic analysis results which examine changes in child and parent outcomes over time for the high and low treatment groups. The purpose of these analyses is to explore different aspects of the data not captured in the main analysis.

3.1 Low Treatment and Comparison Group Analyses

This section presents the results comparing the twenty-four month outcomes of the low treatment group to the external, no treatment comparison group. As the *PFL* community is small, the purpose of the comparison group is to have an outside community sample that is not at risk of contamination from the high treatment group. If the low treatment group outperforms the comparison group it may be an indication that the low treatment group has been contaminated by the high treatment group and thus is not a viable comparison group for determining the impact of the *PFL* Programme. In addition, comparing the low treatment group to the comparison group allows us to measure the impact, if any, of the low treatment supports.

3.1.1 Hypotheses

We hypothesise that there will be a limited number of statistically significant differences between the *PFL* low treatment group and the LFP community comparison group in both the hypothesised and non-hypothesised direction. Controlling for the baseline differences between the groups, a finding that the low treatment group have outperformed the comparison group at twenty-four months suggests that either the low treatment group may have received some *PFL* supports or that the low treatment supports are effective.

3.1.2 Key Findings: Low Treatment Group & Comparison Group

In total, 166 items were included in the analysis, of which positive significant differences between the low treatment group and the comparison group were found on 15 (9%). Conversely, 20 of the individual items were statistically significant (12%) in the non-hypothesised direction such that the comparison group outperformed the low treatment group. The finding that the comparison group are outperforming the low treatment group on a higher proportion of measures suggests that contamination may not be having an impact within the community, and also suggests that the low treatment supports are having minimal effect.

CHILD DEVELOPMENT

Children in the low treatment group and children in the comparison group did not differ significantly across many of the child developmental domains including social, emotional, cognitive and motor development scores. However, the following significant differences were identified:

- More children in the low treatment group could combine words than children in the comparison group.
- Children in the low treatment group were reported to have less CBCL internalising problems when compared to children in the comparison group. This result was driven by the following sub-domains: anxious behaviour, somatic complaints, and emotional reactivity. The child behaviour step down category was significant as a result of these findings.

CHILD HEALTH

Children in the low treatment group and the comparison group differed significantly across many child health domains, including:

- Children in the low treatment group were more likely to have had a chest infection and asthma in the last 6 months than children in the comparison group.
- Children in the low treatment group were more likely to have been taken to the GP, health service or casualty, and be hospitalised in the last 6 months.
- Fewer children in the low treatment group were reported to have had good health.
- Children in the low treatment group were less likely to consume proteins than children in the comparison group.

PARENTING

Mothers in the low treatment group and the comparison group did not differ significantly across the majority of the parenting domains. However, one significant difference was identified:

- Mothers in the low treatment group were less worried about their child's language development than mothers in the comparison group.

HOME ENVIRONMENT AND SAFETY

Family home environments in the low treatment group and the comparison group differed significantly in one area:

- Families in the low treatment group were more likely to have a social worker working with their family than the comparison group.

MATERNAL HEALTH & WELLBEING

Mothers in the low treatment group did not differ significantly from mothers in the comparison group across some health domains such as smoking and mental health; however a number of significant differences between the two groups were identified:

- Mothers in the low treatment group reported less visits to their GP compared to the comparison group. The maternal physical health step-down category was significant as a result of this finding.
- Mothers in the low treatment group were less likely to report drinking alcohol in the previous 6 months. The current substance use step-down category was significant as a result of this finding.
- Mothers in the low treatment group that were pregnant were less likely to report that their pregnancy had been planned.
- Mothers in the low treatment group were less likely to be using a valid form of birth control than the comparison group.

MATERNAL SOCIAL SUPPORT

Mothers in the low treatment group did not differ significantly from mothers in the comparison group in terms of social support across the majority of domains such as father support and support from relatives. However, a number of significant differences were identified:

- Mothers in the low treatment group were less likely to receive a lot of support from their friends when compared to the comparison group.
- Mothers in the low treatment group were less likely to report voting in the last General Election.
- Mothers in the low treatment group were less likely to participate in groups, specifically social, sports, political, and community groups, than mothers in the comparison group.

CHILDCARE AND SERVICE USE

The low treatment group did not differ significantly from the comparison group in terms of the number of hours per week the child was enrolled in childcare, the age at which child was placed in childcare and satisfaction with childcare. However, there were a number of significant differences between the low treatment and comparison groups in this domain:

- The low treatment group were more likely to use childcare in general than the comparison group.
- Those who used childcare in the low treatment group were more likely to use formal childcare and less likely to use grandmother care than the comparison group. The childcare use step-down category was significant as a result of these findings.

HOUSEHOLD FACTORS AND SES

Families in the low treatment group did not differ significantly from families in the comparison group in terms of employment, social welfare status or antisocial behaviour. However, there were a number of other significant differences between the low treatment and comparison groups in this domain:

- Families in the low treatment group were less likely to reside with the child's grandparent.
- Less families in the low treatment group reported having difficulties making ends meet, compared with the comparison group.
- Mothers in the low treatment group were less likely to have completed their Leaving Certificate.
- Less families in the low treatment group reported that addiction was an issue, compared with the comparison group. The domestic risk step-down category was significant as a result of this finding.
- The low treatment group reported a low overall domestic risk score.
- Mothers in the low treatment group who worked part-time reported higher wages than the comparison group, whereas mothers in the low treatment group who worked full-time reported lower wages than the comparison group.
- Mothers in the low treatment group were more likely to be long-term unemployed than mothers in the comparison group.

Overall, the mixed results of the low treatment group and comparison group analysis support the study design as they suggest that the low treatment group is not systematically better than the comparison group across most domains. The low treatment group outperformed the comparison group on 9% of measures, while the comparison group outperformed the low treatment group on 12% of measures. It is of note that there were only positive significant findings for the low treatment group in the child development and childcare domains. In contrast, there were only significant findings in favour of the comparison group in the child health, parenting, maternal health and social support domains. There were mixed findings in the maternal health and household and SES domains. The lack of a coherent pattern within the findings suggest that the low treatment group is not receiving the services and supports designed for the high treatment group.

3.2 Dynamic Analysis

A number of standardised instruments used to evaluate the *Preparing For Life* programme are collected at multiple time points. This allows us to compare the responses for the same participants over time in order to track changes in child and parent outcomes. This process of tracking change over time is referred to as dynamic analysis. It also allows us to examine changes in outcomes across the high treatment and low treatment groups.

Table 3.1 lists the instruments collected at multiple time points between baseline and the twenty-four month data collection point. Two child development instruments (ASQ & ASQ:SE) were used at the six, twelve, eighteen and twenty-four months, and three child development instruments (CDI, BITSEA & DP-

3) were used at twelve, eighteen and twenty-four months. One maternal health measure was available at six, eighteen and twenty-four months (EPDS), one was available at baseline, eighteen and twenty-four months (Rosenberg), and one was available at baseline and twenty-four months (CFC). There were also three measures of parenting which were available at two time points. The CMAS, PSI and PACOTIS were available at six and twenty-four months. The Client Satisfaction Questionnaire was available at six, twelve and twenty-four months.

Table 3.1 - Instruments included in the dynamic analysis

	Measure	Baseline	6 Month Interview	12 Month Interview	18 Month Interview	24 Month Interview
Child Development	Ages & Stages Questionnaire (ASQ)		X	X	X	X
	Ages & Stages Questionnaire (ASQ) Social/Emotional		X	X	X	X
	MacArthur-Bates Communicative Development Inventory (CDI)			X	X	X
	Brief Infant Toddler Social and Emotional Assessment (BITSEA)			X	X	X
	Developmental Profile 3 (DP-3)			X	X	
Maternal Health & Wellbeing	Edinburgh Postnatal Depression Scale (EPDS)		X		X	X
	Rosenberg Self-Esteem Scale	X			X	X
	Consideration of Future Consequences Scale (CFC)	X				X
Parenting	Condon Maternal Attachment Scale (CMAS)		X			X
	Parenting Stress Index (PSI)		X			X
	Parental Cognition and Conduct Toward the Infant Scale (PACOTIS)		X			X
Participant Satisfaction	Client Satisfaction Questionnaire (CSQ)		X	X		X

The methodology adopted to evaluate change in parent and child outcomes over time is the Differences-in-Differences method[4]. This method, adapted from Ashenfelter and Card (1985), is used to account for any underlying trends within the data, thus reducing the probability of producing a biased estimate of programme impact. A simple two-period comparison can be conducted by subtracting the pre-post difference in the treatment group from the pre-post difference in the comparison group, and testing whether those differences are statistically significant .

3.2.1 Dynamic Analysis Results

In total, 40 individual dynamic tests were conducted. The results are summarised below.

CHILD DEVELOPMENT

The ASQ Scores were standardised to a mean of 100 and standard deviation of 15 to ensure comparability amongst the time points. All the other child development measures are comparable across time and thus do not require standardising. The comparison of the standardised ASQ scores found no statistically significant differences in any of the ASQ subdomains between the high and low treatment groups for any of the waves. Likewise there were no significant differences on any of the other child development measures.

[4] For a detailed explanation of the Differences–in-Differences method of analysis please see the report "*Preparing For Life* Early Childhood Intervention: Assessing the impact of *Preparing For Life* at 12 Months" at http://geary.ucd.ie/preparingforlife.

MATERNAL HEALTH & WELLBEING

The comparison of the high and low treatment groups on measures of maternal health and wellbeing revealed no significant differences over time.

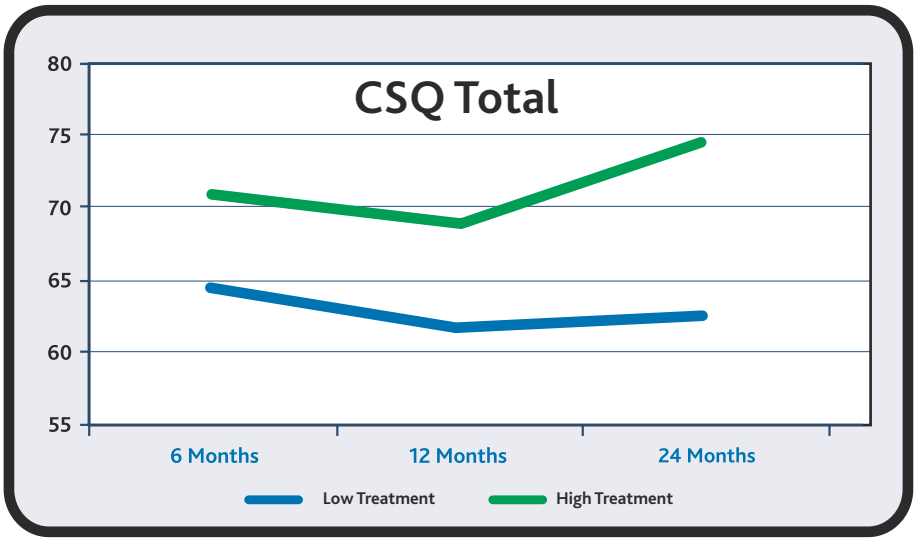
PARENTING

Comparing the high and low treatment groups on measures of parenting revealed no significant differences over time

PARTICIPANT SATISFACTION

There was a significant difference between the high and low treatment group in terms of the participants' satisfaction with the programme over time, as indicated in Figure 3.1. The CSQ measured satisfaction with the programme at six, twelve, and twenty-four months, and the significant difference occurred between twelve and twenty-four months. Both the high and low treatment groups reported an increase in their respective levels of satisfaction with the programme between twelve and twenty-four months. However, the high treatment group's increase was significantly larger than that of the low treatment group.

Figure 3.1 Participants' Satisfaction with the Programme



SUMMARY

Overall, the findings of the dynamic analysis results using the Differences-in-Differences method were limited. Only 1 of the 40 measures analysed (2.5%) over the four domains was significant. This suggests that the patterns of change over time are similar for both groups.

Chapter Four

Process Evaluation

This chapter presents the most recent findings from the process evaluation of the *PFL* Programme. Qualitative research methods were used for this element of the study, including individual interviews with mentors (March 2012) and focus groups with parents (April – May 2013). The findings from each are detailed separately in this chapter and the results are discussed in line with the twenty-four month impact evaluation findings in Chapter 6.

4.1 Home Visiting and the Service Provider-Parent Relationship

As home visiting is a method of service delivery and not necessarily a theoretical approach, individual programmes differ with respect to the age of the child, the risk status of the family, the range of services offered, the intensity of the home visits, and the content of the curriculum provided. Furthermore, programmes vary in terms of who provides the service, how effectively the programme is implemented, and the range of outcomes observed (Howard & Brooks-Gunn, 2009).

Various factors contribute to the overall effectiveness of home visiting programmes. Much of the literature suggests that the relationship between parents and programme delivery staff is central to the effectiveness of early intervention programmes (Wesley, Buysse, & Tyndall, 1997). Parents who feel that they are well-matched to their home visitor in terms of personality, either through similarities or acknowledged, respected differences – for example, if a mother values a home visitor who challenges, rather than agrees with her - are more likely to engage with the programme (Brookes et al., 2006). A parent-staff relationship may be more successful if the participant has had positive, supportive relationships in the past, while history of difficult or negative relationships may be detrimental to participant engagement (Brookes et al., 2006). In addition, the actions of home visitors can influence whether or not a participant engages with a programme. Perceived conscientiousness of home visitors (Brookes et al., 2006), their accessibility and particularly their persistence in contacting the participant and re-arranging missed appointments can encourage participants to engage with a programme (Kitzman et al., 1997). To counteract the detrimental effect of staff turnover on engagement, building participant loyalty to the programme itself, rather than to individual staff members, is advised (Brookes et al., 2006).

Parent and staff opinions of a programme, its aims and the requirements of its service users can differ and therefore affect programme effectiveness (Brophy, Herb et al., 2009; Wesley, Buysse, & Tyndall, 1997). For example, Lieberman, van Horn, Grandison, and Perarsky (1997) found in a clinical intervention group that a sensitive attitude on the part of the clinician was positively linked to successful outcomes for the children and parents engaged in the programme. Moreover, Paris, Spielman, and Bolton (2009) recommend that programme delivery staff take the time to pay attention to small, key moments of interaction with the service users, as these can provide opportunities for programme effectiveness and progress. These findings suggest that communication between parents and programme delivery staff in the context of a strong, trusting relationship is a key factor in the success of early intervention programmes.

However, some studies (Hebbeler & Gerlach-Downie, 2002; Roggman et al. 2001) have cautioned against over-emphasising the parent-staff relationship, although they are keen to illustrate its importance. The frequent assumption that a good parent-staff relationship automatically translates to positive child outcomes can threaten effective programme delivery; in one illustrative case, programme staff gave too much focus to this particular interaction, neglecting to use the good relationship as a medium for promoting positive parent-child interactions (Hebbeler & Gerlach-Downie, 2002).

4.2 Mentor Interviews

4.2.1 Method

Interviews with mentors took place in March 2012. All five mentors who work with the high treatment programme, including one team leader, were interviewed. All were female with a minimum of 2 and

maximum of 5 years' experience on the *PFL* Programme at the time of the interviews. Each mentor was interviewed individually by one of two members of the *PFL* evaluation team, using a semi-structured interview schedule which was adapted from a schedule used for a similar round of interviews conducted 2 years previously. Interviews took place in person in a private meeting room in a premises based in the *PFL* community. All interviews were recorded digitally and transcribed verbatim by a member of the *PFL* evaluation team. The average interview duration was 60 minutes.

ANALYSIS:

Completed transcripts were initially reviewed by a member of the evaluation team who conducted some preliminary coding before uploading them to the Nvivo 10 qualitative analysis package for more in-depth analysis. Interviews were analysed thematically following the guidelines set out by Braun and Clarke (2006).

4.2.2 Interview Results

Three themes emerged from the mentor interview analysis. Mentors had well thought-out, specific ideas about how to carry out their roles effectively (theme 1: being an effective mentor). They felt that engagement was the biggest challenge facing *PFL* (theme 2: the challenge of engagement), and they exhibited some common perceptions about the effectiveness and future of the *PFL* Programme (theme 3: speaking from experience: mentor perceptions of the *PFL* Programme).

THEME 1: BEING AN EFFECTIVE MENTOR

This theme and its related sub-themes are outlined in Table 4.1 below. All of the mentors had at least two years' experience in their role at the time of interview, and they displayed a strong sense of ownership of the mentor role. They gave detailed accounts of the key tasks involved in being a *PFL* mentor, highlighted the conditions necessary for effective programme delivery, and explained the importance of protective factors in the mentor role including personal resources and support from external sources.

Table 4.1 Theme 1: Being an Effective Mentor

Theme	Sub-themes	Details
1. Being an Effective Mentor	a) Key mentor tasks	Day to day aspects of home visits • Frequency and duration • Typical home visit Administration
	b) Effective *PFL* Programme delivery	Relationships with families Tailoring programme to suit family Home environment Fidelity
	c) Protective factors in the mentor role	Internal: • Boundaries • Mentor qualifications • Mentor qualities External: • Community support • Referral to other services • Support from the *PFL* team

SUB-THEME A) KEY MENTOR TASKS

The results suggest that being an effective mentor involves doing specific tasks on a regular basis. The key tasks of mentors, as outlined in the interviews, fell into two categories: day-to-day aspects of home visits, and administration.

DAY TO DAY ASPECTS OF HOME VISITS

Mentor accounts of the day-to-day aspects of the home visits were detailed and clear, reflecting their collective levels of experience and duration in the role. Their reports involved descriptions of the logistics around home visits – location, frequency and duration - as well as the more nuanced details of how home visits are conducted.

Frequency and Duration

Home visits typically took place in the home, although they were not confined to it. Mentors also reported bringing families to the park, the library, walking with them on their errands or meeting them in a coffee shop rather than a home-based session. Local community premises were available to mentors as an alternative location for the visit if required, and some visits took place over the phone. Frequency of home visits varied depending on participants' circumstances. Accordingly, mentors reported visits as frequently as once a week or as rarely as four times a year, with most sessions occurring at least once a month. As children grew older, their attendance at crèche or pre-school restricted the scheduling, and often the frequency of home visits. The original aim of weekly visits was revised over time, as this mentor explained:

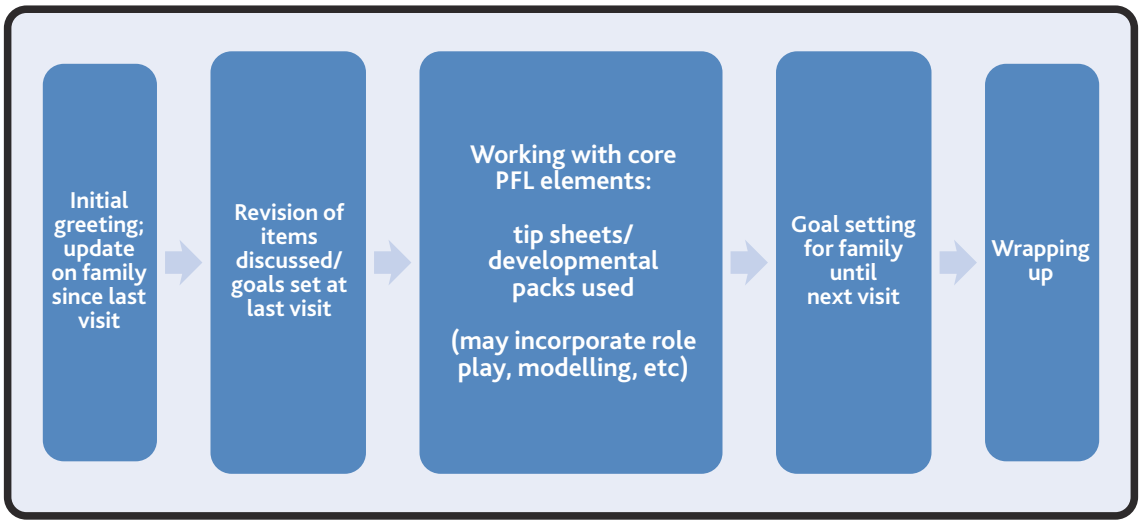
"Originally the home visits were supposed to be weekly, and that just felt like way too much, to be going in every single week into the families. It's a really big commitment. Most people don't see members of their own family every single week. So, that became once a fortnight, and for some families it's less than that. It's better to have them on the programme seeing them once a month than have them say 'I haven't got time for this; I'm off'. So that was something that we tweaked".

The visits were reported as being from 30 - 120 minutes in duration, depending on the circumstances of the participants.

Typical Home Visit

Mentors provided detailed accounts of the home visiting sessions. Figure 4.1 presents a graphical representation of a typical home visit, developed from a composite of all mentor descriptions.

Figure 4.1 Typical Home Visit Structure



Each home visit typically started with a brief informal chat and debrief on the family's week:

"It's an opportunity for them to get everything out, whether something has happened or it can, that can be up to 20 minutes at times, but depending again on the family and what's happened the previous week. You give them the opportunity to brief you on whatever's happened and then you look for an opening to then explore the Tip Sheet".

The purpose of the initial debriefing discussion appeared to be twofold: it allowed the mother to voice any concerns she may have, and it provided the mentor with a sense of how she was feeling on that particular day, which could then determine how the mentor delivered that specific session. If the mother had a particular concern which she wished to discuss, this could affect the amount of time available for the rest of the session, as one mentor explained:

"Sometimes you might only spend a smallish amount of time on what's on that [Tip Sheet] because you've got to get other stuff out of the way, but having said that you do have to be careful not to get too drawn off into all of the drama, and stick with what you've got. So it's a balancing act, depending on the different families".

Once the initial debrief had taken place, mentors used different strategies to prepare the mother for the main focus of the session, which was usually based on the delivery of Tip Sheets. Tip Sheets, devised specifically for *PFL* and its target demographic, are a source of advice and information about many aspects of child development and parenting which are designed to be administered at certain times during the course of the programme, according to the child's age. One mentor commented that she followed the debriefing session by playing with the child in order to settle him or her so she could then turn her attention to the parent. Another mentor explained that she reviewed the key learning points from the last session before beginning the planned new material. In spite of these differences, all of the mentors aimed to work on the Tip Sheets within a typical home visit, and in some cases mentors simply proceeded straight to the Tip Sheets after the initial debrief. While some mentioned the need for updating, the Tip Sheets were generally viewed positively by all:

"I think the Tip Sheets are brilliant, they are non-invasive, they are really simplified, easy to understand. I haven't met a family yet that hasn't enjoyed the Tip Sheets. Mostly the families when you go to a visit will have the folder there and ready and they're waiting for you to come".

The method used to deliver the Tip Sheets during a visit varied hugely. Fidelity to the *PFL* Programme manual was perceived by mentors as being pivotal to the programme's effective delivery, and accordingly each parent received exactly the same set of information from each Tip Sheet. However, the method in which that information was provided, and the pace at which it was delivered, was set by the mentor according to her overall perception of the parent's learning style and the circumstances on the day. This will be discussed in detail in the next section, effective programme delivery.

Once the Tip Sheet was introduced at a visit, the mentors chose to do certain activities to explore the topics contained therein. Similarly, if the mentor was delivering a developmental pack during the session, she could spend time going through the items in the pack and teaching the family how to use them. Methods for demonstrating Tip Sheet topics and developmental pack items mentioned by the mentors include role playing, modelling appropriate play with the child, and positive reinforcement of appropriate parenting practices. This varied depending on the parent and the people present in the home at the time. However, it should be noted that these particular practices while listed were not typically discussed in detail during the mentor interviews. Direct interaction with the child was deemed important by mentors for carrying out their role effectively:

"I am coming to this conclusion that, my relationship with children is of the same importance as with the parents [....] if you have a good relationship with the mother then you can build a good relationship with the child because the parent trusts you, lets you go down and spend some time with the child, build trust with the child. And then children enjoy coming in and enjoy playing and enjoy learning".

Mentors were not asked specifically to detail the end of a home visit; however one mentor reported using some "wrapping up" techniques, including goal setting based on the learning from the session.

ADMINISTRATION

While delivery of home visits is a key task of the mentor role, a significant proportion of their time was spent on administration: attending meetings, scheduling and confirming appointments, writing up field notes, and planning the week ahead. This required a good degree of organisation, as this quote illustrates:

"I'll write in my diary who I want to see the following week, so I'll text everyone or ring everyone, I know who to text and who to ring at this stage now, to get the appointment in for the following week. I'll list who I need to see, I'll text them or ring them, arrange a visit. Sometimes I have to remind people; sometimes I don't have to remind some families".

Mentor attendance at meetings will be discussed in further detail at the external factors section of sub-theme c). Overall all the mentors mentioned that persistence was required when scheduling appointments. Mentors reported using a variety of methods to schedule appointments, selecting the most appropriate ones for each participant according to previous experience. While texting and telephone calls were the most frequent methods reported, Facebook was stated as being a more effective means of getting harder to reach participants to respond, as this mentor describes:

"I normally work through texts or phone calls, because what I find is a lot of my participants don't really answer the phone, so sending them a text, and then for my harder to reach participants, a lot of it is done through Facebook".

Other, less regular administrative tasks included working with the programme's database, website or Facebook page. Mentors also described themselves and other members of the team doing additional tasks outside of the day-to-day home visits. These included delivering the Triple P programme and facilitating extra courses on nutrition, baby massage and personal development. Mentors described working on behalf of their families, for example finding health or nutritional information for parents on websites, or arranging group activities such as coffee mornings for *PFL* parents. Additionally, mentors reported developing their own skills and promoting the programme through attending training, workshops, and conferences. Mentor responses to these additional tasks were positive, as this illustrative excerpt indicates:

"Our interests are all different and it's great when you get a little bit of new information, because when you are in the same programme you need extra things to build on. You need extra tasks to have as well. I like it when we have extra tasks".

SUB-THEME B) EFFECTIVE *PFL* PROGRAMME DELIVERY

Beyond the specific requirements of the role, mentors indicated that a number of other key elements facilitated effective delivery of the *PFL* Programme. These included building good relationships with the family, tailoring the programme to suit each family's individual needs and learning styles, conducting the visit in an environment which is conducive to learning, and maintaining fidelity to the programme manual.

RELATIONSHIPS

All mentors highlighted the importance of the mentor-parent relationship to achieve effective programme delivery, and described how their relationships had developed and improved over time. This facilitated the establishment of trust and allowed for a more informal, relaxed tone during the sessions which benefited both mentors and parents:

"When you build relationships up it becomes more natural, and they become more comfortable with you"

"Pre-birth it's very formal and like 'this is the information', like the stage comes where you're like "phew!" You can go in, and you can be relaxed".

Strong mentor-parent relationships were an important vehicle in building parents' overall trust of the *PFL* Programme itself, which then helped mentors who were new to the team, as one individual explained:

"I think that's a testament to the way the team previous has built up relationships with the families[…]they are very accepting and they are very willing, and once they know that it is part of Preparing for Life and the overall team then they are like 'yep' and they just roll with it, they go with it, which is great."

In most cases, the mentors' primary relationships with the *PFL* families were with the children's mothers, with fathers very much playing a secondary role, despite mentor efforts to be inclusive of both parents. As one mentor reported; "I'd love it if we could find that magic ingredient that got fathers more involved". However it is interesting to note that some fathers were involved with the programme, to varying degrees. At the lower level of involvement, fathers learned about the key *PFL* learning points from the children's mothers after the home visits had taken place, or they attended sessions sporadically or partially, alongside the mother. At the higher level, one mentor reported that two fathers specifically arranged their shifts in work so that they could attend the home visiting sessions. While in most cases father involvement was in the minority, one mentor reported that 50% of her fathers were involved to some extent. The group-based nature of the Triple P sessions was seen by one mentor as an important opportunity to involve fathers, as she felt they would be encouraged by the attendance of other fathers:

"We're doing Triple P, and it's an evening one, the next session, and I know four or five of my fathers have asked to be part of it[…]two of them are being, are going to avail of it because they want to avail of it, and I've told them equally 'oh I might have other fathers'. So that's excited them but they were going to do it anyway. And the other two are doing it because it's an opportunity that, it's that they're not going to be the only male.."

One mentor explained the importance of the *PFL* Programme to fathers:

"They like to be acknowledged […] it really excites them that their role as a father is equally as important as a mother, em, because I don't think it always happens."

TAILORING

While respecting the concept of fidelity, mentors reported using a large degree of flexibility in their delivery of the programme, in order to maximise the potential for participants to learn the key messages promoted by *PFL*. Alongside adapting the duration and frequency of home visits, mentors described tailoring the level of information given to participants, the pace of the visit, and the way in which the key messages were delivered. Through adapting as required, mentors felt they were able to retain participants' interest in, attitude towards, and commitment to the programme. The circumstances on any given day may dictate a change in how the programme is delivered, as this mentor explained:

"The session is always led by the parent. I could go in with an agenda, and it could go out the window because something has happened, or the child might carry-on, you know that from going in and out of the houses. You might have to abandon the session or do something completely different. Like sometimes you go in with the aim of doing something, but it doesn't always happen".

However, in addition to daily circumstances, mentors also reported adapting their delivery style for each participant over time as they identified which techniques were best suited to each family. The concept of parent-led programme delivery underpinned this sub-theme. Delivery styles were adapted according to parents' interest in the subject matter, learning ability, and level of concentration:

"It's trial and error a lot of it as well, it's really just trying to get a measure on, you have to work with the families where they're at, whatever stage they're at, whatever level they're at and some families are able to take on board the information much faster and some families kinda go, say "oh yeah that's great, brilliant, yeah great" and feel reassured, whereas other families we're stripping it right back down to basics and some families you might need to spend a long time delivering one Tip Sheet".

The following mentor adapted how she delivered the materials in order to encourage the participant to come to the next visit:

"The books and the toys are a really good incentive to get them. So there are two particular families, I'm seeing them in a few days; I'll split all their stuff, so I'll give them one at a time…I'd give her 2 books, and say "now the next time…".

HOME ENVIRONMENT

The environment in which visits took place affected the delivery of home visiting sessions. Certain elements were deemed important to successful programme delivery, and simple changes in the family home could greatly affect how a session was delivered. Chaotic, busy homes were a common challenge, with other young children, the extended family or friends present during home visiting sessions.

"If sometimes you do go out to a family's home, and the doorbell is constantly ringing and there's people, it's like a train station. So there is only a certain amount of work that you can do, especially if you are doing role plays and things like that".

In some cases, there were material restrictions. Some families lacked age-appropriate toys which limited mentors' ability to demonstrate play activities to parents. Similarly, one mentor reported a participant struggling to retain the Tip Sheets, which restricted her opportunity to reflect on them in between sessions. Mentors described taking steps to address these issues such as having a box of spare toys in the *PFL* office, or providing replacement Tip Sheets to parents.

FIDELITY

The *PFL* Programme is experimental in design and is implemented by a number of different mentors. Fidelity to the programme manual is thus a key concept underpinning programme delivery as it ensures that all participants are receiving the same programme. When asked about fidelity to the manual, mentors stressed its purpose and importance to the effective delivery of *PFL*, as the following quote illustrates:

"It's really important that none of us mentors decide that "actually we don't agree with this piece of information, we're going to go off and do something completely crazy". It's only going to work if you stick to the manual of how to deliver the programme, if you stick to the information that we're trying to give. We don't want somebody who's going to come in and re-invent the wheel, and do something completely crazy and off the wall. We all, as an organisation we all need to be singing from the same hymn sheet, we all need to be delivering consistent messages".

SUB-THEME C) PROTECTIVE FACTORS IN THE MENTOR ROLE

Mentors described a number of protective factors, both internal and external, which they believed helped them to carry out their roles more effectively. The internal protective factors included setting personal and professional boundaries, valuing certain qualities in themselves, and bringing to the role their skills acquired through formal education and training, work, and life experience. External factors included support from the *PFL* team, the community, and other local services.

INTERNAL PROTECTIVE FACTORS

Boundary setting was considered a pivotal element of effective mentoring which protected the integrity of the programme as well as the family and the mentor. For mentors, having a clear awareness of the role's aims facilitated effective programme delivery. However, maintaining focus was challenging:

"Some families would tell you a lot of family problems and conflicts. It's a lot to take in, especially the energy you spend on focusing them back onto the child, and reminding them why we are here, and what we are doing and what is the focus and purpose of the session".

Rather than refusing participants the opportunity to vent their concerns, mentors expressed the value in listening to them without providing solutions. This enabled the parents to voice their problems and allowed the mentor to then bring the focus back to the programme itself. In setting clear boundaries around what they could and could not offer participants, mentors felt they were in a better position to deliver the programme effectively, thus helping the families:

"A great skill to have learned from being in the programme is developing this skill of letting things go and not taking other people's emotions on you. Detaching from other people's lives, but at the same time understanding them, and listening to them. If you don't do that I think you don't have enough energy to help them properly. If you spend a lot of energy on focusing on their feelings you won't be able to give appropriate support".

The *PFL* Programme operates in an area of economic and social disadvantage, and *PFL* families often deal with multiple challenges as a result. Mentors described the importance of separating themselves emotionally from the difficult situations they sometimes encountered during home visits. The strengthening of the mentors' relationships with families over time meant that the challenge of emotional detachment from a situation became more difficult. However, as the mentor built up experience in the role they also learned how to establish stronger boundaries. Mentors reported employing different strategies to emotionally separate themselves from difficult situations after home visits such as chatting to the others in the office, taking their lunch and tea breaks, engaging in hobbies and focusing on their own families. Some used the journey home or back to the office as an opportunity to reflect on the days' events and deal with any negative emotional impact they may have experienced during a visit.

"I always look at my journey driving home as finishing work, like as being part of it. I always think that, kind-of, like when you watch a movie and you're so shocked about the movie, you need some minutes afterwards to switch-off...and that's the same for me, the journey when I am driving home that's my switch-off time. I make sure by the time I get home I don't keep things in my mind."

All mentors had some level of relevant work experience, qualifications or a combination of both prior to commencing their work with *PFL*. However, mentors had mixed opinions on how well their previous roles prepared them for their current position. Overall, it seemed that while a combination of life experience, work experience and formal education helped, they also learned through the training they received for the position, and through gaining experience in the role.

Mentors were asked about the qualities they felt helped to effectively carry out the mentor role. Their responses are presented in the word cloud in Figure 4.2. It should be noted that in the illustration, larger text represents a word used more frequently by the mentors.

Figure 4.2 Qualities Necessary for the Mentor Role

EXTERNAL PROTECTIVE FACTORS

During the course of their interviews, mentors mentioned valuing the support they received in their roles. The primary source of support appeared to come from within the *PFL* team itself: from management, formal supervision and structured team meetings to informal conversations with their peers in the office.

Mentors described their team leader and the programme manager in very positive terms, with two participants using the words "brilliant" or "fantastic" to describe both the team leader and the manager. Others highlighted their approachability and willingness to support the day-to-day work involved in the programme.

All mentors have regular individual structured supervision with their team leader. Supervision meetings were seen as very useful, with mentors highlighting their importance from a personal and professional point of view. During supervision meetings, mentors were encouraged to work within the boundaries of their roles, to plan their short-term goals for programme recipients, and to reflect upon any decisions made during the course of their recent work. In addition to the scheduled supervision meetings, mentors pointed out that they could also arrange ad-hoc supervision at any time:

"Our supervisor is brilliant, because even if you don't have supervision you just say 'can I talk to you?', so that's fantastic".

In addition to individual supervision, there are fortnightly group meetings involving the mentors, team leader and information officer. These group meetings were valued by programme staff as an opportunity to discuss any issues which may arise in the course of their role, as well as the more administrative aspects of their work. However mentors also described the importance of the less formal interactions with their peers, as the following excerpt illustrates:

"There is almost a continuous atmosphere of ad-hoc supervision, so, if somebody comes back from a visit and it has been challenging you know that you can say it to the rest of the team, and ask them "how can I improve this situation" because invariably it is something that somebody else has come across[…] that's one of the things that I was really struck by; was just how much the whole team wants everybody to do a really good job, and wants everyone to do well, and believes in the programme and wants to programme to do well. It's just incredibly supportive."

Mentors also mentioned receiving support from local services and from the community. The opportunity to refer families to service providers was welcomed, and was readily used by mentors where necessary. Referral links existed with a number of organisations, and afforded mentors the opportunity to maintain their boundaries through linking families up with the appropriate services once their challenges went beyond the scope of what the mentor could provide. Long-term support from local services for *PFL* was greatly valued by mentors. As one mentor explained:

"I think it it's fascinating to see, like the same services within the area, em, that have supported us from day one […]So they're still supporting us which I think is fascinating, so we have never had an empty room when we're giving out information or an update on Preparing for Life, it's always a full room".

Support from the community took longer to establish, as there was some reticence and suspicion on the part of the local residents about a new programme in the area. However mentors felt confident that the *PFL* Programme was now accepted:

"It did take a while to get established in the community. You know we were this new crowd coming in. It's a very insular community[…] to find yourself being accepted and being just one of the service, and people saying "what will we do when you're gone?" because we're here five years now, they say "it's ending and what's the story?" so it's like we're embedded; we're accepted, and that's great".

THEME 2: THE CHALLENGE OF ENGAGEMENT

The issue of participant engagement with the programme was described as a key challenge faced by mentors. This theme and its related sub-themes are outlined in Table 4.2 below. The main reasons cited by mentors for reduced engagement included practical and local cultural challenges such as participants being difficult to reach and general chaos within the families' lives, alongside participant disinterest and resistance to the programme. Mentors reported employing a number of different strategies to address

reduced engagement, including persistence, humour, and keeping busy. Their reasons for addressing the issue varied; they either wanted to foster increased engagement, make participants aware that engagement was important, or simply keep themselves motivated in their own roles during times of low engagement.

Table 4.2 Theme 2: The Challenge of Engagement

Theme	Sub-themes	Details
2. The Challenge of Engagement with *PFL*	a) Reasons for reduced engagement	Difficulties reaching participants Personal situations Chaotic lives Disinterest Resistance
	b) Strategies for dealing with reduced engagement	Persistence Humour Keeping busy

SUB-THEME A) REASONS FOR REDUCED ENGAGEMENT

Engagement was described as variable across families and time. Mentors cited a number of potential reasons for reduced engagement. Some participants were simply not interested enough in the programme to commit to regular attendance, or were resistant to *PFL*. The multiple problems facing some families were frequently referred to as a contributory factor:

"A lot of the visits tend to go in cycles as well, so people might be engaged for a period of few months and then they drop off the radars and then they come back up. Conversely there are other families who maybe would have been a little bit more engaged who are a little bit less engaged. I don't think that's anything to do with the per- the mentor, I think it's just the different stages that family goes through".

One challenge arose whereby participants seemed to have little interest in the programme during scheduling, yet were very attentive and responsive during the home visiting sessions. Mentors linked this to a local cultural issue. Some families in this community may face a number of challenges at any given time, and their homes are often quite chaotic. Therefore, rather than planning for the medium to long term (which includes making and keeping appointments) they are more likely to focus on specific issues, such as mentor visits, as and when they arise. Another challenge mentioned by mentors was families who were technically engaged with the programme but did not seem personally committed to it, in spite of their attendance. Mentors found this frustrating and personally difficult to deal with:

"Some families, there's just a lack of- they can be engaged- I'll go to the home or they will come in here, but they're not.... they're just going to carry on doing their own thing regardless".

SUB-THEME B) STRATEGIES FOR DEALING WITH REDUCED ENGAGEMENT

Mentors took various steps to address reduced engagement with the programme. Some of these steps were practical, such as making repeated attempts to contact participants, or discussing the problem with the rest of the team in an attempt to find a solution. New strategies were occasionally explored, such as using Facebook as a method of making contact. In some cases participants described using humour as a vehicle to convey the message about the importance of programme attendance, as the following participant explained.

"You have such a good relationship with them that you can you can have a laugh about it as well, 'yeah right you went out shopping I know, just tell me that you were going out shopping', so you can have the banter with them as well, but then still go 'listen the next time, if you don't want to meet on a Tuesday, just let me know. Sure it's grand, I can push you to a Friday' […]you are making note of what happened and you're telling them that you're not exactly happy with it, but that it's ok to tell me and it's ok if you just can't be bothered to meet that day, just let me know and inform me before the session goes ahead".

It is important to note that the strategy of using humour depended on a solid relationship being established with the family.

As well as affecting the participant, lack of engagement can also have a negative impact on mentors. Words used by mentors to describe the problem of engagement included "frustrating", "annoying" and "challenging", and some found themselves questioning their own work as a result:

"You know it's not a rejection of you as a person, but because that's my job is to meet them and to deliver this information, that's what I'm getting paid for, so if I'm unable to do that, then where does that leave me in my role? Does that mean I'm not able to do my job properly? So I find that very challenging".

One mentor explained how she kept busy in order to deal with the problem of reduced engagement such as taking on extra work where possible.

THEME 3: SPEAKING FROM EXPERIENCE: MENTOR PERCEPTIONS OF THE *PFL* PROGRAMME

As the mentors have been in their role for a number of years they had developed definite perceptions of, and opinions about, the *PFL* Programme, most notably its effects and its design. They also demonstrated a sense of pride in the programme's aims and achievements, and hoped that it would continue in the future. This theme and its related sub-themes are outlined in Table 4.3 below.

Table 4.3 Theme 3: Speaking from Experience: Mentor Perceptions of the *PFL* Programme

Theme	Sub-themes	Details
3. Speaking from Experience: Mentor Perceptions of the *PFL* Programme	a) Programme effects	On parents On *PFL* child On other children in the family
	b) Positive attitude to *PFL*	Pride in *PFL* Future of *PFL*

SUB-THEME A) PROGRAMME EFFECTS

Mentors reported a number of perceived programme effects on the *PFL* parents. The effect most commonly described was the positive outcome of a parent simply having the opportunity to talk and be listened to. Separate to that, they also reported perceived awareness of improved parenting skills, and increased confidence among parents. However these descriptions did not generate a large amount of text or discussion. Mentors did not generally report noting effects on the *PFL* children; rather they tended to focus on the parents as described below.

The following excerpt from one interview touches on a number of elements mentioned by other mentors about the benefits of having the extra support which the *PFL* Programme provides:

Interviewer: "What do you view as the most beneficial aspect of the programme for participants?"

Mentor: "Based on feedback from the participants; it's the support. It really is. They say time and time again it's not just information about the Preparing For Life child, it's not just about school readiness, it's about school readiness for the whole family; or future readiness. If you look at the Preparing for Life it's literally that; it's supporting families and sometimes making them consider things that they possibly hadn't thought about before. "So what do I want? What are my goals for my family? What do I want for the future"? Because I think a lot of our families very much live in the immediate; in the present. It can be a struggle for them to see 5 years down the line or 10 years down the line. So it's a lot of education, but based on what the families say it's that support, it's knowing that there is somebody who they can ask anything. If they're having any questions about anything, there's someone there who's not going to shoot them down or laugh at them but who will do their best to help them out".

When describing the effects of the *PFL* Programme on parents, mentors emphasised the value of seeing small changes in behaviour, or of parents demonstrating an awareness of issues which the mentors had highlighted for them previously, as the following extract explains:

"Being aware of a slight shift in attitude. Or when somebody says "ah yeah I told so and so and I said to her 'you shouldn't be doing that you know- babies aren't supposed to' and they're actually saying something that you said. And you think "ah that's fantastic". So it's hearing that what we are saying is making a difference".

Mentors valued the practice of parents seeking reinforcement for their behaviour. They felt it indicated confirmation that participants had learned from the programme, and that they were aware of, and proud of, their new skills:

"She asks me loads of questions, gives me loads of feedback the next time I go over to visit, "look what I've been doing from what you told me the last time", I watch what she can do".

Mentors also reported potential effects of the *PFL* Programme on other children, although these were anticipated, not directly observed. In a couple of cases, when mothers were pregnant again they spoke to the mentors about re-learning the information that they had learned in the early days of the programme:

"I have one girl […] she's pregnant again, and she wouldn't have a bar of it when she was pregnant on the PFL child, but now we've spent more time [on breastfeeding] for the sibling, so at the time she wasn't ready to do it but now she knows the benefits as she's seen the other child grown up".

Only one mentor referred to directly observing programme effects on *PFL* children. The same mentor also described receiving positive feedback about the child's development from a member of the child's extended family:

"I just love seeing the kids, the PFL children develop. Like doing the things that we have prepped them for, like it's a great feeling when you see somebody moving on, and achieving something we set out to achieve".

SUB-THEME B) POSITIVE ATTITUDE TO *PFL*

Mentors expressed a number of positive sentiments towards the *PFL* Programme during the course of their interview which can be broken down into three categories – enjoyment of their role, pride in the programme, and hopes for its future.

When asked about their feelings towards the role, mentors were very positive, as these two responses indicate:

" I love it, I'm not just saying that, I do really love this job it is my favourite job ever."

"Oh,[I] love it. Every day is different".

Mentor sentiment towards the *PFL* Programme itself was also extremely positive. They typically spoke positively about the aim and goals of the programme, and believed in its purpose, as this excerpt illustrates:

"We all believed really that Preparing for Life could really change a child's life[…] we're really passionate about driving the programme forward and we really want to succeed […] the passion is what keeps the energy alive and em, and it's, I think there's still that passion that was there from the beginning and it's brilliant because we all want it to work".

Some mentors expressed their thoughts about the future of the programme. Their hopes for the programme's sustainability and continuity were tempered with an understanding that the changes in families that they valued were often small, and that some changes would naturally take longer to be seen:

"I think the programme as it stands, I think it's a really good programme. I think it can be really effective. And hopefully we'll see that. I also do think that it's going to be one of these slow-burn things, that you won't necessarily see all the results immediately, it is something that's going to take time. And hopefully it's something that's going to have an effect. That will leave a legacy, hopefully these families, when their families have kids".

SUB-THEME C) RESEARCH COMPONENT

During the course of their interviews, all of the mentors referred to the fact that the *PFL* Programme had a research component. While they felt that the research was important, they expressed some concerns relating to the fact that the programme was experimental by design. One mentor voiced her fear that the small changes valued so much by mentors may not be picked up by the research:

"We see changes that might not be recorded for the research purposes, or they're not significant enough to go down, and sometimes that's frustrating because I know they're [the parents] making changes. Like there's stuff that we can see that is making a difference, but not significantly".

The increased administration involved with the programme's experimental design, such as keeping field notes and recording all attempts to contact participants, was seen as a necessary element of the mentor role, but some found it very time consuming and restrictive. One mentor described how she would prefer to give more time to families who were interested in being part of the programme, and stop putting resources into the families who displayed disinterest, however the RCT study design meant that she had to give the same amount of resources to both. Similarly, concerns around contamination between the high and low treatment groups limited the number of people who could avail of *PFL*, and this was seen as frustrating.

4.2.3 Summary of Interview Findings

Three main themes emerged from the analysis of the individual mentor interviews. As the mentors have been in their positions for a number of years they seem to possess clear and detailed ideas about the mentor role and the *PFL* Programme. Their narratives focused primarily on how to be an effective mentor (theme 1: being an effective mentor), taking into account the main day-to-day tasks required of the role, the more nuanced details of how to deliver the programme effectively, and the different factors that supported them in programme delivery. Day to day tasks included the main mentor task of delivering the *PFL* home visits, in addition to a large amount of administration, mostly around scheduling visits with participants. Mentors felt that a number of elements contributed to effective programme delivery, including having a strong relationship with *PFL* families, tailoring the programme delivery style to suit each family while ensuring fidelity to the programme manual, and working within a suitable home environment. A number of protective factors helped mentors within their roles. These included internal factors, such as setting appropriate boundaries, having a combination of qualifications, work and life experience, and possessing certain qualities. External supportive factors included receiving support from the *PFL* team at all levels, having support from the local community and local services, and having the opportunity to refer cases to other services when required.

In addition to the main elements of effective mentoring, two other themes arose. One was the challenge of engagement with *PFL* (theme 2). While some participants were committed to the programme, others were less so. Ensuring that participants attended scheduled visits and remained committed to the programme were central concerns for mentors. They addressed this issue either through maintaining persistence when scheduling sessions, using humour to get their point across, or through simply finding ways to occupy their time when sessions were missed and all other avenues had been attempted.

The final theme concerned mentor perceptions of the *PFL* Programme (theme 3: speaking from experience: mentor perceptions of the *PFL* Programme). Emergent sub-themes included programme effects, an overall positive attitude towards *PFL*, and the research component. When asked about the programme's effects, most mentors mentioned effects on parents, with indirect references to effects on other children in the family, and on the *PFL* child. Only one mentor described witnessing the programme's effects on the

PFL child directly. Mentors spoke about the nature of being part of a research programme. While it was interesting and challenging for them to work within the boundaries of an experimental design, they felt it also brought extra administrative tasks and limited the scope of the programme in some ways.

A previous round of mentor interviews was conducted in December 2009 and January 2010. Findings from this first round of interviews indicated that, at this early stage in the programme's genesis, mentors faced the challenge of cultural barriers to programme implementation, particularly a lack of support for the programme from participants' extended families. Mentors also reported in 2009 and 2010 that an effective communication style and non-judgemental approach facilitated the development of a strong mentor-parent relationship, which they felt was central to the programme's success. They paid attention to programme delivery, making efforts to be flexible in order to ensure that participants remained engaged with the programme, and noting the importance of patience and persistence in their daily work. Finally mentors cited small changes in family habits as possible early programme effects, and spoke favourably about the Tip Sheets, developmental packs and group classes offered to parents. A comparison with the findings of the mentor interviews conducted in 2012 indicates that programme is now more securely embedded in the local community and that the key elements of the mentor role initially deemed important by mentors have retained their salience over time. These include maintaining a strong relationship with parents and providing a non-judgemental, confidential space in which the mentor-parent role can develop. Participant engagement is an ongoing challenge, and mentors continued to employ the strategies of patience and persistence to address it. However, it is also clear the programme has developed and settled into a rhythm over time. In the more recent mentor interviews, outlined in this chapter, mentors displayed an in-depth awareness of their role, its purpose, and its place in the programme's experimental design. Overall, the mentors' thoughtful, rich accounts reflected a sense of ownership of and pride in their roles and the programme itself that appear to have been formed and honed over time. They felt very positive towards the programme and were keen to contribute to its implementation to ensure that it had every opportunity to succeed.

4.3 Focus Groups

4.3.1 Focus Groups Method

Three focus groups with mothers from the high treatment group took place in 2013 – two in April and one in May. The focus groups contained 7, 4, and 7 participants respectively, with an average maternal age of 30 years. The average age of the focus group participants' child at the time of the assessment was 40 months old, with a range of between 29 and 56 months. Thus, the majority of the focus group participants had been in the programme for three and a half years when they participated in the focus group. Each group was moderated by two trained members of the *PFL* evaluation team. Focus groups took place in a meeting room in a premises based in the *PFL* community, and the average duration was 53 minutes. Consent to participate was received during initial recruitment into the programme, and participants were invited to take part in focus groups via telephone. 87 high treatment group mothers were categorised as active participants who were still engaged with the programme at the time of focus group recruitment. 11 of these participants were not eligible as they had taken part in a previous focus group, 3 participants had previously declined to take part in a focus group when invited, and 1 participant had not given consent to be contacted about the focus group. Of the 72 remaining eligible participants, 16 were unreachable and 12 declined. 44 of those contacted agreed to take part; 30 of those were successfully scheduled, and of those 30, 12 did not attend on the day. All focus groups were recorded digitally and transcribed verbatim by a member of the *PFL* evaluation team before being analysed thematically, using the same method that was used for the mentor interviews.

4.3.2 Focus Group Findings

Table 4.4 Focus Groups Themes

Theme	Sub-themes	
1. Basic Programme Elements	a) b)	Practical help from mentors *PFL* materials, activities & courses
2. Feelings Towards Mentors	a) b)	Mentor-parent relationship Sensitive programme delivery
3. The Role of *PFL* in Parent's Lives	a) b) c) d)	Improved parenting skills Effects on children Protective factors associated with being in *PFL* Research interviews
4. The Journey Through *PFL*	a) b) c) d)	Joining *PFL* Early reticence Preparing to exit *PFL* Promoting *PFL*

Four themes emerged from the thematic analysis of the focus groups with high treatment mothers. All four themes related to the meaning of *PFL* for parents. They are basic programme elements (theme 1), feelings towards mentors (theme 2), the role of *PFL* in parents' lives (theme 3), and the journey through *PFL*, from a reluctant start to a reluctant finish (theme 4). A number of the high treatment parents had been in *PFL* for 3-4 years when the focus groups were conducted. By this time, they had a strong sense of what *PFL* meant to them – what they got from it, how they felt about it, and the impact it had on them. They valued the main programme elements (theme 1), such as the practical help provided by mentors, and the materials and courses made available to them through *PFL*. Participants felt that they had established relationships with the mentors, and valued the role mentors played in their lives (theme 2). They also noted the overall role that *PFL* played, and the protective factors it afforded them, along with more practical elements such as improved parenting skills, effects on children, and the opportunity to meet other local families (theme 3). They were less enthusiastic about the research interviews. Some expressed initial reticence at joining the programme, yet as they progressed through the programme they seemed to value it more and were now beginning to consider their feelings as their time on the programme drew to a close (theme 4).

THEME 1: BASIC PROGRAMME ELEMENTS

Parents in the focus group discussed the main, practical elements of the *PFL* Programme which fell into two categories: the help they received from their mentors (sub-theme a) and the *PFL* materials, activities and courses (sub-theme b).

SUB-THEME A) PRACTICAL HELP FROM MENTORS

The conversations which arose between participants during the focus groups gave rise to some insights into how they viewed the practicalities of the mentor role. First and foremost, mentors were seen as providers of information. For the most part, this information was about child development, parenting and school readiness. Parents valued the practical, transparent ways in which mentors monitored their child's progress in different areas, including having a star chart on the wall in the family home or working through a checklist:

"The school readiness direction, [mentor]'s got a checklist. And she'd do activities with [child] that they'd do in school. And then she'll tick off and say "yeah, she can do this, and she can do that" so it's good. So I know then when I'm sending her in [to school] that she knows how to do it".

Mentors also provided information or links to information about parent health, smoking cessation, college courses and crèches. Information provided depended on the participants' requirements, as the following excerpt illustrates:

Person 1: "If you're ever worried about something about the child and a certain area of their development, they always have an advice or a technique, well, why don't you try this and see if this works.

Person 2: They'd research it for ye and they'd… my mentor's after being around with me and I'd say something to her and then two hours later she'll ring me with advice or she'd be after going off and researching it or something".

Mentors also provided participants with support when dealing with other services, particularly in the areas of health or education. Sometimes this support involved direct referrals to service providers. Mentors linked participants to the services and made appointments on their behalf, providing them with practical information including the appointment location and time. One participant described being disappointed with the referral once the mentor had made the connection, as she felt it was not sufficient for her needs. She was keen to stress that the mentor had played her part in make the connection, but felt let down by the service itself:

Person 1: "Preparing for Life, have put me onto different//

Person 2: organisations?

Person 1: resources, or whatever other name you want to call it. And these other resources haven't been brilliant. It's not the actual fault of the Preparing for Life, they have helped me, and thrown me, thrown into the direction of the services[…], help of other people, but the other services have been absolutely brutal".

In other cases the mentors worked with the participants to facilitate their relationship with a service. Some participants described having difficulty in a relationship with a teacher or health professional, which the mentor then attempted to mediate through attending the appointment with the participant and helping them to voice their needs.

Parents reported mentors providing extra practical support during challenging times. This included offering to provide childcare when one participant was dealing with a sick relative in hospital, and occupying a child while a participant caught up on housework. One participant reported how a mentor had recommended she have a regular "date night" with her husband, to ensure that they committed time to working on their own relationship. These additional supports were valued by the participants. As one mentioned, "they go above and beyond for you".

SUB-THEME B) *PFL* MATERIALS, ACTIVITIES & COURSES

The basic factors of the *PFL* Programme – the developmental packs, courses, and activities – were valued by the participants who described them in very positive terms. The developmental packs contained items that parents felt they would not have bought themselves, and were surprised at how useful they were. Items singled out included a hand blender, a play mat, toys and books. Parents reported that their children had enjoyed certain toys and books designed to encourage development, as the following excerpt illustrates:

Person 3: "the stuff, the toys that they give ye are all very educational

Person 1: I wouldn't think of going to buy them in Smyths

Person 3: neither was I, see the block toy with the shoe lace?

Person 1: yeah yeah

Person 2: yeah, that's brilliant my son loves that.

Person 3: I would'a looked at something like that years ago and saying 'that piece of crap, like, that's a toy?'

Person 2: yeah […]

Person 3: and it's a shoe lace, it shows them how to lace a shoe, and tie a shoe".

Parents generally seemed to like the Tip Sheets given to them at their home visits. They saw them as a standard part of the visits and felt that the drip-feed method of Tip Sheet delivery worked well:

Person 1: "Well it's like you're not even getting them all at once. If they handed them to you all at once you'd sit there and look at them. They wouldn't even read them. Like they're only bringing them out two or three every time you see them like so they're not… so you do actually sit and read them. Well I do anyway.

Person 2: If you got them all in one pack you'd just throw them in the press, you wouldn't glance at them like".

Parents also reported enjoying the activities and courses set up by *PFL*. Activities singled out as enjoyable and recommended to other parents during the focus group sessions included the coffee mornings, Christmas and Easter family events, family portraits, and the Spots and Stripes day. Some parents felt they would like the opportunity to take part in more organised activities if *PFL* arranged them. Courses mentioned included baby massage and flower arranging. One group discussed a cookery course where they learned about nutrition and how to pick healthy options when shopping, while remaining within budget:

Person 3: "Like healthy instead of buying a box of quarter pounders you buy the mince, a good lean mince, instead of buying loads of, what is that, what do ya call that?

Person 4: Processed food //

Person 3: no, you know eh, the more red in the mince is the more meat in it, the more white in the mince, the more fat in it.

Person 2: steak mince

Person 3: ye buy the good mince and ye make your burgers and that//

Person1: porridge and all into your burgers, and you wouldn't think of ever putting porridge into//

Person 3: porridge

Person 1: smuggle things in so the kids don't notice".

One mother commented that she would have liked to have taken part in courses or coffee mornings but that the times did not suit her as she worked full time. She recommended that more courses and activities should be offered in the evenings to accommodate working mothers.

Parents who had taken part in the Triple P programme spoke positively about it and encouraged others in the group to take part. They reported how it was useful with their other children, and for some it enabled them to work with their partner in disciplining their children. A number of mothers described incorporating techniques learned from the programme into their parenting styles, while others remarked on having a greater understanding of their children's behaviour, after taking part in Triple P:

"I thought it was brilliant, excellent, I thought it was brilliant […] My two year old was all the time saying "[name] done it, [name] done it", she was blaming it on [older child], and I was giving out to [older child] all the time, her all the time. Whereas it was her [younger child] all the time[…]I learned like, this is what kids do,

blame it on the, y'know what I mean? Triple P learns you, like, discipline and how to discipline and how not to discipline and it's very good".

THEME 2: FEELINGS TOWARDS MENTORS

During the focus groups, a number of mothers described how they felt about their mentors, discussing both the parent-mentor relationship and the way in which the programme was delivered.

SUB-THEME A) PARENT-MENTOR RELATIONSHIP

A number of participants described having close relationships with their mentors. Participants valued these relationships and many felt that the individual mothers and mentors were often a good match in terms of personality. The strongest sub-theme to emerge in terms of the mentor-parent relationship was the "mentor as listener" model of interaction. In many cases, the mentor was referred to as a friend, however the key element of this friendship for the participants is the opportunity to talk and be listened to. To this end, words used to describe the mentor included counsellor, friend and therapist.

Person 1: "She just comes in, just have a cup of coffee, has a couple of Tip Sheets, a chat, like we'll chat about the Tip Sheets alright about but there we do get off topic y'know. And talk about life. So it's just an hour or two, but it's talking to someone who doesn't know anybody that you're talking about or judge ya or it's not like

Person 2: They don't tell anyone

Person 1: Yeah so y'know like, you could be sitting talking to your best friend y'know, even more confidential than anything".

As illustrated in the above excerpt, mentors' confidential and non-judgemental approach was highlighted by a number of participants as a central tenet of the mentor-parent relationship. In some cases, it appeared that mentors were simply nice people to have around, and participants appreciated this. Parents reported that different members of the family, including their other children, looked forward to the mentor visits and that the mentors brought positivity to the family home:

"She's like a little ray of sunshine, isn't she? And the kids just love her".

One group of participants also described the mentor-child relationship, and explained why they felt it worked:

Person 2: "They're not rushing. Y'know I'm rushing all the time, Jesus I never sit down.

Moderator: You gotta get to the next thing

Person 1: Yeah, If you have many kids, not only one. So you don't have lots of time to give

Person 2: I can't give special time for everyone".

A small number of participants reported the experience of transitioning between mentors. While most of the *PFL* mentors have been working on the programme since its inception, there have been a small number of staff changes. In one case, the participant had become very attached to her mentor and was upset when she left her role. She spoke of wanting to contact her now:

Person 1: "I sobbed like a 2 year old when [mentor] was going

Person 2: yeah, so did I

Person 1: sobbed, sobbed, she wrote me a little card

Person 2: *card yeah*

Person 1: *aw, it was lovely, I still have it, I wouldn't throw it out*

Person 2: *no, either would I*

Person 1: *still have the text messages, I have to get her email or something"*

There were mixed reports of reactions to working with a new mentor. Some participants reported feeling initial reticence, while others found the transition a positive change.

SUB-THEME B) SENSITIVE PROGRAMME DELIVERY

Participants reported that the mentors had a sensitive programme delivery style, which made the programme an enjoyable experience to be part of. This seemed to encourage them to remain in the programme. One conversation focused on the difference between mentors and family members, highlighting the fact that participants felt they could relax around the mentors, more so than around their own families, as the mentors were completely dedicated to them and on their side. More practical aspects of sensitive programme delivery included flexibility in terms of scheduling, visit frequency and duration. One mother reported how she often forgot or rescheduled visits, and appreciated her mentor's flexibility in this respect. The whole family focus employed by mentors was also appreciated. Mothers reported that the mentors take time to interact with and help other family members, particularly children, as the following excerpt illustrates:

"It's not even the babies, like my older kids love seeing them. [Name] does say 'Ma, don't make the appointment for the morning, wait till it's after school'".

THEME 3: THE ROLE OF *PFL* IN PARENTS' LIVES

As a programme, *PFL* appears to be a meaningful part of participants' lives. Mothers felt that regardless of their situation, *PFL* had something to offer everyone – from young first time mothers to those who were older and experienced. They described the benefits of being in the programme on both a personal and familial level, and enjoyed the social element of taking part.

SUB-THEME A) IMPROVED PARENTING SKILLS

A number of participants reported noticing an improvement in their parenting skills, often crediting the Triple P techniques for this change. Some experienced parents were surprised by how much they had forgotten in the intervening years between older children and the *PFL* child, and appreciated *PFL*'s role in learning these skills again. Additionally, these parents commented that parenting practices had changed over the years, and *PFL* helped them to update some outdated techniques. Others found the experience of parenting much easier with the *PFL* child than previous children, and attributed this at least in part to *PFL*. Specific *PFL* effects on parenting reported during the focus groups included understanding that children learn through imitation, praising children for good manners, encouraging children to do things for themselves and organising good family routines. One mother mentioned how, with her mentor's advice, she had learned to change her child's behaviour through changing her own:

"I didn't even understand why my young fella was screaming an awful lot when he was only like 1, 2 and then she [mentor] kinda put it to me, 'is there roarin' goin on around him? ' and I said 'nobody in the house would roar', and she said, 'so if you're calling [brother's name] and he doesn't answer, would you shout?' I said 'yeah', and she said, so with me shouting, he was shouting an awful lot[…]he's thinking I'll get my Ma's attention by me screaming".

The concept of letting children know they are being listened to was discussed in one group. The following excerpt indicates how this group of mothers had an agreed understanding about the importance of taking time with their children and indicating to them that they were being heard:

Person 3: "I used to say to [child name] oh will you just leave me alone, give me 5 minutes, but if you sit down and you bend down and talk to them, on the Sheets it says just take 5 minutes out and talk to them, and it does work when you have time for them

Moderator: to talk to the children

Person 2: yeah

Person 3: to listen to them like just for even just for that 5 minutes, like 5 minutes is after taking

Person 1: an hour

Person 3: an hour of your day, and they just calm down, it's like,'shoulda done that this morning!' [group laughter]

Person 2: yeah cos even with [name] like ma can I get [inaudible] yeah 5 minutes 5 minutes 5 minutes

Person 3: it's always 5 minutes in my house as well

Person 1: And you'd have it done in 5 minutes, if you'd have just done it".

SUB-THEME B) PROGRAMME EFFECTS ON CHILDREN

Discussions about programme effects tended to focus on changes to parenting practices, however a number of the focus group mothers also reported specific programme effects on their children. Some of these effects were linked to the developmental packs. These included children enjoying reading the books received from mentors, choosing to read more, and children learning from the books and toys. In one case a mother reported noticing increased confidence in her child, compared to his peers, as the following excerpt illustrates:

Person 1: "I notice confidence as well, like, [PFL child] is like everyone comments on it and the amount for compliments he has compared to like some two and a half year olds are saying

Person 2: yeah

Person 1: he's like, he's just not shy, nothing phases him, he's just so confident in himself and I say it from like {mentor} coming out and telling me like do this with him, do little things, like let him help you with the shopping, or let him help you clean up

[All: talking, agreeing]

Person 1: and his confidence is brilliant now, he'd not be afraid to sit and try something new, and or that way he's learning other things quicker as well, I thought that was good".

Other programme effects included improved child behaviour in the home and in public, particularly when shopping.

SUB-THEME C) PROTECTIVE FACTORS OF *PFL*

Mothers described feeling protected by *PFL*, through being informed and through their relationship with the mentor. A sense of belonging to the programme seemed to have developed among the parents. A number of participants explained how *PFL* acted as a buffer – providing mothers with information and support that helped them to remain firm when faced with unsolicited advice from relatives and friends. The following excerpt describes a common argument made by friends or relatives upon seeing the participant attempt new parenting practices taught by *PFL*:

Person 1: "Your family, everyone's willing to give you advice. 'Oh no, you should do this, don't do that, I done it this way, you should do it this way'

Person 2: condescending sometimes

Person 3: blah

Person 1: well, all my family done things with their babies when they were smaller completely different to me[…]and they looked at you like 'that's what I done with mine and it didn't do them any harm like'".

Believing in the techniques taught by mentors also encouraged *PFL* mothers to stand firm in the face of criticism from others. One participant remarked that it was easier to accept advice from *PFL* than from a friend or family member because she knew that the *PFL* advice was based on fact. This especially related to the disciplining tactics taught as part of Triple P. Participants described being able to continue with their parenting techniques even when faced with criticism from their partners:

Person 1: "Like when you're doing Triple P like they're looking at you like as if you've ten heads like

Moderator: cos it's so different?

Person 1: yeah cos like, and when you're trying to, and they're just standing there and laughing at you, and it doesn't help like[…]they're looking at you as if to say you're bonkers and I'm like just leave me alone, and then like, it sorta makes you just want to give up but then//

Moderator: Yeah? So what do you do?

Person 1: you don't".

Some partners were supportive and took part in home visiting sessions. However a number of mothers who described both the programme and mentors in positive terms, also reported that their partners were resistant to it, and the mothers had to work to get their support. The reasons given for this resistance included partners being too busy, the belief that childcare was the mother's role, or simply not taking an interest in the programme and its aims. Participants reported employing strategies, often recommended by the mentors themselves, to get their partners to embrace the learning from *PFL*. These included explaining the parenting techniques and their purposes to partners, using humour to cajole partners into helping, encouraging partners to take part in the Triple P course, or simply providing literature to the partners to read in their own time. Mentors recommended practical, creative ways to get the *PFL* message through to their partners, as the following excerpt illustrates:

Person 1: "No you have put something, if you want him to read it, you have to put it in the toilet

[group laughter]

[mentor] says to me 'put it in the toilet for him'

[…]

Moderator: did he read it?

Person 1: yeah, he'd come down and he'd say 'aw that was, that's what you were trying to do".

In some cases, once partners had learned more about the reasons behind the parenting techniques, they became more involved and worked with the mothers to discipline the children. In other cases, the mothers continued to use the *PFL* techniques, despite a lack of support from their partners.

Two mothers reported gaining a sense of pride from their involvement with the programme, through receiving a certificate for finishing a course, and through meeting government representatives on behalf of the programme. Parents also reported enjoying the social element of belonging to *PFL*. The opportunity to meet other mothers through activities or courses was valued, and mothers liked talking about the programme and explaining the tips they had learned to other mothers – friends and relatives. The coffee mornings were cited as particularly beneficial:

Moderator: "So what do you like about the coffee mornings?

Person1: Because I don't really know anyone and I do now[…] I'd go down to the shop and I wouldn't know anybody. But now I'd see people and whatever, and be like 'oh hi, hi, hi'. Just get involved in, you don't even have to have the kids around, just talk about normal stuff".

SUB-THEME D) RESEARCH INTERVIEWS

When asked about the *PFL* research, a number of participants stated that they did not enjoy taking part in the research interviews. On a practical note, parents reported that they found the interviews too long, and some of the questions repetitive and difficult to understand. They spoke positively about the researchers who visited them, although they were amused by their demeanour in the house:

Person 3: "They're very nice

Person1: ah, they were lovely

Person 2: they're very quiet or something aren't they? 'Do ye wanna cup of tea?' 'No thanks'

[Group laughter]

Person 2: and they're just tryin to get in and straight out, d'ye know what I mean

Person 1: they feel like, they don't want to put you out

Person 2: like they're intruding or something

Person 1: yeah, like that, they keep trying to apologise, 'we won't take up much of your time'

Person 2: yeah, 'I'm nearly finished', 'we're nearly done', 'you only have this', 'ah no, you're grand like' and then she's just looking at ye and turning away and

Person 3: ye try to get a chat out of them

Person 2: yeah

Person 3: they're so good

Other: [laughs, pretending to plead with researcher] 'talk to me, I'm lonely'!"

Some were concerned about interviews which required their child to be present, as they felt the children lost interest and became frustrated. A number of parents expressed frustration about the laptop, reporting that they found it difficult to use. In some cases parents said that rather than using the laptop themselves they preferred the researcher to input their answers for them. However, beyond the practical frustrations of the interviews, some of the participants seemed nervous that the researchers would judge them, and so they attempted to make a good impression through their home and their responses. They described cleaning their houses when the researchers were due to visit, and answering questions in a way that they felt would appear more favourable, even if that answer was false. One participant explained that using the

laptop enabled her to answer truthfully, while she might lie when answering a researcher in person. In all three focus groups the issue of smacking children was spontaneously mentioned by different parents as an example of trying to give the right answer. One participant explained that she felt justified in smacking her child as she had been smacked herself, yet she still did not want to answer the question truthfully because of how it was phrased. Not answering truthfully stemmed from a fear of judgement by the researcher:

"I wouldn't be able to answer that though. Like if someone asked me questions I wouldn't answer the truth, whereas if the laptop, I would […]like if someone said to me 'do you ever slap your child?' I'd say 'no'".

THEME 4: THE JOURNEY THROUGH *PFL*

A clear pattern emerged through the mothers' accounts of their journeys through *PFL*. In many cases they were initially reticent about joining and stated that they joined only to satisfy others or for the material benefits, such as the developmental packs or the vouchers they received for taking part in research interviews. However, in time they began to value the programme, and expressed sadness at the fact that their time in the programme was coming to an end. They also suggested ways in which the programme could continue or expand. Please note, because of the descriptive nature of this theme, individual sub-themes are not given separate headings.

Participants described the circumstances through which they had joined *PFL*. While some were happy to take part when recruited, a number were persuaded to join by others, including partners, or friends and relatives who were already taking part. Others were invited to join by local service providers, such as public health nurses. One woman described feeling under pressure to join from a health professional:

*"She wouldn't leave me alone and she then used to ring me all the time. And my fella's sister was in it and would say 'go, like you'll be alright', and I was like, 'no f*** off they want to put me, they want to put me onto the social workers or something'".*

This initial reticence described by this participant was shared by others. They felt nervous about the programme. Reasons for early concern about taking part included the level of time and personal commitment required, having a stranger in the house, fear of being judged or reported to social services. Some parents were already nervous of the public health nurse visits and felt that the *PFL* home visits would be similar. As a result, some of the participants who described this initial reticence also did not attend visits on a regular basis at the start. One mentioned that it was difficult to commit to something new when she had a new baby. However, over time, the reticent participants reported accepting the programme visits and started to enjoy them, as this excerpt illustrates:

Person 1: "I was a bit weird when I was sitting there with {mentor} and she's talking,'how do you feel?' and I was like 'how do you think I feel?'//

[group laughter]

Person 1: I'm here, d'ye know that way, scarlet, pregnant and hormonal, I don't really want to talk to you right now, because back then it was every 2 weeks, real like//

Person 2: she's here again

Person 1: do I answer or do I stand back

[group laughter]

Person 1: like you didn't know what way you were feeling, that day, aw, I'll just go get it over and done with and then it's, I'll see her 2 weeks later, d'ye know that way? but, after a few months, yeah, you're fine with them".

Now a number of years into the programme, participants were beginning to consider how they would feel when it ended. There was some confusion among the groups about when the programme finished, with some mothers unsure as to whether it ended when the child started school or when the child reached a certain age. A similar confusion existed around the programme's design. Some participants were aware of the RCT design and the purpose of the high and low treatment groups, while others were not. They used the forum of the focus group to discuss the design and explain it to one another. A couple of participants mentioned that they were not looking forward to the programme finishing, despite their concern at the outset about the 5 year commitment:

"now I'm actually dreading it ending"

"I'm actually raging like it's, I'm finished in September".

Participants offered suggestions for the future of *PFL* based on their experiences. These suggestions included that the programme is made available to a wider group, both national and international, that it targets all first time mothers, continues until the child is 9 or 10, and is offered to mothers through the primary schools.

4.3.3 Summary of Focus Group Findings

Four themes emerged in relation to the focus groups. In terms of the basic elements of the programme (theme 1), parents greatly valued the practical help and information they received from their mentors. The materials, activities and courses offered by *PFL* were popular among parents, who described the advantages of each. Mothers felt that they had good relationships with their mentors (theme 2), and valued the sensitive way in which mentors delivered the *PFL* Programme to them. *PFL* played a useful role in parents' lives (theme 3) through fostering improved parenting skills and providing a protective element for mothers. Programme effects on children were also reported. Parents were less enthusiastic about partaking in the research interviews. The fourth, more minor theme to emerge related to the journey through *PFL*. Parents described their *PFL* experience in a series of stages, from initial reticence about joining the programme, to a stage of acceptance and enjoyment, followed by preparation to exit the programme. Finally, parents commented on future directions, making recommendations about the potential roll out of the programme to specific groups and areas.

Chapter Five

Implementation Analysis

Experimental evaluations of early childhood programmes are considered the optimal means of identifying whether a programme has a causal impact on the participating families. However, deviations from the programme protocol can compromise the evaluation and bias the results. The issues of attrition, engagement and contamination in home visiting programmes and the implications for evaluations of such programmes are discussed in detail in Chapter 4 of '*Preparing For Life* Early Childhood Intervention: Assessing the Early Impact of *Preparing For Life* at Six Months'. This chapter describes and analyses *PFL* implementation practices regarding attrition, engagement, participant satisfaction, misreporting of participant responses, and potential contamination between programme intake and when the *PFL* child was twenty-four months of age.

5.1 Participation Attrition up to Twenty-four Months of Age

Attrition occurs when participants withdraw from a programme before its completion. It is important to investigate the extent of programme attrition from *PFL* as the existence of systematic attrition may break the key rationale underlying the randomisation process and lead to biased results. This section investigates the level and determinants of attrition in the *PFL* sample between baseline and the twenty-four month survey.

5.1.1 Attrition/Disengagement in *PFL*

The Consort Diagram (Figure 5.1) describes the progression of the participants between programme entry and twenty-four months. In total, 239 twenty-four month interviews (n*High* = 82; n*Low* = 84; n*LFP* = 73) were completed. These 239 participants represent 72% of the original sample recruited into the study (n*High* = 115; n*Low* = 118; n*LFP* = 99). The twenty-four month completion rate was the same for the high treatment group (71%) and the low treatment groups (71%) and higher for the comparison group (74%).

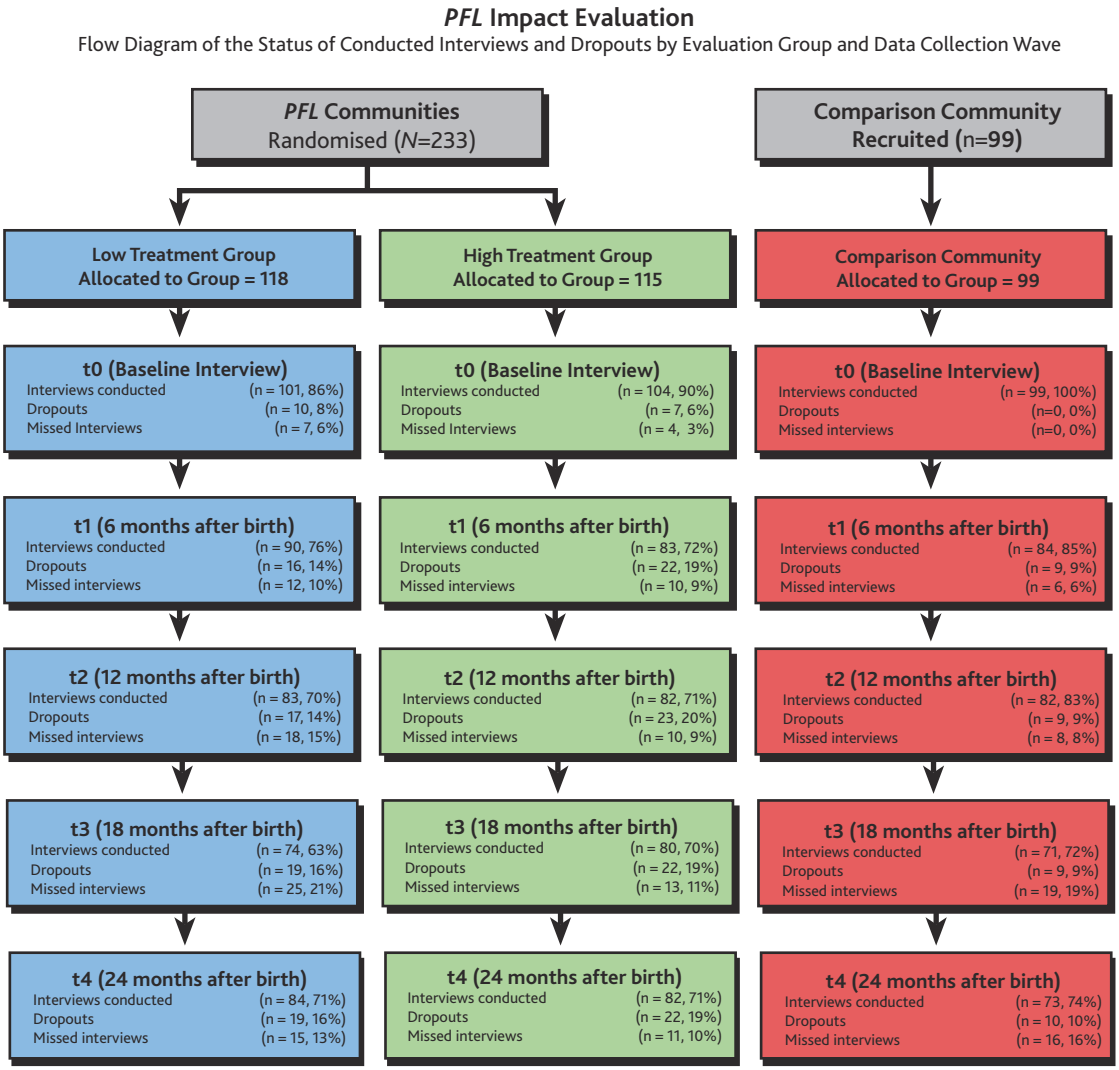
Dropout participants are defined as those who actively told the *PFL* Programme staff or the evaluation team that they wanted to leave the programme. On average, 15% of the sample were classified as official 'dropouts' between baseline and twenty-four months, with the highest dropout rate experienced among the high treatment group at 19%, while the low treatment group experienced a dropout rate of 16% and 10% of the comparison group dropped out before twenty-four months. The dropout rate between eighteen and twenty-four months was minimal however. None of the high or low treatment group dropped out during this period, and only one of the comparison group participants dropped out between eighteen and twenty-four months.

In addition to those who dropped out, 13% of the sample did not complete a twenty-four month interview, as either the interview could not be scheduled at a suitable time during the appropriate interview window, or the participants disengaged from the study. Disengaged participants (those who missed interviews) are those who did not respond to repeated attempts by the evaluation team to be contacted or declined to be interviewed. The rates across the high and low treatment groups were 10% and 13% respectively, and the corresponding rate for the comparison group was 16%. An important finding is that there was no disengagement between eighteen and twenty-four months. Indeed 1% of the high treatment group and 3% of the comparison group re-engaged with the evaluation during this period, the highest level of re-engagement was experienced by the low treatment group at 8%. Disengaged participants may fail to complete one wave of data collection, but re-engage at some other point. This is the first time that more participants re-engaged with the evaluation than disengaged. Thus, it is important to maintain active contact with all disengaged participants. The level of re-engagement at twenty-four months may be related to the longer interview window (6 months) compared to previous waves (3 months), or alternatively it may be related to participants viewing the age two birthday as a significant milestone.

Overall, the level of attrition since baseline is higher among the high treatment group and the level of disengagement is higher among the low treatment group, however the total level of attrition/

disengagement is the same across the two samples (*High* = 29%; *Low* = 29%) from randomisation to the twenty-four month interview, with the majority of attrition/disengagement occurring prior to the six month interview.

Figure 5.1 - Twenty-four Month Consort Diagram



Note: Dropout participants include both voluntary and involuntary dropouts.

5.1.2 Analysis of Attrition/Disengagement before Twenty-four Months

It is important to examine whether the attrition and disengagement/missed interviews has led to systematic differences which may bias the outcome results. The analysis below compares the baseline characteristics of participants who completed a twenty-four month interview to those who did not complete a twenty-four month interview. Thus, the analysis of 'attritors' includes those who have officially dropped out of the programme between baseline and twenty-four months and those who missed the twenty-four month interview during the appropriate time window and/or disengaged from the programme during this period. These baseline characteristics were chosen based on the literature presented in '*Preparing For Life* Early Childhood Intervention: Assessing the Early Impact of *Preparing For Life* at Six Months'. The high treatment group, low treatment group, and comparison group are analysed separately.

Table 5.1 reports the baseline characteristics of the high treatment group by attrition status and tests for significant differences between the attrition/disengaged sample and the non-attrition/engaged sample based on each characteristic. It shows that of the 23 maternal characteristics examined, statistically significant differences were found for two measures. Specifically, high treatment group mothers who did not complete a twenty-four month interview were less likely to be employed at baseline ($p<.05$) and had lower levels of cognitive resources ($p<.10$).

Table 5.1 - Comparison of Baseline Characteristics between Attrition/Disengaged and Non-Attrition/Engaged Sample: High Treatment Group

Variables	Attrition/Disengaged			Non-Attrition/Engaged			Individual Test
	N	*Mean*	*SD*	*N*	*Mean*	*SD*	*p*
Weeks in pregnancy at programme entry	22	20.50	7.57	82	21.88	7.94	ns
Mother's age	22	24.00	5.70	82	25.85	5.86	ns
Partnered	22	0.73	0.46	82	0.79	0.41	ns
Married	22	0.09	0.29	82	0.16	0.37	ns
Living with parent(s)	22	0.64	0.49	82	0.55	0.50	ns
First time mother	22	0.59	0.50	82	0.52	0.50	ns
Low education	22	0.50	0.51	82	0.29	0.46	ns
Mother employed	22	0.14	0.35	82	0.43	0.50	$p<.05$
Saves regularly	22	0.41	0.50	82	0.49	0.50	ns
Social housing	21	0.62	0.50	82	0.54	0.50	ns
Cognitive Resources (WASI)	22	77.86	11.79	82	83.18	12.28	$p<.10$
Vulnerable attachment (VASQ)	22	19.14	3.26	82	18	3.87	ns
Self-efficacy (Pearlin)	22	2.64	0.73	82	2.81	0.60	ns
Self-esteem (Rosenberg)	22	12.14	2.93	82	13	2.62	ns
Knowledge of infant development (KIDI)	22	71.36	9.44	82	72.49	7.07	ns
Positive parenting attitudes (AAPI)	22	5.25	1.86	82	5.25	1.23	ns
Physical Health Condition	22	0.76	0.43	82	0.73	0.46	ns
Mental Health Condition	22	0.32	0.48	82	0.27	0.45	ns
Smoking during pregnancy	22	0.55	0.11	82	0.50	0.50	ns
Drinking during pregnancy	22	0.14	0.35	82	0.28	0.45	ns
Drug ever used	22	0.09	0.29	82	0.15	0.36	ns

Note: *N*=sample size, *M*=mean, *SD*=standard deviation. *p-values* were obtained from two-sided t tests based on permutation testing with 1000 replications. '$p<.01$', '$p<.05$' and '$p<.10$' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively.

Table 5.2 reports the baseline characteristics of the low treatment group by attrition status and tests for significant differences between the attrition/disengaged sample and the non-attrition/engaged sample based on each characteristic. It shows that of the 23 maternal characteristics examined, a statistically significant difference was found on one measure. Specifically, low treatment group mothers who did not complete their twenty-four month interview had less knowledge of child development ($p<.10$).

Table 5.2 - Comparison of Baseline Characteristics between Attrition/Disengaged and Non-Attrition/Engaged Sample: Low Treatment Group

Variables	Attrition/Disengaged			Non-Attrition/Engaged			Individual Test
	N	*Mean*	*SD*	*N*	*Mean*	*SD*	*p*
Weeks in pregnancy at programme entry	18	21.39	7.40	83	21.33	6.89	ns
Mother's age	18	23.89	4.50	83	25.60	6.25	ns
Partnered	18	0.94	0.24	83	0.82	0.39	ns
Married	18	0.17	0.38	83	0.18	0.39	ns
Living with parent(s)	18	0.50	0.51	83	0.46	0.50	ns
First time mother	18	0.67	0.49	83	0.46	0.50	ns
Low education	18	0.56	0.51	83	0.36	0.48	ns
Mother employed	18	0.33	0.49	83	0.41	0.49	ns
Saves regularly	18	0.39	0.50	83	0.54	0.50	ns
Social housing	18	0.61	0.50	83	0.54	0.50	ns
Cognitive resources (WASI)	18	79.05	14.94	83	81.31	12.46	ns
Vulnerable attachment (VASQ)	18	18.33	3.94	83	17.71	4.00	ns
Self-efficacy (Pearlin)	18	2.86	0.57	83	2.88	0.61	ns
Self-esteem (Rosenberg)	18	12.94	2.71	83	12.75	2.90	ns
Knowledge of child development (KIDI)	18	66.43	1.67	83	70.55	8.27	$p<.05$
Positive parenting attitudes (AAPI)	18	4.58	1.73	83	5.24	1.33	ns
Physical Health Condition	18	0.56	0.51	83	0.64	0.48	ns
Mental Health Condition	18	0.17	0.38	83	0.25	0.44	ns
Smoking during pregnancy	18	0.56	0.51	83	0.46	0.50	ns
Drinking during pregnancy	18	0.28	0.46	83	0.27	0.44	ns
Drug ever used	18	0.28	0.46	83	0.12	0.33	ns

Note: *N*=sample size, *M*=mean, *SD*=standard deviation. *p-values* were obtained from two-sided t tests based on permutation testing with 1000 replications. '$p<.01$', '$p<.05$' and '$p<.10$' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively.

Table 5.3 reports the baseline characteristics of the comparison group by attrition status and tests for significant differences between the attrition/disengaged sample and the non-attrition/engaged sample based on each characteristic. It shows that of the 23 maternal characteristics examined, one statistically significant difference was found. Specifically, comparison group mothers who did not complete their twenty-four month interview were more likely to have low levels of education ($p<.10$).

Table 5.3 - Comparison of Baseline Characteristics between Attrition/Disengaged and Non-Attrition/Engaged Sample: Comparison Group

Variables	Attrition/Disengaged			Non-Attrition/Engaged			Individual Test
	N	*Mean*	*SD*	*N*	*Mean*	*SD*	*p*
Weeks in pregnancy at programme entry	26	26.73	5.88	73	24.60	6.43	ns
Mother's age	26	26.92	5.95	73	27.41	6.33	ns
Partnered	26	0.81	0.40	73	0.89	0.31	ns
Married	26	0.27	0.45	73	0.15	0.36	ns
Living with parent(s)	26	0.39	0.50	73	0.30	0.46	ns
First time mother	26	0.31	0.47	73	0.45	0.50	ns
Low education	26	0.42	0.50	73	0.19	0.40	$p<.10$
Mother employed	24	0.38	0.49	73	0.45	0.50	ns
Saves regularly	23	0.61	0.50	73	0.55	0.50	ns
Social housing	25	0.48	0.51	73	0.41	0.50	ns
Cognitive resources (WASI)	26	84.15	16.90	73	89.12	12.75	ns
Vulnerable attachment (VASQ)	26	16.96	3.93	73	16.89	3.49	ns
Self-efficacy (Pearlin)	26	2.64	0.79	73	2.92	0.65	ns
Self-esteem (Rosenberg)	26	12.85	2.63	73	13.11	3.26	ns
Knowledge of child development (KIDI)	26	72.20	8.03	73	73.17	8.96	ns
Positive parenting attitudes (AAPI)	26	5.42	1.63	73	5.82	1.30	ns
Physical Health Condition	26	0.65	0.49	73	0.67	0.47	ns
Mental Health Condition	25	0.32	0.48	73	0.38	0.49	ns
Smoking during pregnancy	26	0.38	0.50	73	0.33	0.47	ns
Drinking during pregnancy	26	0.27	0.45	73	0.32	0.47	ns
Drug ever used	26	0.08	0.27	73	0.18	0.39	ns

Note: *N*=sample size, *M*=mean, *SD*=standard deviation. *p-values* were obtained from two-sided t tests based on permutation testing with 1000 replications. '$p<.01$', '$p<.05$' and '$p<.10$' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively.

5.1.3 Key Findings

The level of official attrition from *PFL* between baseline and twenty-four months was quite low at 15% across the whole sample. Importantly, the level of official attrition was minimal between the eighteen and twenty-four month interview rounds, with no attrition experienced in the high or low treatment group and only 1% attrition in the comparison group. Overall official attrition between programme intake and twenty-four months is slightly higher among the high treatment group (19%) than among the low treatment group (16%) who were less intensively engaged in the *PFL* Programme. As the high treatment group were more regularly in contact with the *PFL* Programme staff they had more opportunities to officially inform the staff of their desire to dropout from the programme. Indeed, a slightly greater proportion of the low treatment group (13%) was classified as disengaged or missed their twenty-four month interview when compared with the high treatment group (10%). Thus it is possible that many of the participants who missed the twenty-four month survey represent participants who are less engaged with the programme and more inclined to dropout. However, it is important to note that a significant number of previously disengaged participants re-engaged with the evaluation at twenty-four months. This high level of re-engagement may be related to the six month interview window at twenty-four months, which was significantly longer than the previous interview window of three months. Alternatively, it may be related to participants viewing the age two birthday as a significant milestone. Total non-completion (attrition & disengaged) at twenty-four months was the same among the high and low treatment group (29%), and lower among the comparison group (26%).

In order to test for non-random attrition, we compared the baseline characteristics of those who participated in the twenty-four month survey to those who did not. Overall, there is weak evidence that there are systematic differences between these groups. In general, we found that more disadvantaged participants were difficult to contact or had dropped out of the programme by twenty-four months. For example, in the low treatment group, those who did not participate in this survey had lower levels of knowledge regarding infant development. Mothers in the high treatment group who did not participate in the survey were less likely to be employed and had lower levels of cognitive resources. In the comparison group, mothers who did not complete a twenty-four month survey were more likely to have lower levels of education. However, as shown in previous reports, the majority of individual characteristics were not associated with attrition from the programme. It will be important to examine the attrition rate at each subsequent survey wave in order to understand whether truly systematic patterns emerge.

5.2 Participant Engagement up to Twenty-four Months of Age

Engagement refers to the amount of treatment an individual receives during the programme, such as the duration of a prescribed activity or information session, or the frequency with which a participant meets with her mentor. Reviews of home visiting programmes report that, among families who have not dropped out, approximately half of all prescribed home visits are not received (Gomby et al., 1999; Rapoport & O'Brien-Strain, 2001). This is a significant issue as increased frequency of home visits is associated with better child outcomes (Kahn & Moore, 2010; Lyons-Ruth & Melnick, 2004; Nievar, et al., 2010; Sweet & Appelbaum, 2004). A number of individual, programme, and community factors have been identified as important predictors of engagement in home visiting programmes. This section investigates the level of participant engagement and the determinants of engagement in the *PFL* sample between baseline and the twenty-four month survey.

5.2.1 Instruments

Information on participant engagement within *PFL* was gathered from two sources – the *PFL* database maintained by the *PFL* mentors and survey responses from participants at the twenty-four month interview.

MENTOR DATA

Participant engagement using the mentor data was measured in three ways: a) the number of home visits a participant received from entry into the programme until their child was twenty-four months old, b) the percentage of prescribed home visits delivered between intake and twenty-four months (calculated by dividing the number of visits delivered by the number of prescribed visits for this period), and c) the total duration in hours of all delivered home visits between intake and twenty-four months. As there were participants who were randomised into a treatment condition but never engaged with the programme, we examined these measures by restricting the sample to those who have received at least one home visit, although they may have subsequently dropped out of the study. Given that the mentors worked solely with those in the high treatment group, the analysis of engagement was restricted to participants in the high treatment group.

PARTICIPANT DATA

The frequency of meetings that a participant has with their mentor (high treatment group) or information officer (low treatment group) was measured using a single question which asked how often the participant meets with their mentor/information officer. Possible responses were once a week, two times a month, once a month, less than once a month, or other, though it should be noted that participants were not provided with the catagories.

5.2.2 Participant Engagement from Mentor Records

Table 5.4 provides a summary of participant engagement in the *PFL* Programme between programme entry and twenty-four months of age for the high treatment group. The analysis is disaggregated into the prenatal period, birth to six months, six to twelve months, twelve to eighteen months, eighteen to twenty-four months, and total engagement up to twenty-four months, and includes any participant who received at least one home visit in any period. Thus, the analysis includes those who may have dropped out of the programme before twenty-four months. The *PFL* manual initially set guidelines of weekly home visits during the pre and postnatal period; however, the implementation team moved to fortnightly visits soon after the programme began as weekly visits were not feasible to the majority of the *PFL* participants. Thus, the figures below are estimated based on prescribed fortnightly visits.

The prescribed number of prenatal home visits was dependent on when the participant joined the programme, thus, based on average entry into the programme, the prescribed number of home visits between programme entry and twenty-four months was 62 home visits. Table 5.4 shows that on average, participants in the high treatment group received 32.6 home visits between programme entry and twenty-four months. The minimum number of visits received was 1 and the maximum was 82. The average number of home visits in the pre-natal period was 6.2 and the average number of visits in each subsequent period was quite similar at 7.6, 6.9, 6.3 and 5.6 for each six month period after birth. Thus, the number of home visits delivered has fallen slightly from the eighteen to twenty-four month period. Figure 5.2 displays the variation in the number of home visits over the entire period.

These figures were used to calculate the proportion of prescribed home visits actually delivered. Table 5.4 shows that based on a fortnightly prescribed visit, 52.6% of visits were delivered on average. The proportion is relatively similar in the different phases of the programme; however a smaller proportion of visits were delivered in the most recent period, compared to previous periods.

Table 5.4 also reports the average and total duration of all home visits. These times are based on the amount of time the mentor spent with the participant during the home visit. On average, each visit was

56.9 minutes long, with the shortest visit lasting 5 minutes and the longest visit lasting 81 minutes. The duration of home visits was similar across the different time periods. On average, the high treatment group spent 32.3 hours participating in home visits. The minimum duration spent in home visits was 6 minutes and the maximum was 70.8 hours in total. Figure 5.3 displays the variation in the duration of home visits over the entire period.

Table 5.4 - Participant Engagement in Home Visits in *PFL* up to Twenty-four Months of Age

	Prenatal – Birth	Birth - 6 Months	6 Months – 12 Months	12 Months – 18 Months	18 Months - 24 Months	Total
Prescribed no. of home visits (based on bi-monthly visits)	10	13	13	13	13	62
Delivered no. of home visits	6.2 (4.3) 0-21	7.6 (4.2) 0-19	6.9 (4.3) 0-17	6.3 (4.1) 0-21	5.6 (3.7) 0-17	32.6 (17.5) 1-82
% of prescribed home visits delivered (based on bi-monthly visits)	67.3 (45.5) 0-350	58.0 (32.0) 0-146	53.0 (33.2) 0-131	48.2 (31.8) 0-162	43.2 (28.3) 0-130	52.6 (27.6) 2-134
Mean duration of home visits (mins)	55.1 (17.6) 5-111	59.1 (11.9) 33-91	57.8 (12.5) 15-90	59.9 (11.0) 36-105	60.9 (11.4) 37-89.3	56.9 (11.1) 5-81
Total duration of home visits (hours)	5.8 (4.1) 0-18	7.6 (4.6) 0-19	6.8 (4.4) 0-18	6.3 (4.3) 0-19	5.8 (3.87) 0-14.3	32.3 (18.2) 0.1-70.8
N	96	96	96	96	96	

Note: The table presents the mean, standard deviation in parentheses, and the minimum and maximum values. These statistics were calculated for participants who received at least one home visit during the prenatal to twenty-four month period. However, for the mean duration, the sample size varies depending on the time period under examination as an average cannot be calculated for participants who received zero visits during the restricted time period.

Figure 5.2 Variation in Number of Home Visits from Programme Entry to Twenty-four Months

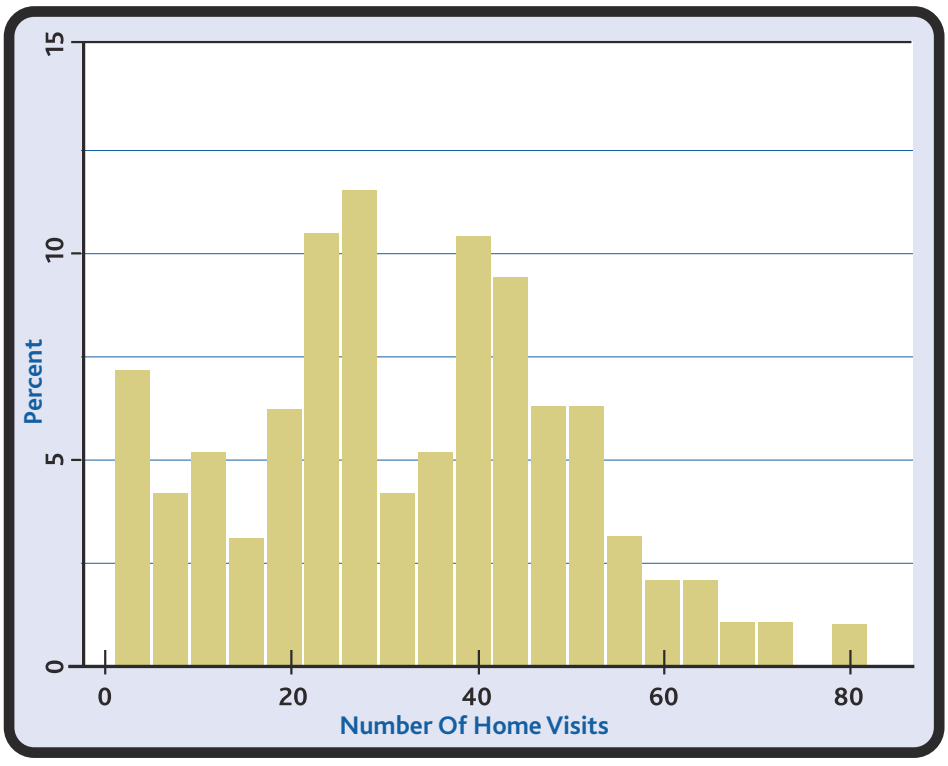
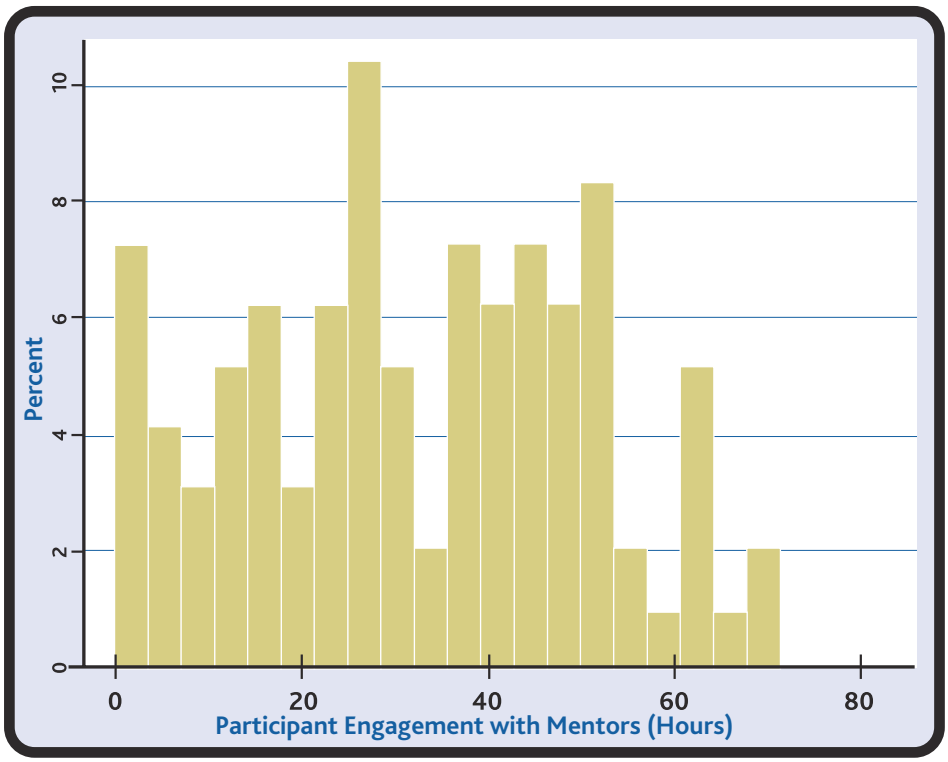


Figure 5.3 Variation in Duration of Home Visits from Programme Entry to Twenty-four Months



5.2.3 Participant Engagement from Participant Interviews

HIGH TREATMENT GROUP

Based on participant responses to the twenty-four month interview, 8.6% of participants in the high treatment group reported meeting with their mentor once a week, 61.7% reported meeting twice a month, 23.5% reported meeting once a month, and 6.2% reported meeting their mentor less than once a month. Thus the majority of participants reported meeting their mentor fortnightly. The *PFL* mentor database finds that zero participants received weekly visits, 6.2% received fortnightly visits, 35.56% received monthly visits and approximately 38.3% received home visits less than once a month on average. These differing engagement figures suggest that the participants may be over-reporting how often they meet with their mentor.

LOW TREATMENT GROUP

Based on participant responses to the twenty-four month interview, 4.76% of participants in the low treatment group reported meeting the information officer (IO) more than once a month, 3.57% reported meeting the IO once a month and 91.67% reported meeting less than once a month. This corresponds to the *PFL* manual which states that the low treatment group should not receive any scheduled meetings. Rather, participants may schedule a meeting with the IO at their discretion.

5.2.4 Factors Associated with Engagement in Home Visiting

As described above, participants in the high treatment group were exposed to different degrees of treatment dosage and intensity as defined by the number of home visits they received and the length of contact time with mentors. In this section we examined the factors associated with participant engagement in the home visiting sessions between programme entry and twenty-four months. Specifically, we examined the relationships between participant engagement and a range of socio-demographic and maternal psychosocial factors collected at the baseline assessment. This allowed us to test whether the characteristics of the participants who engaged in more home visits were different from those who received less home visits.

Table 5.5 reports the relationship between maternal characteristics measured at baseline and the total number and duration of home visits which the high treatment group received according to the mentor database. It shows that only two maternal characteristics had a significant impact on the frequency and duration of home visits. Specifically, mothers who joined the programme earlier in pregnancy ($p<.10$) and mothers with higher cognitive resources ($p<.05$) had more home visits since joining the programme and had home visits of longer durations.

Table 5.5 - OLS Regression Model of Frequency & Duration of Home Visits Between Programme Entry and Eighteen Months

Dependent Variables	Frequency of Visits	Duration of Visits
	Prenatal - 18M	Prenatal - 18M
Weeks in pregnancy at programme entry	**-0.45* (0.26)**	**-0.44* (0.26)**
Mother's age	0.43 (0.56)	0.56 (0.56)
Partnered	4.37 (5.43)	6.02 (5.49)
Married	-7.77 (6.71)	-7.48 (6.78)
Living with parent(s)	0.26 (4.95)	0.08 (5.00)
First time mother	0.43 (5.71)	1.94 (5.77)
Low education	2.83 (4.83)	1.38 (4.88)
Mother employed	1.59 (4.52)	1.86 (4.56)
Saves regularly	-3.87 (4.26)	-5.42 (4.30)
Social housing	2.96 (4.25)	2.68 (4.29)
Cognitive resources (WASI)	**0.40** (0.20)**	**0.45** (0.20)**
Mental well-being (WHO5)	0.51 (0.47)	0.59 (0.47)
Vulnerable attachment (VASQ)	0.29 (0.60)	0.20 (0.61)
Self-efficacy (Pearlin)	0.68 (4.46)	1.46 (4.51)
Self-esteem (Rosenberg)	0.34 (1.03)	0.31 (1.04)
Knowledge of child development (KIDI)	0.03 (0.29)	0.04 (0.29)
Positive parenting attitudes (AAPI)	-0.64 (1.96)	-0.68 (1.98)
Physical Health Condition	-1.51 (5.11)	-2.19 (5.16)
Mental Health Condition	2.65 (4.64)	1.89 (4.69)
Smoking during pregnancy	-7.34 (4.63)	-6.13 (4.68)
Drinking during pregnancy	0.83 (4.62)	0.51 (4.67)
Drug ever used	1.39 (5.55)	0.94 (5.60)
Constant	-18.68 (32.19)	-28.72 (32.52)
N	95	95

Note: Regression coefficients, standard errors, and *p-values* obtained from an OLS regression. N=95 sample size. *** indicates that the test is statistically significant at the 1% level, ** at the 5% level, and * indicates statistical significance at the 10% level.

5.2.5 Key Findings

The analysis of participant engagement found that families in the high treatment group received an average of 32.6 home visits by the *PFL* mentors between programme entry and twenty-four months, representing 52.6% of prescribed home visits when based on prescribed fortnightly visits. Thus, over half of all home visits were delivered between programme entry and twenty-four months, which translates into about one home visit a month on average. This is consistent with the majority of home visiting programmes which typically find that over half of prescribed home visits are not delivered. The average number of home visits delivered during the first six months (7.6), the second six months (6.9), the third six months (6.3), and the fourth six months (5.8) were broadly similar, suggesting that a regular pattern of visits has been established between the mentors and participants. However, the number of visits received has gradually decreased over time. The average duration of home visits was in line with the *PFL* manual which recommended that each visit last between 30 minutes and two hours. The average duration of home visits during the eighteen to twenty-four month period was just under one hour, which was similar to the average duration experienced at earlier stages of the programme. Thus, the duration of home visits appears to have remained constant over time.

The results of the implementation analysis also indicate fidelity regarding the low treatment group, with the majority of participants reporting that they met the information officer less than once per month. This is in line with the original *PFL* model which states that the information officer is a resource which participants can avail of, if needed, and the information officer should not play the same role as a mentor.

The analysis regarding the relationship between the level of engagement and maternal characteristics between programme entry and twenty-four months indicates that relatively few individual participant characteristics were associated with engagement. Two factors were associated with both the frequency and duration of home visits – the timing of programme entry and cognitive resources. As expected, mothers who entered the programme earlier in pregnancy had more home visits and subsequently spent more time in the programme. The results also show that mothers with higher cognitive resources, as measured by the Weschler Abbreviated Scale of Intelligence (WASI) at three months, experienced more home visits and had visits of a longer duration. The relationship between engagement and cognitive resources has received little in-depth attention in the literature (Booth, Palamaro-Munsell, & Doyle, 2013). Cognitive resources are important, as time management skills, the ability to make and keep appointments, participant motivation, and an understanding of the regular commitment home visitation entails can contribute to engagement levels (Baker et al., 1999; Kitzmanet al., 1997). That mothers in the *PFL* sample with higher cognitive resources participated in more home visits and had visits of a longer duration suggests that engagement may also be related to the mother's ability to understand the programme materials and recognise the need for the programme in their lives. By contrast, an evaluation of the Nurse Family Partnership found that the number of home visits decreased as the level of psychological resources increased, measured by intelligence (Shipley Scales of Adaptive Living), mental health, coping skills, self-efficacy, and active coping (Olds & Korfmacher, 1998).

Overall, we found little evidence to suggest that factors which are often identified as determinants of engagement in the literature are present in this sample. For example, factors such as age, marital status, employment status, and socio-emotional functioning were not associated with engagement in *PFL*. In addition, the level of engagement was not associated with socioeconomic factors, (i.e. education, employment) or parenting behaviour. This analysis was restricted to engagement from programme entry to twenty-four months; thus it is possible that the individual factors associated with engagement may change over time. However, much of these findings are consistent with the analysis of engagement reported in the six, twelve, and eighteen month reports, with very few individual characteristics associated with engagement at any time point. The findings regarding the role of the timing of programme entry and cognitive resources are consistent in the six, twelve, and eighteen month analyses. Future reports will continue to analyse and monitor engagement patterns.

5.3 Participant Satisfaction up to Twenty-four Months of Age

Participant satisfaction is an important aspect of any intervention as it can greatly impact commitment and engagement (Rao, 2000). According to previous findings, parents have reported high levels of satisfaction with home visiting programmes (Barth, 1991; Chaffin et al., 2004; McNaughton, 1994). However, there are a number of problems with measures of client satisfaction; for example, high ratings have been provided for programmes generating negative outcomes (Chafin & Friedrich, 2004). It is possible that parents feel indebted to service providers and therefore obliged to give high satisfaction ratings. Alternatively, participants may feel that providing negative ratings of parenting programmes may reflect poorly on their skills as a parent (Wesley, Buysse, & Tyndall, 1997). This literature suggests that while client satisfaction may be an important indicator of engagement in intervention programmes, it may not be an accurate reflection of programme efficacy.

5.3.1 Participant Satisfaction Instruments

CLIENT SATISFACTION

Client satisfaction was measured using the Client Satisfaction Questionnaire (CSQ; Turner, Markie-Dadd, & Sanders, 1998). The CSQ (α=.89) is an adaption of the Therapy Attitude Inventory (Eyberg, 1993) which was developed to measure consumer satisfaction with parent training programmes. The CSQ addresses the clients' perception of the quality of the service that they received, how well the programme met both their needs and their child's needs, and whether the programme increased the parent's skills and reduced the child's problem behaviours. The CSQ contains 14 questions relating to how the participant feels about the programme. Questions 1-12 are scored on a 7-point scale ranging from negative to positive ratings while items 13 and 14 are open ended questions. The 'Total Satisfaction' measure is the sum of the other twelve measures except the 'improved relationship with partner' measure, as this was a routed question dependent on whether the participant reported having a partner, thus implying a minimum value of 11 and a maximum value of 77 for the total score.

5.3.2 Participant Satisfaction Results

Table 5.6 compares the high and low treatment groups based on their responses to the Client Satisfaction Questionnaire. The first row reflects the 'Total Satisfaction' score and the remaining rows report the 12 individual items. The third and fourth columns report mean values for the high and low treatment groups, respectively, with the respective standard deviations given in parentheses below. Columns four and five report right-sided *p-value*s from permutation tests and the standardised effect size as measured by Cohen's d-statistic.

Total satisfaction with the programme is in the hypothesised direction, such that the high treatment group reported greater satisfaction with the programme than the low treatment group (p<.01, d=1.19). Ten of the individual twelve programme satisfaction measures showed statistically significant differences between the high and low treatment groups, with the high treatment group consistently reporting greater satisfaction than the low treatment group on quality of the services received (d=1.04); whether the participant received the type of help they wanted (d=0.68); whether the programme met the child's needs (d=0.99); whether the programme met the mother's needs (d=0.87); the amount of help the mother and child received (d=0.86); whether the programme helped the mother to deal more effectively with their child's behaviour (d=1.20); whether the programme helped the mother to deal more effectively with family problems (d=0.90); whether the programme improved the mother's relationship with their partner (d=0.59); overall satisfaction with the programme (d=0.77); and whether the programme helped to develop skills that can be applied to other family members (d=1.06). Finally, there was no difference between the high and low treatment group regarding the mothers' feelings about their child's behaviour (d=0.00) and mothers' reports of improvements in child behaviour (d= 0.10).

In terms of the areas in which the participants were most satisfied, the high treatment group reported greatest satisfaction with the programme in general, followed by the amount of help they received and feelings about the child's progress. They reported the lowest level of satisfaction with whether the programme had improved the participant's relationship with their partner and feelings about improvements in the child's behaviour. The low treatment group reported greatest satisfaction with feelings about the child's progress, followed by overall satisfaction with the programme and the amount of help received. The low treatment group reported being the least satisfied with whether the programme had improved their relationship with their partner.

Table 5.6 Participant Satisfaction: High and Low Treatment Groups

Variable	*N*	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test $p^{\dagger}$	Effect Size *d*
Total Satisfaction	166	82/84	74.88	(7.50)	62.56	(12.70)	$p<0.01$	1.19
Quality of services received	166	82/84	6.52	(0.80)	5.24	(1.56)	$p<0.01$	1.04
Received type of help wanted	166	82/84	6.55	(1.02)	5.61	(1.69)	$p<0.01$	0.68
Programme met child's needs	166	82/84	6.50	(0.93)	4.94	(2.03)	$p<0.01$	0.99
Programme met mother's needs	166	82/84	6.35	(1.25)	4.87	(2.06)	$p<0.01$	0.87
Amount of help received	166	82/84	6.76	(0.60)	5.73	(1.59)	$p<0.01$	0.86
Help deal with child's behaviour	166	82/84	6.43	(1.01)	4.98	(1.39)	$p<0.01$	1.20
Help deal with family problems	166	82/84	5.90	(1.22)	4.75	(1.34)	$p<0.01$	0.90
Improved relationship with partner*	166	82/84	4.51	(1.67)	3.63	(1.45)	$p<0.01$	0.57
Overall satisfaction	166	82/84	6.80	(0.55)	5.93	(1.51)	$p<0.01$	0.77
Helped develop skills	166	82/84	6.50	(0.88)	4.92	(1.92)	$p<0.01$	1.06
Child's behaviour	166	82/84	5.32	(1.52)	5.32	(1.53)	ns	0.00
Child's progress	166	82/84	6.73	(0.61)	6.65	(0.92)	ns	0.10

Notes: *'N'* indicates the sample size. *'M'* indicates the mean. *'SD'* indicates the standard deviation. '*' indicates that this measure was not used to compute 'Total Satisfaction'. † one-tailed (right-sided) *p-value* from an individual permutation test with 1,000 replications. 'ns' indicates the variable is not-statistically significant.

'$p<.01$', '$p<.05$', and '$p<.10$' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively.

5.3.3 Participant Satisfaction Key Findings

Overall, participant satisfaction with the programme between eighteen and twenty-four months was high. As expected, the high treatment group reported greater satisfaction with the programme than the low treatment group. This likely reflects the greater number of supports and services provided to the high treatment group. However, the low treatment group still reported relatively high levels of satisfaction with the programme despite the minimal supports they receive. In addition, the areas where participants reported the highest and lowest levels of satisfaction are similar across the two groups. In line with previous findings, both groups were generally satisfied with the whole programme, their child's progress and the amount of help they receive from the programme. However, both groups reported being least satisfied with how the programme has improved their relationships with their partner. This is consistent with the six and twelve month findings and may reflect the goals of the programme which are focused on improving child outcomes rather than family relationships more generally.

5.4 Misreporting

Social desirability refers to an individual's potential tendency to adapt personal behaviour in line with the expectation that the shown behaviour is approved of by their social group (Mummendey, 1981). Social desirability has been associated with different personality traits (Stöber, 2001), whereby the extent of participants' desire to behave in a socially acceptable way may vary according to their different personalities. It is important to track social desirability in research as the number of affirmative responses an individual provides may depend on the degree to which the affirmative answers are expected to be socially desirable (Cronbach, as cited in Mummendey, 1981; Edwards, 1953, 1957).

The measures used in the *PFL* interviews are typically self-report items which represent either socially desirable or undesirable behaviours. Therefore it is important that the effects of social desirability are considered, as responses may be altered to make a favourable impression on the interviewer, which could lead to inaccurate results. Ehlers (1973) has suggested that these effects on validity can be minimised and controlled for in a number of ways, including non-transparent item construction, comparing specific responses at the item level, using control scales, or simply advising respondents to answer honestly. It is important to acknowledge that some researchers have outlined the limitations of social desirability scales. McCrae and Costa (1983) cautioned against using social desirability scales, either inbuilt or otherwise, to indicate response bias. They noted no significant difference between self-report and spousal report (n=215) on a measure of personality, and claimed that social desirability in this case was best viewed as another aspect of individual personality differences, not an indication of a participant's potential to answer questions in a favourable or false way. However, the comparability of their sample to the *PFL* sample is limited. The sample in the reported study was of higher SES and ages ranged from 27-89. Thus the inherent impact of the researcher-participant dynamic may not have been such a salient factor as in the present study. Uziel (2010) argued against using social desirability scales as a tool to assess the validity of self-report measures. While he agreed that self-report measures carried the inherent risk of responders attempting to answer in a socially desirable way, he questioned the widespread practice of addressing this issue via another self-report scale.

5.4.1 Misreporting Instruments

The possibility of a social desirability bias was tested for in the *PFL* evaluation using the Social Desirability Scale-17 (SDS-17; Stöber, 2001). The SDS–17 (α=0.65) is a validated, standardised instrument which uses 16 true or false items to measure behaviours that are socially desirable and infrequent, as well as behaviours that are socially undesirable but frequent, for example, "I never hesitate to go out of my house to help someone in trouble" or "I like to gossip sometimes" (Crowne & Marlowe, 1960, p.351; Stöber, 2001). Participants can have a total score of between 0 and 16. A higher score indicates that the participant has an increased tendency to respond to the items in a socially desirable manner. In this context, the SDS-17 can be used to determine how accurately a participant's answers portray their actual behaviour.

In addition to the continuous measure, a cut-off was created for the SDS-17 scale; if a participant scored eight or below on the SDS-17 they were classified as exhibiting relatively high levels of social desirability[6]. The Parenting Stress Index (PSI; Abidin, 1995) also includes a defensive responding scale. These questions pertain to routine parenting experiences, and a denial of these experiences may be viewed as a defensive, rather than an accurate response. A score of 10 or below on this scale indicates a 'defensive responder'. Again we analysed the continuous defensive responding scale and examined the proportions of each group below the cut-off score

[6] It should be noted that the author of the SDS-17 (Stöber, 2001), has not developed a cut-off score for the SDS-17 measure. We have chosen a score of 8 as a cut-off to assist with our own interpretation of the findings, but without the endorsement of the author in this decision we acknowledge that any results arising should be interpreted cautiously.

5.4.2 Misreporting Results

The results in relation to misreporting are presented in Table 5.7. The means for the measures of social desirability and defensive reponding are reported for the high treatment and low treatment groups, along with the respective standard deviations which are given in parentheses. The results comparing the scores across each group are also reported. Overall, the results show that there is no significant difference between the high and low treatment groups on three of the four measures of misreporting. For the SDS-17 the overall means are comparable to those found with the same measure in a representative sample (11.29; Stöber, 2001). However, parents in the high treatment group were more likely than the low treatment group to be classified as being defensive responders according to the PSI defensive responding cut-off (p.<0.1; *d*=0.23).

Table 5.7 Results for High and Low Treatment Groups: Misreporting

	Variable	*N*	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test p^1	Effect Size *d*
	PSI Defensive Responding	166	(82/84)	14.90	(5.05)	15.19	(5.00)	ns	0.06
*	Social Desirability Scale (16)	165	(81/84)	11.19	(2.77)	11.29	(2.76)	ns	0.04
*	Social Desirability Cut-off	165	(82/84)	0.16	(0.37)	0.17	(0.37)	ns	0.02
*	PSI Defensive Responding Cut-off	166	(82/84)	0.23	(0.42)	0.14	(0.35)	*p*<.10	0.23

Notes: '*N*' indicates the sample size. '*M*' indicates the mean. '*SD*' indicates the standard deviation. [1] one-tailed (left-sided) *p-value* from an individual permutation test with 100,000 replications. *d* is Cohen's *d* Effect Size. * indicates the variable was reverse coded for the testing procedure. 'ns' indicates the variable is not-statistically significant. '*p*<.01', '*p*<.05' and '*p*<.10' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively. 's~'indicates that the variable was significant in a right-sided test.

In addition to examining whether there are differences between the high and low treatment groups, in terms of overall defensive responding and social desirability, we can also test to see whether there are differences on the individual items which make up these measures. The results for the individual questions which comprise the SDS-17 and the defensive responding items in the PSI are contained in Table 5.8.

There were no statistically significant differences on any of the individual SDS-17 items. The high treatment group reported higher social desirability than the low treatment group on seven of the SDS-17 items, while the low treatment group displayed higher social desirability on eight items. The two groups were identical on the remaining two items. These results indicate that there is no consistent pattern of differential social desirability across the high and low treatment groups. This is in keeping with the previous finding of no significant difference between the high treatment group and the low treatment group on overall social desirability.

For the defensive responding questions included as part of the PSI, the high treatment group displayed a higher level of defensive responding on four of the seven items; one of these differences was significant at the 10% level. The low treatment group were found to exhibit a higher level of defensive responding on three of the seven items, none of which were statistically significant. Therefore as was the case for social desirability no clear pattern emerges of differences between the high and low treatment groups in terms of defensive responding.

Table 5.8 Results for High and Low Treatment Groups: Misreporting Items

Variable	*N*	(n_{HIGH}/n_{LOW})	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	Individual Test p^1
Social Desirability Items							
I never help only because I expect something in return	165	(81/84)	0.98	(0.16)	0.94	(0.24)	ns
I never hesitate to help someone in case of emergency	165	(81/84)	0.93	(0.26)	0.96	(0.19)	ns
I would never live off other people	165	(81/84)	0.86	(0.35)	0.83	(0.47)	ns
When I have made a promise, I keep it - no ifs, ands, or buts	165	(81/84)	0.85	(0.36)	0.89	(0.31)	ns
In conversations I always listen attentively and let others finish their sentences	165	(81/84)	0.80	(0.40)	0.83	(0.37)	ns
I always stay friendly and courteous with other people, even when I am stressed out	165	(81/84)	0.79	(0.41)	0.83	(0.37)	ns
I have never tried illegal drugs	165	(81/84)	0.78	(0.42)	0.85	(0.36)	ns
I always accept others' opinions, even when they don't agree with my own	165	(81/84)	0.75	(0.43)	0.80	(0.40)	ns
I always admit my mistakes openly and face the potential negative consequences	165	(81/84)	0.74	(0.44)	0.83	(0.37)	ns
I never litter	165	(81/84)	0.72	(0.45)	0.68	(0.47)	ns
There has been an occasion when I took advantage of someone else	165	(81/84)	0.72	(0.45)	0.69	(0.47)	ns
In traffic I am always polite and considerate of others	165	(81/84)	0.70	(0.46)	0.68	(0.47)	ns
During arguments I always stay objective and matter-of-fact.	165	(81/84)	0.67	(0.47)	0.64	(0.48)	ns
I never speak badly of others behind their back	165	(81/84)	0.63	(0.49)	0.63	(0.49)	ns
I have never failed to return an item that I borrowed	165	(81/84)	0.42	(0.50)	0.42	(0.50)	ns
I never take out my bad moods on others now and then	165	(81/84)	0.41	(0.49)	0.37	(0.49)	ns
I always eat a healthy diet	165	(81/84)	0.22	(0.42)	0.25	(0.44)	ns
Defensive Responding Items							
I find myself giving up more of my life to meet my children's needs than I ever expected	166	(82/84)	2.61	(1.18)	2.52	(1.08)	ns
There are quite a few things that bother me about my life	166	(82/84)	2.49	(1.21)	2.44	(1.18)	ns
I am not as interested in people as I used to be	166	(82/84)	2.26	(1.13)	2.30	(1.11)	ns
I often have the feeling that I cannot handle things very well	166	(82/84)	1.99	(0.90)	2.19	(1.05)	$p<.10$
I feel trapped by my responsibilities as a parent	166	(82/84)	1.90	(0.83)	1.85	(0.78)	ns
I feel alone and without friends	166	(82/84)	1.89	(0.89)	2.05	(1.00)	ns
Having a child has caused more problems than I expected in my relationship with my partner	166	(82/84)	1.77	(0.93)	1.85	(0.90)	ns

Notes: *'N'* indicates the sample size. *'M'* indicates the mean. *'SD'* indicates the standard deviation. [1] one-tailed (left-sided) *p-value* from an individual permutation test with 100,000 replications

5.4.3 Misreporting Key Findings

The misreporting findings indicate that *PFL* participants displayed levels of social desirability which were broadly in keeping with the results of other comparable studies. Furthermore there was no significant difference between the high treatment group and the low treatment group in terms of their total SDS-17 score, or the portions of each group in the social desirability cut-off category that was created. Examining the SDS-17 items on an individual basis confirmed our finding that the high and low treatment groups displayed similar levels of social desirability. Members of the high and low treatment groups were also compared using the defensive responding scale embedded within the PSI. Once again there was no significant difference between the high and low treatment groups in terms of their overall defensive responding scores. However, the high treatment group mothers were more likely to be classified as being

defensive responders according to the PSI cut-off. The items which comprise the defensive responding scale were also examined on an individual basis and there was no definitive pattern of differences across the two groups.

5.5 Contamination in *Preparing For Life*

Contamination occurs when individuals assigned to the control group either actively or passively receive all or part of the services designed for the treatment group (Cook & Campbell, 1979). Contamination may arise for multiple reasons including administrative error, deliberate subversion by programme staff, or an exchange of information between the treatment and control groups. While contamination may occur in any intervention or trial, it is much more prevalent in social or educational interventions aimed at behavioural change (Cook & Campbell, 1979), as the information is more readily transferable. Contamination is particularly undesirable in experimental evaluations as it may bias the results by reducing the mean differences between the treatment and control groups (Torgerson, 2001). Thus the reliability of the evaluation results, which are based on observations from a contaminated control group, may be questionable.

5.5.1 Measuring Contamination in *PFL*

The aim of this section is to measure potential contamination across the high and low *PFL* treatment groups between programme intake and twenty-four months. Contamination may have occurred if the high treatment group engaged in cross-talk and shared materials with participants in the low treatment group. If substantial contamination occurred during this period it would impede the ability to identify programme effects for the twenty-four month outcomes. The potential for contamination in *PFL* is quite high as it is operating in a very small community with a population of <7,000 and participants were randomly assigned to two different treatment conditions at the individual level. Therefore it is very likely that participants in the two treatment groups may be neighbours, friends, colleagues or even members of the same family. On the other hand, contamination between the high and low treatment groups may be low as *PFL* is a complex intervention which aims to change the behaviour of participants by building relationships between mentors and participants in the high treatment group. As it is often difficult to achieve behavioural change, even if contamination between the two treatment groups exists, it may not be enough to significantly affect the results. Both the indirect and direct measures of contamination are used to provide an indication of whether contamination occurred during this period.

5.5.2 Indirect Measures of Contamination

Information to track contamination indirectly was collected from participants during the twenty-four month interview. Specifically, participants reported how many neighbours they knew who had a child the same age as their own child, with possible response options of zero, 1-3, 4-6, 7-10, or 10+. These questions were used to create yes/no binary variables. A binary variable was also used to indicate whether participants in the high and low treatment groups share their *PFL* materials with anyone else. The results of this analysis are presented in Table 5.9 below.

Table 5.9 Comparison of Indirect Contamination Responses across Groups

Variable	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	M_{LFP}	(SD_{LFP})	*High – Low* *p*	*High – LFP* *p*	*Low – LFP* *p*
Knows people taking part in *PFL*	0.72	(0.45)	0.77	(0.42)	0.78	(0.42)	ns	ns	ns
Shares *PFL* material with others	0.88	(0.33)	0.61	(0.49)	~	~	$p<.01$	~	~

Notes: '*M*' indicates the mean. '*SD*' indicates the standard deviation. 1 two-tailed *p-value* from an individual permutation test with 1,000 replications. 'ns' indicates the variable is not-statistically significant. '$p<.01$', '$p<.05$', and '$p<.10$' indicate that the test is statistically significant at the 1%, 5%, and 10% level respectively.

The first indirect measure of contamination shows that 72% of the high treatment group and 77% the low treatment group know other neighbours who have a child around the same age as their own child and there is no statistical difference across the two groups. Thus, there was an opportunity for contamination between the high and low treatment groups as participants across the two groups may interact with each other. A similar proportion of the comparison group know neighbours who have children of a similar age, such that neither the high nor the low treatment groups know a significantly greater number of people with similarly aged children. The analysis also shows while a large proportion of the high (88%) and low (61%) treatment groups share their *PFL* materials with others, a significantly greater proportion of the high treatment group share the information they receive as part of the *PFL* Programme with other parents in the community ($p<.01$). As the high treatment group received substantially more information and materials from the *PFL* Programme than the low treatment group, this result is as expected and suggests that there was a potential for contamination across the groups, although we do not know who they shared their material with.

5.5.3 Direct Measures of Contamination

In order to elicit a direct measure of contamination a 'blue-dye' question was included in the twenty-four month interview. This question asked participants from the high and low treatment groups and the comparison group if they have heard of a particular parenting phrase, in this case 'descriptive praise', and if they know what this phrase means. The phrase is related to a topic which only participants in the high treatment group should be aware of as the mentors discussed and promoted this behaviour with participants when delivering the programme between eighteen and twenty-four months. Descriptive praise is behaviour-specific praise and occurs when the parent makes the child aware of the behaviour for which he or she is being praised (e.g., "Well done on putting your toys in the box!").

This question may be used to measure contamination as if the participants in the low treatment group state that they know what the phrase meant and they correctly identify how to engage in this behaviour, it is indicative that they may have accessed material or information intended for the high treatment participants only. Specifically, if there is no statistical difference in the proportion of the low treatment group and the high treatment group reporting knowledge of the phrase, it suggests contamination has occurred. A comparison of the responses of the high and low treatment groups to the comparison group, where contamination is very unlikely to have occurred given the geographic distance (~7km), can then be used to estimate the magnitude of contamination. If contamination did not occur, a significantly higher proportion of the high treatment group should state that they are aware of this term or engage in this behaviour compared to the low treatment group and the comparison group. If contamination between the high and low treatment groups is present, there should be a significant difference in the responses of the low treatment group and the comparison group - this difference represents the magnitude of contamination.

One 'blue-dye' question was included in the twenty-four month survey: "Have you heard of Descriptive Praise?". The question had three possible responses – yes, no, don't know. This information was used to generate a binary variable indicating whether the participants had heard of the phrase or not. Participants who stated 'don't know' were treated as having not heard the phrase. It is possible, on social desirability grounds, that some participants who were not familiar with the phrase stated they were familiar with the phrase. In order to capture this, participants who stated they had heard the phrase were asked the following follow-up question: "Can you give an example of descriptive praise". This was an open ended question which was subsequently recoded based on whether the respondent provided a valid response.

Table 5.10 shows that 33% of participants in the high treatment group reported having heard the phrase 'Descriptive Praise', compared to 12% of the low treatment group, and 15% of the comparison group. The differences between the high treatment group and the low treatment group ($p<.01$; $d=0.257$) and the high treatment group and the comparison group ($p<.01$; $d=0.209$) were statistically significant. There was no statistical difference between the low treatment group and the comparison group in the proportion having heard the phrase 'Descriptive Praise'.

Table 5.10 Comparison of Direct Contamination Responses across Groups

Have you heard the phrase ____ ?	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	M_{LFP}	(SD_{LFP})	*High – Low*		*High – LFP*		*Low – LFP*	
							p	*d*	*p*	*d*	*p*	*d*
'Descriptive Praise'	0.33	(0.47)	0.12	(0.33)	0.15	(0.36)	*p*<.01	0.257	*p*<.01	0.209	ns	0.047
N	81		84		72							

In order to provide an accurate measure of contamination, participants who stated that they had heard of the parenting phrase, yet provided incorrect responses regarding how best to engage in this behaviour, were removed from the analysis. 6% of the high treatment group, 6% of the low treatment group, and 7% of the comparison group gave an incorrect response. The results reporting the proportion of participants who accurately reported how to engage in descriptive praise with their children were then re-estimated.

Table 5.11 shows that, as before, a significantly higher proportion of the high treatment group reported having heard the phrase 'Descriptive Praise' compared to the low treatment group (p<.01, d=0.289) and the comparison group (p<.01, d=0.243) and there was no statistical difference between the proportion of the low treatment group and comparison group reporting knowledge of 'Descriptive Praise'.

Table 5.11 Comparison of Contamination Question Responses across Groups

Have you heard the phrase ____ ?	M_{HIGH}	(SD_{HIGH})	M_{LOW}	(SD_{LOW})	M_{LFP}	(SD_{LFP})	*High – Low*		*High – LFP*		*Low – LFP*	
							p	*d*	*p*	*d*	*p*	*d*
'Descriptive Praise'	0.28	(0.45)	0.06	(0.25)	0.09	(0.29)	*p*<.01	0.289	*p*<.01	0.243	ns	0.048
N	75		79		67							

5.5.4 Key Findings

Overall, the contamination analysis revealed two findings. The indirect measures of contamination indicated that the potential for contamination in the *PFL* Programme was high as participants in both the high and low treatment groups reported knowing multiple neighbours in the *PFL* Programme with children of similar ages to their own. While there were no statistical differences across the high and low treatment group regarding the proportion of each group knowing neighbours with similarly aged children, the proportion reporting sharing their *PFL* materials was higher in the high treatment group. This result is as expected as the high treatment group receive more materials from the programme than the low treatment group.

While the indirect measures only provide an indication of the likelihood of contamination, they cannot be used to directly determine whether contamination occurred. The 'blue-dye' question was therefore used to elicit a direct measure of contamination. The results indicated that the high treatment group consistently reported a greater knowledge of the parenting phrase than the low treatment group, thus suggesting that minimal contamination occurred between the high and low treatment groups between intake and twenty-four months. This finding was validated by the comparison group which reported similar levels of knowledge of the parenting phrases as the low treatment group. The low treatment group is geographically closer to the high treatment group than the comparison group, and reported having substantially more contact with other participants in the programme compared to the comparison group. Therefore if contamination was present between the high and low treatment groups we would have expected to observe higher rates of knowledge about appropriate parenting behaviour among the low treatment group, however this was not the case. Contamination will continue to be monitored in all future evaluation reports.

Chapter Six

Report Summary & Conclusion

6.1 Overview

This report presented the results of the overall effectiveness of the *Preparing For Life* programme between programme entry and when the *PFL* child was approximately twenty-four months of age. It included an analysis of the quantitative information derived from interviews with *PFL* participants, qualitative work with participants and mentors, and implementation data from *PFL*'s database. Overall, the twenty-four month evaluation suggests the results are in line with other evaluations of home visiting programmes which typically identify moderate programme effects at twenty-four months. Table 6.1 compares the significant findings from the home visiting literature with the significant findings from *PFL* at six, twelve, eighteen and twenty-four months.

Table 6.1 - Summary Comparing *PFL* Findings with Findings from Home Visiting Literature

Domain	Six Months		Twelve Months		Eighteen Months		Twenty-four Months	
	Studies w/ Favourable Outcomes	*PFL* Favourable Outcomes	Studies w/ Favourable Outcomes	*PFL* Favourable Outcomes	Studies w/ Favourable Outcomes	*PFL* Favourable Outcomes	Studies w/ Favourable Outcomes	*PFL* Favourable Outcomes
Child Development	✔			✔	✔	✔	✔	✔
Cognition, Communication, Problem Solving	✔					✔	✔	✔
Physical Development				✔		✔		
Socio-emotional Development	✔			✔	✔		✔	✔
Child Health	✔	✔	✔	✔	✔	✔	✔	✔
Immunisations, Hospitalisations	✔	✔	✔	✔	✔	✔	✔	
Medical care	✔						✔	
Physical Health	✔		✔	✔		✔		✔
Health Behaviours (Sleeping, Eating)				✔	✔	✔		✔
Parenting	✔	✔	✔		✔	✔	✔	✔
Risk Factors for Maltreatment		✔	✔		✔		✔	
Parental Knowledge			✔				✔	✔
Parenting Behaviours	✔	✔	✔			✔	✔	✔
Home Environment	✔	✔	✔		✔	✔	✔	✔
Maternal Health & Wellbeing	✔	✔	✔	✔	✔	✔	✔	✔
Physical Health	✔	✔					✔	
Mental Health	✔		✔					
Health Behaviours			✔	✔	✔	✔		✔
Social Support		✔		✔		✔	✔	✔
Childcare	✔	✔	✔	✔				
Household Factors & SES			✔			✔	✔	✔
Household Composition								
Parental Employment, Finances			✔			✔	✔	✔

The majority of the relationships in the analysis were in the hypothesised direction, with the high treatment group reporting better outcomes than the low treatment group. Overall, 166 outcome measures were assessed at twenty-four months. Of these one-tailed tests, 99 (60%) were in the hypothesised direction and 35 (21%) of these differences were statistically significant. Of the 29 step-down measures, 5 (17%) were significant. In terms of effect sizes, moderate effect sizes of between 0.20 and 0.40 were identified on the majority of significant results. As outlined in Chapter 1, we hypothesised that moderate treatment effects would be found in the areas of child development, child health, parenting, and the home environment, with limited effects on maternal health & wellbeing, social support, childcare, household factors & SES. The findings in relation to child development, child health, parenting and the home environment show support for our hypothesis, but counter to our hypothesis, positive, significant treatment effects were also found in three of the four other domains. At twenty-four months, 5 (3%) of the variables measured were significantly different in the non-hypothesised direction, such that the low treatment group were outperforming the high treatment group on these measures.

It is noteworthy that the results at twenty-four months indicate most significant findings in terms of child outcomes, and fewer for parent outcomes. As a primary aim of the *PFL* Programme is to change child outcomes via improved parenting practices, it is possible that the changes being implemented by the parents are not being accurately measured by the parenting scales used in the evaluation. Alternatively, it is possible that the programme is having a direct effect on the children and parents are not the primary mechanism for change. The process evaluation findings may help to explain these results. Parents reported improved parenting skills in the focus groups, namely around responding to their children, discipline, and increased learning about nutrition. It is possible that their improved skills have directly impacted their children's positive outcomes in this area. In addition, parents may have learned how to promote certain aspects of their children's development and direct specific behaviours, promoted by the mentors, towards their children, without changing their own overall outlook or beliefs around these behaviours. They may simply be following the suggestions made by mentors, without considering the reasons behind these suggestions, or altering their own beliefs accordingly. The findings in relation to child and maternal health provide further support for this suggestion: while child health outcomes have improved, maternal health outcomes have not. This suggests that mothers may be directing improved practices towards their children, without altering self-directed behaviour in relation to health.

The results comparing the low treatment group to the comparison group can be interpreted as confirming the main treatment results, as well as the integrity of the RCT design. The mixed results of the low treatment group and comparison group analysis suggest that the low treatment group is not systematically achieving stronger outcomes than the comparison group across most domains. Of the 166 items analysed, there were statistically significant findings in the hypothesised direction for 15 measures (9%) and there were 20 statistically significant differences in the non-hypothesised direction (12%). These results suggest that the low treatment group is not outperforming the comparison group. This suggests that either contamination between the high and low treatment group is minimal or that the low treatment supports are having minimal effect on the participants.

The purpose of the dynamic analysis was to capture changes in the outcomes of participants over time. Overall, very few significant findings were found between the high and low treatment groups regarding changes in outcomes over time. Only one of the 40 measures examined (2.5%) was significant in the hypothesised direction: the high treatment group experienced a significantly larger increase in satisfaction with the programme between twelve and twenty-four months than the low treatment group. These findings are consistent with the literature as few studies identify significant dynamic effects during this stage of programme delivery.

Regarding dosage and timing, families in the high treatment group received an average of 33 home visits by the *PFL* mentors between programme intake at the 22nd week of pregnancy and twenty-four months, with each visit lasting approximately one hour. On average, participants met their mentor just under once a month between eighteen and twenty-four months. While the duration of visits did not differ significantly across each time period, a slightly smaller proportion of prescribed home visits was delivered at twenty-

four months compared to previous periods. Only two individual participant characteristics were associated with the frequency and duration of home visits – the timing of programme entry and cognitive resources. Mothers who entered the programme earlier in pregnancy had more home visits and subsequently spent more time in the programme. Mothers with higher cognitive resources participated in more home visits and had visits of a longer duration, which suggests that engagement may also be related to the mother's ability to understand the programme materials and to recognise the need for the programme in their lives. Factors such as age, marital status, employment status, and socio-emotional functioning were not associated with engagement in *PFL*.

The purpose of this concluding chapter is to discuss and interpret the main results comparing the high and low *PFL* treatment groups in the context of the full report. As such, this chapter uses all the information contained within the report such as the dynamic results, relevant research literature, qualitative analysis and implementation results to explain the main findings. The sections below discuss the main results for each of the 8 key domains.

6.2 Child Development

Evaluations of home visiting programmes have not revealed a consistent impact on child development at twenty-four months. Of the ten studies reviewed in Chapter One, evaluations of Healthy Families America (Caldera et al., 2007) and the Nurse Family Partnership (Olds et al., 2002) found favourable impacts, the Parents as Teachers Programme (Wagner & Clayton, 1999) reported an unfavourable impact, and the remaining seven found no significant effects. Reported treatment effects include improved cognitive outcomes, more favourable internalising and externalising scores (Caldera et al., 2007) and improved language outcomes (Olds et al., 2002). Wagner & Clayton (1999) reported an unfavourable impact on social development scores at twenty-four months. To date, no significant impact has been reported on physical development by home visiting programmes.

The children in the high and low treatment groups differed on almost all measured areas of child development. Of the 41 measures of child development assessed, 14 were statistically significant in the hypothesised direction such that children in the high treatment group were outperforming the low treatment group. There are two notable patterns emerging in the data – programme effects on children's cognitive development and on their behaviour.

Significant findings emerged relating to children's cognitive development. Children in the high treatment group scored higher than children in the low treatment group on the ASQ Problem Solving scale, although it should be noted that this particular scale has a low Cronbach's alpha score (α=0.27) which suggests weak internal validity, thus this result must be interpreted with caution. High treatment children were also less at risk of being clinically developmentally delayed on this domain. This is the first time that such an effect was found in the *PFL* evaluation: previous findings on the ASQ measure were limited to fine-motor skills and gross motor skills. Children learn through play, and problem solving is a task which children can hone through imaginary games and symbolic role play, particularly if encouraged by their mothers (Bornstein et al., 1996). Between eighteen and twenty-four months children typically develop more sophisticated problem solving skills, solving problems through symbolic representation rather than through trial and error (Dosman & Andrews, 2012). Motor skills and cognitive skills such as problem solving share some common features. Ito (2005) suggested that motor and cognitive learning tasks both require control and manipulation of internal neural representations. For motor tasks, an internal representation of the environment and place within the environment is required. For cognitive tasks, the representation is often of more abstract symbols. Adolph (2008) proposed that as an infant learns to master locomotion they need to adapt and overcome contraints such as obstacles and changes in the environment. Successful movement within the environment therefore involves a continual process of problem solving. It is possible that higher scores on motor skills measured at eighteen months may facilitate enhanced problem solving at twenty-four months. Children in the high treatment group also scored higher on the DP-3 scale of cognitive development, and scored higher in the above average cut-off on this measure than children in the low treatment group. This result was also observed at eighteen months which suggests a consistent

programme effect on cognitive development. This supports the findings of Caldera et al. (2007), who reported positive programme effects on cognitive development at twenty-four months. A quantile regression[1] was subsequently used to investigate which children benefitted most from the *PFL* Programme in terms of higher DP-3 scores. It revealed that the observed DP-3 effect was primarily concentrated among children of a relatively high ability.

There is evidence that cognitive development, including problem solving skills, can progress at a faster pace in children when adults challenge and encourage them through play (Damast, Tamis-LeMonda & Bornstein, 1996). It is possible that the modelling techniques and play-based nature of the home visits at twenty-four months, alongside the age-appropriate developmental packs, are encouraging parents to play more with their children. These findings are supported by the qualitative findings from both the mentor interviews and the parent focus groups, and correspond to information provided in the Tip Sheets. Mentors described working with the toys and using modelling and role play skills to teach parents how to play with their children. However, it is notable that they did not describe these particular elements of the home visit in great detail. Parents reported their children enjoying the developmental packs, particularly toys and books which they would not have considered purchasing themselves. More nuanced information, about how the different mentors mobilise their own skills and training in the areas of modelling and role play in particular, may provide more specific information about how parents are learning to influence their children's play, problem-solving and cognitive development.

A programme effect was also found in the area of child behaviour as measured by the Child Behaviour Checklist (CBCL). High treatment children scored more favourably in the individual subdomains of sleep and other problems, although there were no significant findings for the other individual subdomains which investigated specific internalising and externalising behaviours. A programme effect was also found on the total CBCL score, which was driven by the findings on sleep and other problems. High treatment children also scored more favourably regarding the clinical cut-offs for externalizing and internalizing behaviour, as well as the total cut-off score. None of the high treatment children scored above the clinical cut-off for externalising problems, or for total score, compared to 4% and 7% of the low treatment children respectively. Only 2% of the high treatment group were above the cut-off for clinically significant internalising behaviours, compared to 7% of the low treatment group. Similarly, a programme effect was found in child behaviour as measured by the Brief Infant-Toddler Social and Emotional Assessment (BITSEA). Children in the high treatment group scored lower than children in the low treatment group on the BITSEA problem score, which measures externalising problems, internalising problems and dysregulation. The result was driven by the dysregulation and internalising problem sub-domains, and indicates that children in the high treatment group have few reported problems in this area. Children in the high treatment group were also less likely to be at the cut-off point for behavioural problems, and the BITSEA cut off score step-down category was significant as a result of this finding.

A large study of a Dutch sample using the CBCL reported "a behaviour problem" in 7.8% of children aged between twenty-four and thirty-six months (Koot & Verhulst, 1991), which the authors claimed was comparable to other studies. Thus the children in the low treatment group are conforming to this norm, while the children in the high treatment group are less at risk of behavioural problems. An evaluation of the Parents Plus Programme in Ireland (Quinn, Carr, Carroll, & O'Sullivan, 2006) reported the suitability of the CBCL to the study, citing its strong internal consistency and test-retest reliability (>0.7 in each case), and the large samples on which it has been normed (Achenbach, 1991; Dekker, Koot, van der Ende, & Verhulst, 2002). It should be noted that the Parents Plus sample, while Irish and from a disadvantaged community, exhibited developmental disabilities and behavioural problems, and ranged in age from 4-7 years. The authors found no significant programme effect on behaviour using the CBCL (Quinn et al., 2006).

Although no significant effects were found on all of the individual CBCL sub-domains, the cut-off findings, along with the findings on the BITSEA problem score and problem cut-off, indicate that there is a programme effect on child behaviour. This is comparable with the findings of Caldera et al. (2007), who reported more favourable internalising and externalising behaviour scores as a result of the intervention at twenty-four months. Behaviour can typically become more challenging as children develop and become more active.

[1] Quantile regression is a semi-parametric technique which allows for the characterisation of the entire conditional distribution of a dependent variable for a given set of regressors (Buchinsky, 1998). It has the advantage of being robust against outliers in the outcome variable.

Children who exhibit behavioural problems such as dysregulation or externalising behaviours typically act out or are difficult to soothe. Behavioural difficulties in childhood have a number of possible causes, and those with a medical basis may take some time to identify. Bayer and colleagues (2011) reported the negative impact of early behavioural problems, specifically internalising disorders, on later life outcomes including relationships, employment opportunities, and mortality. It is notable that when the participants were asked about the impact of the programme on their child's behaviour as part of the parent satisfaction questionnaire, there was no difference between the high and low treatment groups' responses. Therefore it appears that while the study has found an impact on this area, parents are not aware of these effects. While mothers in the *PFL* focus groups did describe learning, listening and parenting techniques as part of *PFL*, this was largely discussed in relation to the Triple P programme, which does not begin until after the child turns two. However, mentors did report teaching selected Triple P strategies to parents as needed, outside of the official Triple P course, and the Tip Sheets used up to twenty-four months encourage sensitive, responsive parenting and provide techniques for managing challenging behaviour in children.

Findings in the domain of child development have increased steadily from twelve months onwards, with significant outcomes more than doubling between each time period, to 34% at twenty-four months. This is a significant finding as child development is closely aligned to school readiness skills which underlie the aims of the programme. We will continue to closely monitor child development as the programme continues.

6.3 Child Health

There is mixed evidence in the literature on the impact of home visiting programmes on child health at twenty-four months. Three of the nine evaluations of home visiting programmes reviewed reported significant effects, specifically in the areas of hospitalisation (Koniak-Griffin et al., 2003), primary care provider concern about child health (Duggan et al., 1999) and having health insurance (Caldera et al., 2007). While not directly comparable, the Moving to Opportunity Program interim evaluation (2003) measured similar aspects of child health at 5-11 years old, and reported no treatment effects on general child health, obesity, asthma, or number of accidents and injuries. A number of significant programme effects were found in the domain of child health in the present study – of the 17 measures considered, eight were significant, seven of which were in the hypothesised direction. The positive programme effects found related to nutrition, incidence of general health problems, chest infections and asthma. To our knowledge, no other home visiting programme has reported similar statistically significant findings in these areas at twenty-four months.

The programme appears to have a consistent and clear effect on children's nutrition. Children in the high treatment group were more likely to eat greater amounts of protein, fruit and vegetables, and less likely to have poor eating habits compared to children in the low treatment group. However, they were also more likely to eat fatty foods daily than children in the low treatment group. These findings are consistent with the eighteen month results which found that high treatment children were eating significantly more protein and dairy. It is likely that these positive effects are linked directly to the information provided to parents about nutrition. The Tip Sheets contain information on diet and healthy food choices. Additionally, a course on nutrition and cooking was offered to high and low treatment parents. The course was attended by 36 high treatment parents and 18 low treatment group parents, and completed by 30 and 15 respectively. The findings from the qualitative research indicated a positive response to this course, and the discussions among high treatment mothers at the focus groups suggested that they had assimilated the information and used it to make healthy food choices for their child. However, the increased fatty food intake is more difficult to explain. The Tip Sheets recommend a number of low fat choices. It is possible that the high treatment mothers are more aware of their children's food intake as a result of *PFL*, and thus are more likely to pay attention to their diet, remembering every food choice – favourable or unfavourable - in greater detail than low treatment parents. This could possibly account for the overall reporting of greater amounts of different food groups by high treatment mothers. Alternatively, there may be a familial issue at play, whereby despite making good progress, families are struggling to fully implement change in the face of an intergenerational cycle of unhealthy food habits.

Improved general children's health was more commonly found in the high treatment group, and it is important to note that this effect was also found at eighteen months. At twenty-four months the parents in the high treatment group reported that their children had fewer health problems that required medical attention than children in the low treatment group, while at eighteen months they reported that their children were less likely to spend a night in hospital. At twenty-four months they were also less likely to have had a chest infection in the previous 6 months, or to be diagnosed with asthma. Children who are exposed to smoke and are in low income households are at greater risk of developing asthma, while chest infections or some preservatives in processed foods may act as triggers for asthma development (http://www.nhs.uk/Conditions/Asthma/Pages/Causes.aspx, as accessed on 17/9/13). It is interesting to note one of the measures in the Home Environment domain, "child exposed to cigarette smoke" did not reveal a significant difference between the high and low treatment groups. This may eliminate one of the possible causes of reduced asthma. However, it should also be noted that our study examines whether there are smokers in the family, without taking into account where they smoke. Thus it is possible that family members who smoke in the high treatment group are encouraged to smoke outside the home, rather than inside. This corresponds with the advice provided in the Tip Sheets. Chest infection levels are lower and healthy food choices higher in the high treatment group. This addresses two further risk factors for the development of asthma, and may be linked to advice on health and nutrition given in the Tip Sheets.

Chest infections may be caused by viruses, or may start out as a cold or cough which develops into a chest infection if left untreated. The fact that the high treatment group have less GP visits and fewer chest infections suggests that they are either not falling ill in the first place, or that they are being treated for colds etc. in the home, thus the possibility of the cold developing into a chest infection is reduced. The Tip Sheets provided by the mentors contain information on good hygiene which would minimise the risk of spreading infections. They also provide advice on recognising when your child is unwell, and treating minor illnesses. It is possible that the improved food choices outlined above are associated with general improvement in children's health. Another potential mechanism is that the mentors, present in the homes, are advising the mothers on how to care for their children, specifically if they see the child is developing a cough or cold, thereby identifying the problem before it develops further. It is also possible that the opportunity to focus on the *PFL* child on a regular basis allows the parent to become more aware of their child's health. Thus they are more likely to identify coughs/colds early and take steps to address them.

A separate analysis was conducted to examine whether the significant child health findings at twenty-four months were mediated by the mothers' method of delivery at birth for the *PFL* children. Specifically, a programme effect was identified for method of delivery, such that less of the high treatment children were delivered by caesarean section (15%) compared to the low treatment group (26%). Thus, it is possible that differences in method of delivery may be related to these child health effects at twenty-four months. No evidence was found to indicate that method of delivery was significantly related to child health outcomes. Additionally, a separate analysis was carried out to test whether or not the effects found relating to child health were concentrated on one particular group of children. All of the children who were described as having asthma were removed from the sample, and the remaining subsample was re-tested to assess whether the other significant effects remained, namely number of health problems, incidence of chest infections and general good health. The programme effects were no longer present, which indicates that the observed effects were primarily concentrated in the children with the most health problems. Therefore it can be concluded that the programme had a bigger impact on the health of children who suffered from the most health issues.

The overall trend suggests a strong gain in the area of child health for high treatment children in the *PFL* Programme, with the number of significant differences almost doubling between eighteen and twenty-four month. This is a very promising finding and we will continue to monitor child health as the programme continues.

6.4 Parenting

Parenting a toddler can be stressful, particularly for parents who have less knowledge, less perceived competence, and fewer supports (Mash & Johnston, 1990). While a number of home visiting studies seek to reduce parenting stress, the outcomes in the literature at twenty-four months are mixed. Of the 18 different parenting outcomes measured at twenty-four months in the present study, three were significantly different, all in the hypothesised direction. Similar to the findings reported by the Healthy Families Alaska programme, there was no significant difference between the high and low treatment groups in terms of general parenting stress (Duggan et al., 2007). However, more mothers in the high treatment group scored below the cut-off for clinically significant parenting stress. Mothers in the high treatment group reported greater parenting self-efficacy, which is a protective factor against stressful parenting experiences (Mash & Johnston, 1990). Increased parenting efficacy was also reported by Duggan et al. (1999). High treatment parents were more likely to rate their baby favourably when compared to other babies. This seems counter to the finding reported by Love et al. (2001), whereby there was no difference in negative affect between treatment and control groups.

Regarding the lower levels of clinically significant stress found in the high treatment group, the opportunity to talk and be listened to, which was highly valued by participants during the focus groups, may have contributed to this reduction. It is also possible that the referral service facilitated by mentors influenced this finding. As regular visitors to the home, mentors are able to identify stressful situations and may either make practical suggestions to participants about how to reduce stress, or make referrals to the appropriate counselling or medical services if they feel a mother's stress requires additional treatment. Referrals by mentors are made formally, using a referral form, or informally, by encouraging participants to contact particular services based on their needs. Formal referrals are typically made to the local child and adolescent mental health service, specific family support organisations and counselling services. Participants are encouraged to self-refer to their own GPs, the *PFL* Stress Control Course, two local counselling services and a community resource centre which provides counselling for parents and children, alongside more general family information and support. Contact details for these and other services are provided on the Tip Sheets.

The findings in relation to maternal self-efficacy indicate that mothers in the high treatment group feel they are capable of fulfilling the parenting role, and are relatively confident in their parenting skills. It is likely that this is a direct result of the home visiting component and the Tip Sheets. The qualitative findings from both the mentor interviews and the focus groups suggest that mentors provide encouragement and help parents to feel more confident in how they care for their children. High treatment parents were also more likely to rate their baby favourably when compared to other babies. The Tip Sheets contain advice for mothers about the importance of praising children descriptively, along with examples of how to do so. In order to engage in descriptive praise, mothers need to pay attention to what their children do, and understand how their actions represent goal-directed behaviour. Through paying attention to their children, mothers may be more able to recognise the goals behind their play and demonstrate more active interest in their tasks, exhibiting more pride and personal interest in their children than those who are not as connected to their children's daily actions and small victories. The interaction between the mentors and the developmental packs may also feature in the results regarding self-efficacy and the baby favourability ratings. In both the mentor interviews and the focus groups, participants reported that mentors show parents how to use the toys and books received as part of the packs. While parents in the low treatment group also receive the packs, those in the high treatment group are taught how to use the material in the pack with their children in the home. Thus they may be more confident in their actions and play with the children more, using the packs and books provided in the recommended way. More time spent playing with their children may facilitate increased affection on the part of the high treatment mothers towards their children, and a stronger sense of confidence in fulfilling the parenting role.

The pattern of findings to date in the parenting domain is not consistent across time periods, with a slight decrease in significant findings between the eighteen and twenty-four month reports. We will continue to monitor parenting as the programme continues.

6.5 Home Environment

There was one difference between the high and low treatment groups in the home environment domain. Families in the high treatment group were less likely to have a social worker working with them and their family than families in the low treatment group. While other home visiting programmes have not specifically measured social worker involvement, some have reported a reduction in child maltreatment, which could be considered a comparable indicator of risk in families (Duggan et al., 2007; DuMont et al., 2008; Kitzman et al., 2007). Additionally, studies using the HOME measure of the home environment have largely reported favourable findings at twenty-four months (e.g. Duggan et al., 2007; Love et al., 2001).

Social workers work with families for a number of reasons, such as social and emotional problems, or issues of domestic violence or child abuse (www.hse.ie, as accessed on 8th August 2013). Families may be referred to social workers when they come to the attention of other local service providers such as the Gardaí, schools or health professionals. Thus the home visiting element of the programme may be acting as an early protective factor, enabling participants to discuss and address problems that may develop in their homes before they reach crisis point whereby a social worker is called upon to intervene. Similarly, the referral service offered by the mentors, and their ability to connect in with local services on the behalf of participants, may ensure that problems are addressed in a pro-active and timely manner. The qualitative findings provide extra support for this hypothesis, as both mentors and focus group participants commented on the ability of mentors to connect participants with services, although the reported slow uptake by the referral organisation to effectively deal with the issue, as mentioned in one case, suggests a lack of continuity of care.

The *PFL* findings in relation to the home environment differ over time due to the measures included at each time point. Significant treatment effects were found at six and eighteen months when the HOME measurement was used. This measure is widely used in home visiting programmes, making our results at these time points directly comparable to the literature. There were no significant findings at twelve months when different aspects of the home environment were measured. Thus we will continue to monitor the home environment as the programme continues, and the HOME measure will be re-introduced at the thirty-six month interview.

6.6 Maternal Health & Wellbeing

A review of the literature revealed limited findings for home visiting programmes at twenty-four months in the domain of maternal health. Many studies reported no significant impact on maternal health outcomes (e.g. Duggan et al., 1999; Love et al., 2001), although several studies reported an impact on subsequent pregnancies, with treatment group mothers more likely to delay pregnancy (Barnet et al., 2010; Kitzman et al., 1997; Olds et al., 2002). Kitzman et al., (1997) also found increased mastery - a sense of being able to manage the challenges in their lives - among treatment group mothers in the Nurse Family Partnership at twenty-four months.

In the present study, mothers in the high treatment group did not differ significantly from mothers in the low treatment group across health domains such as general health, substance use, self-concept and mental health, which included the consideration of future consequences, and post-natal depression. However, two significant differences between the two groups were identified: mothers in the high treatment group visited their GP more often than mothers in the low treatment group, and mothers in the high treatment group who were pregnant were more likely to report that their pregnancy had been planned, compared to pregnant mothers in the low treatment group. The latter finding is in line with the findings from other programmes relating to delayed pregnancy, as reported above. The GP visits finding is counter to our hypothesis and is in contrast with the finding reported in the area of child health which indicated that high treatment children had significantly fewer GP visits. However this result is comparable to the findings at eighteen months, where high treatment mothers reported that they were more likely to use health services. It is possible that, as recipients of the home visiting component of this programme, high treatment mothers simply have a greater awareness of the concept of prevention and, applying this

concept to their own health, are more likely to make appointments with the GP. Additionally, mentors make informal referrals to GPs, so perhaps the higher number of high treatment GP visits is a direct effect of mentor advice.

There was no significant difference between high and low treatment mothers on the Consideration of Future Consequences scale (CFC). This is further supported by the findings of the process evaluation, where mentors reported that families tended to deal with immediate issues rather than thinking about the future. Mentors felt that their role was to address this cultural issue, providing mothers with the opportunity to plan and set longer-term goals. It is interesting to note however that the area of maternal health did not emerge as a theme in the qualitative findings, either from mentor interviews or from focus groups.

Significant programme outcomes in the domain of maternal health have been consistently low (representing 4-6% of all maternal health outcomes) in all four programme reports to date. However this is not unusual in such programmes and is consistent with the findings of a number of large scale evaluations, including Early Head Start, Parents as Teachers and Healthy Families America. When evaluations have reported health effects, it has typically been around pregnancy and birth, with the exception of the Nurse Family Partnership where an effect was found on maternal mastery (Kitzman et al., 1997). Mothers may simply be more likely to focus on promoting healthy behaviours in young children than trying to change their own behaviours which are based on years of developing personal habits and thought processes around the area of health. Regarding the consistent lack of effects on maternal mental health, it is important to recognise that *PFL* is a service which was designed to promote children's school readiness skills. The role of the mentors is to support the parents around child development. It is not a clinical programme and the mentors are not trained to provide psychological treatment to participants who may need clinical care in the area of mental health. In a review of the literature on non-child related interventions which specifically target health outcomes for adults with low literacy, the authors noted that health outcomes are difficult to change in adults, and recommended linking short-term changes to long-term benefits for participants and their families (Pignone, DeWalt, Sheridan, Berkman, & Lohr, 2005). We will continue to monitor this area going forward.

6.7 Maternal Social Support

While a number of evaluations investigate programme impact on social support, few find significant outcomes at twenty-four months. Only one study reported both favourable and unfavourable outcomes when examining different aspects of social support such as referrals or education (Anisfield, Sandy, & Gutterman, 2004). At twenty-four months, high treatment mothers did not differ significantly from mothers in the low treatment group in terms of social support across such domains as father support, support from friends and parents or voting behaviour. However, two significant differences were identified: mothers in the high treatment group were more likely to receive a lot of support from their relatives, and mothers in the high treatment group participated more in social groups than mothers in the low treatment group. To our knowledge, these findings have not been reported in any other evaluations at this time point.

Regarding support from relatives, the qualitative findings suggest that high treatment mothers were often frustrated by the high level of involvement by their relatives, thus while support is present and available, it may be counter to the advice provided by the mentors. Alternatively, it is possible that through increased confidence in their parenting skills, mothers felt more able to establish boundaries with their relatives, seeking specific support, e.g. personal support, and receiving it in a more targeted, helpful way than low treatment parents who may struggle to set appropriate boundaries with well-meaning relatives.

As the *PFL* Programme focuses on the wellbeing of parents as well as children, mentors encourage mothers to consider their own needs and participate in social groups as an outlet for themselves. This is reflected in the Tip Sheets, which also offer advice on establishing routines with children. As *PFL* parents are encouraged to put bedtime routines in place, and are given the skills to do so, they may be better positioned to attend planned social events in the evenings.

Findings in relation to social support have changed considerably over time. At six months there were differences on 38% of measures, increasing to 43% at twelve months. However there was a sharp reduction at eighteen months to just 8%, with a small increase at twenty-four months to 11%. It is possible that this finding is linked to the naturally changeable nature of parenting over time. Mothers may feel isolated when they have a new-born baby. Thus mothers in the high treatment group, acting on the advice of their mentors, may recognise the importance of having a strong social support network during this time, and may subsequently have sought out such social support. However, as infants become toddlers, it is likely that a wider social network is available to all parents as children begin to explore their environments and take part in different group activities.

6.8 Childcare

There is very limited research on childcare arrangements of families participating in home visiting programmes. There are a number of known cognitive and school readiness benefits of formal childcare for children who begin attending at age 2-3, particularly among those from a lower SES background (Barnett, 1995; Geoffroy et al., 2010; NICHD, 2002a; Sylva et al., 2011). However little is known about informal childcare, although it is reported that such arrangements do not produce the cognitive benefits associated with formal childcare (Andersson, 1989). In a review of the literature, Jacob (2009) reported that children who spent more hours per week in formal childcare arrangements prior to twenty-four months exhibited less social competence and co-operation and more caregiver-reported problems, although by thirty-six months these negative findings had abated.

Families in the *PFL* high treatment group did not differ significantly from low treatment families in the majority of childcare measures. There was one significant difference in this domain: the high treatment group reported less hours per week in childcare, whether formal or informal, than the low treatment group. It is difficult to estimate the impact of reduced childcare hours at twenty-four months as children are on the cusp of change where increased time spent in formal childcare moves from being a developmental disadvantage to a developmental advantage. The *PFL* mentors are in contact with local crèches and thus the high treatment group children may potentially spend more time in formal childcare as a result. Referring to the other childcare results may identify possible patterns which can help to explain this finding, although it is important to stress that effects on the other measures of childcare were not significant. The cost of childcare per hour was marginally more expensive for the high treatment group than the low treatment group. Therefore, this higher cost may have induced parents to keep the hours spent in formal childcare to a minimum, which is affecting the total response of overall time spent in childcare.

When this finding is considered alongside increased parental self-efficacy reported at twenty-four months, it is possible that the high treatment mothers are simply more confident in having their children with them for longer periods of time. The findings in relation to maternal employment may also be taken into account. Mothers in the high treatment group were more likely to be stay at home mothers, which may support this finding.

Findings from the four reports to date indicate very limited effects relating to childcare, with a limited significant difference between the high and low treatment groups on this outcome at six months (6%) and no positive significant effects subsequently. We will continue to monitor childcare use.

6.9 Household Factors & SES

Household factors and SES can have an impact on children's development, their well-being and school readiness (Hirsch, 2007; Letourneau et al., 2011). While families in the high treatment group did not differ significantly from families in the low treatment group in terms of household size, marital status, paternal employment or finance, there were a number of significant differences between the high and low treatment group in this domain, relating to the child's mother and the family in general. Mothers in the high treatment group were less likely to be unemployed than mothers in the low treatment group. This finding was also reported at eighteen months. Mothers in the high treatment group were also more likely to have engaged in education after leaving secondary school, which may be linked to reduced unemployment, as increased education could potentially lead to greater employment opportunities. This is similar to the findings of Olds et al. (2002) who reported that mothers in the treatment group were likely to remain employed for longer than those in the control group. However, it contrasts with another study which reported no effect on education or employment (Duggan et al., 1999).

When considering the findings on unemployment, it is important to note that there was no significant difference in the percentages of mothers in high and low treatment groups who reported that they were employed. More mothers in the high treatment group described themselves as looking after their homes and families on a full-time basis. Mothers who are looking after the home full-time and are not receiving unemployment benefit will not be classified as being employed or unemployed, thus it is likely that this difference accounts for the significant difference between the two groups on the unemployed measure. Regarding the education finding, it is possible that the mentors are contributing to maternal education. In the focus groups it was reported that mentors had supported mothers in returning to education after the birth of their baby. Mentors may be helping mothers to build their confidence around their own skills and through providing mothers with an opportunity to talk about themselves, as well as their child, the mentors may be enabling mothers to consider focusing on their own needs – including the need to seek out additional skills and training outside the home. Mentors can arrange childcare for parents when needed, thus this may assist mothers in the more practical elements of going back to education. However, given the increased education, it seems counter-intuitive then that mothers in the high treatment group who worked part-time earned less when compared to mothers in the low treatment group who worked part-time, although it must be noted that the sample size in this case was small. It is also important to note that this measure of education differed from the measure used at baseline. While there were no differences in the educational attainment of participants in the high and low treatment groups at baseline, we cannot categorically state that the observed educational effect at twenty-four months was caused by the programme due to the different measures used at both time points.

Mothers in the high treatment group were less likely to report that they had exhibited anti-social behaviour when at school compared to mothers in the low treatment group. This cannot be interpreted as a direct effect of the programme as the majority of mothers had left school by the time the programme commenced. However, the difference is notable and should be taken into account when considering the rest of the study's findings. At this point it is worth considering the root causes of anti-social behaviour. Firstly, such behaviour may have developed as a response to being in formal education and the rigidity that such education is accompanied by. Secondly, anti-social behaviour may be a result of learned behaviours propagated in the home. In the first case, mothers in the high treatment group were better behaved at school and therefore they may be more likely to use the information provided by the mentors, leading to improved overall outcomes for the high treatment group. Yet the design of the programme is such that mentors present the information to each parent differently, based on their own learning style. Therefore high treatment mothers who did display anti-social behaviour in school possibly as a result of rigid teaching should be able to take on the information presented during the home visiting sessions. In the second case, if anti-social behaviour is learned, it would follow that, with no intervention, the children of mothers who reported anti-social behaviour in school may also exhibit similar behaviour when they attend school. The findings in relation to social desirability must also be considered. There were no significant differences between the high and low treatment groups on 3 of the 4 measures which could potentially indicate misreporting. Therefore it is unlikely that social desirability has biased this finding regarding anti-social

behaviour. As the low treatment group are not receiving the home visiting component, it will be interesting to see whether the children in this group develop anti-social behaviour patterns as they grow older.

Mothers in the high treatment group were more likely to report that their partner was their child's father. In other words, high treatment parents were less likely to separate than low treatment parents. This is contrary to the findings of Wagner & Clayton (1999) who reported that treatment parents were more likely to get divorced or separated than controls. Information on attending to personal relationships is included in the Tip Sheets, with advice on how to maintain a strong relationship. The focus group findings indicated that mentors encourage mothers to consider and build their personal relationships. As the high treatment children exhibited fewer behavioural problems than the low treatment group, it is possible that high treatment parents were under less pressure from their children, leading to less strain on their relationship as a result. It is noteworthy that, in spite of these clear findings, parents did not indicate any programme effect on their relationship in the participant satisfaction survey.

Families in the high treatment group were also less likely than low treatment families to report that parenting problems were an issue. This is to be expected given the focus of the *PFL* Programme on improving parenting. It is interesting to note that high treatment families were more likely to report addiction as being an issue in their family. It is possible that the presence of a mentor in their home made families more likely to consider and acknowledge problems such as addiction which might otherwise be ignored. The opportunity to reflect on their home lives, and the assumed confidentiality and non-judgemental nature of the parent-mentor relationship, could provide parents with a safe space in which to talk about addiction, meaning that when asked about it during the research interviews they were simply more likely to acknowledge it than low treatment parents. However, it is also possible that the programme was bringing about a sense of potential for change in the household, thus highlighting the problems, such as addiction, that were beyond participants' control.

6.10 Reliability of Self-Report Data

Self-report measures carry an inherent risk that participants may answer in a way which they feel presents them in a more favourable light; a phenomenon referred to in the literature as social desirability. As the majority of the measures included in the evaluation up to this point were based on self-reported responses, this may be a concern in the present study. In interpreting our findings however, it is important to acknowledge that some researchers have outlined the limitations of social desirability scales (McCrae & Costa, 1983; Uziel, 2010).

To investigate this issue, two separate measures were used to determine whether participants were answering in a way which they felt was socially desirable. One of these measures was an in-built defensive responding scale included in the Parenting Stress Index (PSI), a standardised measure of parenting stress. The second was the Social Desirability Scale (SDS-17), a purposely-developed scale for examining social desirability, which is recommended for use as a control variable in correlations and regression analyses (Stöber, 2013; personal correspondence). No significant difference was found between the high and low treatment groups on either continuous scale. However the high treatment group were more likely than the low treatment group to be classified as being defensive responders according to the PSI defensive responding cut-off. A cut-off was also created for the SDS-17 scale. For this measure, participants in both the high and low treatment groups were equally likely to fall into the category which indicates a relatively high level of social desirability. The findings from the focus groups which comprised part of the process evaluation indicated that some parents were at risk of misreporting due to social desirability. Parents described providing specific answers that they felt might be favourable to the researchers. However there are no significant differences between the high and the low treatment groups on three of the four measures which could potentially indicate misreporting. Thus the identified treatment effects are unlikely to be significantly biased due to the use of self-report measures.

6.11 Further Work & Future Reports

Future reports will continue to track the effectiveness of the *Preparing For Life* programme when the *PFL* cohort is 36 and 48 months old. Thus, this is the fourth of six reports analysing the effectiveness of the programme and should be interpreted in this context. Future waves of data collection will not only capture treatment effects when the programme has been running for a longer amount of time, but will also be able to track changes for treatment families at multiple time points. Therefore we will form a more in-depth picture of what kinds of factors are most affected by the programme.

References

Please see the following website for the reference list:

http://geary.ucd.ie/preparingforlife/

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