



Review of New Zealand
Longitudinal Studies

Review of New Zealand Longitudinal Studies

Michelle Poland

Jaimie Legge

May 2005

Acknowledgements

We are grateful to the following people for their help in providing information for this document: Prof. Poulton and Dr. Hancox from the Dunedin School of Medicine; Prof. Fergusson from the Christchurch School of Medicine and Health Services; Dr. Paterson, Dr. Percival and the other senior members of the Pacific Islands Families Study team from Auckland University of Technology; and Prof. Cunningham from Massey University.

This report can be found on the Commission's website
www.nzfamilies.org.nz

Review of New Zealand Longitudinal Studies

EXECUTIVE SUMMARY

The Commission's advocacy function is based on sound research. To conduct sound research we require not only a good understanding of research that has already been done, but also the type of information that is available, and the relative strengths and weaknesses of using this information to address new research questions.

This report, therefore, provides an overview of the range and quality of New Zealand longitudinal data that is available, and the type of family-based information contained in this data. The report signals the areas of research on New Zealand families that this data can most fruitfully be used to explore.

Longitudinal data is particularly important for research into family functioning and child development. It provides the opportunity, not available in cross-sectional data, to study the growth and evolution of families over time, to investigate how key decisions are made and responded to (such as marriage, separation, having children, and working), and to determine the impact of family background and circumstances on child development and family functioning. (Ministry of Social Development, 2004, p.132).

This review of existing longitudinal studies serves several purposes. First, as a new Commission, it is important for us to understand the nature of the data available and the kinds of questions it can be used to answer. Second, to inform the Commission's involvement with the Ministry of Social Development and the Health Research Council's feasibility work for a new longitudinal study of children and families. Third, to provide a valuable reference document for the Commission when considering what type of longitudinal data will best meet our research needs.

This report focuses on five New Zealand longitudinal studies:

- The Dunedin Multidisciplinary Health and Development Study, Dunedin School of Medicine ('Dunedin study')
- The Christchurch Health and Development Study, Christchurch School of Medicine and Health Services ('Christchurch study')
- The Pacific Islands Families Study, Auckland University of Technology ('PIF study')
- Best Outcomes for Māori, Te Hoe Nuku Roa, Massey University ('Māori study')
- The Survey of Family, Income and Employment, Statistics New Zealand ('SoFIE')
- The Longitudinal Immigration Survey: New Zealand, Department of Labour ('LisNZ')

A further four New Zealand longitudinal studies are briefly discussed in this report:

- The Competent Children Project, New Zealand Council for Educational Research
- Te Rerenga ā Te Pīrere, New Zealand Council for Educational Research
- The Youth Connectedness Project, Roy McKenzie Centre, the Health Services Research Centre and the New Zealand Council for Educational Research
- The Canterbury Suicide Project, Christchurch School of Medicine and Health Services.

These studies vary a great deal in terms of their age, methodology, purpose(s), data quality, and relevance for family-based research. This has implications for when and how the longitudinal data from these studies is used. The following paragraphs summarise the Commission's conclusions in this report for its own programme of research:

- The **Dunedin study's** core dataset, which has followed individuals for 32 years, contains a great deal of information on family background and child development. The study has also recently generated additional data on families through the two generational offshoot studies: the Parenting study and the Children and Parents study.

This data is robust and highly relevant for work around parenting and child outcomes. It offers real potential to shed further light on attitudes to parenting and the impacts of parenting on child outcomes.

- The **Christchurch study** has enormous potential to illuminate the influence of a range of family background factors (such as family violence, socio-economic standing and family structure) on child outcomes.

The study is similar in many respects to the Dunedin study and may provide a good source of longitudinal data for future Commission research.

- The **PIF study** is both highly relevant and robust. Collaboration with the study owners would be valuable for the Commission's research, particularly on issues of Pacific family development and structure, parenting practices and family lifestyle.
- **Te Hoe Nuku Roa** is potentially relevant for a range of research concerning Māori families. However, further work is required to assess the quality of the data for longitudinal data analysis in a family context.
- Although only one wave of **SoFIE** has been collected so far, this study will provide a wide range of high quality data for answering research questions concerning family formation, dissolution, income and/or employment.
- **LisNZ** will provide a substantial amount of valuable information on migrants. However, the study only began data collection at the end of 2004 so currently available data is limited.

Future research using longitudinal data from these studies will need to be carefully articulated and scoped, and the requirements and cost implications for access discussed with study owners. This includes reviewing whether similar research has been undertaken using the studies. Hundreds of publications have been produced from these studies, many of which have findings relevant to the Commission's work. The Commission considers that assembling these findings into a coherent picture of New Zealand families is best done through the scoping and literature review phases of specific research projects.

The Commission recognises that longitudinal data is only one source of data on New Zealand families. The Commission will also consider cross-sectional and administrative data in developing a balanced programme of research.

Table of Contents

Executive Summary	i
Table Of Contents	iv
Introduction	1
Overview of New Zealand Longitudinal Studies.....	2
Main Studies	3
DUNEDIN MULTIDISCIPLINARY HEALTH AND DEVELOPMENT STUDY	3
CHRISTCHURCH HEALTH AND DEVELOPMENT STUDY	7
PACIFIC ISLANDS FAMILIES STUDY	11
BEST OUTCOMES FOR MĀORI, TE HOE NUKU ROA.....	15
SURVEY OF FAMILY, INCOME AND EMPLOYMENT	17
LONGITUDINAL IMMIGRATION SURVEY: NEW ZEALAND	19
Other Studies	20
THE COMPETENT CHILDREN PROJECT	20
TE RERENGA Ā TE PĪRERE	21
YOUTH CONNECTEDNESS PROJECT	21
CANTERBURY SUICIDE PROJECT	22
Conclusion	23
References.....	25
Appendix: Summary of key characteristics	28

Introduction

This report examines existing longitudinal studies in New Zealand with the view to identifying relevant data on families and opportunities for research. Research is a key component of the Families Commission's work and we need to be aware of what research has already been done, before embarking upon our own programme of research.

The objectives of this report, therefore, are to inform our input into the new longitudinal study of children and families, to analyse existing longitudinal research through a family "lens", and to explore opportunities to work collaboratively with other researchers as new data is collected.

The report is not a literature review of the published findings from these studies on families, although brief summaries of key findings in relevant publications are included. Given the large number of published studies on diverse topics, a full literature review was not considered the best way for the Commission to effectively identify information gaps or research opportunities.¹

The report is divided into sections, each describing a different longitudinal study. The following New Zealand longitudinal studies ('main studies') are reviewed in terms of their purpose, methodology, key family variables, data quality, and research opportunities:

- The Dunedin Multidisciplinary Health and Development Study
- The Christchurch Health and Development Survey
- The Pacific Islands Families Study
- Best Outcomes for Māori, Te Hoe Nuku Roa
- The Survey of Family, Income and Employment
- The Longitudinal Immigration Survey: New Zealand.

In addition, the following New Zealand longitudinal studies are briefly discussed in this report:

- The Competent Children Project
- Te Rerenga ā Te Pīrere ("The Flight of the Fledgling")
- Youth Connectedness Project
- Canterbury Suicide Project.

Each study is unique in its reason for being set up, in the way in which information is collected and in the type of data collected. The variety of longitudinal studies in New Zealand means that there is a range of opportunities for longitudinal family research using existing data.

¹ Discussions with Richie Poulton and David Fergusson supported this conclusion. It has been suggested that the Commission identify research questions in priority areas that can then be researched in their own right.

Overview of New Zealand longitudinal studies

Longitudinal data is a combination of cross-sectional and time-series data. It follows a number of individuals across a number of time periods (Greene, 2003, p.283). Time series data collects information (for example fertility rates) across time, whereas cross-sectional studies gather data from a sample of the population at a fixed point in time. Thus, an advantage of longitudinal studies over cross-sectional studies is that they allow the researcher to control for individual characteristics when looking for group trends.

Longitudinal data also provides a dynamic view. Thus, in the context of families, it provides the opportunity to study their growth and evolution over time, to investigate how key decisions are made and responded to (such as marriage, separation, having children, and working), and to determine the impact of family background and circumstances on child development and family functioning.

The methodologies for the studies looked at in this report can be split into two broad categories: cohort samples and randomly selected samples. For the purposes of this report, the cohort sample used is a birth cohort. This is one in which the sample is of all individuals born in a particular time period. Most of the cohort studies in this review follow participants from birth. The Dunedin study has followed people born in 1972 in the Dunedin region, the Christchurch study has followed people born in 1977 in the Christchurch area, and the PIF Study has followed children of Pacific ethnicities born in 2000 in South Auckland.

The other studies discussed in this report have randomly selected samples. The Māori study, which began in 1994, and SoFIE, which began in 2002, are both household surveys. Competent Children (1994) and Te Rerenga ā Te Pīrere (2000) selected their sample based on early childhood education type and focus on the determinants of educational outcomes.

The relatively new studies are the LisNZ, which began forming its sample in November 2004; the Youth Connectedness Project, which is currently developing its methodology; and the Longitudinal Study of New Zealand Children and Families, for which a proposal has recently been selected for development of the study. Data is not currently available for these studies.

Each study is discussed separately below. Appendix 1 provides a reference summary of the key characteristics of each study.

Another potentially valuable form of data that is not covered in this report is administrative data. This is data that is regularly collected for administrative purposes. Individuals are usually identified by some type of code (for example an IRD number or Work and Income number may be used). Using these codes an individual may be followed over time in a way similar, but not identical, to that of longitudinal data. In recent years there have been a number of initiatives to make better use of administrative data for longitudinal research purposes. Two examples are the Ministry of Social Development Benefit Dynamics dataset and the Linked Employer-Employee Data (LEED).

Main Studies

DUNEDIN MULTIDISCIPLINARY HEALTH AND DEVELOPMENT STUDY

This study is run by the Dunedin Multidisciplinary Health and Development Research Unit. The study was originally established by the late Dr Patricia Buckfield to investigate the later health and development effects of infants born at a time when new technology was greatly reducing the infant mortality rate. The data is collected from a cohort of people who were born at Dunedin's Queen Mary's Hospital between April 1972 and March 1973. The cohort contains over 1,000 people. Assessments have taken place at birth, three years, every two years until age 15 and at 18, 21 and 26. Assessment is currently taking place for the participants' 32nd birthdays.

The retention rate has been high. As shown in Table 1 below, the percentage of the living cohort assessed has been above 90 percent for almost all of the follow-up assessments of those who were assessed at three years². Each assessment takes place at the Dunedin Research Unit.

Table 1: Sample members assessed at each age

Year	Phase	Age	No. eligible	No. assessed	% assessed ^c
1972-73	Birth	Birth	1661	1661	100
1975-76	III	3 years	1139 ^a	1037	91
1977-78	V	5 years	1037	991	96
1979-80	VII	7 years	1035 ^b	954	92
1981-82	IX	9 years	1035 ^b	955	92
1983-84	XI	11 years	1033 ^b	925	90
1985-86	XIII	13 years	1031 ^b	850	82
1987-88	XV	15 years	1029 ^b	976	95
1990-91	XVIII	18 years	1027 ^b	993	97
1993-94	XXI	21 years	1020 ^b	992	97

a: Number resident in Otago
b: Surviving sample members
c: Assessed in full or partly assessed

Source: Silva & McCann (1996, p.14, Table 1.3)

All the costs associated with attending the assessment, such as childcare, travel and accommodation, are covered by the Dunedin Research Unit. This means that the study has been very successful in retaining participants who have moved out of the Dunedin area to elsewhere in New Zealand or overseas. At the latest assessment it was found that a quarter of the sample is now overseas. This large movement towards migration was unexpected and increased the costs of retaining the participants.

Information has been collected from several sources. The participant assessments involved interviews, tests and examinations. Up to age seven the assessments lasted half a day, after age seven the assessments went for a full day.

² Those assessed at three years make up 62.4% of those who were eligible at birth.

Informant reports were obtained from parents, friends and teachers. Further information was taken from hospitals and police records, and a blood sample was taken at ages 11, 21, 26 and 32. The parent who brought the child to the research centre (usually the mother) was also interviewed up to and including the age 15 assessments.

The data was assessed for sample selection bias. The study compared the characteristics of those who agreed to participate with those who did not. There were some differences which indicate some slight sample selection bias. Those who participated were slightly more socio-economically advantaged and were more likely to have married mothers. Thus estimates of problems associated with socio-economic advantage are likely to be underestimates of those for New Zealand as a whole. However, these effects are likely to be small, as the differences are not large and the sample represents the whole range of socio-economic levels (Silva & McCann, 1996).

Estimates of the prevalence of problems associated with socio-economic disadvantage are likely to be conservative. The children in the Dunedin sample are slightly socio-economically advantaged compared to all New Zealand children. However, the sample includes a broad range of socio-economic statuses, representing all socio-economic levels. The sample is also under-representative of Māori and Pacific children. At the age 26 assessments 7.4 percent of study members identified themselves as Māori and 1.5 percent identified themselves as Pacific Islanders.

The study questions focus on the health and development of the participants. At the 32nd birthday assessments seven main areas are covered. These areas are cardiovascular, emotional/behavioural, personality and relationships, respiratory clinic, coping and health, reproductive health and dental check. This full day assessment includes a multitude of activities – from eight minutes on a bicycle for fitness assessment, to interviewer administered questionnaires on income and relationship attitudes, to a computer-administered questionnaire on reproductive health.

There are several family focussed offshoot studies that are being conducted from the Dunedin cohort. These are the Family Health History Study, the Parenting Study and the Children and Parents Study. The purpose of the Family Health History Study is to obtain information on the mental and physical health of the parents and other family members. Assessment will take place in the home of the family members. Some additional information of family views about cohort members will also be obtained.

The purpose of the Parenting Study is to examine the parenting styles of the cohort members when their first born child is three years old. The study began in 1994 and seeks to investigate patterns in intergenerational parenting behaviours. The assessment takes place in the participant's home.

The purpose of the Children and Parents Study is to investigate the intergenerational transmission of health problems. The study seeks to visit all the children of the original cohort (between the ages of five and 11) in their homes. The health of the children will be assessed and this information will be used along with the health information obtained about the cohort members and the parents of the cohort members.

Findings of interest from Dunedin study

Nearly 900 publications have been produced based on the Dunedin study with about 150 of them including some aspect of the family environment.

“Young men who experienced a stressful rearing environment and a history of conduct problems were more likely to become fathers at an early age and to spend less time living with their child... Fathers who lived apart from their child reported the most social psychological difficulties in young adulthood.” (Jaffee, Caspi, et al., 2001).

For those participants who were parents by their mid-twenties, it was found that the mothers who experienced more supportive rearing when they were growing up, provided more such care when interacting with their three year old child (and vice versa). The same was not found for fathers (several possible explanations are put forward for this). In addition a supportive partner was found to have no additional effect on this outcome. (Belsky, Jaffe, et al., 2005).

The book “From Child to Adult” edited by Phil Silva and Warren Stanton (published in 1996) summarises some of the findings from the publications. The following findings are taken from the chapter in the book entitled “Families and Parenting” by Jan Pryor and Lianne Woodward.

Four important measures of family life derived from these family variables are the Child-rearing index, the Family Adversity Index³, information on discipline⁴ and the Family Relations Index. These are composite variables derived by different individuals from a combination of variables obtained during the study.

The Child-rearing Index is a combination of factors measuring the way in which the parents were bringing the child up at the age of three.

Those with low scores (indicating such things as the parents involve the child in decision-making and the child has a lack of exposure to parental separation) were found to have higher IQ scores, and receptive and expressive language scores, at age five.

Those children who came from a family with a high Family Adversity Index score were found to be more difficult to manage and more hyperactive at age three, and the boys were found to have an increased risk of attention deficit disorder and delinquency at age 11.

It was found that parental inconsistency in use of discipline and leniency with its use influenced the risk of the child experiencing externalising disorders at the age of 15. It was also found that inter-parental disagreement on discipline and the number of parental changes predicted antisocial behaviour at the age of 11.

³ The Family Adversity Index was measured at each of the Dunedin assessment points up to the age of 13. It includes low socioeconomic status, maternal age at birth of less than 21, parental separations to age three, low maternal mental ability, high maternal neuroticism and large family size. The index ranges from zero to six with one point being added for the presence of each of the above.

⁴ Measures of discipline were taken from the Dunedin sample at ages five, seven, nine and 11. These measures included the type of discipline used, the frequency in which it was used, and parental agreement about disciplinary decisions.

The Families Relations Index was measured at the Dunedin assessments at ages seven, nine, 13 and 15. The Index measures family cohesion, expressiveness and conflict. It was found that this predicts childhood disorders at age 11 and behavioural and emotional disorders at age 15.

Research opportunities

The Dunedin study is a robust, internationally recognised study that has already provided valuable insights into New Zealand families. The composite index measures reviewed by Pryor suggest that the information collected by the study on families is reasonably broad and provides an opportunity for family-based research. In particular, this study allows for research into the effects that family background (such as child-rearing, family adversity, family relations and discipline) has on child outcomes.

The generational offshoot studies (the Parenting Study and the Children and Parents Study) offer a lot of potential for new research on families for two reasons. First, most of the family information from the original study will have been collected when the participants were children and adolescents, and thus may not be as applicable to young families today (the original cohort is now 32 years old). Second, the offshoot studies have an intergenerational (as well as health) focus and so are likely to contain more family information of interest.

The policies in place to obtain access to data include having an original question, the support of the Principal Investigator and being registered at the Unit as an Associate Investigator. There is support for the Commission to use the data from the Dunedin Study.

CHRISTCHURCH HEALTH AND DEVELOPMENT STUDY

This study is run by the Christchurch School of Medicine and Health. The study was originally set up by the late Professor F. T. Shannon to investigate the impact of single parenthood on child health and well-being. Since then the focus has been broadened to reflect interest in a range of issues to do with child and family well-being. The data is collected from a cohort of people born in mid-1977 in the Christchurch urban area. The cohort contains over 1,000 people. Assessments took place at birth, four months, and one year, annually until the age of 16, then at 18 years, 21 years and 26 years of age.

The retention rate has been high. Ninety-seven percent (1,265) of parents of children born in the Christchurch urban region, from 15 April to 5 August 1977, agreed to participate in the study. Table 2 shows the retention rate of all members since birth. Those participants who moved outside of the Christchurch area before the age of 16 were not followed up. The New Zealand residential retention rate was about 90 percent at age 21 years. Most of the sample loss was due to participants moving overseas.

Table 2: Rates of sample retention for at birth, 7, 14, 21 years

Age	Number studied	% of original cohort (n=1265)	Sources of Sample Loss			
			Overseas	Non-response	Death	Untraced
Birth	1265	100	0	0	0	0
7 years	1107	87.5	87	56	15	0
14 years	996	78.7	136	116	17	0
21 years	1011	79.9	127	95	25	7

Source: Fergusson, D., & Horwood, J. (2001, p.288, Table 1)

Information has been collected from several sources. Information was gathered through parental interviews, teacher reports, child assessments and interviews. This was supplemented with information from police records, hospital notes and the school dental service. The parental interviews were usually one to two hours and related to the child's development. The interview was conducted with the child's mother except for cases of single parent families in which the child lived with the father. The teacher reports were taken from questionnaires filled out by the child's teacher from the age of six to 12 years. The questionnaires asked the teacher about the child's academic achievement and social adjustment. The response rate for these questionnaires was over 98 percent. The children themselves were assessed from aged eight to 18 years on academic achievements and stage of development.

The data was assessed for sample selection bias. The Christchurch study experienced some sources of bias due to a higher probability of losing members with low socio-economic status and single parenthood after the age of 10. Various methods have been used in an attempt to control potential bias due to missing data. In all cases the conclusions drawn before and after correction for sample selection bias have been the same (Fergusson & Horwood, 2001).

There are a number of data quality controls in place to ensure accuracy in data collection and reporting. Interview records were checked for accuracy, consistency and coherence by research staff in the presence of the researcher. Data

came from various sources so information could be cross-checked. These sources included the young people, parents, teachers and official records.

The cohort characteristics are compared to those in a similar age group for New Zealand as a whole. Table 3 compares attributes of the Christchurch sample to the New Zealand population of a similar age. It shows that the Christchurch sample has a lower proportion of Māori and the study participants are better educated.

Table 3: Demographics of cohort at age 25 compared to the New Zealand population aged 25-29

Demographic	NZ	CHDS
% Māori	17.03	12.16
% Males	47.76	48.65
Educational Qualifications		
% No Qualifications	14.3	13.68
% Secondary	37.7	30.29
% Vocational/Other	30.8	31.62
% Degree or higher	17.2	24.41

Source: Table provided by Fergusson, D., 2005

The study has a family and health focus. The database contains over 35,000 variables. Included in this are a vast range of family-related variables such as perinatal health, social background, child health, child behaviours, parenting, family transitions, family material well-being, family socio-economic status, family income, family violence, family planning, step-parenthood and family size.

There have been many family-related publications produced by the study. In particular, a lot of work has been based around family violence. Areas such as childhood sexual abuse, childhood physical abuse, partner violence in parents, and partner violence in offspring have been studied.

The Christchurch study has led to a family based intervention program named Early Start. The providers involved in Early Start are the Christchurch study, the Family Help Trust, the Royal New Zealand Plunket Society, the Pegasus GP Group and a group of Māori representatives. Families were referred to Early Start by Plunket, based on a checklist of risk factors. Those families that consented were given access to a variety of services through home visitation.

“The overall aims of the home visitation process are to assist, support and empower families in relation to address a series of issues relating to childhood well-being and family functioning. The function of the Family Support Worker is not to provide treatment, therapy or specialised advice, rather it is to assist families to seek such treatment, therapy and advice.” (Fergusson *et al.*, 2004, slide 15⁵).

An evaluation based on a randomised trial found that Early Start produced benefits in the areas of preschool education, health, child abuse, parenting, and child behaviour. For example, children who participated in Early Start were more likely to have attended preschool, less likely to have attention problems and less likely to be in

⁵ Fergusson, D., Horwood, L. and Grant, H. (2004) *The Development and Evaluation of Early Start*. Slideshow provided to the Families Commission.

contact with welfare agencies for abuse and neglect than a control group of children who had not participated in Early Start.

Findings of interest from Christchurch study

Controlling for a range of variables, children who enter a step family between the ages of six and 13 do not face a greater risk of poor psychosocial outcomes (such as mental health problems and substance abuse) at the age of 18, than those children who do not enter a step family between these ages. (Nicholson J., Fergusson D., Horwood L., 1999)

After controlling for confounding factors, maternal age at time of first birth is generally linearly related to a range of educational and psychological issues assessed when the participant is 18 years of age. Therefore, the younger the mother is at the birth of her first child, the greater the chance of the child experiencing such problems. (Fergusson D., Woodward L., 1999)

After controlling for self-selection bias, maternal labour force participation appears to have no effect on a child's academic performance. This result is consistent after allowing for gender and socioeconomic background differences. (Horwood L., Fergusson D., 1999)

A linear relationship appears to exist between the age of a child at the time of parental separation and the level of attachment to the parents. Children whose parents separated when they were at a younger age report less feelings of attachment than those children whose parents separated when they were at an older age. (Woodward L., Fergusson D., Belsky J., 2000)

After controlling for confounding factors, father-absence continued to affect the rate of early sexual activity and teenage pregnancy exhibited by daughters. In addition rates were highest for early father-absence, in the middle for late father-absence and lowest for father-present adolescent girls. (Ellis B., Bates J. et al, 2003)

Fergusson, Lynskey and Horwood (1994) found that when social and contextual factors are held constant, separation and divorce have little or no effect on children's academic achievements. In a separate paper (Fergusson, Lynskey and Horwood, 1994a) they found that when social and contextual factors are held constant, separation and divorce still have a small but significant effect on the risk of adolescent adjustment problems such as conduct problems, early onset of sexual activity, substance abuse, depression and anxiety. (Fergusson D., 1998)

When social and contextual factors are held constant, exposure to father-initiated inter-parental violence resulted in increased risks of conduct disorder, anxiety disorders and juvenile crime. Exposure to mother-initiated inter-parental violence resulted in increased risk of alcohol abuse. (Fergusson D., 1998)

Research Opportunities

The original purpose of the Christchurch study was family focussed. As a result, it is likely to be particularly valuable for investigating questions relating to the impact of changes in family structure on child outcomes, parenting issues and the relationship between material well-being and other factors.

The Christchurch study, welcomes the suggestion of research being done on families using the Christchurch data. The process for doing so would be to contact the research unit regarding the research question of interest. They would then scope the data to determine whether the data available is sufficient. The Commission would then need to discuss the most appropriate approach for research to be conducted. Carrying out research would be subject to staff availability which is currently limited. The database is complex and requires someone familiar with it to oversee any research.

PACIFIC ISLANDS FAMILIES STUDY (PIF STUDY)

The Pacific Islands Families study is established within the Faculty of Health and Environmental Sciences at the Auckland University of Technology. The aim of the study is to determine the factors that influence the health and developmental outcomes of Pacific children and families. The cohort for this study is all those born between 15 March and 17 December 2000 at Middlemore Hospital in South Auckland. Middlemore Hospital was chosen as it has the largest number of Pacific births in New Zealand and is representative of the different Pacific ethnicities in New Zealand. The eligibility criteria was that at least one parent must have self-identified as being of Pacific ethnicity and that parent must also be a New Zealand permanent resident. Table 4 describes some of the characteristics of the respondents.

Table 4: Information about the mothers of the cohort

Characteristic	Percentage of mothers with the characteristic
Samoan	48%
Tongan	21%
Cook Islands	17%
Niuean	4%
Other Pacific	3%
Non-Pacific	7%
New Zealand born	33%
Married/de facto	80.5%
Had post school qualifications	27.4%
Mean age	27 years

Information Source: Paterson (2004) Presentation to the Families Commission

The retention rate has been high. At the six week assessment, 93 percent of all mothers who were contactable and confirmed to be eligible agreed to participate. Of the 1,376 mothers who participated at the six week point, 89 percent were re-interviewed at the 12 months stage. At 24 months 83.1 percent of those interviewed at six weeks, were re-interviewed.

The retention rate that has been achieved was higher than expected by some. There were originally some doubts as to whether the estimated 70 percent response rate and 10 percent dropout rate could be achieved due to the mobile nature of the population group.

Contact was made with all potentially eligible mothers at the time of birth at the hospital and permission to follow up contact obtained. At the six week assessment phase eligibility for participation was confirmed. Ninety three percent of all mothers who had been approached at the hospital, possibly eligible and who were contactable, agreed to participate. As eligibility and formal recruitment was confirmed at 6 weeks, this is taken as the baseline point for recruitment and retention measurement.

Of the 1,376 mothers who participated at the six week point, 89 percent were re-interviewed at the 12 months stage. At 24 months 83.1 percent of those interviewed at six weeks, were re-interviewed. Data collection from the four year has also obtained good retention rates.

Table 5: Rates of sample retention of primary respondents⁶

				Most frequent sources of sample loss (accumulated over time).		
Age	No. eligible	No. assessed	% of those eligible assessed	Non-residency in Auckland	Inability to trace	Refusal to be interviewed
Birth	1656 ^a	1590 ^b	96.0	n/a	n/a	n/a
6 weeks	1477 ^c	1376	93.0	0	0	0
12 months	1376	1224	89.0	49	47	11
24 months	1376	1144	83.1	72	93	35

a: Calculated from the fact that 96% of potentially eligible mothers gave consent

b: Number of potentially eligible mothers of Pacific infants who gave consent to be visited when the infant reached six weeks of age.

c: Number of mothers contacted who met the eligibility criteria

Information Source: Paterson, J., Tukuitonga, C., et al. (2004, p.6)

Information has been collected from several sources. At six weeks the mother was interviewed and at one and two years of age, the mother, and where appropriate the father, was interviewed. Information was also taken from the Middlemore Hospital records and the Royal New Zealand Plunket Society records. After the four year interview the child was taken to the assessment centre at Otahuhu for physical health and development checks while the parents filled out a questionnaire about the child's nutrition and physical activity.

At 12 and 24 months socio-demographic variables were examined to test for retention bias. Differential attrition would have occurred if both 12-month and 24-month distributions of participation and non-participation were significantly different to the six-week distributions, using a statistical significance level of five percent. No important differential attrition was observed for any of the socio-demographic variables investigated, namely: ethnicity, age, marital status, education, household income, years lived in New Zealand, English fluency, parity and smoking behaviour. While the distribution of participants was statistically different to non-participants at 12-months for ethnicity ($P=0.001$) and years lived in New Zealand ($P=0.007$), no such difference existed at 24-months (ethnicity, $P=0.20$; years lived in New Zealand, $P=0.15$).

Checks were put in place to ensure interviewer reliability. Examples of such checks include random phone calls to clarify details, double coding to ensure accuracy, repeat interviews with different interviewers to ensure consistency, and accompanied interviews to check on procedures used.

The sample is fairly representative of New Zealand Pacific Island ethnicities. The proportions of the various Pacific ethnicities in the PIF Study sample are broadly representative of the New Zealand Pacific ethnicities as found in the 1996 Census. However, there is a difference in weightings. In the PIF Study infants were classified

⁶ At the 12 month assessment point, 1201 (98.1percent) of primary respondents were the biological mothers, 12 were adoptive mothers, four were grandmothers, two were foster mothers and two were the biological fathers (Paterson, Tukuitonga, et al., 2004, p.7)

according to their Pacific parent but in the Census infants who had a Māori mother were classified as Māori.

The study has both a health and a family focus. Information collected includes household composition; family circumstances such as income, housing and transport; parenting practices such as child care, discipline and nurturing; demographics such as cultural and religious orientation and practices; and child outcomes such as health, social and language development.

Findings of interest from PIF Study

The World Health Organisation recommends that mothers breastfeed until the baby is six months old. However, after six weeks only 50 percent of Pacific mothers were exclusively breast feeding. The reasons given for not exclusively breast feeding (such as problems with sore breasts, uncertainty about adequate milk supply, and beliefs that formula feeding is healthier) showed that this percentage has the potential to be increased through education. (Butler S., Tukuitonga C. et al., 2002).

Thirty seven percent of mothers reported housing dampness or mould and 53.8 percent reported cold housing (27.4 percent of those reporting dampness or mould also reported cold housing). Key factors found to be associated with damp or mouldy housing and cold housing were a household size of eight or more people, state rental housing, and financial difficulty with housing costs. (Butler S., Williams M. et al., 2003)

At the six week interview only 73 percent of mothers reported that their child had been immunised. Difficulty with transport seems to be an important factor for those who had not immunised their child. In addition the age of the child at the time of the interview was also significant, perhaps implying that more infants will be immunised at a later stage. (Paterson J., Percival T. et al, 2004)

60% of births in this cohort were unplanned with 70.8 percent of these mothers having not used contraception. The variables found to be significantly related to this were lack of post-school qualifications and a strong alignment with Pacific way of life and customs. (Paterson J., Cowley E. et al., 2004).

Infant bed-sharing, which is a risk factor for SIDS, is reported by 54.9 percent of the mothers sampled. Unlike previous reports, the majority of these infants spend the whole night in the shared bed and are not elevated on a separate mattress on top of the shared bed. Significant maternal variables in explaining this behaviour were Tongan ethnicity, being Pacific-born, not being fluent in English and reporting overcrowded living conditions. (Paterson J., Tukuitonga C. et al., 2002).

Research Opportunities

Given a carefully articulated and scoped research question and involvement of a researcher familiar with the study data, the PIF study welcomes research being conducted using the available data. This study provides the opportunity for research based on Pacific family development and structure, parenting practices and family lifestyle.

The Commission has begun discussions for carrying out a co-authored research project with co-directors Dr Paterson and Dr Percival to be completed in 2005/06. The potential also exists for the Commission to assist in defining supplementary questions to be included in the next wave of data to be collected in 2006.

BEST OUTCOMES FOR MĀORI, TE HOE NUKU ROA

Best Outcomes for Māori, Te Hoe Nuku Roa was started in 1994 and is run by the Research Centre for Māori Health & Development at Massey University. A stratified random sample of 600 Māori households is used for the purpose of investigating correlations between cultural, economic and personal factors. The regions of Wellington, Auckland, Gisborne and Manawatū-Whanganui were chosen for sampling as they represented a good combination of city and rural areas. Recently additional areas in Southland and Northland have been included in the study.

The sampling method (Waihua Tatau) was developed with Statistics New Zealand. Statistics New Zealand's Primary Sampling Units (PSUs) were chosen within each region, for sampling, based on the number of Māori in each PSU. This information was taken from the census, the Household Economic Survey and the Household Labour Force Survey. A door-to-door survey determined households that contain at least one Māori living on the premises. A random selection was then chosen to participate based on population stratum proportions.

The retention rate is difficult to measure. Initially, 99 percent of the 1,739 eligible households agreed to participate in this project. However, recording of the retention rate is complicated. The participants are followed into new households and in each household any Māori who are willing to participate are also included. Thus, in each wave new individuals are added to the sample. The figures in Table 6 below outline the attrition of the original group that agreed to participate, ignoring other participants who were included in later waves.

Table 6: Rates of sample retention for waves one, two and three.

Wave	Number of the original participants	% of the original participants.
One	1719	100
Two	963	56
Three	739	43

The study was started in 1994 and three waves of data have been collected so far, with one hour interviews taking place at three year intervals. The fourth wave of data is currently being collected.

There are two different questionnaires. One is for individuals over 15 years of age to answer. The second questionnaire is for the parents of 15 year olds to answer on behalf of their child(ren). The current phase (2005) poses new questions and has an increased sample to include the Northland and Southland regions.

This is a household survey rather than a family survey. Due to this, most of the questions focus on the household, the individual and the parents' view on their child's behaviour. There are however some family concepts in the data. Some of the questions asked involve getting information about the degree of closeness between whānau members across households and in the wider community, and about financial contribution towards support of whānau. In addition to the above family information, a wealth of other variables has been collected, such as employment, income and housing status, and educational, health and cultural outcomes. The study has obtained a lot of information from its participants. In the fourth wave a whānau schedule has been added which focuses on whānau types and relationships. There are ten publications to date.

There are a number of data quality controls in place to ensure accuracy in data collection and reporting. All interviewers went through an intensive training process that covered managing the interview, answering participants' questions, the responses allowed for each stage of the questionnaire, and the importance of complete and unbiased data. The data is entered into custom databases which contain checks to ensure that only valid data is entered and that sections are completed properly. It also links current participant data to that of previous waves.

Research Opportunities

The Research Centre for Māori Health and Development is open to research on specific questions of interest to families, using the data collected from Best Outcomes for Māori, Te Hoe Nuku Roa. They have also indicated that the Commission might add questions to the questionnaire that will be in the field in 2008.

The explicit Māori dimension makes using this survey to undertake research appealing. However, the low retention rates and snowballing technique used in the survey suggest that a cautious approach is necessary. Aside from longitudinal quality issues, some further investigation into the types of questions the data could shed light on is warranted.

Further discussions with the study director concerning the potential of this dataset to assist with Commission research are proposed.

SURVEY OF FAMILY, INCOME AND EMPLOYMENT

This survey is being run by Statistics New Zealand. Fifteen thousand New Zealand households were approached in 2002 and approximately 11,500 (77 percent) agreed to be part of this annually assessed, eight year long survey.

The sample was chosen using a stratified random sampling method. Statistics New Zealand's sampling frame sorts PSUs into strata defined by region, urban/rural, high/low Māori population density and other socio-economic variables. A sample of PSUs was selected independently from each stratum. A systematic random sample of permanent private dwellings within the PSUs was selected. Eligible individuals were those over 15 years of age who were staying in the household, had no other address that they usually lived at and were a usual resident of New Zealand (excludes foreign diplomats, members of overseas armed forces, and overseas visitors in New Zealand for less than 12 months).

The survey looks at household and family composition and their changes over time. Information is collected on income (individual, household and family), labour force involvement and participation in education. Each household that agreed to participate was given a household questionnaire. The household questionnaire contains two modules. These are:

- household
- standard of living.

Each person in the household over 15 years of age was given a personal questionnaire to fill out. This contains eight modules, which are:

- demographics
- child (if any)
- labour force involvement history
- education
- family
- current labour force involvement
- income
- contact.

The definition of family is based on the concept of a family nucleus. A family nucleus is any of the following:

- a couple only
- a couple with dependent and/or adult child(ren) where the children do not have partners or children of their own living in the same household
- sole parents and their dependent and/or adult child(ren) where the child(ren) do not have partners or children of their own living in the same household.

Due to this family definition, step families or blended families are not able to be identified separately from blood relationships.

Additional information will be collected each year. Each new wave will contain different additional modules of questions. For example a wealth module will be used in every second wave starting with wave two. In waves three, five and seven questions about health will be asked.

The results from the first wave have been released and the results from the second wave are due for release in October 2005.

Data are collected using computer-assisted interviewing. Laptops are used to administer the interviews in a face-to-face environment. This helps to minimise non-sampling errors. If the interviewer enters in an extreme value the computer will prompt the interviewer to check that the value is correct. Sampling errors are sought to be minimised through the size of the sample and the use of stratification.⁷

Research opportunities

The explicit family focus and availability of contemporary data about a variety of families in New Zealand makes this survey a clear candidate for exploring research opportunities. The data ought to provide a substantial amount of information about family functioning, specifically the relationship between family income, employment, health, financial wealth and changes in family structure.

⁷<http://www2.stats.govt.nz/domino/external/pasfull/pasfull.nsf/7cf46ae26dcb6800cc256a6200a2248/4c2567ef00247c6acc256fab0082e7fc?OpenDocument>

LONGITUDINAL IMMIGRATION SURVEY: NEW ZEALAND, TE ARA O NGA MANENE

“The primary objective of the LisNZ is to provide reliable, authoritative data about migrants’ initial settlement experiences in New Zealand, and the outcomes of immigration policies.” (Department of Labour, 2004).

This study is being conducted through the Department of Labour. It aims to interview about 7,500 migrants (excluding refugees) who either arrive in New Zealand within 12 months of approval or are approved for residence in New Zealand, are 16 years of age and over at the time of approval and who are already in New Zealand. The migrants will be interviewed six months, 18 months and 36 months after they take up residence. The first interviews started on 1 November 2004. Initial interviews average 75 minutes each. All follow-up interviews are designed to average less than 60 minutes.

Migrants are distinguished between three different Immigration Approval Categories. These are the Skilled/Business Stream, the Family Sponsored Stream and the International/Humanitarian Stream. In turn the categories within the streams are also identified.

Key topics for the survey have been identified. These are the migration process, housing needs, the labour market, business activity and self employment, economic status and cash/asset transfers, English language needs, qualifications, education and training, use of government and community social services, social cohesion and local networks, health status, and characteristics of migrants’ partners.

Whilst this study is not specifically family focussed, the questions contain many family components. For example, information will be gathered as to the relationships of migrants who were part of the same residence application, number and relationship of other people in the household, legal marital status, social marital status, age and number of dependants, relationship to other family members in New Zealand but outside of the household, number of immediate family living overseas and their relationship, information on spouse/partner, reasons for living at first location, reasons for living at current address and the use, access and experiences with government and community social and health services.⁸

Research Opportunities

This study is fairly new and has just begun data collection. It will be some time before the data is available for analysis. Thus any research done using this data is of low priority. However, it does appear to be a comprehensive survey on migration to New Zealand and will be useful if the Commission decides to do research in the future on immigration and migrant settlement issues. The Commission is on the mailing list for future updates and so will be informed as the data becomes available.

⁸ <http://www.immigration.govt.nz/NR/rdonlyres/257DBD3C-E649-4E31-9A4B-F8F61173CF44/0/LisNZPilotSurveyReportMarch2004.pdf>

Other Studies

OVERVIEW

The studies discussed below have only been briefly reviewed and research opportunities have not been identified. These studies, however, could provide valuable insights into the impact of family background and circumstances on child and family outcomes (particularly education and suicide).

The Commission will consider these studies when identifying appropriate data sources for research within our work programme.

THE COMPETENT CHILDREN PROJECT

“The study’s main aims are to explore the roles of home and education in the development of the children’s competencies and to investigate if these roles change over time and as the children have other experiences.” (Wylie, Thompson et al., 2004, p.xix).

This project is being run by the New Zealand Council for Educational Research. A group of about 500 children in the Wellington Region have been assessed at ages five, six, eight, 10, 12, and 14 years. The age 16 assessments are currently taking place.

The sample was selected based on early childhood education types so it over-represents children from high-income backgrounds. Mothers are more likely to have a trade or tertiary education and are more often from a New Zealand European background than those in the general Wellington region.

The first set of data collection took place in 1993 following a pilot study. Detailed data was obtained from 307 children. In addition, a broad set of information was obtained for a further 767 children from parents and early childhood education centres. At age eight, 242 children from the broad information set were added to the core sample of children, increasing the sample size to 523. At age 12 the sample size was 496, signalling a reasonably high retention rate.

The project has an education focus. An analysis of family background is conducted in the survey in order to analyse the effects that the home environment has on educational outcomes. Variables include family income, parental qualifications, family composition, number of house moves, maternal employment and welfare benefits, paternal employment, parents’ engagement with the school, siblings and birth parents contact, parental support, leisure activities and parental expectations.

Findings of interest from Competent Children Study

Low family income was the biggest indicator for low competency scores for children close to five years of age. (Wylie C., Thompson J., & Kerlake Hendricks A., 1996)

At age eight, family income and mother's education are closely related to low competency levels. In addition, using skills and new knowledge at home and school (for example, reading the newspaper or using a computer) seems to result in higher competency levels. This is particularly true for children from a low-income home. (Wylie, Thompson & Lythe, 1999)

Competency scores at age 12 depended more upon family income at age five than current family income level. Competency levels were also positively related to parental level of qualifications. Family composition did not appear to be related to competency levels. (Wylie, Thompson et al., 2004)

"The study children said that a happy family life, followed by good health, would be of most importance to them in their adulthood." (Wylie, Thompson et al., 2004)

TE RERENGA Ā TE PĪRERE ("THE FLIGHT OF THE FLEDGLING")

This is a cohort study similar to that of the competent children study. A selection of children at the ages of five, eight and 11 are followed for four years, with interviews done each year. The project looks at the educational achievements of students in kaupapa Māori education. Information is collected from the child and the child's parents, teacher and school principal.

One hundred and eleven children agreed to participate in the study. The participants were chosen in order to be representative of the population in terms of location and school size. The study involves about half of all kura kaupapa Māori which have school buildings. The first wave was collected in 2001.

YOUTH CONNECTEDNESS PROJECT

This project is being run by the Roy McKenzie Centre, in partnership with the Health Services Research Centre and the New Zealand Council for Educational Research.

"The overall aim of this project is to optimise the chances of youth having positive experiences in adolescence and of overcoming the inevitable challenges of this life stage to become healthy and productive adults".

Roy McKenzie Centre for the Study of Families (2003)

Three cohorts aged 10, 12 and 14, will be followed for three years. There are four advisory boards for the project. These are the Youth Advisory Board, the Māori Advisory Board, the Pacific Advisory Board and the Stakeholders Advisory Board. These boards provide input into the development of the project.

A literature review is currently under development and will inform the methodological and theoretical basis of the survey. Focus group interviews have been conducted

with New Zealand European, Pacific and Māori young people, in Wellington and Taranaki, and key informant interviews have been held with principals, teachers and parents. These measures will help to inform the survey development.

Work is currently being done on developing measures of connectedness for the survey - based on the information taken from the focus groups and key informant interviews, planning for the enlisting of survey participants and assessing survey technologies and accessing equipment.

CANTERBURY SUICIDE PROJECT

This was a five year longitudinal study of 302 individuals who made medically serious suicide attempts. The project went from 1993 to 1997. The purposes of the project were to estimate the risk of further attempts after a first attempt, to look at how various factors affect the risk of further suicide attempts and how they change the individuals mental health state, and to record the current care in place for those who attempt suicide. The participants were interviewed six, 18, 30 and 60 months after their suicide attempt.

This study was then extended to ten years (1998-2002). Mortality data was collected to determine 10 year survival rates, and an interview with the families of those who had died from any cause, were interviewed at the ten year point. The psychology of those who died during the 10 year period was analysed to determine the type of psychology that leads to death following a serious suicide attempt.

Conclusion

A vast amount of information on families could be generated from existing New Zealand longitudinal studies. It is important, therefore, that the Commission's wider programme of research or research strategy drives the use of longitudinal data, rather than the data driving the research. This message has been echoed by longitudinal study directors with their appeals for clearly articulated and scoped research questions.

These studies are very different in their set-up and in their purpose of data collection. Each has different strengths and weaknesses and it is important that longitudinal data needs are appropriately matched to the longitudinal data provided by these studies—similarly with the published findings from these longitudinal studies. Hundreds of publications have been produced that shed light on various aspects of family formation, functioning, circumstances and outcomes.

Specific differences between the studies are briefly summarised below.

The **Dunedin study's** core dataset, which has followed individuals for 32 years, contains a great deal of information on family background and child development. The study has also recently generated additional data on families through the two generational offshoot studies: the Parenting study and the Children and Parents study.

This data is robust and highly relevant for the Commission's work around parenting and child outcomes. It offers real potential to shed further light on attitudes to parenting and the impacts of parenting on child outcomes.

The **Christchurch study** has enormous potential to illuminate the influence of a range of family background factors, such as family violence, socio-economic standing and family structure, on child outcomes. Family violence is a key area of the Commission's current work programme.

The study is similar in many respects to the Dunedin study and may provide a good source of longitudinal data for future Commission research.

The **PIF Study** is highly relevant and collaboration with the study members would be valuable for the Commission's research, particularly on issues of Pacific family development and structure, parenting practices and family lifestyle. It is proposed that we continue discussions with the co-directors Dr's Paterson and Percival on any future collaborative works. The opportunity to assist in defining supplementary questions for possible inclusion in the next wave of data to be collected in 2006 should also be considered as part of our wider programme of research.

Te Hoe Nuku Roa, although potentially relevant for a range of research concerning Māori families, requires further work to assess the quality of the data for longitudinal analysis in a family context. Further discussions with Dr. Cunningham are proposed before specific research or supplementary survey questions are developed.

Although only one wave of **SoFIE** has been collected so far, this study will provide a wide range of high quality data for answering research questions concerning family formation, dissolution, income and/or employment.

LisNZ is likely to provide valuable information on new migrants and their families. However the study only began data collection at the end of 2004 so available data is limited.

References

- Belsky, J., Jaffee, S., Sligo, J., Woodward, L. and Silva, P. (2005). "Intergenerational Transmission of Warm-Sensitive-Stimulating Parenting: A Prospective Study of Mothers and Fathers of 3-Year-Olds". *Child Development*; 76(2):284-396.
- Butler, S., Paterson, J., Tukuitonga, C. and Williams, M. (2002). "Infant feeding and feeding problems experienced by mothers in a birth cohort of Pacific infants in New Zealand". *Pacific Health Dialogue: Journal of Community Health and Clinical Medicine for the Pacific*; 9(1):34-39.
- Butler, S., Williams, M., and Tukuitonga, C. (2003). "Problems with damp and cold housing among Pacific families in New Zealand". *The New Zealand Medical Journal*; 116:494-502.
- Butler, S., Williams, M., Tukuitonga, C., and Paterson J. (2004). "Factors associated with not breastfeeding exclusively among mothers for a cohort of Pacific infants in New Zealand". *The New Zealand Medical Journal*; 117, No. 1195.
- Cooper, G., Arago-Kemp, V., Wylie, C., and Hodgen, E. (2004). *Te Rerenga Ā Te Pīrere A Longitudinal Study of Kōhanga Reo and Kura Kaupapa Māori Students Pūrongo Tuatahi Phase 1 Report*. New Zealand Council for Educational Research, Wellington. Last Accessed 13/04/05.
<http://www.nzcer.org.nz/pdfs/12740.pdf>
- Department of Labour (2004). *Longitudinal Immigration Survey: New Zealand Objectives and Information Needs*. Unpublished.
- Ellis, B., Bates, J., Dodge, K., Fergusson, D., Horwood, L., Pettit, G. and Woodward, L. (2003). "Does early father absence place daughters at special risk for early sexual activity and teenage pregnancy?". *Child Development*; 74(3):801-821
- Fergusson, D. (1998). "The Christchurch Health and Development Study: An overview and some key findings". *Social Policy Journal of New Zealand*; 10:154-176.
- Fergusson, D. and Horwood, L. (1998). "Exposure to interparental violence in childhood and psychosocial adjustment in young adulthood". *Child Abuse & Neglect*; 22:339-357
- Fergusson, D. and Woodward, L. (1999). "Maternal age and educational and psychosocial outcomes in early adulthood". *Journal of Child Psychology & Psychiatry*; 40:479-489.
- Fergusson, D., and Horwood, L. (2001). "The Christchurch Health and Development Study: Review of findings on child and adolescent mental health". *Australian and New Zealand Journal of Psychiatry*; 35(3):287-296
- Fergusson, D., Poulton, R., Horwood, J., Milne, B. and Swain-Campbell, N. (2003). *Comorbidity and coincidence in the Christchurch and Dunedin longitudinal studies*, last accessed 06/04/05.
<http://www.chmeds.ac.nz/research/chds/publications/2003/comor.pdf>

Greene, W. (2003). *Econometric Analysis* (5th ed.) Pearson Education, Inc., United States of America.

Horwood, L. and Fergusson, D. (1999). "A longitudinal study of maternal labour force participation and child academic achievement". *Journal of Child Psychology & Psychiatry*; 40(7):1013-1024.

Jaffee, S., Caspi, A., Moffitt, T., Taylor, A. and Dickson, N. (2001). "Predicting Early Fatherhood and Whether Young Fathers Live with Their Children: Prospective Findings and Policy Reconsiderations". *Journal of Child Psychology and Psychiatry*; 42(6):803-815.

Ministry of Social Development (2004). *New Zealand Families Today*.

Nicholson, J., Fergusson, D. and Horwood, L. (1999). "Effects on later adjustment of living in a stepfamily during childhood and adolescence". *Journal of Child Psychology and Psychiatry*; 40:405-416.

Paterson, J., Tukuitonga, C., Butler, S. and Williams, M. (2002). "Infant Bed Sharing among Pacific Families in New Zealand". *The New Zealand Medical Journal*; 117:241-243

Paterson, J., Tukuitonga, C., Abbott, M., Feehan, M., Silva, P., Percival, T., Butler, S., Cowley, E., Borrows, J., Williams, M. and Giles, L. (2002). *Pacific Islands Families: First Two Years of Life Study, Technical Report 1*. Auckland University of Technology. ISBN: 1-877314-00-5.

Paterson, J., Tukuitonga, C., Abbott, M., Feehan, M., Silva, P., Percival, T., Butler, S., Cowley, E., Borrows, J. and Williams, M. (2004). *Pacific Islands Families: The First Two Years of Life Study Technical Report 2*. Auckland University of Technology.

Paterson, J., Percival, T., Butler, S. and Williams, M. (2004). "Maternal and demographic factors associated with non-immunisation of Pacific infants living in New Zealand". *The New Zealand Medical Journal*; 117 No.1199.

Paterson, J., Cowley, E., Percival, T. and Williams, M. (2004). "Pregnancy planning by mothers of Pacific infants recently delivered at Middlemore Hospital". *The New Zealand Medical Journal*; 117 No.1188

Pryor, J. and Woodward, L., "Families and Parenting" in Silva, P. and Stanton, W. (eds.), (1996). *From Child to Adult*, Oxford University Press New Zealand, Auckland

Roy McKenzie Centre for the Study of Families, (last updated 2003), last date accessed 14/04/05.

<http://www.vuw.ac.nz/mckenzie-centre/research/youth-connectedness/index.aspx>

Silva, P. and McCann, M., "An Introduction to the Dunedin Study" in Silva, P., Stanton, W. (eds.), (1996). *From Child to Adult*, Oxford University Press New Zealand, Auckland

Woodward, L., Fergusson D. and Belsky J. (2000). "Timing of parental separation and attachment to parents in adolescence: Results of a prospective study from birth to age 16". *Journal of Marriage and the Family*; 62(1):162-174.

Wylie, C., Thompson, J., Hodgen, E., Ferral, H., Lythe, C. and Fijn T. (2004). *Competent Children at 12*. New Zealand Council for Educational Research. Last updated 2004, last accessed 14/04/05.
<http://www.nzcer.org.nz/pdfs/13248.pdf>

Wylie, C., Thompson, J. and Kerlake-Hendricks, A. (1996). *Competent Children at 5*. New Zealand Council for Educational Research. Last updated 2004, last accessed 14/04/05.
http://www.nzcer.org.nz/default.php?products_id=238

Wylie, C., Thompson, J. and Lythe, C. (1999). *Competent Children at 8*. New Zealand Council for Educational Research. Last updated 2004, last accessed 14/04/05.
http://www.nzcer.org.nz/default.php?products_id=231

Wylie, C., Thompson, J. and Lythe, C. (2001). *Competent Children at 10*. New Zealand Council for Educational Research. Last updated 2004, last accessed 14/04/05.
http://www.nzcer.org.nz/default.php?products_id=230

Appendix: Summary of key characteristics of some of the longitudinal studies

	DMHDS	CHDS	PIF	Māori	SoFIE
Ownership	Dunedin Multidisciplinary Health and Development Research Unit, Department of Preventive and Social Medicine, Dunedin School of Medicine	Christchurch School of Medicine and Health Study, Christchurch School of Medicine and Health Services	Faculty of Health and Environmental Sciences, Auckland University of Technology	Research Centre for Māori Health & Development, Massey University	Statistics New Zealand
Contact	Prof Richie Poulton (Director)	Prof David Fergusson (Executive Director)	Prof Janis Patterson (Director)	Prof Chris Cunningham	
Purpose	To study the nature and prevalence of some development and health problems and factors associated with them	To study the health, education and life progress of the cohort	To provide information on health and the cultural, environmental, economic and psychosocial factors	To obtain a longitudinal study of Māori households that will allow cultural, economic and personal factors to be correlated	To look at how New Zealanders' circumstances and lifestyles change over time and the factors that influence these changes
Start Year	1972	1977	2000	1993	2002
Population/cohort	Cohort	Cohort	Cohort	Population Sample	Population Sample
Cohort size	1, 139	1, 310	1, 398	600 households, 1,600 individuals	15, 000 households
Number of those eligible who participated at the first follow up assessment	1, 037 (91%)	89% (at age five follow up)	93%		11, 500 (77%)

	DMHDS	CHDS	PIF	Māori	SoFIE
Eligibility	Born at Queen Mary Hospital between 1 April 1972 and 31 March 1973 whose mothers lived within the Dunedin Metropolitan Health District boundaries and were still living in Otago at the first follow-up assessment.	Born in the Christchurch urban region during 15 April to 5 August 1977.	Born at South Auckland's Middlemore Hospital from 15 March to 17 December 2000. At least one parent must have identified as being of a Pacific ethnicity and also be a New Zealand permanent resident.	A stratified random sampling method was used to obtain a sample representative of Māori geographic, cultural, economic and social circumstances.	Usually resident population of New Zealand living in permanent, private dwellings. Randomly selected. (The first wave started on October 1 st).
Retention of living members	96% at the age 26 follow up.	82% at the age 21 follow up.	89% at the 12 months follow up.		78% of households contributed complete answers for all individuals in the first wave.
Frequency of follow up surveys	Ages 3, 5, 7, 11, 13, 15, 18, 21, 26 and 32	Ages 4 months, 1 – 16 years (annually), 18, and 21.	Ages 6 weeks, 12 months, 24 months, 4 years and 6 years.	Every 3 years	Annually for 8 years.
Ethnicity	Ethnicity of Mother: 2.6 % Māori, 0.8% Other Pacific.	12.16% Māori at age 25	Ethnicity of Mother: 48% Samoan, 21% Tongan, 17% Cook Islands, 4% Niuean, 3% Other Pacific, 7% Non-Pacific	All participants are Māori	
Methodology	Half day or full day assessments for interviews, tests and examinations of the children (parents were also included up to age 13); hospital records; police records; blood samples.	Parental interviews (birth-16 years), teacher questionnaires (6-13 years), child and young person interviews (8-21 years) hospital records (birth-16 years), police record data (14 and 21 years).	Interview mother at 6 weeks, mother and father at 1 and 2 years; child assessed at Otahuhu centre at 4 years; hospital records; Royal New Zealand Plunket Society records.	One hour interviews using a broad questionnaire approach.	Interviews of household members aged 15 years and over, once every 12 months.

	DMHDS	CHDS	PIF	Māori	SoFIE
'Family' concept		Step-family – child living in household headed by one biological parent and their partner, where the partner is not the child's other biological parent			Based on concept of family nucleus: <ul style="list-style-type: none"> • Couple only • Couple with dependent child(ren) • Sole parents with dependent child(ren)
Family issues that may be illuminated by studies	The attitudes of 15 year olds to parenting. The effects that aspects of child-rearing, family adversity, family relations and discipline have on child outcomes.	The influence of family background factors, such as socio-economic standing or family structure, on child outcomes.	Parenting practices and knowledge held by mothers of Pacific children (information from the 6 week phase).	The variety in the extent of whānau relationships.	The main family focus is the family structure and changes in this over time.
Number of publications	Approx 900 publications and reports have been generated by the study.	Approx 300 publications have been generated so far.	12 studies have been published to date.	There are ten publications to date.	There are no publications for this as far as I am aware.
Example of Variables		Perinatal health, social background, child health, child behaviours, parenting, family transitions, family material well-being, family socio-economic status, family income, family violence, family planning, step-	(At 6 weeks). Cultural identification, household composition, family planning, pregnancy and birth services, childcare practices, maternal childhood experiences, religious practices, traditional practices, child temperament,		Household, standard of living, demographics, child (if any), labour force involvement history, education, family, current labour force involvement, income, contact

		parenthood, family size, family disadvantage, ethnicity, child educational achievement , adolescent health, adolescent mental health, crime, pregnancy/parenthood, substance use, employment, childhood sexual abuse etc.	child health, immunisation, infant feeding and sleeping, parental health partner relationships, family finances, housing and transport, leisure activities.		
--	--	---	---	--	--