



Child abuse: an analysis of Child Youth and Family data

A Child Poverty Action Group Monograph
Donna Wynd July 2013

CHiLD
POVERTY
ACTION
GROUP



Child Poverty Action Group (Inc) (CPAG) is a non-profit group formed in 1994, made up of academics, activists, practitioners and supporters. CPAG has a strong education and research skills base which enables it to contribute to better informed social policy to support children in Aotearoa New Zealand, specifically children who live in poverty. CPAG believes that the country's high rate of child poverty is not the result of economic necessity, but is due to policy neglect and a flawed ideological emphasis on economic incentives. Through research, CPAG highlights the position of tens of thousands of New Zealand children, and promotes public policies that address the underlying causes of the poverty they live in. If you are not already supporting CPAG and you would like to make a donation to assist with ongoing work, please contact us at the address below or through our website: www.cpag.org.nz

Acknowledgements

As ever I would like to thank invaluable input from my colleagues Alan Johnson, Professor Innes Asher, Associate Professor Mike O'Brien and Marianna Munting. I am also very grateful for assistance from staff at Child Youth and Family for their assistance in interpreting and understanding the Child Youth and Family data. Any remaining errors are my own.

Disclaimer: This publication is intended to provide accurate and adequate information on the matters contained herein and every effort has been made to ensure its accuracy. However, it has been written, edited and published and made available to all persons and entities strictly on the basis that its authors, editors and publishers are fully excluded from any liability or responsibility by all or any of them in any way to any person or entity for anything done or omitted to be done by any person or entity in reliance, whether totally or partially, on the contents of this publication for any purpose whatsoever.

Child abuse: an analysis of Child, Youth and Family data

© July 2013

Child Poverty Action Group Inc.

PO Box 5611

Wellesley St

Auckland 1141, New Zealand.

www.cpag.org.nz

ISBN: 978-0-9922586-1-0

Contents

Highlights.....	2
1. Introduction.....	3
2. Aims and Methodology.....	4
2.1 Sample and variables	4
2.2 Strengths and limitations of the study	4
2.3 Level of data and measurement of income	4
2.4 CYF data recording.....	5
2.5 Age group estimates and ethnic composition.....	5
3. Results.....	7
3.1 Substantiations by type	7
3.2 Proportion of notifications resulting in substantiation.....	8
3.3 Proportion of 0-17 year olds who were victims of abuse.....	9
3.4 Rate of substantiated abuse findings and proportion of young people	10
3.5 Benefit uptake	12
3.6 Ethnicity.....	14
4. Discussion.....	15
5. Conclusion and areas of further research	17
References	18
Appendix.....	21

Highlights

- One of the first studies to use New Zealand child maltreatment and neglect data from Child Youth and Family to explore what relationship exists between child maltreatment and neglect and socioeconomic status.
- The data suggests there is no correlation between benefit receipt and child maltreatment.
- It finds there is an association between ethnicity and child maltreatment, however given the strong association between ethnicity and socioeconomic disadvantage in New Zealand this finding needs to be treated with caution.

1. Introduction

The care and protection of children is a perennial topic in New Zealand's social policy. In its recent literature review on child abuse (Wynd, 2013), Child Poverty Action Group noted that the Ministry of Social Development and its predecessors have been researching and writing about child abuse for almost quarter of a century. Yet with the spate of recent reports on failings in child protection (Boyer, 2013; Gay, 2013; Powley, 2013), it seems New Zealand has some way to go towards comprehensively protecting children.

The current National government has made a strong commitment to highlighting and addressing the plight of 'vulnerable' New Zealand children. The 2011 *Green Paper on Vulnerable Children* (New Zealand Government, 2011) (hereafter '*Green Paper*') sought public submissions on dealing with child abuse. *The Green Paper was criticised by many organisations working with children for its narrow focus* (Caritas New Zealand, 2012; Child Poverty Action Group, 2012; UNICEF NZ, 2012) and its focus on dealing with child abuse by re-prioritising existing spending on social services. Based on public feedback on the *Green Paper*, the government produced the *White Paper* (New Zealand Government, 2012c) (hereafter '*White Paper*'). *The White Paper failed to reflect the many submissions received that noted the role of poverty and deprivation in child maltreatment and neglect* (New Zealand Government, 2012b). The *White Paper included a Children's Action Plan* (New Zealand Government, 2012a) that had little to do with preventing the abuse of children but was more pre-occupied with identifying and tracking "high-risk adults and offenders" and workforce training and development.

Two key points emerge from the large body of literature and research into child abuse: firstly that child maltreatment and neglect are associated with poverty, an association that cuts across individual and community characteristics; and secondly that child maltreatment and neglect occurs within a dynamic matrix of individual stresses and capabilities, changing household circumstances, and the wider family/whānau, communities and neighbourhoods (Wynd, 2013). This complexity means it is difficult to identify at-risk children reliably, and to design programmes that work to protect children. Indeed, accurately identifying at-risk children and designing programmes that are effective at protecting children in the long-term remains the Holy Grail of child abuse research.

This paper explores the association between poverty and deprivation and child maltreatment and neglect in New Zealand, as reflected in the data available from Child, Youth and Family (CYF). Little New Zealand research directly addresses this association. In light of the *White Paper's endorsement* (New Zealand Government, 2012c, pp. 29-31, Volume 2) of a risk-assessment tool (see Vaithianathan et al., 2012), which uses an individual's sociodemographic features to identify at-risk children, it is timely to consider whether the available data supports such a tool, or whether, as the literature suggests, it would be more effective to reduce the stress of poverty that is a daily feature of so many parents' lives.

The paper proceeds as follows: a discussion of the aims and methodology of the research including the strengths and weaknesses of the study; the results of the study; a discussion of the results and their implications; and finally a conclusion and some thoughts on areas of further New Zealand-based research.

2. Aims and Methodology

The aim of this research was to establish through CYF data what association, if any, existed between poverty, benefit receipt and ethnicity, and substantiated child abuse.

2.1 Sample and variables

Data used in this report draws on publicly available material from CYF.¹ Because the data included the population no issues of sampling arose. CYF records the number of abuse notifications it receives, the number of notifications requiring further investigation, and the number of substantiated notifications. A substantiation is where the allegation of abuse has been investigated and there has been a finding of one or more of a number of possible outcomes, including neglect, sexual, physical and emotional abuse, risk of self-harm and behavioural/relationship difficulties.² The CYF data also breaks down substantiated notifications into type (emotional, physical, sexual and/or neglect) and the number of distinct cases. This data is broken down further by region and site office. CYF publishes the number of findings of substantiated abuse and also the number of distinct clients. Thus for the year ending in 2012 there were 21,525 findings, and 17,793 distinct clients. Therefore 3,732 clients, or about 20%, had more than one finding. Where possible the data used here is distinct cases in each site office.

Also obtained was data on the ethnic breakdown of each site office area, the population estimates of 0-17 year olds in each site office area and number of substantiations by ethnicity.

Given the policy and media attention beneficiary parents have received,³ and the frequently implied close link between being on a benefit and child abuse, this paper also estimated the number of beneficiaries in each CYF site office. Benefit data is publicly available through the Ministry of Social Development.⁴ Work and Income (WINZ) offices are a subset of the larger regional sites and can reasonably accurately be mapped onto CYF site offices. Maps were obtained from the Ministry of Social Development in order to correctly allocate a WINZ office to a CYF site office. The number of income-tested beneficiaries for each CYF site office could therefore be calculated and compared to the total population in order to give a proportion.

2.2 Strengths and limitations of the study

The strength of this study is that it uses population data rather than a sample. Thus no issues of sampling arose.

There are several weaknesses in the study, and these largely pertain to data as explained below.

2.3 Level of data and measurement of income

Firstly, the data pertaining to notifications and substantiations is only available at site office level. Data on households and/or individuals is not available to the public (for obvious reasons), nor did CPAG request this level of detail. Secondly, there is no direct information on household or individual incomes in the site office areas. Benefit reliance within an area can give an indication of the general level of income for the area as a whole but some site offices cover a considerable socioeconomic

1 <http://www.cyf.govt.nz/about-us/who-we-are-what-we-do/information-for-media.html>.

2 See <http://www.practicecentre.cyf.govt.nz/policy/engagement-and-safety/key-information/what-did-we-find-recording-findings-from-investigations-and-child-and-family-assessments.html>.

3 *What is the impact of sanctions on children? Forthcoming, Child Poverty Action Group.*

4 <http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/statistics/benefit/2012-national-benefit-factsheets.html>.

range. Moreover, socioeconomic deprivation may be the result of low-paid and/or irregular work rather than reliance on benefit income with Māori and Pacific workers being more likely to work in low-paid and manual occupations. The 2006 Deprivation Index (Salmond, Crampton, & Atkinson, 2007) gives an indication of the level of hardship within an area but as with any index a great deal of detail is lost. The Deprivation Index incorporates receipt of income-tested benefit, unemployment and an equivalised income threshold in its measured variables (Salmond et al., 2007, p. 21).

2.4 CYF data recording

The ethnicity categories used for recording by CYF are those used by Statistics New Zealand (Level 1) as government agencies are required to use these. For the purposes of this report the 'European' and 'NZ Pakeha' categories were combined as the numbers listed as 'European' were very low or in some cases zero. Where multiple ethnicities are recorded the data recording is based on the primary ethnicity. The client advises the case worker of their ethnicity. The use of Statistics New Zealand categories means there is overall consistency between CYF data and census data used for the dataset for this paper.

2.5 Age group estimates and ethnic composition

The biggest data shortcoming is in the estimates of the population and ethnic composition of 0-17 year olds (the age group covered by CYF) in each site office area. The Ministry of Social Development has census estimates for the 0-17 year old population for each site office area.⁵ The 2012 total was slightly less than the Statistics New Zealand estimates so was adjusted upwards.⁶ This adjusted figure was used to calculate the population for each site office so the national total was consistent with current Statistics New Zealand population estimates (using the medium growth figure). We have used the Statistics New Zealand figures here. The boundaries of CYF site offices correspond to census unit areas, and CPAG requested maps of the more difficult urban office areas.

The ethnic composition of each site office was calculated using the ethnic composition from the 2006 census data, data which is now seven years old. This, too, is likely to be out by a couple of percent with Māori and Pacific families having higher birth rates than Europeans and Asians (Ministry of Social Development, 2010, see <http://www.socialreport.msd.govt.nz/people/fertility.html>) although the difference is unlikely to materially impact the overall result.

The most problematic aspects of the data arose from assigning the ethnic composition to CYF site offices and recording of ethnicity by CYF. The main reasons for this were:

- In urban areas there is variation within site office areas with respect to the socioeconomic status of neighbourhoods contained within those areas.⁷ For example, the Otara site office includes the area to the east of Otara including Botany Downs and relatively wealthy Pakuranga/Howick. For the purposes of this paper the median of the relevant census area units within each site office was used;
- This created a related problem in that the ethnic proportions did not add to 100 (this is also partly due to multiple listings for ethnicity in the census);
- In some cases new suburban developments have both added population to an area and possibly

5 Data held by CPAG.

6 For example the Ministry of Social Development national estimate of 0-17 year olds in 2012 was 1,012,048 while the Statistics New Zealand estimate was 1,075,210, a difference of about 5%.

7 Socioeconomic status was ascertained using the 2006 Deprivation Index and 2006 census data.

changed the ethnic mix. Until the results of the 2013 census are released there is no way of knowing the extent of this change;

CPAG obtained data from CYF on the ethnic breakdown of substantiations for 2011-12. The ethnic make-up of 0-17 year olds for each site office was also estimated using Statistics New Zealand population estimates and 2006 census data. The aim was to observe if the ethnic breakdown of substantiated abuse was equal or approximately equal to the ethnic composition of the 0-17 year population. As part of this we considered both the 2012 data and the average of the 2011-2012 years. The difference was negligible so the average of the 2011-2012 years was used.

On balance we concluded that overall the ethnic composition was only likely to be out by a few percentage points, with the greatest room for error occurring in urban site offices such as Otara which are characterised by socioeconomic discrepancies and ethnic clustering. Nevertheless, the results should be treated as indicative only until such times as a more thorough and accurate assessment of the ethnic composition of CYF site offices can be established. Whereas Statistics New Zealand report ethnicity on the basis of multiple ethnicities (which add up to more than 100%), CYF and other government agencies report ethnicity on the basis of primary ethnicity.

3. Results

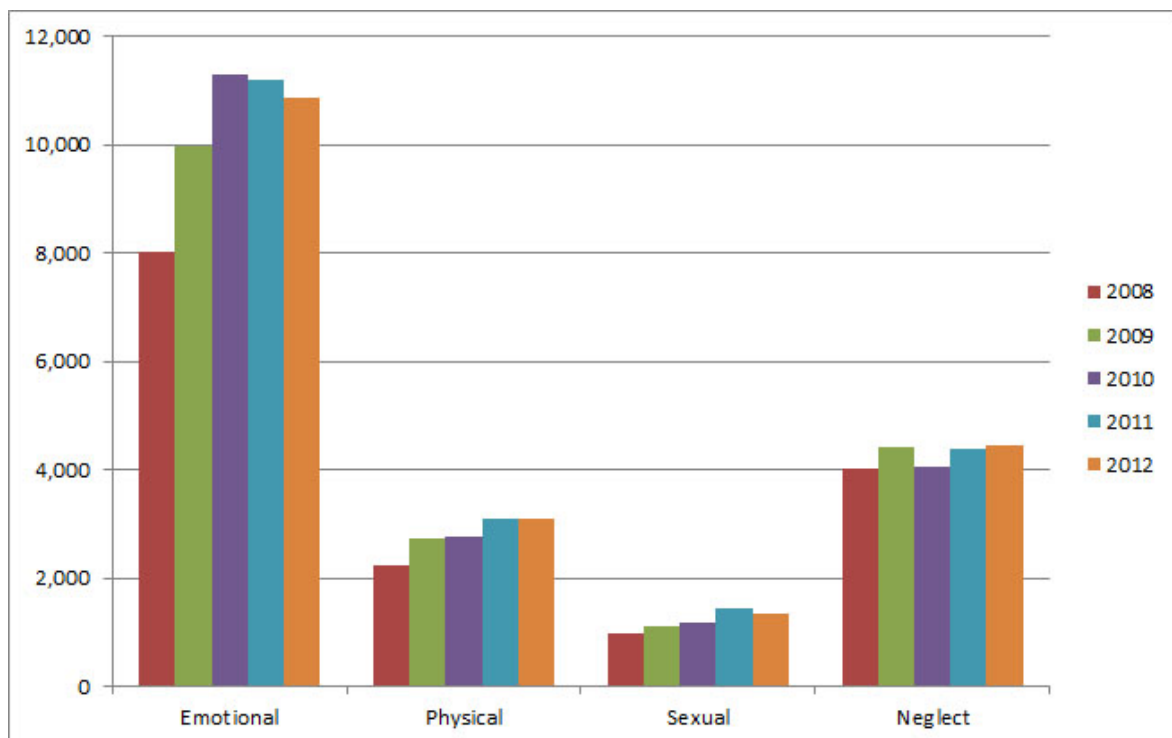
It is important to note that none of the results shown here ‘prove’ a link between one particular factor and child abuse. While it is possible to show an association or correlation between two factors, say X and Y, in the absence of randomised trials it cannot be argued that X causes Y. *This is especially the case when dealing with child abuse as there are many contributing factors, and the effect of risk factors varies between individuals and families/whānau.* Indeed, it is the difficulties in ascribing causation that CPAG highlights here.

3.1 Substantiations by type

Figure 1 shows the number of distinct clients with substantiated abuse by type from 2008-2012. Sexual abuse accounts for the smallest proportion (6.7% on average) of cases while emotional abuse is the most common (54.6% on average). Sexual abuse and neglect have been relatively constant during this period but the number of emotional and physical abuse cases has risen. This may reflect an increase in the number of police and family violence referrals and/or the impact of the Ministry of Social Development’s *It’s not OK campaign*⁸ as well as spikes in notifications associated with well-publicised child abuse cases.

Emotional abuse and neglect account for an average of about three quarters of all substantiated cases (see Table 1 in Appendix). Although violent child abuse cases resulting in death garner the most public attention, they account for a tiny fraction of child abuse cases.

Figure 1: Distinct clients with substantiated abuse by type, 2008-2012

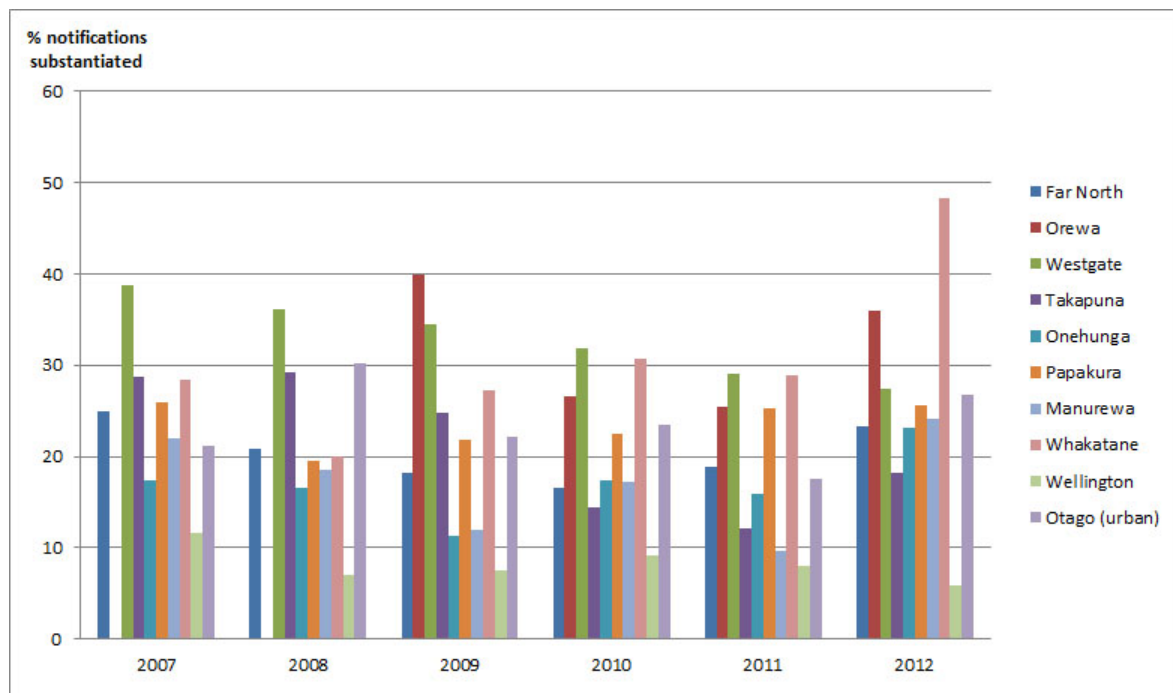


8 <http://www.areyouok.org.nz/>.

3.2 Proportion of notifications resulting in substantiation

Figure 2 shows the proportion of notifications that resulted in substantiations for selected site offices⁹ from 2007-2012 (Table 2 of the Appendix lists the proportion of substantiated claims for all site offices, 2007-2012).¹⁰ The site offices shown were selected because they show the variability within and between site offices. The selection includes the site offices with the highest recorded rates (Papakura and Whakatane) as well as the site office with the lowest rate (Wellington). This shows the volatility of the data across site offices and from year to year. Note this is data for all substantiated notifications, not distinct clients because notifications are not broken down by distinct clients. The number of total substantiations is about 20% greater on average than the number of distinct clients.

Figure 2: Proportion of notifications that resulted in substantiated claims for selected site offices, 2007-2012.



There is no obvious reason why some site offices have higher rates of substantiated abuse and neglect than others but possible reasons include: some residents and neighbourhoods may be less tolerant of suspected abuse than others; there may be variations in practice and administrative procedures between site offices; or, all else being equal, there may be real differences in abuse rates between site offices. It is likely that some or all of these factors explain the variability.

There is also variation year to year. For example the Whakatane site office had 20% of reports substantiated in 2008 but this more than doubled to 48% in 2012. There is no way of knowing if this reflects normal variability or a change in site office practices. However, it suggests that a single year's figure may not accurately reflect the rates of child abuse nationally or in a particular area.

⁹ There are 45 CYF site offices so only a handful have been selected for ease of reading. Table 2 of the Appendix lists the proportion of substantiated claims for all site offices, 2007-2012.

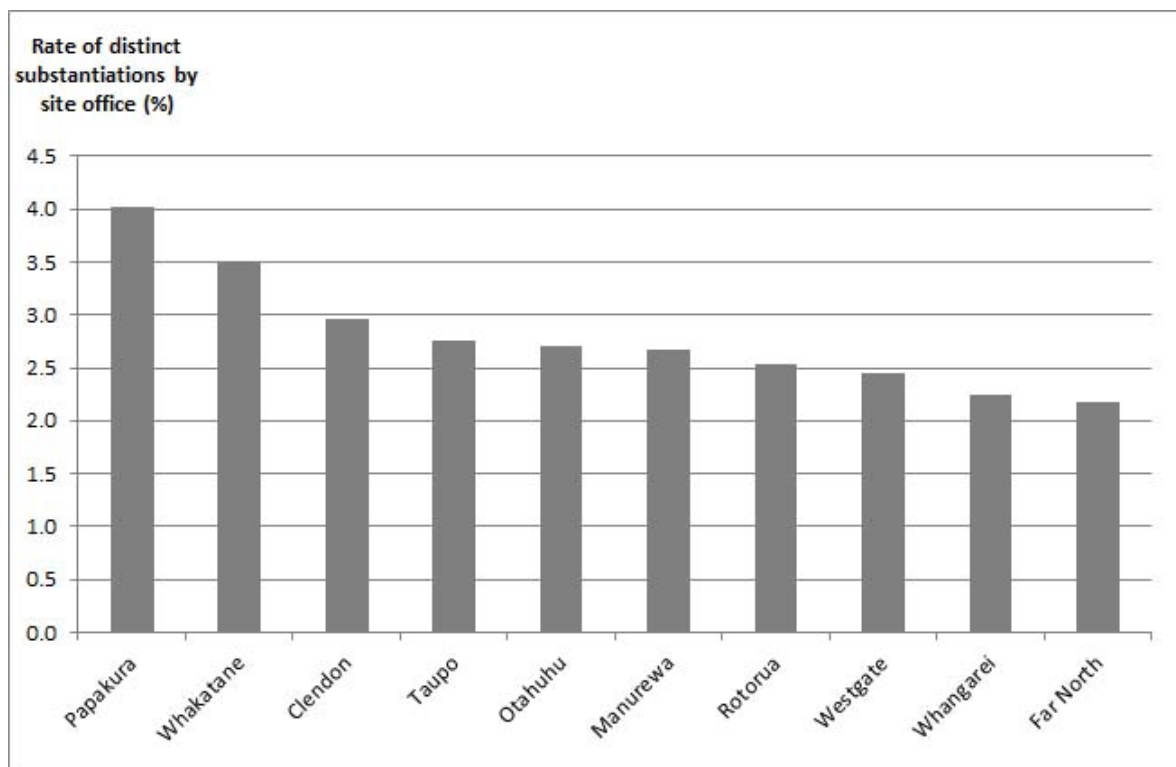
¹⁰ Note the Rangiora site office has not been included as it only has one year of data.

3.3 Proportion of 0-17 year olds who were victims of abuse

The percent of distinct clients with substantiated abuse or neglect for each site office from 2008-2012 was averaged and divided by the estimated number of 0-17 year olds in each site office (2012 population) in order to calculate the proportion of children who were victims of substantiated abuse (see Table 4 in the Appendix).¹¹

Figure 3 shows the 10 site offices with the highest proportion of children being victims of substantiated abuse. Even within this small group there is considerable variability with Papakura having the highest percentage of substantiated abuse (4%) and the Far North having a rate slightly over half that (2.2%) (a ranked listing of site offices is at in Table 4 the Appendix).

Figure 3: Proportion of 0-17 year olds who were victims of substantiated claims of child abuse



The ten sites shown in Figure 3 show support for the proposition that child abuse is associated with deprivation. Indeed it is no coincidence that CYF site offices tend to be clustered in low-decile neighbourhoods, as is the case in South Auckland. Papakura, Clendon, Otahuhu and Manurewa are all in South Auckland, although there is variation within these sites. Two areas with high rates of poverty – Whangarei and Far North – are at the bottom end of this group; while the presence of Taupo and Rotorua appears to reflect high rates of deprivation in surrounding rural areas (although some parts of urban Rotorua also have high rates of poverty). Westgate is the only Auckland site office in the top ten which is not in South Auckland.

¹¹ Rangiora site office not included.

3.4 Rate of substantiated abuse findings and proportion of young people

The rate of substantiations across the site offices drew attention to the link between high rates of substantiations and the proportion of 0-17 year olds in the site office area; that is, the age structure of the site office (see

Table 4: Rate of distinct cases of child abuse by site office (sorted from highest to lowest) (average of years 2008-2012). (Rangiora omitted)

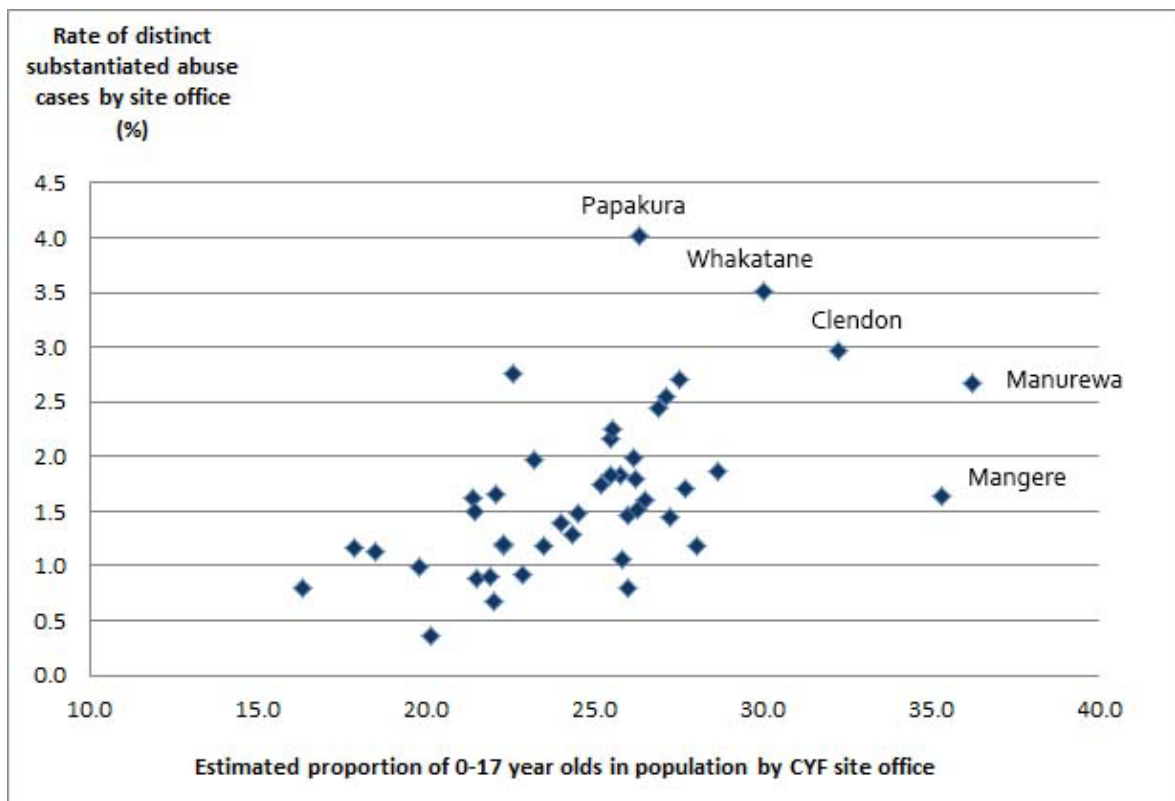
Papakura	4.0
Whakatane	3.5
Clendon	3.0
Taupo	2.8
Otahuhu	2.7
Manurewa	2.7
Rotorua	2.5
Westgate	2.4
Whangarei	2.2
Far North	2.2
Christchurch City	2.0
Waikato East	2.0
Gisborne	1.9
Horowhenua	1.8
Orewa	1.8
Whanganui	1.8
Hutt Valley	1.7
Hauraki	1.7
Waikato West	1.7
Mangere	1.6
Waitakere	1.6
Wairarapa	1.6
Manawatu	1.5
Hastings	1.5
Otara	1.5
Tauranga	1.5
Napier	1.4
South Canterbury	1.4
Southland	1.3
Blenheim	1.2
Otago Urban	1.2
Nelson	1.2
Pukekohe	1.2
Onehunga	1.2
West Coast	1.1
Grey Lynn	1.1
Porirua	1.0
Southern Rural	0.9

Papanui	0.9
Takapuna	0.9
Panmure	0.8
Taranaki	0.8
Sydenham	0.7
Wellington	0.4

Table 5 in the Appendix). Statistics New Zealand population data estimates that the median age for Europeans is about 38 years while for Māori it is about 23 and about 22 for Pacific people.¹² Accordingly, site offices with a large Māori and/or Pacific population have a higher proportion of young people within their population.

Figure 4 shows the estimated proportion of 0-17 year olds in each site office against the rate of substantiated abuse cases in that site office (again rates have been multiplied by 100). The relationship between the two is weak ($R^2 = 0.55$), but is, however, somewhat stronger than that between substantiated rates of child abuse and the proportion of beneficiaries in the population (discussed below).

Figure 4: Scatterplot showing rate of substantiated abuse cases by site office against the estimated proportion of 0-17 year olds in each site office area ($R^2=0.55$)



While there is no clear relationship between rates of substantiation and the proportion of 0-17 year olds in the population, the 5 outliers labelled in Figure 4 suggests that a higher proportion of young people in the population may be a factor in child abuse. All of the 5 except Mangere are among the 10 offices with the highest rates of substantiated abuse. Papakura, Whakatane and Clendon make up the top three while Manurewa ranks 6th. All 5 have a higher than average (24.9%) proportion of

12 See http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/subnational-ethnic-population-projections/age.aspx.

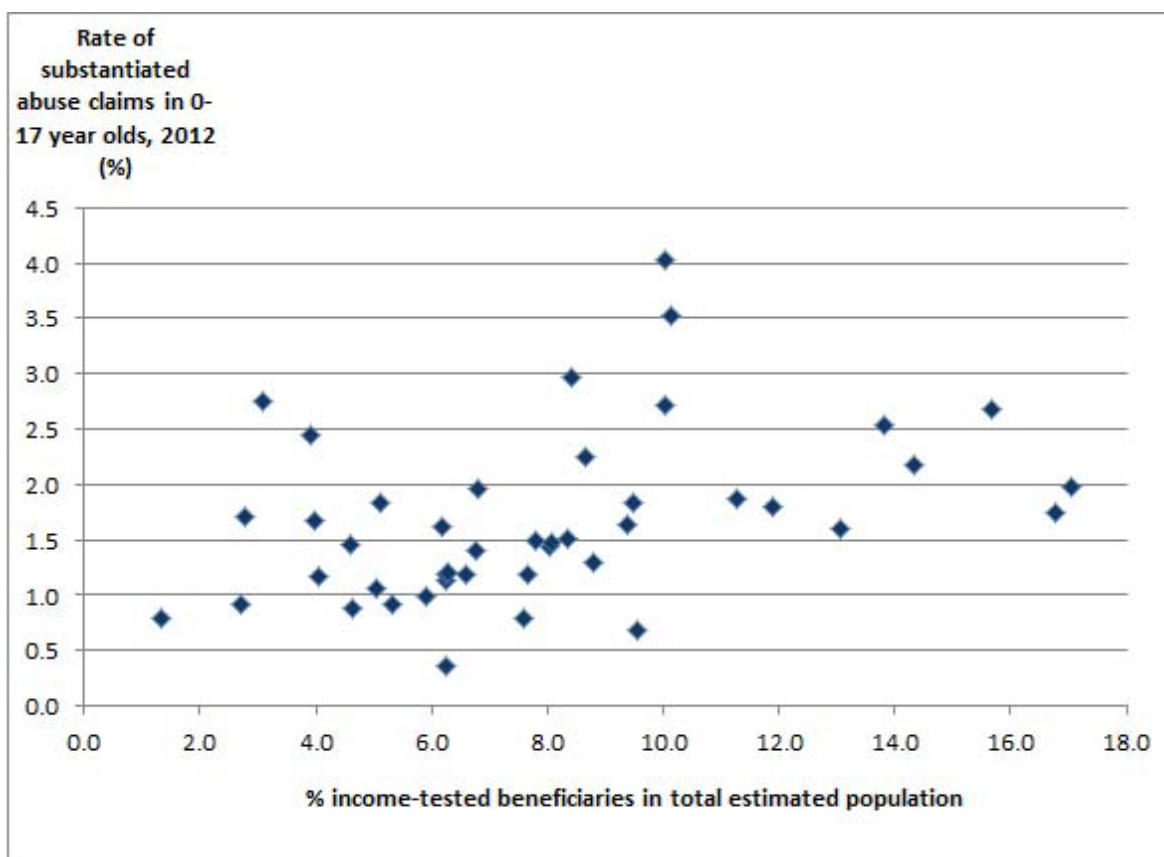
0-17 year olds within their site office area. Manurewa, Mangere, Clendon and Whakatane have the highest proportion of 0-17 year olds of all the site offices, although Papakura ranks 13th. Manurewa's high proportion of children and young people is despite the site office area covering far older (on average) population to the east including Clevedon. There is little in the literature to suggest why a younger population might have higher rates of child abuse, although in general younger children are at greater risk of abuse (Craig & et al, 2011, p. 60; Finkelhor, 2008).

We then considered the rate of benefit uptake within each site office to determine if there is a relationship between benefit receipt and rates of child abuse in a site office area.

3.5 Benefit uptake

Benefit data is held by the Ministry of Social Development. We have assumed WINZ offices cover broadly the same areas as CYF site offices as MSD appears to know what percent of the population is on a benefit (see for example Collins, 2013) so would use the same or similar population estimates they use for CYF purposes. Here, data for the four main income-tested benefits has been combined since not all the jobless go on an unemployment benefit nor is it only DPB recipients who care for children (similarly, not all DPB recipients care for children, although most do). Benefit figures are from June 2012 so are for a point in time only: the numbers can easily change if the dynamics of people moving on and off benefits changes. The percentage of beneficiaries in the population was plotted against the rate of substantiated distinct abuse cases in each site office. If there was a relationship we would expect to see rates of substantiated abuse rise as the proportion of working-age beneficiaries rose. This relationship is statistically insignificant, with the R^2 value being 0.39. The values for each site office are in the Appendix at Table 6.

Figure 5: Scatterplot showing rate of distinct substantiated cases of child abuse and proportion of income-tested beneficiaries in population for CYF site offices. $R^2 = 0.39$



The site offices with rates above 2.5 include Taupo (2.76 but a below-average proportion of income-tested beneficiaries in the population); Clendon (2.96 and a slightly higher than average proportion of income-tested beneficiaries in the population); and Whakatane (3.5 and an above average 10.1% of the population being on an income-tested benefit) and Papakura (4.0 with the 10% of the population estimated to be on an income-tested benefit being slightly less than Whakatane). There are 8 site offices with a higher proportion of the population receiving an income-tested benefit that have below average rates of substantiated child abuse.

The weak relationship between benefit receipt and child abuse may be no more than a reflection of the impact of the low incomes of benefit recipients (Perry, 2007). The data here shows no evidence of an association between benefit receipt and distinct substantiated rates of child abuse.

3.6 Ethnicity

The dataset used for this exercise has a number of shortcomings so the results are stated only in general terms and should be seen as preliminary only. A more precise dataset would be required before being able to test for statistical significance. Accordingly we have not claimed statistical significance for the results.

A z-test of proportions¹³ was used to test if the proportion of abuse substantiations for each site office was equal or close to the proportion of 0-17 year olds in the population of the site office. For Europeans, the results suggest Europeans are consistently under-represented in substantiated cases of child abuse. Māori were consistently over-represented, and this result held in urban and rural areas across the country. National level data suggests Māori children are more than twice as likely to suffer abuse as Europeans (abuse rates for each ethnic group by site office and for the country overall are listed in Table 7). For Pacific and Asians/others¹⁴ the results were more mixed with these groups being over-represented in some areas, under-represented in others and having rates of abuse consistent with their population proportion in some cases.

13 Data held by CPAG.

14 Includes Asians, Middle Eastern, Latin American, African and those listed as unknown/unidentified.

4. Discussion

The data presented in this paper lends some support to the proposition that child abuse is associated with poverty: the CYF site offices with the highest rates of child abuse are located in some of the most deprived areas of the country. The data also shows that rates of reporting and substantiation vary across the country, and can vary over time within each site office. For this reason it would be inappropriate to use one year's data to make claims about rates of reported and substantiated abuse. It is also clear that national figures fail to reflect the wide diversity between and within site offices. This diversity arises in part through differences in the age and ethnic structure of communities and districts.

One evident pattern is that the population as a whole is more homogeneous and older in southern regions than in the middle and upper North Island. The diversity of both the population and the wider environment within and between site offices, especially in the Auckland area, makes identifying the factors associated with child abuse difficult. Thus, for example, the Panmure site office has low overall rates of substantiated abuse but includes suburbs of both severe socioeconomic deprivation and affluence. The Panmure site office area also includes areas that have undergone gentrification since the 2006 census, changing the ethnic and age structure of the area. Those changes cannot be captured here due to the use of the most recent census data being 2006. Similar changes have also happened at other site offices.

This research has identified a relationship between ethnicity and rates of substantiated child abuse, with Māori children being abused at a rate far higher than might be expected given their proportion in the population of 0-17 year olds. This pattern is apparent across the country irrespective of the ethnic composition of the population, and in both urban and rural areas, suggesting this is not simply a function of the diversity apparent in the site office data. The pattern of child abuse for Europeans is less than indicated by their population proportions, while the pattern for Pacific and Asian/Other is more mixed.

Disproportionately high rates of child abuse among Māori need to be treated with caution: the ethnicity given is that of the child; New Zealand data shows a strong link between socioeconomic deprivation and ethnicity (Perry, 2009, 2012). Data from Perry (2012, p. 76) shows that between 2009 and 2001 the median income of Māori families fell 1.1% (\$26,300 to \$26,000), the median income of Pacific households fell an astonishing 5.3% (\$28,300 to \$26,800) while that of Europeans – starting from a much higher base – fell 0.8% (\$35,500 to \$35,200). Māori children are also more likely to live in households headed by sole parents (Henare, Puckey, Nicholson, Vaithianathan, & Dale, 2011, p. vii; Strickett & Moewaka-Barnes, 2012). Children in sole parent households are more vulnerable to abuse, in part because sole parents are more likely to live in poverty and have little social support (Wynd, 2013, p. 15). The higher rate of sole parenthood among Māori and Pacific families (see also Cribb, 2009) also contributes to lower than average incomes for these households.

In addition, Māori and Pacific people have a much younger population structure than Europeans; and census data shows high rates of ethnic and socioeconomic stratification within New Zealand, in both urban and rural areas. Areas with the highest proportion of Māori and Pacific families have a significantly higher proportion of children and young people, and are more likely to live in socioeconomically deprived areas. Also possibly playing a part is the impact of racial discrimination – the 'microaggressions' of everyday discrimination experienced by many Māori and Pacific people – on the physical and mental health of individuals (Harris et al., 2011; Harris et al., 2006; Solorzano,

Ceja, & Yosso, 2000, Winter; Te Hiwi, 2008). The poor mental health of a parent can be a risk factor in child abuse (Wynd, 2013, p. 13).

Further confusing the picture was the finding that the highest rates of substantiated abuse were those likely to have a higher proportion of 0-17 year-olds within the population. While there is nothing in the data to suggest why the proportion of young people in an area might be associated with higher than average rates of child abuse, it suggests that environmental factors including the clustering of younger families (living, perhaps, in overcrowded households) may also play a role in the risk of child abuse.

Ignored so far in official discussions of child abuse in New Zealand has been the impact of environmental factors on rates of child abuse, including overcrowded housing, transience, higher rates of children with special needs and disability in low-income households (with Māori children having higher than average rates of disability) (Ministry of Social Development, 2004, p. 24; Office for Disability Issues, undated) , the availability of local work, ethnic stratification, and the demographic make-up of neighbourhoods. Poverty is a strong component of all of these, and may compound their effects (for example special needs children requiring expenditure on medical care) (Ivory, Collings, Blakely, & Dew, 2011).

It is clear from the census data that low incomes and the effects of poverty tend to be clustered in certain areas and that Māori and Pacific people are disproportionately over-represented in these areas. Indexical measures of ethnic stratification show that not only does it exist in New Zealand, but while for Māori and Asian communities it is static or improving, for Pacific peoples it is getting worse (Johnston, Poulsen, & Forrest, 2008).¹⁵ There has been extensive research on the impact of ethnic segregation overseas but almost nothing in New Zealand. Ethnic stratification and ethnic clustering have not officially been identified as issues requiring attention in New Zealand and so are not measured by any central or local government agency. Yet the disproportionately high rates of child abuse among Māori across the country suggest that this aspect needs to be considered, especially as ethnic clustering is so closely associated with socioeconomic deprivation. Although the analysis here suggests Māori rates of child abuse are disproportionately high, it is impossible to disentangle ethnicity, poverty, poor health, overcrowded housing, and lack of access to employment and services from one another.

15 Associate-Professor Damon Selesa, University of Auckland Pacific Studies Department, pers comm, 20/06/2013. Publication forthcoming.

5. Conclusion and areas of further research

The data presented in this paper lends support to the proposition that higher rates of child abuse are associated with socioeconomic deprivation. This relationship is not conclusive in part because there is significant diversity within many site offices. However, the inclusion in the list of less diverse areas such as Clendon and Whakatane (which includes the low-income districts of Kawerau and Opotiki) strengthens the case. Conversely, the more affluent areas of Wellington City, Takapuna, and parts of Christchurch/Canterbury have far lower rates of substantiated abuse.

Of some surprise was the broad – although not definitive – finding that higher rates of child abuse appear to be linked to a younger population structure. Also surprising given the assumptions behind much current social policy was the finding that benefit income does not appear to be related to rates of child abuse.

Overall, even a cursory examination of the New Zealand data such as that presented here suggests that dealing effectively with child abuse will entail paying a great deal more attention to socioeconomic deprivation than has been the case so far. While the *White Paper* identified deprivation as a risk factor in child abuse, it failed to propose any measures to address it – on the contrary it sought to trivialise the role of income poverty by introducing “different sort[s] of poverty – poverty of affection, poverty of protection, poverty of expectation, poverty of educational stimulation, poverty of positive role models” (p.26). The White Paper focussed on ‘benefit dependency’ as a risk factor for ‘vulnerable children’, however the analysis here suggests that may not be the correct approach.

Given this complexity, there are some obvious areas that could be usefully investigated in order to start to provide a long-term and effective solution to New Zealand’s child abuse statistics. While this paper has used CYF site office data, it would be helpful for future studies to have access to more refined data. More research is also needed on the role of ethnic clustering and discrimination on Māori and Pacific communities, especially where these are closely linked to poor health outcomes, housing access and affordability, and access to employment and services.

Although much of the focus of New Zealand social policy has been urban Auckland, particularly South Auckland, it is evident from considering the data used in compiling this paper that more attention needs to be paid to poverty and economic under-development in small towns and rural communities.

The data here suggests that the factors contributing to child abuse are multiple and interconnected, and interact in ways that are not always well understood. Simple solutions based on characteristics of individuals are unlikely to be effective, rather policies should address broader issues of poverty and its relationship to demographics and peoples’ ability to access employment, housing, health and other services. Further, we not only need better data pertaining to child abuse, we need a better understanding of what is required to change the behaviour of potential abusers in the long-term, and to monitor and report on programmes to assess their efficacy. Rates of child abuse in a society are not pre-determined, nor do they remain static. New Zealanders’ rates of child abuse have increased over time: they can change for the better if we so choose. Reducing the risks associated with poverty would be a good place to start.

References

- Boyer, S. (2013). Neglected Kids Back Home in Days. *Fairfax Media*. May 15, 2013. Available <http://www.stuff.co.nz/national/crime/8672672/Neglected-kids-back-home-in-days>,
- Caritas New Zealand. (2012). Submission to the Minister of Social Development on the Green Paper for Vulnerable Children. Wellington: Caritas New Zealand. Available <http://www.caritas.org.nz/sites/default/files/Caritas%20Aotearoa%20New%20Zealand%20-%20Submission%20on%20the%20Green%20Paper%20for%20Vulnerable%20Children.pdf>.
- Child Poverty Action Group. (2012). Green Paper on Vulnerable Children: Submission. Auckland: Child Poverty Action Group. Available <http://www.cpag.org.nz/assets/Submissions/CPAG%20GPVC%20Submission.pdf>.
- Collins, S. (2013). Welfare Shakeup: What it Means for Parents. *New Zealand Herald*, Monday Jul 15, 2013, from http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10898216
- Craig, E., & et al. (2011). *The Children's Social Health Monitor 2011 Update*. Dunedin: New Zealand Child and Youth Epidemiology Service.
- Cribb, J. (2009). Focus on Families: New Zealand Families of Yesterday, Today and Tomorrow. *Social Policy Journal of New Zealand*, 35(June 2009), 4-16. Available <http://www.msd.govt.nz/documents/about-msd-and-our-work/publications-resources/journals-and-magazines/social-policy-journal/spj35/focus-on-families.pdf>.
- Finkelhor, D. (2008). Children at Risk. In D. Finkelhor (Ed.), *Childhood Victimization: Violence, Crime, and Abuse in the Lives Of Young People*. Oxford: Oxford University Press.
- Gay, E. (2013). Hundreds of Kids in CYF Abuse Review. *New Zealand Herald*. Saturday May 25, 2013, from http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10886055
- Harris, R., Cormack, D., Tobias, M., Yeh, L., Talamaivao, N., Minster, J., et al. (2011). The Pervasive Effects of Racism: Experiences of Racial Discrimination in New Zealand over Time and Associations with Multiple Health Domains. *Social Science & Medicine*, 74 (2012), 408-415.
- Harris, R., Martin, T., Jeffreys, M., Waldegrave, K., Karlsen, S., & Nazroo, J. (2006). Effects of Self-Reported Racial Discrimination and Deprivation on Māori Health and Inequalities in New Zealand: Cross-Sectional Study. *The Lancet*, 367(June 17), 2005-2009. Available http://www.who.int/social_determinants/resources/articles/lancet_harris.pdf.
- Henare, M., Puckey, A., Nicholson, A., Vaithianathan, R., & Dale, C. (2011). Getting it Right for Aotearoa New Zealand's Māori and Pasifika children. Wellington: Every Child Counts. Available <http://www.everychildcounts.org.nz/w/wp-content/uploads/2010/06/He-Ara-Hou-Report-20112.pdf>.
- Ivory, V. C., Collings, S., Blakely, T., & Dew, K. (2011). When Does Neighbourhood Matter? Multilevel Relationships Between Neighbourhood Social Fragmentation and Mental Health. *Social Science & Medicine*, 72(2011), 1993-2002.
- Johnston, R., Poulsen, M., & Forrest, J. (2008). Asians, Pacific Islanders, and Ethnoburbs in Auckland, New Zealand. *The Geographical Review*, 98(2), 214-241.

Ministry of Social Development. (2004). *Children and Young People: Indicators of Wellbeing in New Zealand*. Wellington: Ministry of Social Development. Available <http://www.msd.govt.nz/documents/about-msd-and-our-work/publications-resources/monitoring/children-young-indicators-wellbeing/children-young-people-indicators-wellbeing-2004.pdf>.

Ministry of Social Development. (2010). *The Social Report*. Wellington: Ministry of Social Development. Available <http://socialreport.msd.govt.nz/>.

New Zealand Government. (2011). *The Green Paper for Vulnerable Children*. Wellington: New Zealand Government. Available <http://www.childrensactionplan.govt.nz/>.

New Zealand Government. (2012a). *Children's Action Plan: Identifying, Supporting and Protecting Vulnerable Children*. Wellington: New Zealand Government. Available <http://www.msd.govt.nz/documents/about-msd-and-our-work/work-programmes/policy-development/white-paper-vulnerable-children/white-paper-for-vulnerable-children-childrens-action-plan-summaries.pdf>.

New Zealand Government. (2012b). *The Green paper for Vulnerable Children: Complete Summary of Submissions*. Wellington: New Zealand Government. Available <http://www.msd.govt.nz/documents/about-msd-and-our-work/work-programmes/policy-development/green-paper-vulnerable-children/the-green-paper-for-vulnerable-children-submissions.pdf>.

New Zealand Government. (2012c). *The White Paper for Vulnerable Children*. Wellington: New Zealand Government. Available <http://www.childrensactionplan.govt.nz/>.

Office for Disability Issues. (undated). *Indicators from the 1996, 2001 and 2006 New Zealand Disability Surveys for Monitoring Progress on Outcomes for Disabled People: Household income*. Retrieved from.

Perry, B. (2007). *Pockets of Significant Hardship and Poverty*. Wellington: Ministry of Social Development.

Perry, B. (2009). *Non-Income Measures of Material Wellbeing and Hardship: First Results from the 2008 New Zealand Living Standards Survey, with International Comparisons*. Wellington: Ministry of Social Development. Available <http://www.msd.govt.nz/documents/about-msd-and-our-work/publications-resources/monitoring/2008-living-standards-survey-wp-01-09-main-report.doc>.

Perry, B. (2012). *Household Incomes in New Zealand: Trends in Indicators of Inequality and Hardship 1982 to 2011*. Wellington: Ministry of Social Development. Available <http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/monitoring/household-incomes/index.html>.

Powley, K. (2013). Children Raised in Meth Labs. *New Zealand Herald*. Sunday Jun 2, 2013, from http://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=10887922

Salmond, C., Crampton, P., & Atkinson, J. (2007). NZDep2006 Index of Deprivation. Wellington: Department of Public Health, University of Otago. Available <http://www.otago.ac.nz/wellington/otago020348.pdf>.

Solorzano, D., Ceja, M., & Yosso, T. (2000, Winter). Critical Race Theory, Racial Microaggressions, and Campus Racial Climate: The Experiences of African American College Students. *Journal of Negro Education*, 69, 60–73.

Strickett, E., & Moewaka-Barnes, H. (2012). *Marginalising Māori Parents*. Auckland: Massey University, SHORE & Whariki Research Centre. Available <http://www.maramatanga.ac.nz/sites/default/files/12-IN-10%20Web%20ready%20%283%29.pdf>.

Te Hiwi, E. (2008). *Disrupted Spaces: Racism and the Lived Experience of Māori Identity Formation*. Extracted From:

Levy, M., Nikora, L.W., Masters-Awatere, B., Rua, M.R., Waitoki, W. (2008). *Claiming Spaces: Proceedings of the 2007 National Māori and Pacific Psychologies Symposium, 23-24 November, Hamilton*. Hamilton: Māori and Psychology Research Unit. Available http://researchcommons.waikato.ac.nz/bitstream/handle/10289/1528/NMPPS%202007_Te%20Hiwi.pdf?sequence=1.

UNICEF NZ. (2012). *All Children Thriving, Belonging and Achieving – What Will it Take?* Wellington: Unicef NZ Community/NGO Briefing Paper. Available <http://www.unicef.org.nz/store/doc/Thriving.achieving.belongingwhatwillittakeBriefingPaper....pdf>.

Vaithianathan, R., Maloney, T., Jiang, N., De Haan, I., Dale, C., Putnam-Hornstein, E., et al. (2012). *Vulnerable Children: Can Administrative Data be Used to Identify Children at Risk of Adverse Outcomes?* Report Prepared for the Ministry of Social Development. Auckland: Centre for Applied Research in Economics (CARE), Department of Economics, University of Auckland.

Wynd, D. (2013). *Child Abuse: What Role Does Poverty Play?* Auckland: Child Poverty Action Group. Available <http://www.cpag.org.nz/assets/Publications/130610%20CPAG%20Child%20Abuse%20Report%201%20June%202013.pdf>.

Appendix

Table 1: Distinct substantiations of neglect and abuse by type, 2008-2012 and proportions of each

Year	Emotional	Physical	Sexual	Neglect	TOTAL	% Emotional	% Physical	% Sexual	% Neglect
2008	8,019	2,232	992	4,021	15,264	52.5	14.6	6.5	26.3
2009	9,987	2,745	1,097	4,415	18,244	54.7	15.0	6.0	24.2
2010	11,290	2,769	1,171	4,059	19,289	58.5	14.4	6.1	21.0
2011	11,212	3,086	1,457	4,379	20,134	55.7	15.3	7.2	21.7
2012	10,883	3,108	1,355	4,450	19,796	55.0	15.7	6.8	22.5
AVERAGE						54.6	14.8	6.7	23.9

Table 2: Percent of notifications resulting in substantiations, 2007-2012, all site offices. Note these are not distinct substantiations. (Rangiora omitted)

	2007	2008	2009	2010	2011	2012
Far North	24.9	20.8	18.1	16.5	18.9	23.3
Whangarei	25.8	21.5	23.2	23.2	22.9	37.0
Orewa			39.9	26.6	25.4	35.9
Waitakere	31.3	30.7	28.7	12.9	15.0	19.6
Westgate	38.8	36.1	34.5	31.8	29.1	27.4
Takapuna	28.8	29.2	24.7	14.4	12.2	18.3
Grey Lynn	43.9	38.9	19.6	14.3	13.2	11.6
Panmure			11.7	7.6	11.8	16.3
Onehunga	17.3	16.6	11.3	17.4	15.8	23.1
Otahuhu	31.2	26.3	19.3	16.8	18.9	20.0
Otara	17.6	15.4	14.3	14.6	13.6	33.8
Mangere		3.3	15.8	19.1	18.3	18.2
Papakura	25.9	19.5	21.7	22.5	25.2	25.6
Clendon		11.5	27.6	25.4	22.5	24.5
Manurewa	22.0	18.6	12.0	17.1	9.7	24.1
Pukekohe		11.4	20.9	22.0	13.7	22.6
Waikato East	18.2	9.6	29.1	25.4	8.9	9.3
Waikato West	20.7	13.0	30.0	26.2	10.6	13.5
Hauraki	35.5	30.0	22.2	20.2	26.2	21.8
Tauranga	24.6	16.6	12.5	22.0	17.2	19.9
Whakatane	28.4	20.1	27.2	30.7	28.9	48.2
Rotorua	30.8	24.6	19.8	26.9	13.9	13.8
Taupo			4.2	24.8	22.5	32.9
Whanganui	13.7	14.3	13.1	10.0	12.2	17.5
Taranaki	7.7	7.9	10.9	7.1	7.4	8.0
Gisborne	34.2	21.7	13.9	14.2	11.9	17.5
Napier	23.9	9.1	8.7	7.8	8.3	8.3
Hastings	24.2	11.5	12.9	10.8	10.1	15.1
Manawatu	20.1	15.9	15.7	8.7	9.2	12.3

Horowhenua			12.0	12.7	11.8	17.7
Wairarapa	28.7	19.0	15.9	12.5	12.4	13.7
Porirua	11.7	18.6	16.3	9.9	10.1	8.5
Hutt Valley	13.3	17.5	19.3	14.3	15.0	19.0
Wellington	11.6	7.0	7.5	9.1	8.0	5.9
Nelson	33.3	14.9	11.2	14.1	15.4	15.5
Blenheim	24.1	16.7	11.1	15.8	19.5	17.1
West Coast	15.2	9.0	18.3	15.7	13.9	26.2
Christchurch City	22.5	16.4	12.4	19.0	17.4	22.6
Papanui	9.9	12.0	9.8	12.8	12.3	13.5
Sydenham	10.2	11.0	6.3	8.6	9.9	18.3
South Canterbury	22.3	17.1	20.7	17.2	19.8	20.2
Otago Urban	21.1	30.3	22.2	23.5	17.5	26.7
Southern Rural	21.6	18.6	22.3	13.0	12.2	19.1
Southland	18.5	12.8	14.2	22.4	17.7	16.1

Table 3: Average of percent of distinct substantiations 2008-2012 divided by the estimated number of 0-17 year olds. (Rangiora omitted)

	Rate of substantiated abuse cases for each site office (%). Data takes average of years 2008-2012
Far North	2.2
Whangarei	2.2
Orewa	1.8
Waitakere	1.6
Westgate	2.4
Takapuna	0.9
Grey Lynn	1.1
Panmure	0.9
Onehunga	1.2
Otahuhu	2.7
Otara	1.5
Mangere	1.6
Papakura	4.0
Clendon	3.0
Manurewa	2.7
Pukekohe	1.2
Waikato East	2.0
Waikato West	1.7
Hauraki	1.7
Tauranga	1.4
Whakatane	3.5
Rotorua	2.5
Taupo	2.8
Whanganui	1.8
Taranaki	0.8
Gisborne	1.9

Napier	1.3
Hastings	1.4
Manawatu	1.5
Horowhenua	1.7
Wairarapa	1.5
Porirua	1.1
Hutt Valley	1.8
Wellington	0.4
Nelson	1.2
Blenheim	1.2
West Coast	1.0
Christchurch City	2.0
Papanui	0.9
Sydenham	1.6
South Canterbury	0.7
Otago Urban	1.5
Southern Rural	0.8
Southland	1.2

Table 4: Rate of distinct cases of child abuse by site office (sorted from highest to lowest) (average of years 2008-2012). (Rangiora omitted)

Papakura	4.0
Whakatane	3.5
Clendon	3.0
Taupo	2.8
Otahuhu	2.7
Manurewa	2.7
Rotorua	2.5
Westgate	2.4
Whangarei	2.2
Far North	2.2
Christchurch City	2.0
Waikato East	2.0
Gisborne	1.9
Horowhenua	1.8
Orewa	1.8
Whanganui	1.8
Hutt Valley	1.7
Hauraki	1.7
Waikato West	1.7
Mangere	1.6
Waitakere	1.6
Wairarapa	1.6
Manawatu	1.5
Hastings	1.5
Otara	1.5

Tauranga	1.5
Napier	1.4
South Canterbury	1.4
Southland	1.3
Blenheim	1.2
Otago Urban	1.2
Nelson	1.2
Pukekohe	1.2
Onehunga	1.2
West Coast	1.1
Grey Lynn	1.1
Porirua	1.0
Southern Rural	0.9
Papanui	0.9
Takapuna	0.9
Panmure	0.8
Taranaki	0.8
Sydenham	0.7
Wellington	0.4

Table 5: Rate of substantiated abuse cases by site office against the estimated proportion of 0-17 year olds in each site office area for each site office ($R^2 = 0.55$). (Rangiora omitted)

	Estimated proportion of 0-17 year-olds in population	Rate of substantiated abuse cases for each site office (%). Data takes average of years 2008-2012
Far North	25.5	2.2
Whangarei	25.6	2.2
Orewa	25.8	1.8
Waitakere	26.5	1.6
Westgate	26.9	2.4
Takapuna	22.9	0.9
Grey Lynn	18.5	1.1
Panmure	21.5	0.9
Onehunga	22.3	1.2
Otahuhu	27.5	2.7
Otara	26.0	1.5
Mangere	35.3	1.6
Papakura	26.3	4.0
Clendon	32.3	3.0
Manurewa	36.3	2.7
Pukekohe	28.0	1.2
Waikato East	26.2	2.0
Waikato West	27.7	1.7
Hauraki	22.1	1.7
Tauranga	24.0	1.4

Whakatane	30.1	3.5
Rotorua	27.1	2.5
Taupo	22.6	2.8
Whanganui	26.2	1.8
Taranaki	26.0	0.8
Gisborne	28.7	1.9
Napier	24.4	1.3
Hastings	27.3	1.4
Manawatu	26.3	1.5
Horowhenua	25.2	1.7
Wairarapa	24.5	1.5
Porirua	25.8	1.1
Hutt Valley	25.5	1.8
Wellington	20.2	0.4
Nelson	22.3	1.2
Blenheim	17.9	1.2
West Coast	19.8	1.0
Christchurch City	23.2	2.0
Papanui	21.9	0.9
Sydenham	21.4	1.6
South Canterbury	22.0	0.7
Otago Urban	21.5	1.5
Southern Rural	16.4	0.8
Southland	23.5	1.2
AVERAGE	24.9	1.7

Table 6: Rates of substantiated abuse and rates of benefit receipt in estimated population for each site office. ($R^2 = 0.39$).

	Rate of substantiations for each site office (%), year ending 2012	Rate of benefit receipt in working-age population, June 2012
Far North	2.17	14.3
Whangarei	2.24	8.7
Orewa	1.84	9.5
Waitakere	1.60	13.1
Westgate	2.44	3.9
Takapuna	0.92	2.7
Grey Lynn	1.14	6.3
Panmure	0.89	4.6
Onehunga	1.19	6.2
Otahuhu	2.71	10.0
Otara	1.46	4.6
Mangere	1.64	9.4
Papakura	4.02	10.0
Clendon	2.96	8.4
Manurewa	2.68	15.7
Pukekohe	1.19	6.6

Waikato East	1.98	17.0
Waikato West	1.70	2.8
Hauraki	1.66	4.0
Tauranga	1.40	6.8
Whakatane	3.52	10.1
Rotorua	2.54	13.8
Taupo	2.76	3.1
Whanganui	1.80	11.9
Taranaki	0.79	7.6
Gisborne	1.87	11.3
Napier	1.30	8.8
Hastings	1.44	8.1
Manawatu	1.52	8.3
Horowhenua	1.74	16.8
Wairarapa	1.48	8.1
Porirua	1.07	5.0
Hutt Valley	1.83	5.1
Wellington	0.37	6.3
Nelson	1.20	6.3
Blenheim	1.17	4.0
West Coast	0.99	5.9
Christchurch City	1.97	6.8
Papanui	0.91	5.3
Sydenham	1.62	6.2
South Canterbury	0.68	9.5
Otago Urban	1.50	7.8
Southern Rural	0.80	1.3
Southland	1.19	7.7
Average	1.68	8.0

Table 7: Rates of substantiated child abuse by site office (average of 2011-2012 figures). Europeans are the base case (1) with others relative to them. *These figures take no account of the different population structures (for example the proportion of Māori and Pacific people) within site offices.*

	European/ New Zealand pakeha	Māori	Pacific	Asian/other/ unknown
Far North	1	8.0	0.1	0.3
Whangarei	1	3.1	0.1	0.2
Orewa	1	0.7	0.0	0.1
Waitakere	1	1.4	0.6	0.7
Westgate	1	1.7	0.9	0.7
Takapuna	1	0.6	0.2	0.7
Grey Lynn	1	1.6	1.9	1.2
Panmure	1	3.3	2.1	1.0
Onehunga	1	1.9	3.2	1.0
Otahuhu	1	4.1	3.5	1.3

Otara	1	5.0	4.5	1.5
Mangere	1	10.2	15.0	1.5
Papakura	1	3.6	1.0	0.6
Clendon	1	7.0	3.1	0.7
Manurewa	1	7.2	3.5	0.9
Pukekohe	1	2.0	0.3	0.2
Waikato East	1	3.1	0.2	0.5
Waikato West	1	2.0	0.0	0.5
Hauraki	1	1.1	0.1	0.3
Tauranga	1	2.2	0.1	0.3
Whakatane	1	9.1	0.1	0.9
Rotorua	1	3.7	0.2	0.4
Taupo	1	3.8	0.4	0.5
Whanganui	1	1.9	0.0	0.3
Taranaki	1	1.5	0.1	0.1
Gisborne	1	6.2	0.3	0.4
Napier	1	2.3	0.3	0.1
Hastings	1	4.3	0.4	0.3
Manawatu	1	1.3	0.1	0.2
Horowhenua	1	1.4	0.1	0.3
Wairarapa	1	1.2	0.1	0.3
Porirua	1	1.6	0.5	0.2
Hutt Valley	1	1.9	0.4	0.5
Wellington	1	1.5	1.0	0.9
Nelson	1	0.5	0.0	0.2
Blenheim	1	0.8	0.2	0.0
West Coast	1	0.5	0.0	0.2
Christchurch City	1	0.6	0.1	0.1
Papanui	1	0.4	0.1	0.2
Sydenham	1	0.5	0.1	0.2
South Canterbury	1	0.5	0.0	0.2
Otago Urban	1	0.3	0.0	0.0
Southern Rural	1	0.4	0.1	0.2
Southland	1	0.6	0.0	0.1
National average (rate)	1.0	2.6	1.0	0.5

