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Subjective whānau wellbeing in Te Kupenga

APRIL 2017

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Our purpose

The purpose of the Social Policy Evaluation and Research Unit (Superu) is to increase the use of evidence by people across the social sector so that they can make better decisions – about funding, policies or services – to improve the lives of New Zealanders and New Zealand's communities, families and whānau.

This project is part of the Families and Whānau Wellbeing work programme.

Mihi whakatau

E ngā mana, e ngā reo, e ngā karangatanga maha o ngā hau e wha, tēnā koutou katoa. Koutou kua whetūrangitia, haere atu rā, haere atu rā, haere atu rā ki te kāinga tūturu mō tāua te tangata. Tātou te kanohi ora, tēnā koutou, tēnā koutou, tēna koutou katoa. Anei te pūrongo "Subjective whānau wellbeing in Te Kupenga" hei paihere i ō tātou whānau huri noa i te motu, hei kōrero whakahirahira mō te iwi whānui. Nō reira tēnā tātou katoa.

Acknowledgements

Executive summary

There is a growing interest in whānau wellbeing as a field of scholarly inquiry and as a focus for public policy.

This report addresses a substantial gap in the quantitative evidence base about whānau wellbeing. It is also the first report to undertake a detailed analysis of self-assessed whānau wellbeing in Te Kupenga. It focuses on two key questions:

1. How well do Māori think their whānau are doing?

2. What are the critical factors associated with whānau doing well?

Background

Whānau wellbeing, as a concept, is complex. Diverse approaches have been developed for defining and measuring whānau wellbeing.

Although definitions vary, 'whānau' is often described as whakapapa-based relationships of mutual obligation. 'Whānau' include intergenerational relationships, may extend beyond one household, and may sometimes include 'friends and others'.

Definitions of what constitutes 'whānau wellbeing' also vary. However, research in this area often describes whānau wellbeing (or whānau ora) as a collective state of wellbeing that is enmeshed with wellbeing at the individual level. Research in this field also emphasises the collective strength of whānau and the potential for whānau to provide their own solutions to challenges they face.

Previous research has attempted to quantify whānau wellbeing by aggregating individual-level data at the household-level. However, this approach fails to reflect whānau structures that often do not conform neatly to household boundaries.

The individual-level variables used in existing analyses are often indicators of social deprivation, offering a very limited, externally imposed picture of wellbeing. This report addresses these issues by studying individuals' subjective assessments of the wellbeing of their whānau.

Although there is a dearth of statistical evidence on whānau wellbeing, previous qualitative research has identified that potential predictors of whānau wellbeing are strong reciprocal relationships between whānau members and traditional lands and waters, as well as the knowledge and practices that underpin those relationships.

Approach

This report uses data from Te Kupenga, the first nationally representative survey of Māori wellbeing, undertaken by Statistics New Zealand following the 2013 Census. Participants were a sample of the usually resident Māori population, aged 15 years or older (n=5,549 weighted to 529,750).

Participants rated how well their whānau was doing on a scale from 0 (extremely badly) to 10 (extremely well).

Results

The mean whānau wellbeing rating was high, with only 6.3 percent of respondents reporting a wellbeing score below the scale midpoint (5). About one-fifth reported a moderate whānau wellbeing score (5–6), and about three-quarters of respondents reported that their whānau were doing well (7–8) or very well (9–10).

How each factor on its own relates to whānau wellbeing (bivariate analysis)

- Age is an important influencer of how Māori assess their whānau wellbeing, and assessments appear to be more positive at younger and older ages. Gender also influences self-reported whānau wellbeing, with women being more likely to report high levels of whānau wellbeing than men.

- Whānau wellbeing is related to household-based family structure and location, with respondents in single-parent families and in areas of economic deprivation more likely to report lower levels of whānau wellbeing.

- Material factors such as income adequacy and housing are correlated with wellbeing, but their impact appears to be most influential at the lower end of the wellbeing scale. Economic security may provide some protection against very poor whānau wellbeing, but may be less important for very high wellbeing.

- The factors that stand out as most significant for whānau wellbeing are the various measures of quality of interpersonal relationships (measured by individuals' perceptions of how well their whānau get along and the level of whānau support), along with individual life satisfaction and feelings of loneliness.

How different factors relate to whānau wellbeing when examined together (multivariate analysis)

- In this more complex multiple regression analysis, we identify which factors are **most** important for a subjective sense of whānau wellbeing, while controlling for the associations between whānau wellbeing and all other variables. We included a range of variables that we identified as being associated with whānau wellbeing in the bivariate analysis.

- **The two factors that have the strongest associations with self-assessed whānau wellbeing, taking account of age, are the quality of whānau relationships and individual life satisfaction**. How Māori assess the wellbeing of their whānau is tightly connected to their perception of how well their whānau get along, regardless of age. And Māori who are very satisfied with their own life are also much more likely to assess their whānau wellbeing in very positive terms, regardless of age. In addition, for Māori in most age groups, self-rated health has a relatively strong association with perceived whānau wellbeing, with the exception of those aged 55 years or older.

The findings align with the work by Durie and others (Durie 1985, 1997, 2006; Panelli & Tipa 2007) that emphasises the holistic nature of wellbeing and the interconnections between the wellbeing of the individual and of the whānau.

Conclusion

Te Kupenga offers an important opportunity to better understand whānau in a way that reflects Māori values. It enables Māori to evaluate how well their whānau are doing, rather than relying on the judgements of external observers, or narrowly constraining wellbeing to objective measures such as income and employment.

The findings suggest that supporting and strengthening whānau wellbeing requires a multifaceted approach that includes social and human resource potential factors, as well as economic factors.

Extending our understanding of whānau wellbeing will require some assessment of causality. For quantitative research, this will require longitudinal data. Currently there is no national level longitudinal data that includes variables on whānau wellbeing.

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Introduction

In Te Ao Māori (Māori society) there are many practices and principles that testify to the primacy of whānau and communities. These range from kinship structures such as hapū and iwi, to customs and decision-making processes relating to whenua (land), and relationships and expectations of obligation and reciprocity. For many Māori the wellbeing of whānau is just as important as the wellbeing of the individual, perhaps more important.

Over the last decade there has been growing interest in whānau wellbeing as a field of scholarly inquiry and as a focus for public policy, most notably with the cross-government Whānau Ora initiative (Durie et al. 2010) and the Families and Whānau Wellbeing workstreams undertaken by Superu (Families Commission 2013; Superu 2014, 2015, 2016).

Superu produces annual reports on the status of family and whānau using two different frameworks: the Whānau Rangatiratanga Framework for Māori, and the Family Wellbeing Framework for all New Zealand families. The Whānau Rangatiratanga Framework reflects a strengths-based approach that is founded on Māori values, and a holistic understanding of wellbeing that has been well articulated in the literature (Durie 1985, 1997, 2006; Panelli & Tipa 2007). The basic premise of a strengths-based approach is that individuals, families and communities are not defined by their challenges, but rather by their inherent strengths (Maton et al. 2004, p. 7).

The purpose of this report: Detailed analysis of Te Kupenga data

This report makes a unique contribution to the growing body of knowledge on whānau wellbeing by providing a statistical analysis of data from Te Kupenga, the nationally representative Māori Social Survey.[1] This is the first report to include a detailed analysis of self-assessed whānau wellbeing in Te Kupenga and it provides a starting point for ongoing analysis. In this report we focus on two key questions:

- How well do Māori think their whānau are doing?

- What are the critical factors associated with whānau doing well?

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1   Access to the data used in this study was provided by Statistics New Zealand under conditions designed to meet the security and confidentiality requirements in the Statistics Act 1975. The results presented in this study are the work of Superu, not Statistics NZ.

Unlike other official surveys, such as the Census of Population and Dwellings and the General Social Survey, Te Kupenga was specifically designed with Māori values and priorities in mind (Statistics New Zealand 2009). The first survey, carried out after the 2013 Census, was a comprehensive stocktake of the social, cultural and economic wellbeing of Māori individuals. It also included a suite of questions about whānau circumstances and wellbeing, using subjective and culturally grounded measures unavailable in other nationally representative datasets (Tibble & Ussher 2012). Subjective wellbeing is globally recognised as an important field of research (OECD 2013), and has generated a huge literature, especially in relation to life satisfaction (Cummins 1996) and happiness (Frey & Stutzer 2002). However, subjective wellbeing research is almost entirely focused on the wellbeing of individuals,[2] rather than collectives such as families.

Te Kupenga is the first official survey in New Zealand to specifically ask respondents about whānau wellbeing. The question asks respondents to rate how well they think their whānau are doing, so the wellbeing measure used in this report is a unidimensional self-assessment of subjective whānau wellbeing as reported by individual Te Kupenga respondents. Self-report measures provide revealing insights into individuals' subjective perceptions of how well their whānau are doing, although we have no way of knowing if respondents' perceptions are shared by other whānau members. Subjective assessments are important in that whānau can define 'wellbeing' themselves rather than relying on objective measures such as income or employment. This report therefore provides an important addition to existing statistical studies of whānau wellbeing, which have relied mostly on external assessments of objective circumstances, particularly economic resources and circumstances.

Our focus on whānau wellbeing also requires us to be clear about what is meant by 'whānau'. Rather than impose a strict definition of 'whānau', Te Kupenga enabled respondents to define for themselves who belonged to their whānau (Tibble & Ussher 2012). A previous report confirmed the importance of whakapapa (genealogical ties) as the foundation of whānau, and found that household-based measures of family were inadequate for capturing expressions of whānau (Kukutai, Sporle & Roskruge 2016). It also showed that while only a minority of Māori see 'friends and others' as part of their whānau, those who include 'friends and others' in this way are more likely to have strong connections to Māori culture and identity. The broadening of whanaungatanga to include non-whakapapa relationships appears to reflect the endurance and vitality of whānau values rather than a weakening of them.

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2   These individual-level responses are often aggregated to national-level indicators for cross-national comparative purposes: see OECD 2013.

The contents and structure of this report

This report looks beyond the meaning of 'whānau' to examine how well Māori think their whānau are doing and the key enablers of whānau doing well. The report has four parts:

Part 1 'The contours of whānau wellbeing' identifies key themes in the literature on Māori and whānau wellbeing, including policy approaches and measurement frameworks. It considers how these different perspectives might be used to both motivate and interpret the analysis in this report, and it also briefly reviews the existing evidence on whānau wellbeing.

Part 2 'Perceptions of whānau wellbeing and associated factors' draws on Superu's Whānau Rangatiratanga Framework to look at how Te Kupenga respondents rated the wellbeing of their whānau, and the demographic, economic, social and cultural factors associated with their subjective assessments.

Part 3 'Factors associated with positive whānau wellbeing' identifies those factors most strongly associated with self-rated whānau wellbeing. Guided by the literature review and the bivariate analysis in Part 2, we focus on the perceived quality of whānau relationships, relationships of reciprocity and support, and an individuals' sense of satisfaction with their own lives.

Part 4 'Implications and future directions' concludes this report by considering the implications of the results for whānau-focused policy and interventions, and how the factors associated with positive whānau wellbeing might be better supported through collective and institutional responses. We also reflect on how the findings contribute to the broader body of evidence on whānau wellbeing and on how Te Kupenga might be improved to ensure it continues to advance knowledge and policy responses that improve outcomes for whānau Māori.

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Part 1: The contours of whānau wellbeing

In this part of the report we discuss different approaches to conceptualising and defining 'whānau wellbeing', and the key challenges in measuring whānau wellbeing. We also look at the existing evidence on whānau wellbeing and on whānau perceptions of what whānau wellbeing consists of, and we explain this report's focus on subjective whānau wellbeing.

1.1_ Conceptualising and defining 'whānau wellbeing'

Defining 'whānau'

Definitions of 'whānau' are many and varied (Cunningham, Stevenson & Tassell 2005; Durie 1997, 2001; Irwin et al. 2013; Lawson-Te Aho 2010; Metge 1995; Smith 1995). However, there is broad consensus that **whakapapa** forms the basis of whānau, and that these relationships are intergenerational, shaped by context, and given meaning through roles, responsibilities and relationships of mutual obligation (Kruger et al. 2004). Earlier Superu analysis exploring Māori self-conceptions of whānau confirmed the importance of whakapapa as the foundation of whānau. The vast majority of Māori (99 percent) think of their whānau in terms of genealogical relationships. A much smaller proportion (about 13 percent) also include 'friends and others' among their whānau (Kukutai, Sporle & Roskruge 2016).

Several studies have noted that the western[3] focus on family structure and functioning, and on the household as the economic unit of production, has little in common with a Māori worldview of whānau (Cram & Pitama 1998; Cunningham et al. 2005; Taiapa 1995). For Māori the household is not an independent economic unit but is part of a wider group, with resources flowing between the household and the larger collective. While few Māori are able to live in customary communal settings with collective responsibilities for resources, care and protection, case studies show that whānau values are still relevant and meaningful for many (Taiapa 1995). To be conceptually and methodologically fit for purpose, any analysis of whānau wellbeing must be attuned to these unique understandings of the nature of family relationships.

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3   The word 'western' is used here in a broad sense to refer to a body of social norms, ethical values, traditional customs, belief systems and political systems that have some origin in Europe.
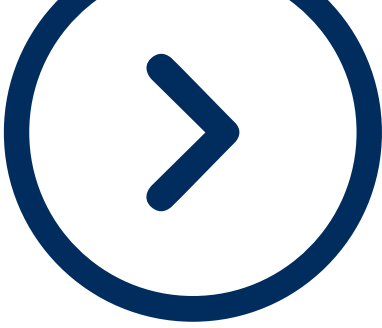
Conceptualising and defining 'wellbeing' and 'family wellbeing'

There is a large body of theoretical and empirical literature on family wellbeing, both from overseas (Wollny, Apps, & Henricson 2010) and from within Aotearoa New Zealand (Cotterell 2008; Pryor 2007). Rather than rehearse this well-cited literature, we will focus here on key strands of thinking that reflect Māori worldviews and priorities in relation to whānau wellbeing. However, it is useful to begin our analysis by noting that the field of wellbeing research is a diverse one with its own internal debates. Wollny et al. identify five main points of contention in the definition and measurement of wellbeing. These relate to whether wellbeing should be seen as:

- a unidimensional or multidimensional construct
- the objective circumstances of individuals, or their subjective perceptions of those conditions
- best captured by self-assessment or external assessment
- dependent on values and aspirations
- dependent on culture.

Wollny et al. emphasise the lack of a standard approach to conceptualising and measuring family wellbeing. They stress the need for ongoing work to explore and address measurement challenges, including reliability and validity issues, the acceptability of different measures, and the measurement of intra-family differences (p. 66).

Given the well-documented diversity that exists within Te Ao Māori, what is the potential range of meanings associated with 'whānau wellbeing'? A useful entry point is to consider what wellbeing means from a Māori worldview (Moewaka-Barnes 2000). The importance of embedding Māori concepts into the analysis of Māori society was eloquently expressed by the late Māori philosopher Māori Marsden (1981):

> The route to Māoritanga through abstract interpretation is a dead end. The way can only lie through the passionate, subjective approach... Māoritanga is a thing of the heart rather than the head ... analysis is necessary only to make explicit what Māori understands implicitly in daily living, feeling, acting and deciding ... from within the culture (cited in Lawson-Te Aho 2010, p. 41).

From a Māori worldview, western concepts of wellbeing that are founded on the presumption of universality and the primacy of the individual, have limited relevance for conceptualising, measuring and monitoring wellbeing for Māori (Durie 1999, 2006; Cram 2014; Tibble & Ussher 2012). This not only reflects epistemological differences in how wellbeing is understood from a Māori standpoint; it also highlights a fundamental difference in how the relationship between individuals and collectives is conceptualised. From a Māori worldview, the wellbeing of the individual is enmeshed with the wellbeing of the whānau; there is no strict dividing line (Durie et al. 2010).

The notion that individual rights, identity and wellbeing exist only through connections to whānau, hapū and iwi stems from whakapapa – the descent-based relationships that extend from the physical world (te ao kikokiko) to the spiritual world (te ao wairua) (Kruger et al. 2004). In a more general sense 'whakapapa' refers to the layers of relationships that connect individuals to ancestors, to the living, and to the natural environment (Te Rito 2007). The concept of interconnected relationships is reflected in this well-known whakataukī (Tibble & Ussher 2012, p. 14):

> *Ehara taku toa i te toa takitahi, engari taki mano, no aku tūpuna.*
>
> My success is not mine alone, but is both mine and my ancestors.

This contrasts with western understandings of family wellbeing, which tend to draw a much sharper distinction between individuals and the collectives to which they belong.

Whānau ora: Encapsulating Māori understandings of whānau wellbeing

A number of terms are used to encapsulate Māori understandings of whānau wellbeing, the most widely known of which is **'whānau ora'**. The term is used in a number of ways to describe a way of thinking or philosophy, a model of practice, and a set of outcomes (Boulton, Tamehana & Brannelly 2013).

Emeritus Professor Sir Mason Durie has been at the forefront of theorising whānau ora. The genesis of his thinking is evident in the influential model of Māori health **Te Whare Tapa Whā** (1985), which developed from Rapuora – the first survey of Māori women's wellbeing (Murchie 1984). Writing more than a decade ago, Durie saw the relational aspect of whakapapa as a powerful mechanism for enhancing individual and collective wellbeing:

> Because all Māori belong to a whānau, the potential of whānau for charting lifestyles and, if necessary, modifying lifestyles is high. The exercise of leadership and wise management is critical to effective whānau functioning. (2003, p. 70).

Durie's foundational thinking about whānau ora has travelled far beyond academic circles to shape government approaches to public policy and the provision of services. Acknowledging the diverse circumstances and realities of whānau Māori, Durie's articulation of whānau ora is an inclusive and flexible one whereby Māori families are able to 'live as Māori', actively participate as citizens of the world, and enjoy good health and a high standard of living (Durie 2003). The relatedness of individual and whānau wellbeing is an explicit aspect of the whānau ora approach in that:

> when an individual is not well, a whānau is not well. Conversely when a whānau is not well, individuals are adversely impacted. Whānau ora is a state of collective wellbeing that is integrated, indivisible, interconnected and whole. This aligns with iwi thinking around the holistic and indivisible. (Lawson-Te Aho 2010, p. 11).

These ideas about the significance of whānau for developing solutions to the issues that individuals face are at the core of the Whānau Ora programme. Rather than focus separately on individual family members and 'their' problems, Whānau Ora emphasises the collective strengths that reside in whānau and the need for collective solutions (Durie et al. 2010).

Measuring whānau wellbeing

Four approaches to measuring Māori wellbeing

Several approaches and frameworks have been developed for assessing and evaluating Māori wellbeing in policy and research settings, and these have been well described elsewhere. This section does not repeat those reviews but instead identifies and summarises the main conceptual approaches, drawing on the 2013 *Families and Whānau Status Report* (Families Commission 2013). That report identified four key approaches used to measure and monitor Māori wellbeing.

The **Sector approach** measures dimensions of wellbeing within specific policy sectors such as education, health, housing and employment. An example is *He Korowai Oranga*, the Māori Health Strategy directed by the Ministry of Health (2002).

The **Wellbeing approach** focuses on conceptualising and measuring wellbeing using statistical methods. An exemplar is the 'Four wellbeings' approach that underpins the Māori Plan for Tāmaki Makaurau, developed by the Independent Māori Statutory Board (IMSB) (Independent Māori Statutory Board 2012). The plan presents a wellbeing framework anchored around four wellbeing domains – cultural, social, economic and environmental – to inform local government planning and policy legislation. The plan is underpinned by five key Māori values that were identified through extensive consultation with mana whenua (customary tribes in Auckland) and mataawaka (the broader Māori community):

• whanaungatanga / develop vibrant communities

• rangatiratanga / enhance leadership and participation

• manaakitanga / improve quality of life

• wairuatanga / promote distinctive identity

• kaitiakitanga / ensure sustainable futures.

The **Outcomes approach** has been adopted in the framework used for measuring the impact of the Whānau Ora programme. The main difference between the Outcomes approach and the Wellbeing approach is that the former explicitly identifies desired outcomes for measuring performance and directing investment. The Whānau Ora framework identified seven key high-level outcomes for whānau, which are for whānau to:

• be self-managing

• live healthy lifestyles

• participate fully in society

• confidently participate in Te Ao Māori

• enjoy economic security and successful involvement in wealth creation

• be cohesive, resilient and nurturing

• be responsible stewards of their living and natural environments.

Indicators of these outcome goals form the basis for measuring the impact of Whānau Ora services, which are provided through its three commissioning agencies (Durie et al. 2010). Of the set of indicators assembled by the Whānau Ora Partnership Group, very few are measured at the level of the whānau. This makes it difficult to measure whānau wellbeing beyond simply aggregating individual-level responses to larger units such as households.

Finally, the **Capabilities approach** draws on the work of development economist Amartya Sen (1990), who argued that wellbeing or quality of life should be measured in terms of substantive human freedoms or 'capabilities'. 'Capabilities' refers to the ability of individuals (or collectives) to be or do what they view as important. The Capabilities approach is evident in a number of key frameworks, including the Māori Statistics Framework (Wereta 2001) and Durie's (2006) whānau wellbeing model, which was developed in tandem with the Māori household survey *Te Hoe Nuku Roa*.

The Māori Statistics Framework defines Māori wellbeing as a "function of the capability of Māori individuals and collectives to live the kind of life that they want to live" (Wereta 2001, p. 5). Durie's (2006) model of whānau wellbeing defines wellbeing in terms of the collective capacity of whānau to perform six key tasks within their historical scope and influence:

- manaakitanga / the capacity to care for whānau members
- pupuri taonga / the capacity to exert guardianship over the whānau estate
- whakamana / the capacity to empower whānau members into the wider community
- whakatakato tikanga / the capacity to prepare ahead
- whakapūmau tikanga / the capacity to promote Māori culture, and
- whakawhanaungatanga / the capacity for consensus building.

This whānau capacity model emphasises progressive advancement rather than the management of adversity, and focuses on functional capacities.

The Whānau Rangatiratanga Framework: Drawing on the Capabilities approach

The Whānau Rangatiratanga Framework developed by Superu to measure whānau wellbeing is also based on the Capabilities approach (Families Commission 2013; Superu 2014, 2015, 2016). The framework was first published in the 2013 *Families and Whānau Status Report*, then used again in the following year's report (Superu 2014, 2015). A more detailed account of the development of this framework can be found in *The Whānau Rangatiratanga Frameworks: Approaching whānau wellbeing from within Te Ao Māori* (Superu 2016A).

The Whānau Rangatiratanga Framework has much in common with both the Māori Statistics Framework and the Māori Plan for Tāmaki Makaurau in that it includes two axes, one representing domains (whānau capabilities) and the other representing Whānau Rangatiratanga principles.

The four capability dimensions within the Whānau Rangatiratanga Framework are:

- sustainability of Te Ao Māori
- social capability
- human resource potential
- economic wellbeing.

The five Whānau Rangatiratanga principles are:

- whakapapa / thriving relationships
- manaakitanga / reciprocity and support
- rangatiratanga / leadership and participation
- kotahitanga / collective unity
- wairuatanga / spiritual and cultural strength.

As shown in Figure 1 below, the four capability dimensions and five Whānau Rangatiratanga principles have been used to create a grid of 20 strength-based outcomes. There are specific indicators for each of these 20 outcomes (Superu 2015, chapter 4). For example the desired outcome for manaakitanga within the 'Social capability' dimension is 'Whānau care for themselves and others'. One of the indicators of this outcome in Te Kupenga is whether respondents have given some form of support to people living in other households.

Figure 1 _ The Whānau Rangatiratanga Framework

Capability dimensions	Whānau Rangatiratanga principles				
	Whakapapa Thriving relationships	**Manaakitanga** Reciprocity & support	**Rangatiratanga** Leadership & participation	**Kotahitanga** Collective unity	**Wairuatanga** Spiritual & cultural strength (Distinctive Identity)
Sustainability of Te Ao Māori (language, identity, culture, institutions)	Whānau have a positive relationship with Te Ao Māori	Whānau are able to foster and develop their connections to Te Ao Māori	Whānau exercise leadership in Te Ao Māori	Whānau are able to meaningfully engage with Māori culture and Māori institutions	Whānau can access and express their culture and identity in ways which are meaningful to them
Social capability (trust, volunteering, connectedness)	Whānau are connected and safe	Whānau care for themselves and for others	Whānau exercise leadership in Te Ao Whānui	Whānau are able to access and trust institutions	Whānau are able to express and embrace spiritually
Human resource potential (health, education, quality of life)	Whānau wellbeing is enhanced	Whānau support each other to succeed	Whānau are able to live well	Whānau are able to achieve their aspirational goals	Whānau are resilient and able to overcome adversity
Economic (employment, wealth, housing)	Whānau can manage and leverage collective resources	Whānau are able to support each other financially and to accumulate financial reserves	Whānau enjoy economic security	Whānau can navigate barriers to success	Whānau can access their material and non-material resources

For this report we have aligned our analysis with the Whānau Rangatiratanga Framework, both because the framework embodies key strands of thinking about whānau and whānau wellbeing from a Māori worldview, and because there is an opportunity for this report to contribute to a clearer understanding of how the different components of whānau wellbeing interact. This is important given the paucity of statistical evidence on whānau wellbeing and its enablers.

The desired outcome goal that we focus on in this report is the intersection of whakapapa and human resource potential – namely, **Enhanced whānau wellbeing**. In the following section we consider the current evidence on the potential factors that support an enhanced sense of whānau wellbeing. This, in turn, enables us to focus our statistical analysis on the key factors that are likely to make a difference.

1.3_ Evidence on whānau wellbeing and whānau perceptions

Whānau perceptions of whānau wellbeing: Findings from case studies

A common theme in the literature is that there is very little research exploring Māori families' views of whānau ora and what whānau ora consists of (Boulton & Gifford 2014; Reid et al. 2016). Boulton and Gifford carried out two studies that investigated the concept of whānau ora for whānau Māori. One study examined the nature of resilience in Māori families; the other investigated the impact of the Working for Families initiative Boulton & Gifford, 2011). In both studies, Māori participants were asked to define 'whānau ora' for their family, and this generated more than 40 definitions. A key observation was that "understandings of whānau ora are diverse and generally context-specific" (2014, p. 3).

The authors compared those varied definitions to the whānau ora outcome definition in *Whānau Ora: Report of the Taskforce on Whānau-Centred Initiatives* (Durie et al. 2010). They concluded that "for Māori whānau, the elements that constitute whānau ora do not necessarily match those of the policymakers: understandings of whānau ora prove to be as diverse as the Māori population itself" (p. 1).

How then do whānau define 'wellbeing' for themselves? Whānau who were interviewed consistently and emphatically referred to the **wellbeing of their children and future generations** as crucial to whānau wellbeing. This included:

• the desire that their children experience a better life than theirs

• the importance of establishing a foundation for their children

• providing children with stability and security

• providing a 'decent' environment for them to grow up in

• instilling cultural values

• having role models and maintaining healthy attitudes and lifestyles

• having good personal health

• maintaining a balance between mental, physical and spiritual wellbeing.

Other factors that emerged in conversations about whānau wellbeing were:

• the importance of happiness in everyday life

• having a clear sense of belonging or identity, and active participation in Te Ao Māori and mainstream contexts

• a duty of mutual care and support within each whānau

• whānau solidarity and intergenerational connectedness

• financial security

• spiritual wellbeing

• a sense of future success and potential (Boulton & Gifford 2014).

Findings from the Ngāi Tahu Whenua Project, a qualitative study undertaken by Te Rūnanga o Ngāi Tahu, suggest that the relationship between whakapapa and whenua (land) is an important component of whānau wellbeing (Reid et al. 2016; for more on the relationship between place and wellbeing for Māori see also Panelli & Tipa 2012). Of the 80 participants in the Ngāi Tahu study, 83 percent identified ties with whānau as a source of wellbeing, and 76 percent noted ongoing ties to whenua. More detailed analysis of the participants' narratives revealed a focus on the importance of reciprocal relationships between whānau members and traditional lands and waters, and the knowledge and practices that underpin these relationships.

The focus on whānau-centred definitions of 'wellbeing' and 'success' is consistent with the sentiment expressed by whānau in national and regional whānau development conferences (Te Puni Kōkiri 2005), and a series of wānanga held by the Families Commission between 2008 and 2010 to discuss the proposed Whānau Strategic Framework. There was a clear message that decision-makers needed to listen to the voices of whānau and ensure their voices were reflected in decision-making and engagement (Irwin et al. 2013). Lawson-Te Aho (2010) also points out that whānau must determine for themselves what whānau ora entails. This perspective informs the Families Commission's working definition of 'whānau ora', that "whānau ora is achieved when whānau are the best that they can be" (Lawson-Te Aho 2010, p. 62).

Whānau wellbeing: Findings from statistical studies

The statistical measurement of whānau wellbeing is made challenging by the individual and household focus of existing official statistical data collection and analysis tools and methods. It is well recognised that the quality of family or whānau collective relationships cannot be adequately captured by simply aggregating individual-level data (Wollny et al. 2010). Whānau are varied and diffuse assemblages that do not fit a single, simple formula; indeed, whānau relationships often extend across many households in ways that cannot be captured by surveys such as the Census (Mckenzie & Carter 2010).

A previous report by the authors of this report found that household-based living arrangements were a poor proxy for the more complex concept of whānau (Kukutai, Sporle, & Roskruge 2016). Only about two-fifths of respondents thought of their whānau in a nuclear sense (that is, limited to parents, partner/spouse, siblings, children and close in-laws), and only a weak statistical relationship existed between respondents' household-based living arrangements and their concept of whānau.

This diversity means that whānau structures do not mesh well with the individual, household or geographic frameworks of statistical sampling and analysis in official survey statistics. With no viable whānau-level survey sampling tools currently available, the generating of whānau-level statistical information has relied mostly on household-level measures derived from aggregating individual-level data. Kiro, von Randow, and Sporle (2010), for example, used Census data across a range of measures to examine trends in the wellbeing of Māori families between 1981 and 2006. The limitations of the household-focused Census data meant that the unit of analysis was restricted to household-based family types: couples without children, single-parent families, other one-family households, and multiple-family households. The measures of wellbeing were also largely based on material circumstances and conditions – specifically, income, education, health and paid employment – as these were the only measures available from the Census data (Milligan, Fabian, Coope, & Errington 2006).

Durie (2006) has pointed out that the usual indicators of socio-economic status, such as sickness, school failure, low incomes or deprivation scores, are inadequate measures of whānau wellbeing because of their limited scope and their focus on negative outcomes. Te Kupenga goes some of the way toward addressing these limitations. The whānau wellbeing chapter in the 2015 *Families and Whānau Status Report* drew on Te Kupenga data to examine the variation in key indicators of whānau wellbeing for Māori living in different types of family structures. Although this analysis was restricted to a household-based definition of 'family', the richness of Te Kupenga data opened up a much broader lens on what constitutes wellbeing for Māori.

For example, that analysis found that while Māori living in sole-parent families faced multiple socio-economic challenges and limited access to resources compared to those in other family types, they also showed high levels of cultural vitality and provided important forms of support (especially childcare) to other whānau (Kukutai, Sporle & Roskruge 2015). By going beyond economic measures, the 2015 report was able to provide insight into a more culturally informed and holistic sense of wellbeing for Māori living in different family structures. This current report now widens the lens further to take account of individuals' subjective assessments of the wellbeing of their whānau. It is to this that we now turn.

1.4_ Examining the factors associated with subjective whānau wellbeing

The previous sections highlighted a number of key themes in the literature that are relevant to this report, including:

- the conceptual complexity of whānau wellbeing
- the diverse range of approaches that have been developed for defining and measuring whānau wellbeing
- the shortage of statistical evidence on whānau wellbeing, and
- the importance of reflecting the views and aspirations of Māori whānau in representations of whānau wellbeing.

The last of those themes calls for a methodological approach that is **by and for** Māori – in contrast with the previous approach, which has generated a wealth of statistical information that is simply **about** Māori (Kukutai & Walter 2015)

Rather than try to provide a comprehensive overview of all of the whānau indicators in Te Kupenga, this report focuses on the **subjective** self-assessment of whānau wellbeing as reported by Te Kupenga respondents. The focus on subjective wellbeing reflects the need to empower whānau to define what wellbeing means to them, while allowing us to focus on the specific factors that are likely to be strongly associated with whānau wellbeing. These factors can be expressed in terms of the capability dimensions, principles and indicators in the Whānau Rangatiratanga Framework. Based on our review of the literature we have identified three principles most likely to influence how Māori subjectively assess the wellbeing of their whānau:

- whakapapa / thriving relationships
- manaakitanga / reciprocity and support
- rangatiratanga / leadership and autonomy.

These three broad principles are put into operation through the specific outcomes and indicators from the Whānau Rangatiratanga Framework, as shown in Table 1. In the following analysis (see Parts 2 and 3 of this report) we pay particular attention to the quality of whānau relationships (how well whānau get along, and their access to support), along with individuals' sense of rangatiratanga over their own lives (individual life satisfaction). Regression modelling (see Part 3) enables us to explore whether these factors are important influencers of whānau wellbeing, even after taking account of variation in other demographic, economic, social and human resource potential factors.

TABLE
01

Factors from
the Whānau
Rangatiratanga
Framework likely
to influence self-
assessment of
whānau wellbeing

Capability dimension	Principle	Outcome	Indicator
Social	Whakapapa	Whānau feel connected and safe	Has been the victim of crime in last 12 months
	Manaakitanga	Whānau care for themselves and for others	Has provided unpaid help to others
Human resource potential	Manaakitanga	Whānau support each other to succeed	How well whānau get along Access to general support
	Rangatiratanga	Whānau are able to live well	Level of life satisfaction Self-rated health
Economic	Rangatiratanga	Whānau enjoy economic security	Home ownership

1.5_ Measurement of whānau wellbeing in Te Kupenga

About Te Kupenga

Te Kupenga is the first nationally representative survey of Māori wellbeing. It was carried out by Statistics New Zealand following the 2013 Census, with support from Te Puni Kōkiri and other key Māori stakeholders and communities. Te Kupenga gives an overall picture of the social, cultural and economic wellbeing of Māori, including information about the health of the Māori language and culture. As an official survey, it is unprecedented in the breadth and depth of the topics covered and, more importantly, in its relevance for Māori.

For Te Kupenga, Statistics New Zealand interviewed a sample of the usually resident Māori population aged 15 years or older. 'Māori' was defined on the basis of either ethnicity or ancestry. The survey used a complex sample design intended to create a nationally representative sample of the Māori population. From the 5,549 individual Te Kupenga participants, a nationally representative population of 529,750 was created. Analysing the survey data produces estimates that relate to this nationally representative population.

This report uses data from the Te Kupenga Confidentialised Unit Record File (CURF) for a bivariate analysis (see Part 2 of this report), and microdata for a multivariate analysis (see Part 3) (Statistics New Zealand 2014). The multivariate analysis on the microdata was done within Statistics New Zealand's secure datalab. The bivariate analysis on the CURF file was able to be used outside the secure datalab as the data had been confidentialised before it was released. The CURF data was less detailed than the microdata, making it unsuited to the more complex multivariate analysis. More details on the data structure and analysis are contained in the Appendix to this report.

Measuring subjective whānau wellbeing

In defining 'whānau wellbeing', the approach taken in Te Kupenga was to ask individuals to provide subjective self-assessments of how well their whānau were doing, using a scale of zero to 10, with zero indicating 'extremely badly' and 10 indicating 'extremely well' (Tibble & Ussher 2012). The wording of the whānau wellbeing question (*"qWHAWhānauDoingWell*) is shown in Figure 2 below. This indicator should not be seen as an objective measure of how well whānau are doing (although this too is challenging to measure); rather it is an indicator of a respondent's **perception** of whānau wellbeing. We do not know how closely a respondent's assessment of his or her whānau wellbeing reflects the perceptions of other whānau members.

The question prompt did not define 'whānau', but instead stated that "Your whānau is the group of people that you think of as your whānau".[4] Defining the meaning of 'whānau' was the subject of an earlier question in the survey.

Figure 2 _ Whānau wellbeing question from Te Kupenga

I now have some questions about your whānau.

How's your whānau doing (qWHAWhanauDoing Well)

First of all I'd like you to think in general about how your whānau is doing.

Where zero means extremely badly and ten means extremely well, how would you rate how your whānau is doing these days?

[Note: Interviewers can use the following prompts:]

- **Include all areas of life for your whānau**

- **Your whanau is the group of people that you think of as your whānau.**

0	1	2	3	4	5	6	7	8	9	10
Extremely badly	·	·	·	·	·	·	·	·	·	Extremely well

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4   Respondents were asked to specifically define who belongs to their whānau only after answering a series of questions about whānau wellbeing, quality of relationships and access to support. A separate paper on expressions of whānau in Te Kupenga has been published in the 2016 *Families and Whānau Status Report* (see Kukutai, Sporle & Roskruge 2016).

Issues of construct reliability and validity are beyond the scope of this report. A measure is considered to be reliable if it can consistently measure the hypothetical behaviour, quality or trait that it purports to measure. Other studies of subjective wellbeing have shown that measures of life satisfaction and affective experience have a serial correlation of around .60 when assessed two weeks apart (Krueger & Schkade 2008). This is substantially lower than the reliability ratios usually found for education, income and other common objective indicators of wellbeing. Krueger and Schkade argue that this measurement error implies a loss of precision in resulting estimates when subjective wellbeing is used as a dependent variable (2008, p. 1). To our knowledge there has not been any test-retest of the whānau wellbeing variable in Te Kupenga (in a pilot study for example) that would enable us to gauge the reliability of the whānau wellbeing measure.

A measure is valid if it adequately captures the hypothetical behaviour, quality or trait that it is purported to measure. There are a number of ways of determining construct validity, including using statistical evaluations such as factor analysis and structural equation modelling (SEM). A single study does not prove construct validity, but correlations that fit the expected pattern (based on theory and prior research) contribute towards an understanding of construct validity. Split-sample testing and other methodologies could also be used to examine and understand the impact of question wording and framing on survey responses. Although this report does not formally test the construct validity of the subjective whānau wellbeing measure, the findings contribute to an evolving understanding of what whānau wellbeing means and how it might be meaningfully measured in future iterations of Te Kupenga.

The whānau wellbeing variable used in this analysis as described above is a Likert-type ordinal variable[5]. The limitations of Likert and Likert-type scales have been well documented (Gliem & Gliem 2003). Likert scales have been used in national studies of family wellbeing (eg Noor et al 2014), but usually as an index scale resulting from multiple components. In the case of the whānau wellbeing variable we can say that a rating of 8 is better than a rating of 5 but we do not know how much these ratings differ from each other because the intervals between values cannot be presumed to be equal (Jamieson 2004).

The level of measurement and the distribution of responses have implications for the selection of appropriate statistical models. Although there is a general consensus that parametric models with ordinal data should be avoided, some researchers have argued that parametric tests are robust even when the assumption of normality and equal variances have been violated (Norman 2010). Our approach in this report is to undertake a range of multivariate analyses (for example, ordered least squares (OLS), multinomial logistic regression, ordered logit, and tobit) and look for systematic patterns across the results. Our analysis adopts a similar approach to that taken by Statistics New Zealand in examining the factors that contribute to life satisfaction for Māori (Statistics New Zealand, 2015). Further details are provided in Part 3 and the Appendix.

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5   A Likert scale is composed of a series of four or more Likert-type items that typically range from low to high. These are combined into a single composite score. It is assumed that each individual item measures a latent variable that has an underlying continuum. By contrast, Likert-type items are single questions that use some aspect of the original Likert response alternatives (Clason & Dormody 1994).

02

Perceptions of whānau wellbeing and associated factors

This part of the report considers subjective whānau wellbeing and takes a first look at the factors associated with it. Results are presented for self-assessments of whānau wellbeing and how different factors taken on their own are associated with wellbeing (bivariate analysis). We examine factors relating to demographic characteristics, sustainability of Te Ao Māori, social and economic capability, and human resource potential.

2.1_ Subjective whānau wellbeing

We begin by showing the full distribution of all combinations of responses to the whānau wellbeing question (Figure 3 below). It excludes the small proportion (1.2 percent of the overall sample) that did not respond to the question. The mean rating was 8.3 and the median was 8 on the 0–10 scale. The distribution of responses has a strong negative skew, with only 6.3 percent of respondents reporting a wellbeing score of below 5. This is not unusual, as responses to subjective scale measures are often skewed (OECD 2013). About one-fifth of Te Kupenga respondents (20.1 percent) reported a whānau wellbeing score of 5 or 6, and half (49.3 percent) reported a score of 7 or 8. Nearly one in four (24.2 percent) respondents reported that their whānau was doing extremely well with a score of 9 or 10. Given the nationally representative nature of the Te Kupenga data this indicates that nearly three-quarters of Māori adults feel positive about how well their whānau are doing.

Figure 3 _ Distribution of responses to whānau wellbeing question in Te Kupenga

Whānau wellbeing score (0–10)

Total   Lower confidence interval   Upper confidence interval
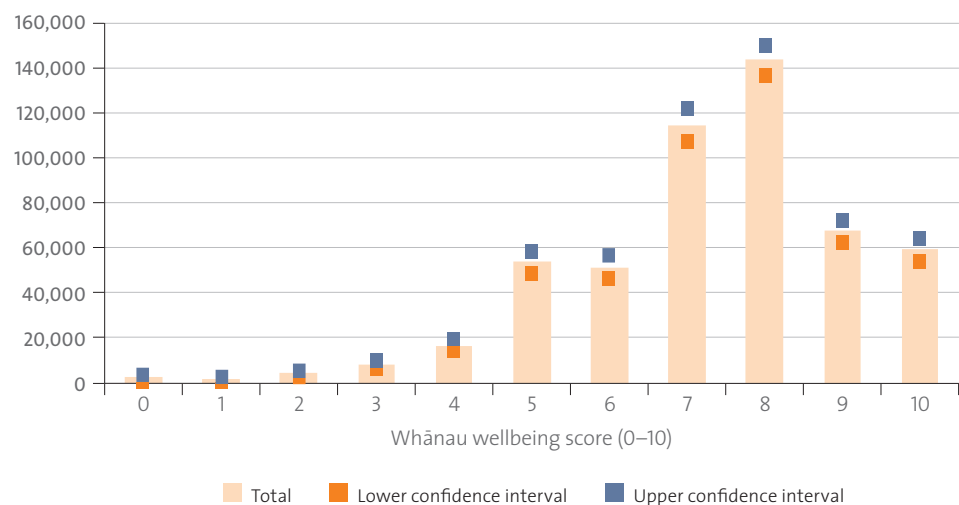
Because of the severely skewed nature of the data, we should be cautious about using bivariate parametric tests when analysing the data. For this reason, and for ease of interpretation, we collapse the 11 response options into an ordinal variable with four whānau wellbeing categories: badly (0–4); moderate (5–6) [6]; well (7–8) and extremely well (9–10). These aggregations are consistent with those used in a previous report of whānau wellbeing using Te Kupenga field test data (Tibble & Ussher 2012).

2.2_ How each factor on its own relates to whānau wellbeing

We next describe how key variables within Te Kupenga are associated with self-assessed whānau wellbeing, using the four whānau wellbeing categories (bivariate analysis). Tables presenting the data distributions relating to the analyses (below) can be found in the Appendix (Table A1).

2.3_ Demographic characteristics

Age

Perceptions of whānau wellbeing vary with age, with those at the youngest (15–24 years) and oldest ages (55 years and over) more likely to report very high levels of whānau wellbeing (9 to 10 on the scale) than those at other ages (29.9%, 30%, p<.001). The u-shape distribution of wellbeing by age has been observed in a number of general wellbeing studies (Frijters & Beatton 2012). Only a small proportion of respondents at all ages self-assessed their whānau wellbeing as very low (0-4, 4.7% – 7.8%).

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6   Whereas Tibble and Ussher (2012) describe the 5–6 response category as 'badly', we prefer the description 'moderate', as it includes both the neutral midpoint (5) and responses on the positive side of the midpoint (6).

Figure 4 _ Self-assessed whānau wellbeing by age group
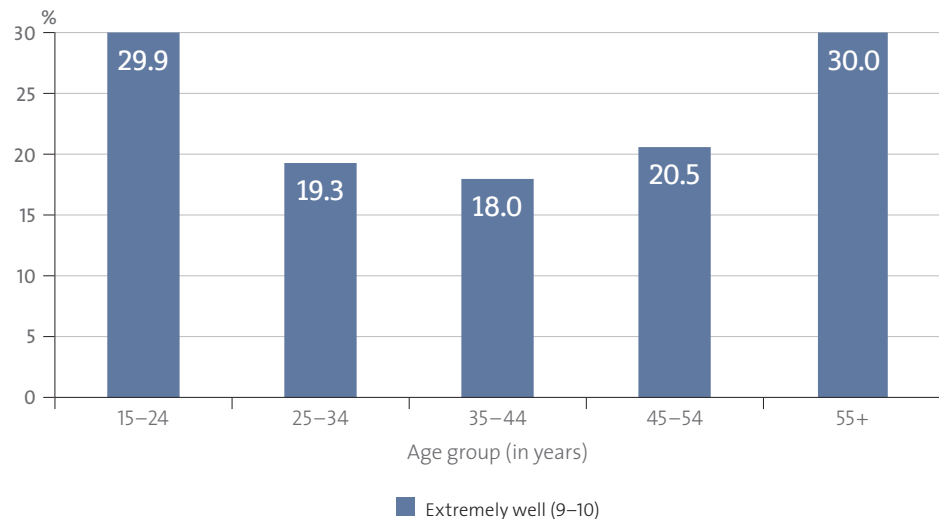
Extremely well (9–10)

Gender

Gender has a significant, but weaker relationship with whānau wellbeing. Just over a quarter (26.1%) of Māori women think that their whānau are doing extremely well, compared with over a fifth (22.2%) of male respondents.

Household-based family structure

Turning to household-based family structure, we see significant differences in perceived whānau wellbeing (p<.001). Māori who are part of a couple with at least one dependent child have the highest share reporting a high level of whānau wellbeing, and the lowest share reporting low wellbeing (25.3%, 4.5% respectively). By contrast, Māori who are part of a single-parent family have the lowest share reporting very high whānau wellbeing, and the highest share reporting a very low score (21.4%, 8.2% respectively). In Part 3 of this report, we test whether this variation remains after controlling for differences in social support and material circumstances.

Urban-rural location and region

The perception of whānau wellbeing appears to have little to do with whether individuals live in urban or rural areas and with the regional location, although the level of deprivation matters (see 'Economic capability' section). While Māori living in Auckland are the least likely to report extremely high levels of whānau wellbeing (21.9%), and those in Canterbury the most likely (25.8%), the overall differences are not statistically significant. Nor is there a significant urban-rural difference.

2.4_ Sustainability of Te Ao Māori

Although there is an emphasis in the literature on the importance of cultural identity and participation in Te Ao Māori as a component of whānau wellbeing, the associations between measures of cultural identity and self-assessed whānau wellbeing in Te Kupenga are relatively weak. Those who have visited their ancestral marae at some time are only slightly more likely to assess their whānau wellbeing very positively (24.9%) than those who have never visited one of their marae (23.2%, $p < .01$). The relationship between whānau wellbeing and the perceived importance of being involved in Māori culture is less straightforward. Māori who see involvement in Māori culture as 'very important' and those who see it as 'not at all important' are both more likely to report a high level of whānau wellbeing than other Te Kupenga respondents.

Other variables that we examined included enrolment on an iwi register, knowledge of hapū affiliation, and living in a household where te reo Māori is spoken regularly. Māori who are registered with an iwi report a level of whānau wellbeing similar to those not registered. The associations between whānau wellbeing and the other cultural identity variables are weak but negative. Māori who know their hapū, or who live in a household where Māori is spoken regularly, are less likely to report a high level of whānau wellbeing than other Māori. Our multivariate modelling enables us to determine whether these associations persist once the effects of other factors are taken into account (see Part 3). The bivariate results suggest that cultural identity and engagement may be only loosely connected to perceived whānau wellbeing. We discuss this in more detail in the next section.

2.5_ Social capability

The 'Social capability' dimension of the wellbeing matrix includes measures of social interaction with whānau and broader society.

Level of contact with whānau

Social interaction appears to be strongly linked to whānau wellbeing. Respondents who feel that their level of contact with whānau is 'about right' have the highest proportion (26.7%) reporting very high whānau wellbeing, and the lowest rate (4.9%) of very poor wellbeing. Interestingly, those who feel that they have too much contact with whānau are the most likely to report low levels of reported whānau wellbeing (13%, $p < .001$). The closeness of the contact does not appear to be important, as there are no differences in whānau wellbeing between those with recent face-to-face contact with whānau and those with no face-to-face contact.

Figure 5 _ Self-assessed whānau wellbeing (badly; extremely well) by satisfaction with level of whānau contact

How satisfied is the respondent with their contact with whānau?

■ Badly (0–4)   ■ Extremely well (9–10)
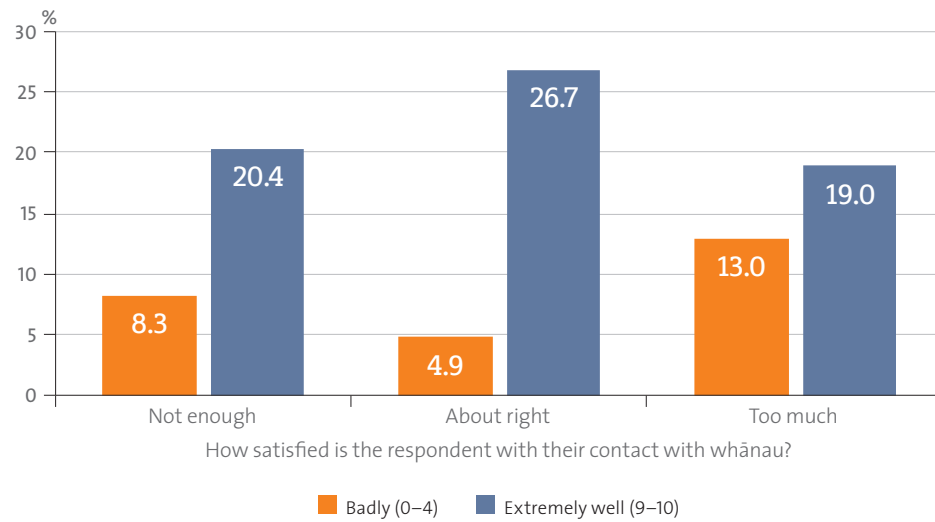
Size and extent of whānau

Both whānau size and whānau concept are significantly associated with self-assessed whānau wellbeing. In the case of the former, those who report that their whānau only includes five or fewer people are much more likely to report a high level of whānau wellbeing than those with larger whānau (28%, p<.000). Likewise, respondents who think of their whānau in an extended sense to include aunts, uncles, cousins etc, or even close friends and others, are less likely than those with a narrow concept of whānau to report positive whānau wellbeing (p<.000). This may be because those with a broad concept of whānau have more complex relationships to take account of, which decreases the likelihood of all whānau members doing extremely well. Among respondents who included a broader kin network in their whānau, a higher proportion (8.4%) thought that their whānau were doing badly compared with those with a narrower whānau concept (5%). Again, this is likely to be due to the broader 'catchment' being more likely to include a broader range of individuals.

Manaakitanga and unpaid support

We expected to see a positive association between whānau wellbeing and manaakitanga, specifically with respondents providing unpaid support, but this was not the case. Māori who have provided unpaid help to those living in other households are less likely to report very high levels of whānau wellbeing than those who haven't provided help (22.2%, compared with 27.1%, p<.01). The association between whānau wellbeing and providing unpaid help to marae and hapū is insignificant.

Loneliness

Whether an individual has recently felt lonely is a significant predictor of perceived whānau wellbeing. Te Kupenga respondents who report feeling lonely most or all of the time (in the last four weeks) are much more likely to report low levels of whānau wellbeing (23.5%) than those who had not experienced any recent loneliness (4.5%, p<.000). The latter are also far more likely to report very high levels of whānau wellbeing (28.6%).

Figure 6 _ Self-assessed whānau wellbeing (badly; extremely well) by recent feelings of loneliness

How often have you felt lonely in the last 4 weeks?

■ Badly (0–4)   ■ Extremely well (9–10)
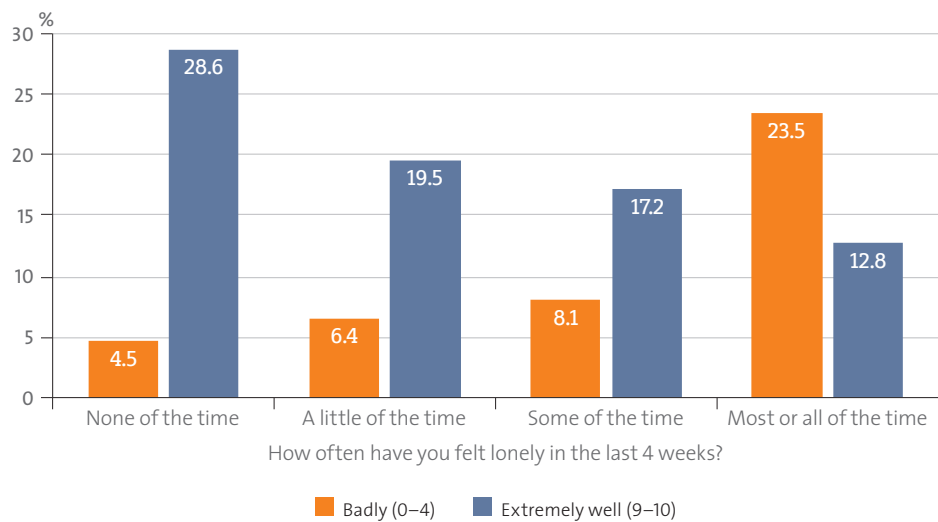
Victims of crime

Having a recent experience of crime is also negatively associated with whānau wellbeing (p<.000). Only 18% of those who have been the victim of crime in the last 12 months think their whānau are doing extremely well, compared to 26% of those unaffected by crime.

Human resource potential

This dimension of wellbeing includes capabilities such as skills, knowledge and educational achievement within whānau.

Quality of whānau relationships

Based on our review of the literature, we expected that perceived whānau wellbeing would be strongly linked to the quality of whānau relationships, and this was borne out in Te Kupenga. Māori who think that their whānau get on very well are about six times more likely to report a very high level of whānau wellbeing (36.5%) than those who feel that their whānau get on badly or very badly (5.5%). Nearly one third (31.1%) of the latter assessed their whānau wellbeing as being very low.

Figure 7 _ Self-assessed whānau wellbeing (badly; extremely well) by perception of how well whānau get along
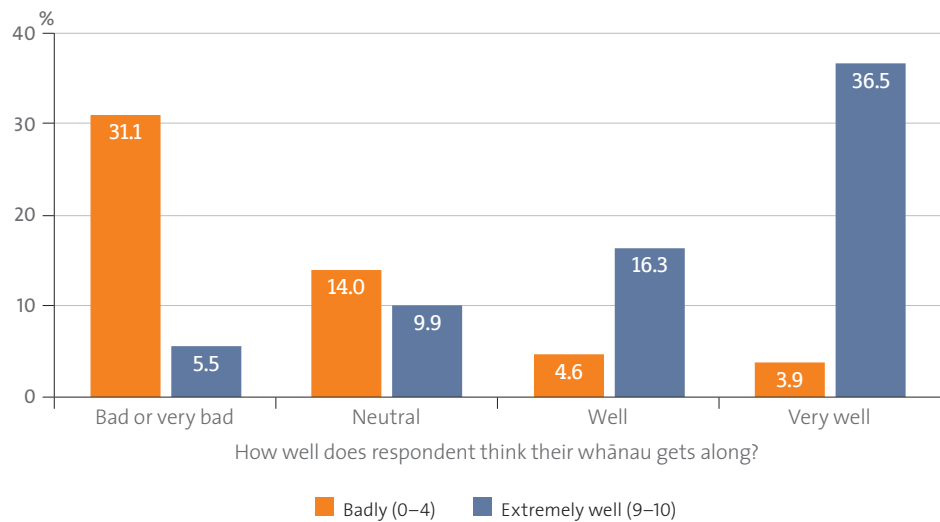
Access to support

Access to support is also strongly associated with self-assessed whānau wellbeing. Readily accessible general support and crisis support are both associated with higher whānau wellbeing scores (p<.000). Nearly 30% of those who have very easy access to general forms of support report that their whānau are doing extremely well, compared to less than 12% of those who find it hard to access support. The most striking result is that one in four of those who find it very hard to access general support also report that their whānau are doing badly. Although the three support questions in Te Kupenga (general, crisis, and cultural) did not explicitly refer to whānau, the questions were asked within the whānau wellbeing module. It's therefore reasonable to assume that respondents were thinking about availability of support in a whānau context. The strong association between access to support and whānau wellbeing is consistent with the emphasis on support and internal whānau cohesion in the whānau literature.

Figure 8 _ Self-assessed whānau wellbeing (badly; extremely well) by ability to access general forms of support

How easy is it for respondent to access general support?

■ Badly (0–4)   ■ Extremely well (9–10)
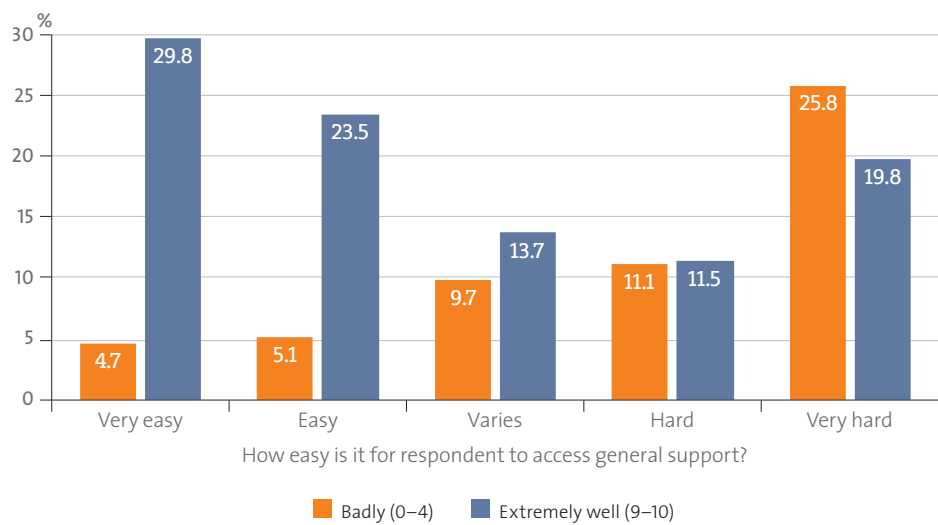
Life satisfaction and health

How individuals see their own wellbeing is very strongly associated with their assessment of how well their whānau are doing, supporting Durie's contention that individual and whānau wellbeing are strongly linked. Māori who have a very high level of life satisfaction are almost three times more likely to report very high whānau wellbeing than those with low overall life satisfaction (43%, compared with 15.3%, p<.000). Similarly, those with very high levels of life satisfaction have the lowest level of reported poor whānau wellbeing (3.4% compared with 26.9 % of those with low life satisfaction).

Likewise, self-rated health is strongly associated with whānau wellbeing. Just under 36% of those reporting excellent health see their whānau as doing extremely well, compared with 19% of those respondents with poor self-rated health.

Figure 9 _ Self-assessed whānau wellbeing (badly; extremely well) by self-rated life satisfaction

How satisfied is respondent with their life overall?

Legend: Badly (0–4) ■ Extremely well (9–10)
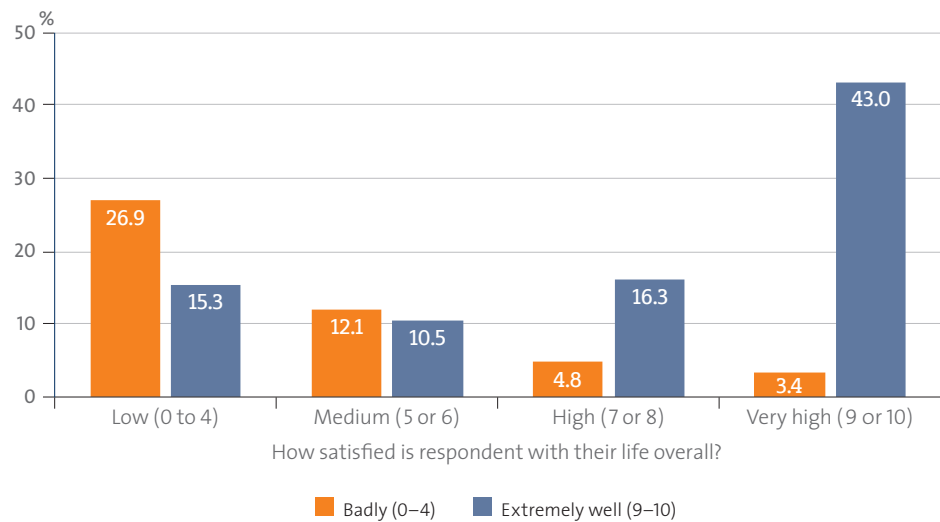
Education

High educational attainment does not appear to be related to whānau wellbeing, as respondents with tertiary degrees do not have a significantly different pattern of reported whānau wellbeing than those who do not have a degree.

The Te Kupenga results from this human resource potential domain indicate that perceived whānau wellbeing is more strongly connected to supportive interactions with whānau members and individuals' perceptions of their wellbeing than with human capital resources in the form of education.

2.7_ Economic capability

This dimension relates to whānau having access to and the ability to use material resources that can benefit whānau.

The analysis of economic variables suggests that the potential impact of material conditions and resources on perceived whānau wellbeing appears to be more influential at the lower levels of wellbeing. Economic security may afford a protection against very poor whānau wellbeing, but may be less important for very high wellbeing.

Socio-economic deprivation

While rural/urban location and broad region of residence appear to be of little consequence for whānau wellbeing, clear differences exist across levels of socio-economic deprivation ($p < .000$).

The 2013 NZ Deprivation Index (NZDep2013) uses information from the 2013 Census to estimate the relative socio-economic deprivation of an area based on levels of income, home ownership, employment, qualifications, family structure, housing, access to transport and communications. We used a 5-point quintile scale of area deprivation, where 1 represents areas with the lowest levels of deprivation and 5 represents high deprivation.

As Figure 10 below shows, variation in perceived whānau wellbeing is most pronounced between low and high deprivation areas. Of the Māori living in high deprivation areas (Q5), nearly one in 10 see their whānau as doing very badly; this is only the case for less than four percent of Māori living in low deprivation areas (Q1).

Differences in the distribution of very high levels of whānau wellbeing are not as marked. Although Māori living in the lowest deprivation areas have the highest share reporting very high whānau wellbeing levels (29%), the confidence intervals overlap with Māori living in all other quintiles – meaning that the differences between these groups are not statistically significant.

Figure 10 _ Self-assessed whānau wellbeing (badly; extremely well) by NZ Deprivation Index

Badly (0–4)   Extremely well (9–10)
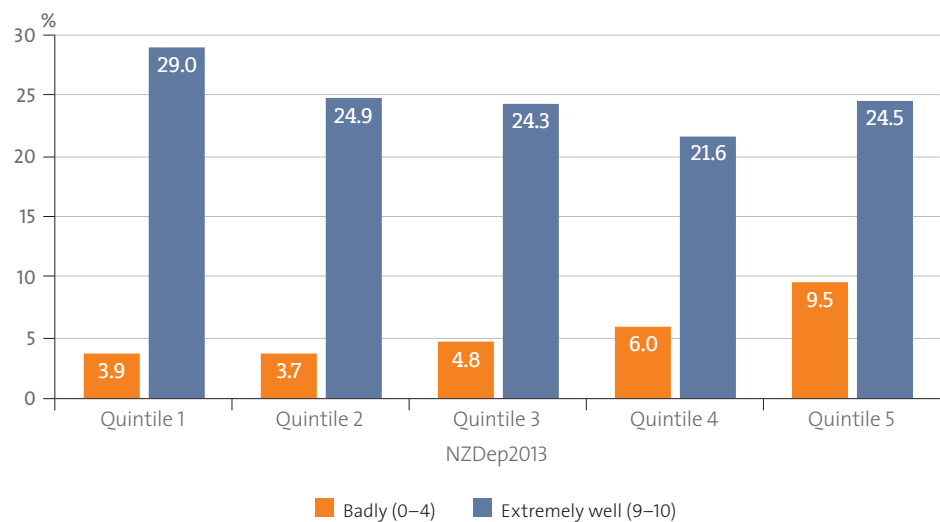
Family income

Having enough or more than enough total family income to meet everyday needs is connected with higher reported levels of whānau wellbeing. Māori who have enough or more than enough family income are significantly more likely to report a high whānau wellbeing score than those with just enough or not enough income. Those with insufficient income, however, stand out at the lower end of subjective whānau wellbeing scores. About one in eight Māori with inadequate family incomes rate their whānau wellbeing very poorly; this is substantially higher than those with adequate or surplus incomes.

While total annual income and total family income data from the 2013 Census are available in the Te Kupenga dataset, the high proportion of missing data (24–25%) prevents us from using them in this report (see Table A3 in the Appendix).

Figure 11 _ Self-assessed whānau wellbeing (badly; extremely well) by self-assessed adequacy of total family income

How well does your total family income meet your daily needs?

■ Badly (0–4)   ■ Extremely well (9–10)
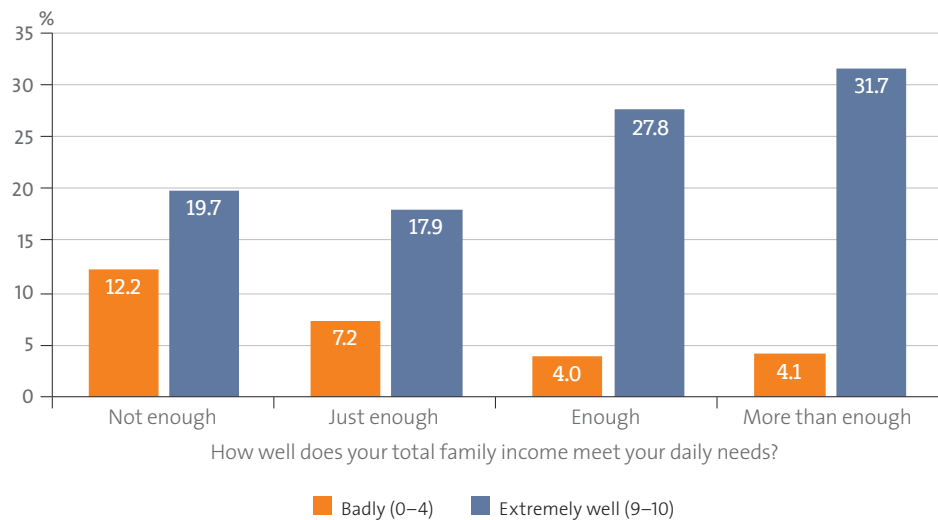
Employment, housing and household conditions

Reported levels of whānau wellbeing are not associated with the respondent's employment status but are associated with the respondent's housing. Those who own (wholly or in part) their own home are more likely to describe their whānau as doing extremely well (27.3%) compared with those who do not own their homes (21.4%, p<.000).

Figure 12 _ Self-assessed whānau wellbeing (badly; extremely well) by home ownership
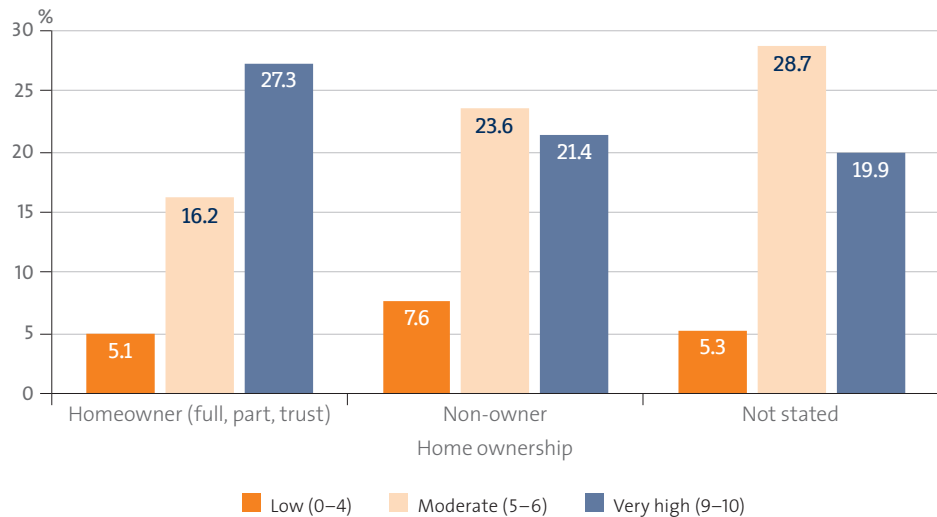
Household conditions are related to whānau wellbeing. Māori living in overcrowded households (that is, needing at least one more bedroom) are more likely to report that their whānau are doing extremely badly (9.0%) or only moderately well (24.6%) compared to Māori living in uncrowded houses (5.7% and 19.3% respectively).

2.8_ Summary

The mean whānau wellbeing rating was high, with only 6.3 percent of respondents reporting a wellbeing score below the scale midpoint (5). About one-fifth reported a moderate whānau wellbeing score and about three-quarters of respondents reported that their whānau were doing well or very well.

This first look at how factors are associated with wellbeing (bivariate analysis) highlights the complex relationships between subjective whānau wellbeing and demographic, social and economic factors.

Age is clearly an important influencer of how Māori assess their whānau wellbeing, and those assessments appear to be more positive at younger and older ages. This u-shaped relationship with age is also apparent in the relationship between age and life satisfaction for Māori (Statistics New Zealand 2015). We test for this age effect in a more robust way in the multivariate analysis (see Part 3) by using the full range of age responses available in the microdata, rather than age categories.

Other important demographic factors include household-based family structure and location when it is associated with a measure of deprivation at an area level. Material factors such as income adequacy and housing are correlated with wellbeing, but their impact appears to be most influential at the lower end of the wellbeing scale.

However, the factors that stand out as most significant for whānau wellbeing are the two measures of quality of interpersonal relationships (individuals' perceptions of how well their whānau get along and the level of whānau support), along with individual life satisfaction and feelings of loneliness. These results support the theoretical position that whānau wellbeing is about high-quality supportive relationships; we test that position more formally in the multivariate analyses that follow (see Part 3).

It is not entirely surprising that subjective whānau wellbeing is more strongly associated with subjective measures of wellbeing factors (whether individual or whānau), than with objective measures such as employment and home ownership. Many studies of subjective wellbeing have found stronger correlations between subjective measures than between subjective and objective measures.

Finally, while the descriptive analysis carried out in Part 2 is useful for informing the multivariate analysis, the complexity of the relationships illustrate the limitations of a single factor-based explanation for a particular level of wellbeing.

03

Factors associated with positive whānau wellbeing

3.1_ How different factors relate to whānau wellbeing when examined together

The analysis in Part 2 identified a number of indicators in the Whānau Rangatiratanga Framework that might enrich our understanding of the factors that shape individuals' positive assessments of how well their whānau are doing. In this section (Part 3), we carry out a more complex multivariate analysis to identify **which** of these factors are **most** important for a subjective sense of positive whānau wellbeing.

More specifically, this multiple regression analysis allows us to quantify the strength of the association between respondents' assessments of how well their whānau are doing and each of the selected variables, while statistically controlling for the associations between whānau wellbeing and all other variables. We are particularly interested in the relevance of whānau-level factors, especially respondents' perceptions of the quality of whānau relationships and access to whānau support.

The inclusion of core demographic characteristics in the analysis enables us to explore the potential influence of age, sex, region of residence, and household living arrangements on whānau wellbeing. The 'Economic and Human resource potential' domain includes economic determinants that are potentially modifiable. The indicators are a mix of objective and subjective items, including area-level deprivation, life satisfaction, self-rated health and adequacy of family income, all of which had significant associations with whānau wellbeing at the bivariate level. This domain also includes the quality of whānau relationships, satisfaction with the level of whānau contact, and access to whānau support. The 'Social' domain reflects broader social conditions as well as satisfaction with the level of whānau contact, feelings of loneliness, and providing support to other households. The 'Cultural' domain includes individual measures of Māori identity, practices and engagement.

The variables used in our model are shown in Table 2 below, with variables of particular interest highlighted in bold.

	TABLE **02**	Whānau capability dimension			
		Demographic	**Economic and human resource potential**	**Social**	**Cultural**
	Variables in Te Kupenga that might explain variation in self-assessed whānau wellbeing *(Focus variables in bold)*	**Age** Sex Region Household family type	Residential deprivation (NZDep13) How well family income meets everyday needs Home ownership **How well whānau gets along** **Ease of access to general support** **Life satisfaction** **Self-rated health** Labour force status	Has been the victim of crime in last 12 months **Loneliness (last 4 weeks)** Has provided unpaid help in another household at least once a month Has provided unpaid help to marae, hapū or iwi in last 4 months Satisfaction with level of contact with whānau Widest concept of own whānau Number in whānau	Is registered with an iwi Has visited own ancestral marae before Perceived importance of involvement in Māori culture

In the remainder of this Part we describe the key findings of this multivariate analysis. Additional statistical detail is presented in Tables A3, A4 and A5 in the Appendix. We stress that the models only tell us about relationships of association, not causality. Making claims about causality from observational data usually requires longitudinal data for the same individuals over several time points and the use of more advanced analytic methods (Davis 2013). The inability to distinguish causal relationships means we cannot be sure about the directionality of a relationship or, more specifically, which factor is logically prior; we have therefore been cautious in interpreting the results below.

3.2_ Demographic characteristics

Age

Māori perceptions of how well their whānau are doing are very significantly related to age, even after taking account of the effects of other demographic, social, economic and cultural factors. Our findings show that as people get older, the effect of age on perceived whānau wellbeing increases (p<.001).

Given that those at the youngest and oldest ages are more likely to report very high levels of whānau wellbeing (u-shaped pattern) as described in Part 2, we included the square of age to test the quadratic relationship between age and wellbeing. The negative sign for age and the positive sign for age square indicates that as people get older, the effect of age on perceived whānau wellbeing increases (p<.001).

Gender

The relationship with gender is much weaker. Males are less likely than females to report a higher level of whānau wellbeing (-0.106), although only at the .05 significance level. Living in Auckland (versus the base category Wellington) is associated with lower reported levels of whānau wellbeing (p<.05), but the overlapping confidence intervals with other broad regional areas preclude us from drawing a wider distinction between Auckland and other areas.

Household-based family structure

Māori who are part of a couple with no dependent children assess their whānau wellbeing at lower levels than Māori living in other kinds of household structures. This is indicated by the positive sign for all family categories compared to couples with no dependent children (the base). The difference is most marked when compared to Māori who are not part of a family nucleus (.387, p<.001), who also tend to be younger. These results align with Statistics New Zealand's analysis of individual life satisfaction in Te Kupenga, which showed a positive association between presence of children in a household and individual life satisfaction (Statistics New Zealand 2015).

3.3_ Social circumstances and support

Whānau wellbeing is associated with a number of social capability factors, most notably individuals' experiences of crime and loneliness.

Victims of crime

Māori who have been recent victims of crime (that is, in the last 12 months) report lower levels of whānau wellbeing than those with no recent experience of crime.

For crime victims (using an ordered logit approach), reporting a higher level of whānau wellbeing was – 0.23 less than for those with no recent experience of crime (p<.01).

Loneliness

Recent feelings of loneliness are also associated with whānau wellbeing. Respondents who have felt lonely all or most of the time in the past four weeks report significantly lower levels of whānau wellbeing compared to those not experiencing any loneliness (β = – .72, p <.001). As we noted above, we do not know the causal direction – that is, whether feeling lonely leads to lower assessment of whānau wellbeing, or whether poor levels of whānau wellbeing lead to feelings of loneliness.

Manaakitanga and unpaid support

Those who provide manaakitanga in some form of unpaid help to other households report lower levels of whānau wellbeing than those providing no such help (β = – .20, p<.001). This relationship may be conflated with resources, since Māori who provide help to other households also tend to be those living in materially challenged circumstances.

Whānau contact

Finally, individual dissatisfaction with level of whānau contact is also weakly associated with whānau wellbeing. Māori who feel they don't have enough contact with their whānau report lower whānau wellbeing than those who feel that their level of whānau contact is about right (β = – .20, p<.05). The other whānau-level variables included in our analysis – whānau type and whānau size – had no significant association with whānau wellbeing.

3.4_ Economic and human resource capability

Whānau relationships and access to support within whānau

The literature and the bivariate results (see Part 2) suggest that the quality of whānau relationships (whanaungatanga) and relationships of support and reciprocity (manaakitanga) within whānau are important enablers of whānau wellbeing.

Of all the factors examined in our analysis, the quality of whānau relationships is the most significant predictor of subjective whānau wellbeing. Those who report that their whānau get along very well are much more likely (β =1.29, p<.001) to report a higher level of whānau wellbeing than those who feel neutral about how well their whānau get along (base). Indeed, the non-overlapping confidence intervals indicate that Māori whose whānau get along very well are more likely than all other Māori to self-assess their whānau wellbeing at higher levels. Conversely, those whose whānau get along badly or very badly are much less likely to give a higher self-assessment of their whānau wellbeing (β = − .78, p<.001).

The ability of individuals to access general support within their whānau also has a strong positive association with whānau wellbeing. Those who have easy (β =.26, p<.001) or very easy (β =.29, p<.001) access to general support report significantly higher levels of whānau wellbeing than those with variable access to support. Interestingly, Māori who find it very hard to access general support do not differ in their wellbeing assessments from those whose access to support varies.

Life satisfaction and health status

Individuals' perceptions of life satisfaction and of their health status also matter for their assessment of whānau wellbeing. Māori who feel a very high level of overall life satisfaction are significantly more likely than other respondents to also assess their whānau wellbeing highly (β =1.22, p<.001 compared to medium level of life satisfaction). We note that **after the quality of whānau relationships (that is, getting along well), individual life satisfaction is the strongest predictor of whānau wellbeing.**

Self-rated health status also has a positive moderate association. Māori who self-rate their health as excellent, very good or good are more likely (than those not reporting at least good health) to assess their whānau wellbeing more positively (β = .35, p<.001).

Family income and deprivation

Māori who feel that their family income is not enough or only just enough to meet their everyday needs are less likely to assess their whānau wellbeing at higher levels than those who report that their income is adequate (β = − .29, − .27, p<.001). Interestingly Māori who report having more than enough income do not vary substantially in their assessment of whānau wellbeing from those who feel that their income is sufficient.

Māori living in areas of high deprivation (quintiles 4 and 5) are less likely than those living in areas of moderate deprivation (quintile 3) to assess their whānau wellbeing at a higher level ($\beta = -.31, -.26, p<.001$). Taken together with the insufficient income variable, this highlights the importance of economic security, which is evident in the literature; but the magnitude of the association with whānau wellbeing is substantially less than for whānau getting along and life satisfaction.

3.5_ Cultural identity

Once we control for the factors discussed above, none of the cultural identity and participation indicators (has visited ancestral marae; registered with an iwi; perceived importance of involvement with Māori culture) add any explanatory power for understanding variation in self-assessed whānau wellbeing. We note that these results are robust across different types of regression models (see Tables A3 and A4 in the Appendix).

These findings suggest that having a high level of whānau wellbeing does not depend on an individual's engagement in the activities that sustain Te Ao Māori. This does not mean that culture is irrelevant for whānau wellbeing in general, since Te Kupenga only captures the cultural identity and participation of individuals; we do not know anything about the cultural capabilities of the whānau, nor the relative importance of whānau cultural capabilities for overall whānau wellbeing.

Understanding the importance of culture as a component of whānau wellbeing is beyond the scope of information currently contained in Te Kupenga. So too is the importance of culture in whānau lifestyles. Research into these relationships is likely to require more information about whānau than the respondent's perceptions of, engagement with, and participation in Māori culture. Te Kupenga does contain nuanced information about multiple measures of those things, but only at the level of the individual respondent.

The results might look different if questions explicitly referred to a cultural dimension of whānau wellbeing – for example, "How would you rate the cultural wellbeing of your whānau?" The solution may be for future iterations of Te Kupenga to include questions about specific dimensions of whānau wellbeing, rather than a single global question. This would still provide a respondent's subjective assessment of their whānau wellbeing, but it would align with the multi-dimensionality of whānau wellbeing as described in the theoretical literature (see Part 1 of this report). Including more specific questions would also enable specific analysis about whānau cultural wellbeing as a desired outcome in its own right, consistent with the Whānau Rangatiratanga Framework.

3.6_ How do the correlates of whānau wellbeing vary by age?

Given that most of the foregoing variables discussed in this Part vary significantly by age, we also re-ran the final model separately by age group (15–24, 25–34, 35–44, 45–54, 55+ years) to see if the patterns are consistent across all groups. The results from the regressions are in Table A5 in the Appendix.

For nearly all of the economic, social, cultural and human potential variables, the strength of the association with perceived whānau wellbeing diminishes substantially when we control for age; in some cases it disappears altogether. For example, the association between crime and whānau wellbeing is insignificant across all age groups. For other variables such as household-based family structure, loneliness, providing help to others, and insufficient family income, the associations with perceived whānau wellbeing are highly dependent on age. The only two variables that show a very strong and consistent relationship with perceived whānau wellbeing across all age groups is whānau getting along very well, and having a very high level of life satisfaction.

3.7_ Summary

Returning to the capability dimensions in the Whānau Rangatiratanga Framework, Table 3 below summarises the factors that have the strongest associations with self-assessed whānau wellbeing, taking account of age.

TABLE

03

Summary of factors with strongest association with self-assessed whānau wellbeing

Capability dimension	Outcome goal	Indicator	Association – not controlling for age	Association – controlling for age
Social	Whānau feel connected and safe	Has been the victim of crime in last 12 months	Moderate, negative	Insignificant
		Has provided unpaid help to others	Moderate, negative	Moderate, negative for 45-54, 55+
		Has felt lonely most/all of time in the last four weeks	Strong, negative	Strong, negative for 15-24; moderate, negative for 25-34, 55+
Human resource potential	Whānau support each other to succeed	**Whānau get along very well**	**Very strong, positive**	**Very strong, positive all ages**
		Very easy access to general support	Strong, positive	Strong, positive for 25-34, 55+
	Whānau are able to live well	**Very high level of life satisfaction**	**Very strong, positive**	**Very strong, positive all ages**
		Self-rated health is good to excellent	Moderate, positive	Moderate, positive for all ages except 55+
Economic	Whānau enjoy economic security	Family income is insufficient to meet everyday needs	Moderate, negative	Moderate, negative for 35-44, 55+

Two factors stand out above all others. First is the quality of whānau relationships: how Māori assess the wellbeing of their whānau is tightly connected to their perception of how well their whānau get along, regardless of age. This makes a great deal of intuitive sense, given the emphasis in the literature on the importance of whanaungatanga in Te Ao Māori.

The second factor is life satisfaction: Māori who are very satisfied with their own life are also much more likely to assess their whānau wellbeing in very positive terms, regardless of age. Or alternatively, Māori who see the wellbeing of their whānau in a very positive light are also likely to be very satisfied with their own lives. Again this aligns with the literature, in particular work by Durie and others, emphasising the holistic nature of wellbeing and the interconnections between the wellbeing of the individual and of the whānau. We do not know, of course, the direction of causality – that is, whether life satisfaction enhances perceptions of whānau wellbeing, or the other way around. To untangle these relationships would require longitudinal data that are not currently available.

For Māori in most age groups, self-rated health has a relatively strong association with perceived whānau wellbeing, with the exception of those aged 55 years or older.

04

Implications and future directions

4.1_ A new understanding of whānau wellbeing

The purpose of this report has been to address a substantial gap in the quantitative evidence base about whānau wellbeing. Te Kupenga offers an opportunity to better understand whānau in a way that reflects Māori values, as it enables Māori to evaluate how well their whānau are doing, rather than relying on the judgements of external observers (such as teachers and social service providers), or narrowly constraining wellbeing to objective measures such as income and employment. This is important because, if policies are to be successful in supporting and strengthening whānau and the functioning of whanaungatanga, the evidence informing policy interventions needs to be conceptually and methodologically robust and fit for purpose.

This analysis of Te Kupenga has created a new understanding of the underpinnings of whānau wellbeing. The regression analysis has enabled us to identify some of the key components associated with a subjective assessment of whānau wellbeing. The variables contained within Te Kupenga are not a comprehensive range of possible wellbeing contributors, but they are sufficient to explore at least some elements of each capability dimension of the Whānau Rangatiratanga Framework. The results of this initial exploratory analysis will be useful in informing more detailed investigation using future Te Kupenga or other data sources.

4.2_ Implications for policy interventions

The results of this work are also relevant for policy and programmes seeking to improve Māori wellbeing, both locally and nationally. Our analysis has demonstrated that there are multiple contributors to whānau wellbeing (bivariate) and highlights those with the greatest impact (multiple regression).

Identifying these contributors indicates that improving whānau wellbeing is not about a single factor or even a single domain. There are multiple influences of varying strengths and directions of 'pull'. This means that supporting and strengthening whānau wellbeing involves a multifaceted approach that includes social and human resource potential as well as economic factors.

While income is a common focus of policy interventions to improve individual and family outcomes, this report has highlighted the importance of other subjective measures. The perception of insufficient income to meet everyday needs is connected with low levels of perceived wellbeing, but it pales by comparison with other measures examined here.

A key finding of this study is that the quality of whānau relationships is extremely important for whānau to thrive. Māori who feel that their whānau get along very well are much more likely to rate their whānau wellbeing very positively, whether they are rangatahi or kaumātua. From a policy perspective, efforts to support and strengthen whānau must involve support for whānau networks and the relationships between whānau members. Given the importance of life satisfaction identified in this report, efforts to support whānau to thrive will also involve supporting individual whānau members to live their lives in a way that is meaningful and that gives them satisfaction.

4.3_ Future directions

This report provides the first examination of the associations with perceived whānau wellbeing from a nationally representative survey. This has produced some unexpected and novel information but it has also pushed the analytic capabilities of the Te Kupenga dataset. Although useful, the current Te Kupenga dataset only has a single unidimensional subjective measure on whānau wellbeing. There is little information that can provide guidance on its validity or reliability, either from Statistics New Zealand or the whānau wellbeing literature generally.

Issues of reliability could be addressed through a simple test-retest study using a much smaller sample to ascertain the stability of individuals' responses within a short time period. The issue of construct validity requires a more in-depth theoretical and statistical exploration than is possible in this report – although it is reassuring that our findings confirm key themes in the literature and fit with the sparse statistical literature on whānau wellbeing.

The confirmation that Te Kupenga will be run again in 2018 creates an opportunity to include questions about multiple dimensions of perceived whānau wellbeing. It may also be possible to improve the quality of socio-economic measures such as household or family income. These changes would enable a more nuanced understanding of the underpinnings of whānau wellbeing, as well as a limited comparison of results over a five-year time period.

The use of additional data sources would also improve our understanding of whānau wellbeing. The roll-out of Whānau Ora has created an opportunity to provide information about pathways to whānau wellbeing based on whānau-level goals and whānau-level services (Te Pou Matakana 2015). The Whānau Ora Partnership Group's work on monitoring outcomes is developing measures from multiple information sources with the intention that this work will gradually include more whānau-level measures (Whānau Ora Partnership Group 2015). Whānau Ora creates a unique opportunity to understand how whānau wellbeing (by various measures) is established, as it has multiple sources of information that can be linked through time, giving a more robust assessment of causality than with information from a single point in time.

Another possible data source is the Integrated Data Infrastructure (IDI). This initiative is a world-leading resource of anonymised, linked government data that researchers can apply to use for research purposes in the public interest but with strict confidentiality requirements. The IDI enables investigating outcomes across multiple data sources and domains, primarily from government administrative data. However, to date the IDI does not include whānau-level outcomes or whānau-level measures. Such measures would have to be added to the IDI for it to be useful in exploring whānau wellbeing.

Extending our understanding of whānau wellbeing is going to require some assessment of causality. For quantitative research, this will require longitudinal data. Currently there is no national-level longitudinal data that include variables on whānau wellbeing. Filling this gap would not only enhance our understanding of one of the foundations of contemporary Māori society, it would also inform policies and programmes that enhance Māori wellbeing.

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Appendix:

Technical detail about data and analysis

Data sources

This report uses data from the Te Kupenga Confidentialised Unit Record File (CURF) for the bivariate analysis in Part 2 of the report, and microdata for the multivariate analysis in Part 3 (Statistics New Zealand 2014).

Te Kupenga was run using a sample of private dwellings selected from those who had completed the 2013 Census. Statistics New Zealand produces CURFs to give researchers greater access to official survey data. The use of the Te Kupenga CURF enabled us to undertake the bivariate analysis more quickly than was possible using the full dataset of Te Kupenga microdata, as CURF data is much more accessible than microdata. Microdata from official surveys like Te Kupenga can only be analysed within the confidential environment of a datalab, and all results must undergo confidentiality checks. The CURF dataset is a modified version of the survey dataset, where the data structure is altered to 'build in' the confidentiality requirements of official data. This allows the data to be used outside the Statistics datalab, although CURF access still requires prior approval and must be for public interest research purposes.

The trade-off with using the CURF is that in order to confidentialise the dataset, some variables are unavailable (eg household composition), responses are aggregated into categories (eg age), and some categorical variables are aggregated into a smaller number of categories (eg household income). These changes limit the range of variables and the level of detail available compared with the full micro dataset. Given those limitations, in particular the aggregated age bands, we used the microdata for the multivariate analysis to enable a more detailed analysis of the relationship between age and subjective whānau wellbeing.

Weighting

Te Kupenga was designed to involve a nationally representative sample of Māori (defined by ethnicity or descent) aged over 15 years. As with any survey, not everyone selected for the survey ended up participating, with differences in response rates for some groups (eg by age). These differences in participation are accounted for by creating a measure of the probability of a person **selected** for the survey actually being a **respondent** in the survey. The measure of that probability (called a 'weight') is used in the analysis – this enables the results to be generalised to the entire Māori population. As with any sample survey of a population, analysing the survey data produces estimates with confidence intervals, which are determined by a combination of sample size and study design.

Te Kupenga has a complex four-stage sampling design, resulting in unequal probabilities of participating in the survey as mentioned above. These unequal probabilities need to be accounted for in the analysis. Statistics New Zealand recommends the use of weights in all calculations to adjust individual observations to better represent the population from which they are sampled. Given this, we make use of both the person-level survey weights for calculating estimates and coefficients, and replication weights for calculating the standard errors. This creates a nationally representative population of 529,750 from a sample of 5,549 individual survey participants. This best practice is documented for the CURF data (Statistics New Zealand, 2014), and was confirmed through discussion with Statistics New Zealand for the microdata. The replicate weights were calculated by Statistics New Zealand using the Kott's delete-a-group jackknife method (Statistics New Zealand, 2014; Kott, 2001). There are some issues in using replicate weights in complex statistical analysis as their applicability is dependent on the capabilities of the analytic software. Our analysis has encountered some of those issues, and we have discussed these with Statistics New Zealand and leading biostatistical experts. This consultation confirmed that our approach is the most valid possible given the current data access restrictions and software limitations.

Multivariate analysis

There are a number of regression methods that we could use to analyse whānau wellbeing, including ordered and multinomial logit, tobit, probit and ordered least squares (OLS).

The drawback of using the multinomial logit model to analyse ordinal data is that the ordering of the whānau wellbeing categories is ignored, resulting in the loss of useful information. The use of parametric models such as OLS to analyse ordinal data is the subject of ongoing debate, but there appears to be a general agreement that using OLS is only advisable when the data are not heavily skewed (Seber & Lee 2003), unlike the distribution of responses to the whānau wellbeing question. Tobit models are similar to the probit models but they control for the upper and lower censoring at 0 and 10.

Given the strong negative skew of our data we use ordinal logit models applied to the 4-point scale of whānau wellbeing. We also ran models using OLS and tobit models to check that the results were robust, irrespective of the selected model. The results for the final model are shown in Appendix Table A3. Comparative results for OLS, tobit and multinomial logistic regression models can be found in Table A4.

Goodness-of-fit

'Goodness-of-fit' measures are used to determine how well an analytic model explains the variation observed within the data. We attempted to do goodness-of-fit for the multivariate analysis. We conducted our multivariate regression analysis of Te Kupenga using STATA 14 within the datalab environment. Our analysis makes use of both survey weights and jackknife replication weights in order to adjust for survey design using the SVY command in STATA. Due to complexities in introducing weights to goodness-of-fit measures, there is currently not a goodness-of-fit measure for ordered-logistic or multinomial-logistic regression analysis in STATA 14. We have consulted with Statistics New Zealand and several experts in the field, and have been unable to identify a suitable test of goodness-of-fit test that works with the current data structure and replicate weights. Our analysis is the first to attempt this type of complex analysis with Te Kupenga data, so these issues could not have been anticipated. We have raised our experiences with Statistics New Zealand in order to inform changes for future analyses.

TABLE A1

Bivariate analysis of whānau wellbeing question in Te Kupenga 2013. Significance levels: *** p<0.01, ** p<0.05, * p<0.1a

DEMOGRAPHIC	Whānau wellbeing (%)				
	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
Age Group*					
15 to 24	4.6 (3.6, 5.9)	15.6 (13.6, 17.9)	49.8 (46.5, 53.1)	29.9 (27, 33)	100.0
25 to 34	6.9 (5.5, 8.7)	21.9 (19, 25.1)	51.9 (48.6, 55.1)	19.3 (16.9, 22)	100.0
35 to 44	6.3 (4.8, 8.2)	21.7 (19.1, 24.5)	54.0 (50.8, 57.2)	18.0 (15.4, 20.9)	100.0
45 to 54	7.8 (6.2, 9.8)	25.3 (21.9, 29)	46.4 (42.5, 50.4)	20.5 (17.3, 24.2)	100.0
55 and over	6.8 (5.3, 8.8)	19.1 (16.7, 21.7)	44.2 (41.3, 47.1)	30.0 (27.3, 32.8)	100.0
Total, 15+ yrs	6.3 (5.6, 7)	20.1 (18.9, 21.4)	49.3 (47.8, 50.9)	24.2 (22.9, 25.7)	100.0
Sex*					
Female	7.1 (6.2, 8.1)	20.3 (18.7, 22)	46.5 (44.6, 48.5)	26.1 (24.1, 28.2)	100.0
Male	5.4 (4.5, 6.6)	20.0 (18.3, 21.8)	52.4 (50.1, 54.8)	22.2 (20.3, 24.2)	100.0
Region					
Upper North Island (ex. Akl)	6.1 (5, 7.4)	18.2 (16.4, 20.1)	50.3 (47.6, 52.9)	25.5 (23.2, 27.9)	100.0
Auckland region	6.7 (5.2, 8.5)	23.0 (20, 26.2)	48.5 (45.2, 51.8)	21.9 (19.2, 24.9)	100.0
Lower North Island (ex. Wel)	6.9 (5.6, 8.5)	19.1 (16.8, 21.7)	49.1 (46.3, 52)	24.9 (22.3, 27.7)	100.0

DEMOGRAPHIC

	Whānau wellbeing (%)				
	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
Wellington	6.1 (4.5, 8.1)	20.5 (16.9, 24.7)	48.2 (43.8, 52.5)	25.3 (22, 28.8)	100.0
South Island (ex. Cant)	6.8 (4.6, 9.9)	20.9 (16.7, 25.8)	48.8 (43, 54.6)	23.5 (19.1, 28.6)	100.0
Canterbury	4.0 (2.4, 6.8)	19.7 (15, 25.4)	50.6 (44.7, 56.4)	25.8 (20.8, 31.4)	100.0
Outside mainland NZ	7.2 (0.8, 42.9)	3.7 (0.4, 25.7)	79.0 (43.8, 94.8)	10.2 (2, 38.3)	100.0
Live in urban area?*					
Rural	5.4 (4.5, 6.5)	18.6 (16.7, 20.7)	49.5 (46.9, 52.2)	26.4 (24.3, 28.7)	100.0
Urban	6.8 (5.9, 7.7)	21.0 (19.3, 22.7)	49.2 (47.3, 51.2)	23.0 (21.4, 24.8)	100.0
Family type*					
Couple with no dependant children	7.0 (5.6, 8.8)	22.8 (19.7, 26.1)	45.3 (41.8, 49)	24.9 (22.2, 27.7)	100.0
Couple with one or more dependant children	4.5 (3.5, 5.8)	17.0 (15, 19.1)	53.2 (50.6, 55.8)	25.3 (23, 27.8)	100.0
Single parent with one or more dependant children	8.2 (6.6, 10.1)	23.6 (20.7, 26.8)	46.9 (43.2, 50.6)	21.4 (18.6, 24.4)	100.0
Couple or single parent with (young or adult) children, dependancy status unknown	7.7 (6, 10)	19.4 (16.1, 23.3)	47.9 (43.3, 52.5)	25.0 (21, 29.4)	100.0
Individual does not reside in family nucleus	6.3 (4.9, 8)	20.9 (18.4, 23.6)	49.2 (45.7, 52.7)	23.6 (20.9, 26.6)	100.0
Missing	16.6 (3.4, 53.2)	28.1 (8.6, 61.8)	49.7 (21.3, 78.2)	5.7 (0.6, 35.9)	100.0

TABLE A1

Bivariate analysis of whānau wellbeing question in Te Kupenga 2013. Significance levels: *** p<0.01, ** p<0.05, * p<0.1a

ECONOMIC	Whānau wellbeing (%)				
	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
NZDep2013 quintile*					
Quintile 1	3.9 (2.6, 5.7)	14.6 (11.3, 18.6)	52.7 (47.8, 57.4)	29.0 (24.5, 33.9)	100.0
Quintile 2	3.7 (2.4, 5.7)	17.6 (14.6, 21.2)	53.7 (49.8, 57.6)	24.9 (21.1, 29.2)	100.0
Quintile 3	4.8 (3.4, 6.7)	16.5 (13.8, 19.6)	54.4 (50.4, 58.3)	24.3 (21.1, 27.7)	100.0
Quintile 4	6.0 (4.7, 7.5)	23.7 (20.9, 26.8)	48.7 (45.6, 51.7)	21.6 (19.2, 24.3)	100.0
Quintile 5	9.5 (8.2, 11.1)	22.4 (20.7, 24.2)	43.6 (41.2, 46)	24.5 (22.5, 26.6)	100.0
Total personal income*					
Zero or less	6.0 (4.1, 8.9)	15.2 (12.5, 18.5)	46.6 (42, 51.2)	32.1 (28.2, 36.4)	100.0
Zero to $10,000	5.1 (3.8, 6.9)	19.5 (16.6, 22.8)	47.8 (43.7, 51.9)	27.6 (24.1, 31.5)	100.0
$10,001 to $20,000	7.0 (5.5, 9)	24.4 (21.5, 27.5)	44.7 (41.2, 48.4)	23.9 (20.8, 27.2)	100.0
$20,001 to $30,000	7.2 (5.6, 9.4)	18.7 (15.9, 21.9)	50.1 (45.7, 54.4)	24.0 (20.4, 28)	100.0
$30,001 to $40,000	5.1 (3.9, 6.8)	22.2 (19, 25.7)	49.6 (45.5, 53.6)	23.2 (20, 26.7)	100.0
$40,001 to $50,000	5.4 (3.7, 7.8)	21.4 (17.2, 26.3)	55.3 (49.8, 60.8)	17.9 (14.6, 21.7)	100.0
$50,001 to $70,000	7.2 (4.8, 10.6)	16.3 (13.1, 20.1)	56.1 (51.5, 60.5)	20.5 (17.3, 24.2)	100.0

ECONOMIC

	Whānau wellbeing (%)				
	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
$70,001 and over	5.2 (3.5, 7.8)	20.9 (16.2, 26.6)	51.5 (45.9, 57)	22.4 (18.3, 27)	100.0
Not stated	8.8 (6.3, 12.2)	22.5 (17.8, 28.1)	43.4 (37.7, 49.3)	25.2 (20.4, 30.8)	100.0
Total family income***					
$20,000 or less	9.3 (6.7, 12.8)	24.5 (20, 29.7)	44.6 (39.6, 49.7)	21.6 (17.5, 26.4)	100.0
$20,001 to $40,000	7.5 (5.6, 10)	25.6 (22.1, 29.4)	43.9 (39.6, 48.3)	23.0 (19.6, 26.8)	100.0
$40,001 to $70,000	5.7 (4.4, 7.3)	19.2 (16.3, 22.5)	53.5 (49.9, 57)	21.7 (19, 24.7)	100.0
$70,001 and over	5.0 (4, 6.2)	16.8 (14.9, 18.8)	52.0 (49.4, 54.6)	26.3 (24.1, 28.5)	100.0
Not stated	8.1 (6.6, 9.9)	23.7 (20.6, 27)	44.2 (40.6, 47.8)	24.1 (21.5, 26.8)	100.0
How well does your total family income meet your everyday needs?***					
Not enough	12.2 (10.1, 14.7)	27.4 (24.4, 30.7)	40.6 (36.6, 44.8)	19.7 (16.7, 23.2)	100.0
Just enough	7.2 (6, 8.5)	23.9 (21.5, 26.4)	51.0 (48.3, 53.7)	17.9 (16, 20.1)	100.0
Enough	4.0 (3.1, 5.1)	16.4 (14.4, 18.6)	51.9 (49.3, 54.6)	27.8 (25.8, 29.8)	100.0
More than enough	4.1 (2.8, 6)	14.1 (11.3, 17.5)	50.2 (45.1, 55.2)	31.7 (27.6, 36)	100.0

TABLE A1

Bivariate analysis of whānau wellbeing question in Te Kupenga 2013. Significance levels: ***p<0.01, ** p<0.05, * p<0.1a

	Whānau wellbeing (%)				
	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
ECONOMIC					
Tenure holder*					
Homeowner	5.1 (4.3, 5.9)	16.2 (14.7, 17.9)	51.4 (49.1, 53.7)	27.3 (25.2, 29.5)	100.0
Non-owner	7.6 (6.5, 9)	23.6 (21.7, 25.6)	47.4 (45.2, 49.6)	21.4 (19.5, 23.4)	100.0
Not stated	5.3 (2.8, 9.7)	28.7 (21.5, 37.2)	46.2 (37.8, 54.7)	19.9 (15, 25.8)	100.0
Household crowding*					
No additional bedrooms needed	5.7 (5.1, 6.5)	19.3 (17.9, 20.7)	50.4 (48.6, 52.1)	24.7 (23.1, 26.3)	100.0
One or more additional bedrooms needed	9.0 (6.7, 12.1)	24.6 (21.1, 28.4)	43.6 (39.5, 47.8)	22.8 (19.7, 26.2)	100.0
CULTURAL					
How important is it for you to be involved in things to do with Māori culture?*					
Very	8.3 (7, 9.8)	18.7 (16.4, 21.3)	44.6 (41.6, 47.7)	28.4 (25.9, 30.9)	100.0
Quite	5.4 (4.1, 7)	21.9 (19.2, 24.8)	51.0 (47.9, 54)	21.8 (19.3, 24.5)	100.0
Somewhat	5.5 (4.3, 7)	21.1 (18.9, 23.5)	51.5 (48.3, 54.7)	21.9 (19.1, 24.9)	100.0
A little	5.8 (4.4, 7.5)	19.8 (17, 22.8)	51.7 (48.2, 55.1)	22.8 (19.8, 26.1)	100.0
Not at all	6.2 (4.6, 8.4)	17.6 (14.2, 21.8)	47.4 (42.4, 52.5)	28.8 (24.6, 33.3)	100.0

CULTURAL

	Whānau wellbeing (%)				
	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
Has the respondent ever been to any of their ancestral marae?**					
No	**6.0** (5, 7.3)	**18.3** (16.5, 20.2)	**52.5** (50, 55.1)	**23.2** (21.1, 25.3)	100.0
Yes	**6.4** (5.7, 7.3)	**21.3** (19.7, 23.1)	**47.4** (45.5, 49.3)	**24.9** (23.2, 26.6)	100.0
Is the respondent registered with an iwi?					
No	**6.2** (5.3, 7.3)	**21.4** (19.6, 23.4)	**48.7** (46.3, 51)	**23.7** (21.8, 25.8)	100.0
Yes	**6.4** (5.5, 7.5)	**18.7** (17, 20.4)	**50.1** (47.9, 52.3)	**24.8** (23, 26.8)	100.0
Respondent knows their hapū or sub-tribe**					
No	**6.4** (5.7, 7.2)	**18.9** (17.6, 20.3)	**49.7** (48.1, 51.3)	**25.0** (23.5, 26.5)	100.0
Yes	**5.9** (4.6, 7.5)	**24.9** (22, 28)	**47.8** (44.4, 51.3)	**21.4** (18.5, 24.6)	100.0
Māori spoken on a regular basis at home*					
No	**5.8** (5.1, 6.5)	**20.2** (18.7, 21.7)	**50.1** (48.3, 51.8)	**24.0** (22.4, 25.7)	100.0
Yes	**8.3** (6.7, 10.2)	**20.1** (18, 22.4)	**46.5** (43.5, 49.7)	**25.1** (22.8, 27.5)	100.0

TABLE A1

Bivariate analysis of whānau wellbeing question in Te Kupenga 2013. Significance levels: ***p<0.01, ** p<0.05, * p<0.1a

	Whānau wellbeing (%)				
SOCIAL CAPABILITY	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
Respondent has seen, in person, a member of their whānau (who don't live with them)					
Yes	5.9 (5.3, 6.7)	20.0 (18.6, 21.4)	49.5 (47.8, 51.2)	24.6 (23, 26.2)	100.0
No	8.0 (6.3, 10.1)	21.0 (17.8, 24.5)	48.0 (44.2, 51.8)	23.1 (20.1, 26.3)	100.0
No whānau who do not live with them	6.2 (2, 17.5)	23.3 (11.5, 41.7)	52.5 (33.4, 70.9)	18.0 (8.1, 35.3)	100.0
How satisfied is the respondent with their contact with whānau?*					
Not enough	8.3 (6.9, 9.9)	22.0 (20.1, 24.1)	49.3 (46.8, 51.9)	20.4 (18.6, 22.2)	100.0
About right	4.9 (4.2, 5.8)	19.1 (17.5, 20.8)	49.2 (46.9, 51.5)	26.7 (24.8, 28.7)	100.0
Too much	13.0 (8.7, 18.9)	18.7 (12.2, 27.6)	49.3 (39.5, 59.2)	19.0 (12.8, 27.3)	100.0
How many people were you thinking of in your whānau?*					
0 to 5 people in whānau	6.7 (5.5, 8.2)	17.0 (15, 19.1)	48.3 (45.6, 51.1)	28.0 (25.5, 30.7)	100.0
6 to 10 people in whānau	5.5 (4.5, 6.8)	23.1 (21.1, 25.4)	48.8 (46, 51.6)	22.5 (20, 25.2)	100.0
11 to 20 people in whānau	5.1 (3.9, 6.7)	19.5 (16.9, 22.3)	52.1 (49.1, 55)	23.4 (20.4, 26.6)	100.0
21 plus people in whānau	7.8 (6.2, 9.6)	20.9 (18.6, 23.4)	48.6 (45.4, 51.7)	22.8 (20.6, 25.3)	100.0

SOCIAL CAPABILITY

	Whānau wellbeing (%)				
	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
Who did respondent think of as whānau?*					
Group A: Parents, partner/spouse, brothers and sisters, brother/sister/parents-in-law, children	5.0 (4.3, 5.9)	20.2 (18.6, 22)	49.1 (47.1, 51.1)	25.7 (23.8, 27.7)	100.0
Group B: grandparents, grandchildren	4.2 (2.9, 5.9)	19.3 (16.7, 22.3)	48.2 (44, 52.4)	28.3 (24.9, 32)	100.0
Group C: Aunts and uncles, cousins, nephews and nieces, other in-laws	8.4 (7, 10.2)	20.3 (18.2, 22.7)	50.1 (47.6, 52.7)	21.1 (18.8, 23.6)	100.0
Group D: Close friends, others	7.4 (5.6, 9.7)	20.4 (17, 24.3)	49.5 (45.5, 53.5)	22.7 (19.4, 26.4)	100.0
Has the respondent experienced any crime in last 12 months?*					
No	5.3 (4.6, 6)	19.2 (17.9, 20.6)	50.0 (48.3, 51.7)	25.5 (24, 27.1)	100.0
Yes	10.9 (9.1, 13)	24.5 (21.2, 28.2)	46.2 (42.4, 50)	18.4 (15.2, 22)	100.0
Has the respondent felt lonely in the past 4 weeks?*					
None of the time	4.5 (3.9, 5.3)	17.3 (15.9, 18.8)	49.6 (47.5, 51.6)	28.6 (26.6, 30.7)	100.0
A little of the time	6.4 (5.2, 7.9)	20.0 (17.7, 22.6)	54.1 (51, 57.2)	19.5 (16.9, 22.3)	100.0
Some of the time	8.1 (6.2, 10.5)	30.2 (26.3, 34.4)	44.5 (40.2, 49)	17.2 (13.8, 21.2)	100.0
Most or all of the time	23.5 (18.3, 29.7)	30.3 (25.4, 35.7)	33.4 (27.2, 40.3)	12.8 (9.2, 17.6)	100.0

TABLE A1

Bivariate analysis of whānau wellbeing question in Te Kupenga 2013. Significance levels: ***p<0.01, ** p<0.05, * p<0.1a

	Whānau wellbeing (%)				
	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
SOCIAL CAPABILITY					
Did respondent provide any help without pay for, or through, a marae, hapū, or iwi, in the last 4 months?					
Yes	6.0 (5.3, 6.8)	19.9 (18.6, 21.3)	49.8 (48.1, 51.5)	24.3 (22.7, 25.9)	100.0
No	7.5 (6, 9.3)	21.1 (18.3, 24.2)	47.5 (43.9, 51.1)	24.0 (21.2, 26.9)	100.0
Did respondent provide unpaid help to someone who doesn't live with them?***					
Yes	6.0 (5.1, 7.2)	18.2 (16.4, 20.3)	48.7 (46.1, 51.2)	27.1 (24.9, 29.4)	100.0
No	6.5 (5.7, 7.4)	21.5 (19.8, 23.3)	49.8 (47.8, 51.9)	22.2 (20.5, 23.9)	100.0
HUMAN RESOURCE POTENTIAL					
How well does respondent think their whānau gets along?***					
Bad or Very bad	31.1 (23.7, 39.5)	33.6 (25.1, 43.2)	29.9 (22.1, 39.1)	5.5 (2.5, 11.7)	100.0
Neutral	14.0 (11.2, 17.3)	33.8 (29.6, 38.3)	42.3 (38.2, 46.6)	9.9 (7.8, 12.5)	100.0
Well	4.6 (3.8, 5.6)	21.7 (20, 23.6)	57.4 (55.1, 59.6)	16.3 (14.6, 18.2)	100.0
Well or Very well	3.9 (3.2, 4.7)	13.9 (12.5, 15.5)	45.7 (43.6, 47.8)	36.5 (34.2, 38.9)	100.0
How easy is it for respondent to access general support?***					
Very easy	4.7 (3.9, 5.8)	17.4 (15.7, 19.3)	48.1 (45.7, 50.5)	29.8 (27.5, 32.1)	100.0
Easy	5.1 (4.3, 6.1)	19.5 (17.6, 21.5)	51.9 (49.6, 54.1)	23.5 (21.2, 26)	100.0
Varies	9.7 (7.9, 12)	25.8 (22.5, 29.3)	50.8 (46.5, 55.1)	13.7 (11.4, 16.4)	100.0

	Whānau wellbeing (%)				
	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
Hard	11.1 (7.3, 16.6)	35.1 (27.2, 43.9)	42.3 (33.4, 51.7)	11.5 (7.5, 17.3)	100.0
Very hard	25.8 (17.2, 36.8)	18.3 (11.7, 27.5)	36.1 (25.2, 48.7)	19.8 (11.2, 32.6)	100.0
How easy is it for respondent to access crisis support?*					
Very easy	4.3 (3.5, 5.4)	17.1 (15.3, 19.1)	48.1 (45.8, 50.5)	30.4 (28.4, 32.5)	100.0
Easy	5.8 (4.8, 7)	19.8 (17.9, 21.7)	53.8 (51.2, 56.3)	20.7 (18.5, 23.2)	100.0
Varies	9.5 (7.4, 12)	28.9 (25, 33.1)	44.2 (39.6, 48.9)	17.5 (14.8, 20.6)	100.0
Hard	14.9 (10.8, 20.1)	29.8 (23.1, 37.4)	43.6 (36.2, 51.2)	11.8 (8.1, 16.9)	100.0
Very hard	24.9 (15.3, 37.8)	16.3 (9.9, 25.5)	44.6 (31.2, 58.7)	14.3 (7.2, 26.5)	100.0
How easy is it for respondent to access cultural support?*					
Very easy	5.5 (4.5, 6.6)	18.3 (16.2, 20.6)	46.9 (44.2, 49.7)	29.3 (27.2, 31.4)	100.0
Easy	6.3 (5, 7.9)	22.0 (19.8, 24.4)	49.3 (46.6, 51.9)	22.4 (20.2, 24.8)	100.0
Varies	5.6 (4.2, 7.4)	21.0 (18.2, 24.1)	52.1 (48, 56.1)	21.4 (17.8, 25.4)	100.0
Hard	7.5 (5.6, 10.1)	19.0 (15.9, 22.5)	52.3 (47.3, 57.4)	21.1 (17, 26)	100.0
Very hard	12.5 (8.3, 18.5)	18.8 (13.8, 25)	50.4 (43.2, 57.7)	18.3 (13.4, 24.4)	100.0

TABLE A1

Bivariate analysis of whānau wellbeing question in Te Kupenga 2013. Significance levels: ***p<0.01, ** p<0.05, * p<0.1a

HUMAN RESOURCE POTENTIAL

	Whānau wellbeing (%)				
	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
Respondent indicated their health was:*					
Excellent	4.2 (3.1, 5.9)	16.0 (13.4, 19)	43.8 (39.7, 48.1)	35.9 (31.7, 40.4)	100.0
Very good	3.6 (2.9, 4.6)	16.1 (14.2, 18.2)	54.7 (52, 57.3)	25.6 (23.4, 28)	100.0
Good	6.4 (5.4, 7.7)	22.4 (19.9, 25.1)	51.5 (48.5, 54.5)	19.6 (17.5, 22)	100.0
Fair	14.4 (11.8, 17.4)	28.3 (24.7, 32.2)	42.0 (38.6, 45.4)	15.4 (12.9, 18.2)	100.0
Poor	14.1 (8.9, 21.4)	35.8 (28.3, 44.2)	31.3 (23.9, 39.7)	18.9 (14.3, 24.5)	100.0
How satisfied is respondent with their life overall?*					
Low (0 to 4)	26.9 (20.9, 33.8)	33.9 (27.7, 40.7)	23.9 (18, 31)	15.3 (10.8, 21.2)	100.0
Medium (5 or 6)	12.1 (9.9, 14.6)	34.2 (31, 37.6)	43.2 (39.6, 46.9)	10.5 (8.4, 13.1)	100.0
High (7 or 8)	4.8 (3.9, 5.8)	19.5 (17.9, 21.2)	59.5 (57.5, 61.4)	16.3 (14.6, 18.1)	100.0
Very high (9 or 10)	3.4 (2.7, 4.2)	12.8 (11.1, 14.7)	40.8 (37.9, 43.9)	43.0 (40.2, 45.9)	100.0
Does the respondent have a bachelors degree or higher?					
No	6.2 (5.5, 7)	20.5 (19.3, 21.9)	48.9 (47.3, 50.5)	24.4 (22.9, 25.9)	100.0
Yes	6.9 (5.1, 9.5)	16.6 (13.1, 20.8)	53.4 (48.6, 58.1)	23.1 (19.5, 27.2)	100.0

	Whānau wellbeing (%)			
	Badly (0–4)	Moderately well (5–6)	Well (7–8)	Extremely well (9–10)	
Respondent's labour force status*					
Employed	**6.0** (5.1, 7)	**19.7** (18.2, 21.4)	**51.5** (49.6, 53.3)	**22.9** (21.4, 24.4)	100.0
Unemployed	**9.9** (6.8, 14.3)	**24.9** (20.3, 30.3)	**47.6** (42, 53.3)	**17.6** (13.5, 22.5)	100.0
Not in labour force	**6.0** (5, 7.3)	**20.1** (18.1, 22.3)	**44.5** (41.5, 47.5)	**29.4** (26.5, 32.4)	100.0
Not stated or unknown	**20.2** (9.1, 39.1)	**15.0** (5.6, 34.4)	**58.1** (37.7, 76.1)	**6.6** (2, 20.2)	100.0

TABLE
A2

Variables used to predict self-assessed whānau wellbeing, Te Kupenga 2013

Whānau capability dimension			
Demographic	**Economic and Human Resource Potential**	**Social**	**Cultural**
Age	*Residential deprivation* (NZDep13)	*Has been the victim of crime in last 12 months*	
15–24 (base) 25–34 35–44 45–54 55 and over	Q1 Q2 Q3 (base) Q4 Q5		*Is registered with an iwi*
Sex	*How well family income meets everyday needs* Not enough Just enough Enough (base) More than enough	*Loneliness (last 4 weeks)* None of time (base) Little of time Some of time Most or all of time	*Has visited own ancestral marae before*
Residence	*Is a homeowner*	*Has provided unpaid help in another household at least once a month*	*Perceived importance of involvement in Māori culture*
Auckland Wellington (base) Canterbury Upper NI (ex. Akl) Lower NI (ex. Wel) South Island (ex. Cant)			Not at all A little Somewhat Quite Very
Household family type Couple, no resident child (base) Couple, at least 1 resident child Sole parent, at least 1 resident child Parent or couple with adult children, and/or children of unknown dependency status Not in family nucleus	*Labour force status* Employed (base) Unemployed Not in labour force	*Has provided unpaid help to marae, hapū or iwi in last 4 months*	

Whānau capability dimension			
Demographic	**Economic and Human Resource Potential**	**Social**	**Cultural**
	Life satisfaction Low (0–4) Med (5–6, base) High (7–8) Very high (9–10)	*Level of satisfaction with whānau contact* About right (base) Not enough Too much	
	Self-rated health is excellent, very good, or good	*Widest concept of own whānau* Immediate (base) Grandparents and grandchildren Aunts, uncles, cousins, nephews, nieces, other in-laws Close friends, others	
	How well whānau gets along Badly or very badly Neutral (base) Well Very well	*Number in whānau* 0–5 6–10 11–20 21 and over	
	Access to general support Very hard Hard Varies (base) Easy Very easy		

TABLE

A3

Final regression models predicting self-assessed whānau wellbeing (4-point scale) using ordinal logit. Significance levels: ***p<0.01, ** p<0.05, * p<0.1

Variables	Raw	Odds Ratio
Sex		
Male	-0.106* [-0.230 - 0.017]	0.899* [0.795 - 1.017]
Age		
Age	-0.077*** [-0.095 - -0.058]	0.926*** [0.909 - 0.944]
Age squared	0.001*** [0.001 - 0.001]	1.001*** [1.001 - 1.001]
Region		
Lives in Auckland	-0.217* [-0.442 - 0.008]	0.805* [0.643 - 1.008]
Lives in Canterbury	0.025 [-0.266 - 0.316]	1.025 [0.767 - 1.371]
Lives in the Upper North Island	0.127 [-0.074 - 0.327]	1.135 [0.929 - 1.387]
Lives in the Lower North Island	0.08 [-0.130 - 0.290]	1.083 [0.878 - 1.336]
Lives in the South Island (ex. Cant)	0.053 [-0.223 - 0.330]	1.055 [0.800 - 1.390]
Family type		
Couple with one or more dependent children	0.294*** [0.120 - 0.468]	1.342*** [1.127 - 1.597]
Single parent with one or more dependent children	0.210* [-0.001 - 0.421]	1.234* [0.999 - 1.524]
Single parent or couple with unknown child dependency status	0.299*** [0.099 - 0.499]	1.349*** [1.104 - 1.648]
Individual does not reside in family nucleus	0.387*** [0.205 - 0.570]	1.473*** [1.227 - 1.768]

DEMOGRAPHIC

	Variables	Raw	Odds Ratio
ECONOMIC	**Deprivation**		
	NZDep Quintile 1	-0.084 [-0.338 - 0.170]	0.919 [0.713 - 1.185]
	NZDep Quintile 2	-0.099 [-0.291 - 0.092]	0.905 [0.748 - 1.096]
	NZDep Quintile 4	-0.312*** [-0.497 - -0.126]	0.732*** [0.608 - 0.882]
	NZDep Quintile 5	-0.255*** [-0.430 - -0.080]	0.775*** [0.651 - 0.923]
	Family income		
	Not enough	-0.286*** [-0.461 - -0.110]	0.752*** [0.631 - 0.895]
	Just enough	-0.268*** [-0.415 - -0.120]	0.765*** [0.660 - 0.887]
	Surplus	0.096 [-0.099 - 0.291]	1.101 [0.905 - 1.338]
	Tenure holder		
	Homeowner	0.06 [-0.103 - 0.223]	1.062 [0.902 - 1.250]
	Work and labour force status		
	Unemployed	0.021 [-0.247 - 0.288]	1.021 [0.781 - 1.334]
	Not in labour force	0.1 [-0.078 - 0.279]	1.106 [0.925 - 1.321]

	Variables	Raw	Odds Ratio
CULTURAL	**Has the respondent ever been to any of their ancestral marae?**		
	Yes	-0.086 [-0.235 - 0.062]	0.917 [0.790 - 1.064]
	Is the respondent registered with an iwi?		
	Yes	0.08 [-0.073 - 0.233]	1.083 [0.929 - 1.262]
	How important is it for you to be involved in things to do with Māori culture?		
	Somewhat important	-0.012 [-0.181 - 0.158]	0.988 [0.834 - 1.171]
	Quite important	-0.089 [-0.286 - 0.108]	0.915 [0.751 - 1.114]
	Very important	0.154 [-0.038 - 0.346]	1.166 [0.963 - 1.413]

TABLE
A3

Final regression models predicting self-assessed whānau wellbeing (4-point scale) using ordinal logit. Significance levels: ***p<0.01, ** p<0.05, * p<0.1

SOCIAL CAPABILITY

Variables	Raw	Odds Ratio
Has the respondent felt lonely in the past 4 weeks?		
A little of the time	-0.115 [-0.260 - 0.029]	0.891 [0.771 - 1.029]
Some of the time	-0.137 [-0.377 - 0.102]	0.872 [0.686 - 1.108]
Most or all of the time	-0.724*** [-1.075 - -0.374]	0.485*** [0.341 - 0.688]
Has the respondent experienced any crime in last 12 months?		
Yes	-0.226** [-0.403 - -0.049]	0.798** [0.669 - 0.952]
How satisfied is the respondent with their contact with whānau?		
Not enough contact	-0.123* [-0.247 - 0.001]	0.884* [0.781 - 1.001]
Too much contact	-0.299 [-0.695 - 0.096]	0.741 [0.499 - 1.101]
Whānau group B Grandparents and grandchildren	0.078 [-0.105 - 0.261]	1.082 [0.901 - 1.299]
Whānau group C Aunts, uncles, cousins, nephews, nieces, other in-laws	-0.159 [-0.366 - 0.049]	0.853 [0.693 - 1.050]
Whānau group D Close friends, others	-0.054 [-0.276 - 0.168]	0.948 [0.759 - 1.183]
How many people were you thinking of in your whānau?		
Between 6 and 10	-0.151 [-0.334 - 0.033]	0.86 [0.716 - 1.033]
Between 11 and 20	0.019 [-0.207 - 0.245]	1.019 [0.813 - 1.278]
Greater than 20	-0.091 [-0.333 - 0.150]	0.913 [0.717 - 1.161]
Unpaid help		
Provided unpaid help to someone who doesn't live with them	-0.203*** [-0.332 - -0.074]	0.816*** [0.717 - 0.929]
Provided any help without pay for, or through, a marae, hapū, or iwi, in the last 4 months?	0.006 [-0.169 - 0.181]	1.006 [0.844 - 1.199]

Variables	Raw	Odds Ratio
How well does respondent think their whānau gets along?		
Badly or very badly	-0.778*** [-1.268 - -0.288]	0.459*** [0.281 - 0.750]
Well	0.658*** [0.480 - 0.835]	1.930*** [1.616 - 2.305]
Very well	1.293*** [1.093 - 1.493]	3.644*** [2.982 - 4.453]
How easy is it for respondent to access general support?		
Very hard	0.037 [-0.670 - 0.744]	1.038 [0.512 - 2.104]
Hard	-0.344** [-0.688 - -0.000]	0.709** [0.503 - 1.000]
Easy	0.262*** [0.092 - 0.432]	1.300*** [1.097 - 1.541]
Very easy	0.287*** [0.115 - 0.460]	1.333*** [1.122 - 1.584]
How satisfied is respondent with their life overall?		
Low (0 to 4)	-0.206 [-0.667 - 0.255]	0.814 [0.513 - 1.291]
High (7 & 8)	0.436*** [0.234 - 0.638]	1.546*** [1.263 - 1.892]
Very high (9 & 10)	1.220*** [0.999 - 1.442]	3.388*** [2.715 - 4.227]
Self-rated health		
Excellent, good or very good	0.346*** [0.180 - 0.512]	1.414*** [1.197 - 1.669]

HUMAN RESOURCE POTENTIAL

	Raw	Odds Ratio
Cut point 1	-3.196*** [-3.847 - -2.545]	0.041*** [0.021 - 0.079]
Cut point 2	-1.260*** [-1.880 - -0.640]	0.284*** [0.153 - 0.527]
Cut point 3	1.389*** [0.768 - 2.010]	4.010*** [2.155 - 7.463]
Observations	5,211	5,211
Weighted observations	497,000	497,000

TABLE A4

Comparison of final regression models predicting self-assessed whānau wellbeing (4-point scale) from ordinary least squares, multinomial logit (base= whānau doing poorly) and tobit regressions, Te Kupenga 2013. Significance levels: ***p<0.01, **p<0.05, *p<0.1

Variables	(A) OLS	(B) Mlogit Moderate (5 & 6)	Mlogit Well (7 & 8)	Mlogit Extremely well (9 & 10)	(C) Tobit
How well is your whānau doing?					
DEMOGRAPHIC					
Male	-0.028 [-0.073 - 0.018]	0.185 [-0.164 - 0.533]	0.208 [-0.107 - 0.522]	-0.05 [-0.391 - 0.291]	-0.026 [-0.074 - 0.022]
Age	-0.027*** [-0.034 - -0.020]	0.01 [-0.045 - 0.064]	-0.053** [-0.106 - -0.001]	-0.115*** [-0.167 - -0.062]	-0.027*** [-0.035 - -0.020]
Age squared	0.000*** [0.000 - 0.000]	0 [-0.001 - 0.001]	0.001 [-0.000 - 0.001]	0.001*** [0.001 - 0.002]	0.000*** [0.000 - 0.000]
Lives in Auckland	-0.081* [-0.165 - 0.003]	-0.128 [-0.724 - 0.468]	-0.223 [-0.791 - 0.345]	-0.482 [-1.063 - 0.099]	-0.085* [-0.174 - 0.005]
Lives in Canterbury	0.019 [-0.089 - 0.127]	0.226 [-0.617 - 1.069]	0.235 [-0.539 - 1.009]	0.207 [-0.596 - 1.011]	0.021 [-0.091 - 0.134]
Lives in the Upper North Island	0.051 [-0.022 - 0.124]	-0.159 [-0.693 - 0.375]	0.144 [-0.352 - 0.641]	0.067 [-0.455 - 0.589]	0.053 [-0.025 - 0.130]
Lives in the Lower North Island	0.024 [-0.051 - 0.099]	-0.272 [-0.807 - 0.262]	-0.063 [-0.555 - 0.429]	-0.082 [-0.596 - 0.432]	0.022 [-0.057 - 0.101]
Lives in the South Island (ex. Cant)	0.012 [-0.090 - 0.114]	-0.133 [-0.824 - 0.558]	-0.077 [-0.767 - 0.614]	-0.043 [-0.745 - 0.659]	0.01 [-0.097 - 0.117]
Couple with one or more dependent children	0.113*** [0.046 - 0.179]	0.104 [-0.406 - 0.615]	0.558** [0.082 - 1.033]	0.547** [0.045 - 1.050]	0.119*** [0.048 - 0.190]
Single parent with one or more dependent children	0.079* [-0.002 - 0.160]	0.096 [-0.449 - 0.641]	0.398 [-0.139 - 0.936]	0.349 [-0.209 - 0.907]	0.084* [-0.004 - 0.172]
Single parent or couple with unknown child dependency status	0.108*** [0.033 - 0.182]	-0.08 [-0.547 - 0.387]	0.333 [-0.111 - 0.777]	0.418* [-0.028 - 0.865]	0.112*** [0.033 - 0.192]
Individual does not reside in family nucleus	0.155*** [0.086 - 0.223]	0.201 [-0.272 - 0.674]	0.698*** [0.237 - 1.159]	0.754*** [0.273 - 1.235]	0.166*** [0.093 - 0.240]

ECONOMIC

How well is your whānau doing?	(A) OLS	(B) Mlogit Moderate (5 & 6)	Mlogit Well (7 & 8)	Mlogit Extremely well (9 & 10)	(C) Tobit
NZDep Quintile 1	-0.032 [-0.123 - 0.059]	0.025 [-0.626 - 0.676]	-0.088 [-0.683 - 0.507]	-0.085 [-0.732 - 0.562]	-0.034 [-0.128 - 0.060]
NZDep Quintile 2	-0.033 [-0.103 - 0.037]	0.344 [-0.365 - 1.052]	0.206 [-0.418 - 0.830]	0.096 [-0.534 - 0.725]	-0.033 [-0.106 - 0.040]
NZDep Quintile 4	-0.114*** [-0.183 - -0.044]	0.185 [-0.340 - 0.710]	-0.278 [-0.752 - 0.196]	-0.4 [-0.932 - 0.132]	-0.115*** [-0.189 - -0.042]
NZDep Quintile 5	-0.109*** [-0.175 - -0.044]	-0.29 [-0.794 - 0.215]	-0.723*** [-1.187 - -0.258]	-0.590** [-1.098 - -0.083]	-0.119*** [-0.189 - -0.048]
Not enough family income	-0.115*** [-0.182 - -0.049]	-0.265 [-0.708 - 0.179]	-0.585*** [-1.018 - -0.152]	-0.585** [-1.034 - -0.137]	-0.125*** [-0.197 - -0.053]
Just enough family income	-0.103*** [-0.159 - -0.046]	-0.168 [-0.580 - 0.243]	-0.353* [-0.748 - -0.043]	-0.643*** [-1.070 - -0.215]	-0.105*** [-0.165 - -0.046]
Surplus from family income	0.031 [-0.041 - 0.103]	-0.133 [-0.739 - 0.473]	-0.031 [-0.613 - 0.551]	0.041 [-0.580 - 0.663]	0.032 [-0.043 - 0.107]
Homeowner	0.019 [-0.043 - 0.081]	-0.067 [-0.438 - 0.304]	0.06 [-0.333 - 0.454]	0.018 [-0.414 - 0.450]	0.02 [-0.046 - 0.087]
Unemployed	0.004 [-0.104 - 0.112]	0.028 [-0.548 - 0.605]	0.151 [-0.427 - 0.729]	0.018 [-0.635 - 0.672]	0.005 [-0.113 - 0.123]
Not in labour force	0.047 [-0.017 - 0.112]	0.445** [0.095 - 0.795]	0.404** [0.039 - 0.768]	0.506** [0.108 - 0.904]	0.054 [-0.013 - 0.122]

TABLE A4

Comparison of final regression models predicting self-assessed whānau wellbeing (4-point scale) from ordinary least squares, multinomial logit (base= whānau doing poorly) and tobit regressions, Te Kupenga 2013. Significance levels: ***p<0.01, ** p<0.05, * p<0.1

Variables	(A) OLS	(B) Mlogit Moderate (5 & 6)	Mlogit Well (7 & 8)	Mlogit Extremely well (9 & 10)	(C) Tobit
How well is your whānau doing?					
CULTURAL					
Ever visited ancestral marae	-0.031 [-0.085 - 0.024]	0.263 [-0.059 - 0.585]	-0.079 [-0.388 - 0.231]	0.044 [-0.312 - 0.400]	-0.03 [-0.088 - 0.028]
Registered with iwi	0.031 [-0.025 - 0.087]	-0.21 [-0.543 - 0.123]	0.108 [-0.213 - 0.429]	-0.007 [-0.374 - 0.360]	0.03 [-0.030 - 0.090]
Culture is somewhat important	0.005 [-0.057 - 0.067]	0.28 [-0.059 - 0.620]	0.221 [-0.126 - 0.567]	0.199 [-0.187 - 0.585]	0.007 [-0.058 - 0.072]
Culture is quite important	-0.03 [-0.102 - 0.042]	0.269 [0.159 - 0.697]	0.14 [-0.258 - 0.539]	0.022 [-0.427 - 0.471]	-0.028 [-0.103 - 0.047]
Culture is very important	0.037 [-0.036 - 0.110]	-0.171 [-0.634 - 0.292]	-0.121 [-0.576 - 0.334]	0.092 [-0.369 - 0.553]	0.036 [-0.042 - 0.114]
SOCIAL CAPABILITY					
Lonely a little of the time	-0.041 [-0.095 - 0.012]	-0.078 [-0.399 - 0.243]	-0.059 [-0.344 - 0.227]	-0.252 [-0.601 - 0.096]	-0.044 [-0.099 - 0.012]
Lonely some of the time	-0.05 [-0.139 - 0.039]	0.409 [-0.083 - 0.901]	0.139 [-0.377 - 0.655]	0.005 [-0.585 - 0.595]	-0.044 [-0.138 - 0.051]
Lonely most or all of the time	-0.257*** [-0.395 - -0.119]	-0.256 [-0.767 - 0.255]	-0.718*** [-1.230 - -0.205]	-0.961*** [-1.655 - -0.268]	-0.286*** [-0.445 - -0.128]
Been the victim of crime in the last 12 months	-0.086** [-0.153 - -0.020]	-0.238 [-0.546 - 0.071]	-0.391** [-0.693 - -0.090]	-0.448** [-0.822 - -0.074]	-0.095*** [-0.166 - -0.024]
Not enough contact with whānau	-0.048* [-0.097 - 0.001]	-0.274* [-0.580 - 0.031]	-0.292* [-0.602 - 0.019]	-0.421** [-0.746 - -0.095]	-0.052* [-0.105 - 0.000]

Variables	(A) OLS	(B) Mlogit Moderate (5 & 6)	Mlogit Well (7 & 8)	Mlogit Extremely well (9 & 10)	(C) Tobit
How well is your whānau doing?					
Too much contact with whānau	-0.114 [-0.256 - 0.029]	-0.943** [-1.668 - -0.218]	-0.614** [-1.172 - -0.057]	-0.988** [-1.784 - -0.192]	-0.135* [-0.290 - 0.021]
Whānau group B Grandparents and grandchildren	0.02 [-0.050 - 0.090]	-0.116 [-0.648 - 0.417]	0.01 [-0.548 - 0.568]	0.03 [-0.523 - 0.583]	0.019 [-0.054 - 0.093]
Whānau group C Aunts, uncles, cousins, nephews, nieces, other in-laws	-0.079** [-0.157 - -0.001]	-0.875*** [-1.329 - -0.421]	-0.757*** [-1.221 - -0.293]	-0.872*** [-1.391 - -0.352]	-0.093** [-0.177 - -0.009]
Whānau group D Close friends, others	-0.032 [-0.115 - 0.050]	-0.550** [-1.088 - -0.011]	-0.411 [-0.937 - 0.115]	-0.46 [-1.014 - 0.093]	-0.04 [-0.128 - 0.047]
Number of people thought of as in whānau between 6 and 10	-0.035 [-0.104 - 0.034]	0.652*** [0.264 - 1.039]	0.390* [-0.025 - 0.806]	0.242 [-0.215 - 0.699]	-0.028 [-0.102 - 0.045]
Number of people thought of as in whānau between 11 and 20	0.036 [-0.050 - 0.121]	0.787*** [0.223 - 1.351]	0.747*** [0.202 - 1.292]	0.604* [-0.015 - 1.224]	0.046 [-0.045 - 0.137]
Number of people thought of as in whānau greater than 20	-0.01 [-0.102 - 0.083]	0.554** [0.004 - 1.104]	0.41 [-0.125 - 0.946]	0.246 [-0.370 - 0.862]	-0.003 [-0.102 - 0.096]
Provided unpaid help to someone who doesn't live with them	-0.069*** [-0.116 - -0.022]	0.19 [-0.094 - 0.474]	0.029 [-0.227 - 0.285]	-0.227 [-0.506 - 0.052]	-0.069*** [-0.117 - -0.020]
Provided any help without pay for, or through, a marae, hapū, or iwi, in the last 4 months?	0.013 [-0.052 - 0.079]	0.037 [-0.348 - 0.422]	0.042 [-0.327 - 0.411]	0.108 [-0.284 - 0.500]	0.013 [-0.057 - 0.082]

SOCIAL CAPABILITY

TABLE A4

Comparison of final regression models predicting self-assessed whānau wellbeing (4-point scale) from ordinary least squares, multinomial logit (base= whānau doing poorly) and tobit regressions, Te Kupenga 2013. Significance levels: ***p<0.01, ** p<0.05, * p<0.1

HUMAN RESOURCE POTENTIAL

Variables	(A) OLS	(B) Mlogit Moderate (5 & 6)	Mlogit Well (7 & 8)	Mlogit Extremely well (9 & 10)	(C) Tobit
How well is your whānau doing?					
Whānau gets along badly or very badly	-0.303*** [-0.494 - -0.112]	-0.733** [-1.336 - -0.130]	-1.011*** [-1.701 - -0.320]	-1.212** [-2.251 - -0.173]	-0.370*** [-0.597 - -0.143]
Whānau gets along well	0.277*** [0.205 - 0.349]	0.500** [0.121 - 0.879]	1.151*** [0.817 - 1.485]	1.358*** [0.917 - 1.799]	0.301*** [0.222 - 0.380]
Whānau gets along very well	0.491*** [0.414 - 0.568]	0.191 [-0.236 - 0.617]	1.074*** [0.705 - 1.442]	2.149*** [1.683 - 2.616]	0.516*** [0.432 - 0.600]
Very hard to get general support	0.006 [-0.250 - 0.261]	-0.765** [-1.481 - -0.050]	-0.308 [-1.156 - 0.540]	0.128 [-0.979 - 1.234]	-0.025 [-0.318 - 0.267]
Hard to get general support	-0.131* [-0.264 - 0.002]	0.471 [-0.206 - 1.147]	-0.066 [-0.724 - 0.593]	-0.32 [-1.089 - 0.449]	-0.132* [-0.275 - 0.012]
Easy to get general support	0.108*** [0.042 - 0.174]	0.429* [-0.005 - 0.863]	0.524** [0.106 - 0.942]	0.820*** [0.336 - 1.305]	0.118*** [0.046 - 0.191]
Very easy to get general support	0.114*** [0.049 - 0.179]	0.312* [-0.056 - 0.680]	0.337* [-0.042 - 0.715]	0.769*** [0.369 - 1.170]	0.123*** [0.052 - 0.193]
Low life satisfaction (0 to 4)	-0.07 [-0.241 - 0.101]	-0.493* [-1.030 - 0.044]	-0.803** [-1.440 - -0.166]	0.171 [-0.537 - 0.879]	-0.108 [-0.307 - 0.090]
High life satisfaction (7 & 8)	0.181*** [0.101 - 0.260]	0.22 [-0.168 - 0.608]	0.781*** [0.404 - 1.158]	0.756*** [0.271 - 1.241]	0.196*** [0.109 - 0.282]
Very high life satisfaction (9 & 10)	0.443*** [0.361 - 0.525]	0.278 [-0.176 - 0.732]	0.806*** [0.387 - 1.226]	1.964*** [1.468 - 2.459]	0.460*** [0.372 - 0.548]
Self-rated health is excellent, good or very good	0.131*** [0.068 - 0.194]	0.255 [-0.115 - 0.626]	0.581*** [0.233 - 0.929]	0.565*** [0.182 - 0.949]	0.144*** [0.075 - 0.214]

Variables	(A) OLS	(B) Mlogit	Mlogit	Mlogit	(C) Tobit
		Moderate (5 & 6)	Well (7 & 8)	Extremely well (9 & 10)	
How well is your whānau doing?					
Constant	1.842*** [1.610 - 2.074]	0.222 [-1.115 - 1.560]	1.342* [-0.008 - 2.693]	0.899 [-0.557 - 2.355]	1.790*** [1.541 - 2.039]
Sigma (Tobit only)					0.770*** [0.751 - 0.790]
Observations	5,211	5,211	5,211	5,211	5,211
Weighted observations	497,000	497,000	497,000	497,000	497,000

TABLE A5

Final regression model predicting self-assessed whānau wellbeing (4-point scale) by categorical age, using ordinal logit, Te Kupenga 2013. Significance levels: ***p<0.01, ** p<0.05, * p<0.1

How well is your whānau doing?		Age 15–24		Age 25–34		Age 35–44		Age 45–54		Age 55+	
	Variables	Raw	RRR	Raw	RRR	Raw	RRR	Raw	RRR	Raw	RRR
DEMOGRAPHIC	Male	-0.099 (0.153)	0.906 (0.139)	-0.047 (0.169)	0.954 (0.161)	-0.184 (0.162)	0.832 (0.135)	-0.116 (0.165)	0.891 (0.147)	-0.239* (0.123)	0.788* (0.097)
	Lives in Auckland	-0.069 (0.235)	0.933 (0.219)	-0.405 (0.270)	0.667 (0.180)	-0.142 (0.331)	0.868 (0.287)	-0.197 (0.365)	0.821 (0.299)	-0.437* (0.223)	0.646* (0.144)
	Lives in Canterbury	-0.03 (0.316)	0.97 (0.307)	-0.133 (0.413)	0.875 (0.362)	0.269 (0.404)	1.308 (0.529)	0.549 (0.396)	1.731 (0.685)	-0.272 (0.340)	0.762 (0.259)
	Lives in the Upper North Island	-0.036 (0.222)	0.965 (0.214)	-0.063 (0.218)	0.939 (0.205)	0.299 (0.308)	1.349 (0.416)	0.403 (0.295)	1.497 (0.441)	-0.049 (0.187)	0.952 (0.178)
	Lives in the Lower North Island	0.365 (0.244)	1.44 (0.351)	-0.026 (0.251)	0.974 (0.244)	0.024 (0.325)	1.025 (0.333)	-0.028 (0.295)	0.973 (0.287)	-0.165 (0.231)	0.848 (0.196)
	Lives in the South Island (ex. Cant)	-0.022 (0.291)	0.978 (0.284)	-0.073 (0.379)	0.929 (0.352)	-0.066 (0.393)	0.936 (0.368)	0.251 (0.435)	1.285 (0.559)	0.2 (0.303)	1.221 (0.370)
	Family type: Couple with one or more dependent children	1.110*** (0.223)	3.033*** (0.678)	0.339 (0.259)	1.404 (0.364)	0.107 (0.309)	1.112 (0.343)	0.294 (0.231)	1.342 (0.310)	-0.267 (0.295)	0.766 (0.226)
	Single parent with one or more dependent children	0.843*** (0.280)	2.323*** (0.651)	0.057 (0.288)	1.059 (0.305)	0.369 (0.370)	1.447 (0.536)	0.428 (0.300)	1.535 (0.460)	-0.513 (0.575)	0.599 (0.345)
	Single parent or couple with unknown child dependency status	1.088*** (0.259)	2.968*** (0.769)	0.602 (0.408)	1.826 (0.745)	-0.271 (0.465)	0.763 (0.354)	0.287 (0.244)	1.332 (0.325)	-0.048 (0.186)	0.953 (0.177)
	Individual does not reside in family nucleus	1.092*** (0.263)	2.979*** (0.783)	0.576** (0.264)	1.778** (0.470)	0.234 (0.383)	1.263 (0.484)	0.739*** (0.263)	2.093*** (0.550)	-0.027 (0.141)	0.973 (0.137)

How well is your whānau doing?	Age 15–24		Age 25–34		Age 35–44		Age 45–54		Age 55+	
Variables	Raw	RRR	Raw	RRR	Raw	RRR	Raw	RRR	Raw	RRR
NZDep Quintile 1	0.007 (0.298)	1.007 (0.300)	-0.015 (0.335)	0.985 (0.330)	0.076 (0.300)	1.079 (0.324)	-0.045 (0.328)	0.956 (0.313)	-0.577** (0.256)	0.562** (0.144)
NZDep Quintile 2	-0.316 (0.243)	0.729 (0.177)	-0.129 (0.302)	0.879 (0.265)	-0.045 (0.270)	0.956 (0.258)	0.303 (0.304)	1.354 (0.411)	-0.224 (0.225)	0.799 (0.180)
NZDep Quintile 4	-0.355 (0.253)	0.701 (0.177)	-0.421 (0.264)	0.656 (0.174)	-0.139 (0.240)	0.87 (0.209)	-0.126 (0.284)	0.882 (0.250)	-0.418** (0.207)	0.658** (0.136)
NZDep Quintile 5	-0.412* (0.227)	0.662* (0.150)	-0.341 (0.222)	0.711 (0.158)	-0.398* (0.236)	0.672* (0.159)	-0.034 (0.259)	0.966 (0.250)	-0.141 (0.200)	0.869 (0.174)
Not enough family income	-0.301 (0.192)	0.74 (0.142)	-0.049 (0.218)	0.952 (0.208)	-0.600** (0.291)	0.549** (0.160)	-0.195 (0.249)	0.823 (0.205)	-0.465* (0.251)	0.628* (0.158)
Just enough family income	-0.647*** (0.190)	0.523*** (0.100)	-0.156 (0.179)	0.855 (0.153)	-0.573*** (0.208)	0.564*** (0.117)	0.343** (0.153)	1.409** (0.216)	-0.245 (0.153)	0.783 (0.120)
Surplus from family income	-0.114 (0.244)	0.892 (0.218)	0.099 (0.253)	1.104 (0.280)	0.294 (0.252)	1.342 (0.339)	0.272 (0.260)	1.313 (0.341)	0.152 (0.204)	1.165 (0.237)
Homeowner	0.138 (0.448)	1.147 (0.514)	-0.038 (0.230)	0.962 (0.221)	0.027 (0.182)	1.028 (0.187)	0.271 (0.175)	1.311 (0.229)	0.01 (0.135)	1.01 (0.136)
Unemployed	-0.068 (0.227)	0.934 (0.213)	0.405 (0.421)	1.5 (0.632)	-0.12 (0.339)	0.887 (0.301)	-0.304 (0.348)	0.738 (0.257)	0.172 (0.401)	1.188 (0.476)
Not in labour force	-0.151 (0.162)	0.86 (0.139)	0.533** (0.207)	1.704** (0.353)	-0.021 (0.212)	0.979 (0.208)	0.208 (0.251)	1.231 (0.309)	0.429*** (0.150)	1.536*** (0.231)

TABLE A5

Final regression model predicting self-assessed whānau wellbeing (4-point scale) by categorical age, using ordinal logit, Te Kupenga 2013. Significance levels: ***p<0.01, ** p<0.05, * p<0.1

How well is your whānau doing?		Age 15–24		Age 25–34		Age 35–44		Age 45–54		Age 55+	
	Variables	Raw	RRR	Raw	RRR	Raw	RRR	Raw	RRR	Raw	RRR
CULTURAL	Ever visited ancestral marae	-0.112 (0.144)	0.894 (0.129)	-0.162 (0.188)	0.85 (0.160)	0.084 (0.209)	1.088 (0.227)	-0.021 (0.193)	0.98 (0.189)	-0.162 (0.172)	0.851 (0.146)
	Registered with iwi	0.051 (0.160)	1.052 (0.168)	-0.094 (0.179)	0.91 (0.163)	0.196 (0.192)	1.216 (0.234)	0.377** (0.176)	1.457** (0.256)	-0.113 (0.152)	0.893 (0.136)
	Culture is somewhat important	-0.036 (0.192)	0.965 (0.185)	0.340* (0.200)	1.405* (0.281)	-0.019 (0.252)	0.981 (0.247)	-0.351 (0.289)	0.704 (0.203)	-0.07 (0.193)	0.932 (0.180)
	Culture is quite important	0.077 (0.208)	1.08 (0.225)	-0.007 (0.266)	0.993 (0.265)	-0.047 (0.256)	0.955 (0.244)	-0.522* (0.300)	0.594* (0.178)	0.076 (0.197)	1.079 (0.213)
	Culture is very important	0.416 (0.254)	1.516 (0.386)	0.34 (0.281)	1.405 (0.394)	-0.059 (0.242)	0.943 (0.229)	-0.312 (0.343)	0.732 (0.251)	0.318 (0.204)	1.374 (0.281)
SOCIAL CAPABILITY	Lonely a little of the time	-0.211 (0.147)	0.81 (0.119)	-0.086 (0.162)	0.918 (0.149)	-0.386 (0.232)	0.68 (0.158)	-0.128 (0.194)	0.88 (0.171)	-0.046 (0.164)	0.955 (0.157)
	Lonely some of the time	-0.423* (0.235)	0.655* (0.154)	-0.369 (0.257)	0.692 (0.178)	0.127 (0.335)	1.136 (0.380)	0.203 (0.260)	1.225 (0.319)	-0.148 (0.231)	0.862 (0.199)
	Lonely any or all of the time	-1.111*** (0.339)	0.329*** (0.112)	-0.782** (0.389)	0.457** (0.178)	-0.804 (0.507)	0.447 (0.227)	0.099 (0.459)	1.104 (0.506)	-0.911** (0.430)	0.402** (0.173)
	Been the victim of crime in the last 12 months	-0.193 (0.219)	0.825 (0.180)	-0.209 (0.207)	0.811 (0.168)	-0.247 (0.215)	0.781 (0.168)	-0.297 (0.207)	0.743 (0.154)	-0.194 (0.220)	0.823 (0.181)
	Not enough contact with whānau	-0.047 (0.121)	0.954 (0.116)	-0.035 (0.160)	0.966 (0.154)	-0.228 (0.184)	0.796 (0.147)	-0.118 (0.175)	0.888 (0.156)	-0.158 (0.166)	0.854 (0.142)
	Too much contact with whānau	0.075 (0.354)	1.078 (0.381)	-0.567 (0.427)	0.567 (0.242)	-0.26 (0.330)	0.771 (0.254)	-1.553** (0.769)	0.212** (0.163)	-0.077 (0.430)	0.926 (0.399)

SOCIAL CAPABILITY

How well is your whānau doing?	Age 15–24		Age 25–34		Age 35–44		Age 45–54		Age 55+	
Variables	Raw	RRR	Raw	RRR	Raw	RRR	Raw	RRR	Raw	RRR
Whānau group B Grandparents and grandchildren	0.068 (0.207)	1.07 (0.222)	0.275 (0.229)	1.316 (0.301)	0.128 (0.255)	1.136 (0.290)	0.107 (0.288)	1.112 (0.321)	0.005 (0.197)	1.005 (0.198)
Whānau group C Aunts, uncles, cousins, nephews, nieces, other in-laws	0.09 (0.205)	1.094 (0.224)	-0.067 (0.244)	0.935 (0.229)	-0.559** (0.256)	0.572** (0.146)	-0.172 (0.309)	0.842 (0.260)	-0.052 (0.209)	0.949 (0.198)
Whānau group D Close friends, others	-0.07 (0.279)	0.932 (0.260)	0.133 (0.242)	1.143 (0.276)	-0.258 (0.340)	0.773 (0.263)	0.218 (0.353)	1.244 (0.439)	-0.12 (0.238)	0.887 (0.211)
Whānau has 6-10 people	-0.209 (0.176)	0.811 (0.143)	-0.575** (0.236)	0.563** (0.133)	-0.141 (0.234)	0.868 (0.203)	0.101 (0.252)	1.106 (0.279)	0.005 (0.239)	1.005 (0.241)
Whānau has 11-20 people	-0.119 (0.221)	0.888 (0.196)	-0.056 (0.255)	0.945 (0.241)	-0.147 (0.253)	0.863 (0.219)	0.117 (0.280)	1.124 (0.315)	0.187 (0.272)	1.205 (0.328)
Whānau has 21 or more people	-0.338 (0.278)	0.713 (0.198)	-0.521* (0.286)	0.594* (0.170)	-0.098 (0.333)	0.907 (0.302)	0.2 (0.381)	1.222 (0.466)	0.134 (0.223)	1.144 (0.255)
Provided unpaid help to someone who doesn't live with them	-0.175 (0.155)	0.839 (0.130)	-0.075 (0.180)	0.927 (0.167)	-0.146 (0.196)	0.864 (0.169)	-0.350** (0.165)	0.704** (0.116)	-0.302* (0.154)	0.740* (0.114)
Provided any help without pay for, or through, a marae, hapū, or iwi, in the last 4 months?	0.148 (0.200)	1.159 (0.231)	-0.184 (0.243)	0.832 (0.202)	-0.039 (0.217)	0.961 (0.209)	0.069 (0.230)	1.072 (0.246)	0.127 (0.167)	1.135 (0.190)

TABLE A5

Final regression model predicting self-assessed whānau wellbeing (4-point scale) by categorical age, using ordinal logit, Te Kupenga 2013. Significance levels: ***p<0.01, **p<0.05, *p<0.1

HUMAN RESOURCE POTENTIAL

How well is your whānau doing?

Variables	Age 15–24 Raw	Age 15–24 RRR	Age 25–34 Raw	Age 25–34 RRR	Age 35–44 Raw	Age 35–44 RRR	Age 45–54 Raw	Age 45–54 RRR	Age 55+ Raw	Age 55+ RRR
Whānau gets along badly or very badly	-0.687 (0.421)	0.503 (0.212)	-0.644 (0.763)	0.525 (0.400)	-0.544 (0.781)	0.58 (0.453)	-1.075** (0.503)	0.341** (0.172)	-0.861 (0.553)	0.423 (0.234)
Whānau gets along well	0.711*** (0.238)	2.036*** (0.484)	0.529** (0.259)	1.697** (0.439)	0.997*** (0.251)	2.711*** (0.681)	0.297 (0.277)	1.345 (0.373)	0.819*** (0.180)	2.268*** (0.407)
Whānau gets along very well	1.448*** (0.269)	4.256*** (1.144)	1.133*** (0.291)	3.104*** (0.902)	1.430*** (0.268)	4.179*** (1.120)	1.204*** (0.279)	3.335*** (0.930)	1.497*** (0.207)	4.468*** (0.926)
Very hard to get general support	-0.128 (0.800)	0.88 (0.704)	-0.262 (0.656)	0.77 (0.505)	0.245 (0.837)	1.278 (1.069)	-0.801 (0.913)	0.449 (0.410)	0.705 (0.767)	2.025 (1.554)
Hard to get general support	-0.764* (0.446)	0.466* (0.208)	-0.216 (0.480)	0.806 (0.387)	-0.533 (0.397)	0.587 (0.233)	-0.425 (0.389)	0.654 (0.254)	-0.223 (0.447)	0.8 (0.358)
Easy to get general support	0.11 (0.213)	1.116 (0.237)	0.297 (0.267)	1.345 (0.359)	0.152 (0.227)	1.164 (0.264)	0.097 (0.252)	1.102 (0.277)	0.633*** (0.212)	1.884*** (0.399)
Very easy to get general support	0.11 (0.213)	1.116 (0.238)	0.448* (0.253)	1.565* (0.396)	0.11 (0.261)	1.117 (0.291)	0.116 (0.233)	1.123 (0.261)	0.605*** (0.213)	1.831*** (0.389)
Low life satisfaction (0 to 4)	-0.331 (0.528)	0.718 (0.379)	-0.248 (0.541)	0.78 (0.422)	-0.328 (0.577)	0.72 (0.416)	-0.332 (0.482)	0.718 (0.346)	0.45 (0.464)	1.568 (0.727)
High life satisfaction (7 & 8)	0.494** (0.211)	1.639** (0.346)	0.657*** (0.250)	1.929*** (0.482)	0.393 (0.240)	1.482 (0.355)	0.321 (0.212)	1.379 (0.292)	0.420** (0.189)	1.522** (0.287)
Very high life satisfaction (9 & 10)	1.213*** (0.250)	3.363*** (0.842)	1.554*** (0.291)	4.728*** (1.376)	1.377*** (0.302)	3.961*** (1.196)	1.369*** (0.290)	3.931*** (1.140)	1.080*** (0.213)	2.945*** (0.628)
Self-rated health is excellent, good or very good	0.553** (0.231)	1.739** (0.402)	0.547* (0.292)	1.728* (0.505)	0.455* (0.241)	1.575* (0.380)	0.412* (0.213)	1.510* (0.321)	0.008 (0.160)	1.008 (0.162)

How well is your whānau doing?	Age 15–24		Age 25–34		Age 35–44		Age 45–54		Age 55+	
VARIABLES	Raw	RRR	Raw	RRR	Raw	RRR	Raw	RRR	Raw	RRR
Constant cut 1	-1.659*** (0.559)	0.190*** (0.106)	-1.364** (0.543)	0.256** (0.139)	-2.031*** (0.675)	0.131*** (0.088)	-1.173* (0.614)	0.309* (0.190)	-1.634*** (0.494)	0.195*** (0.097)
Constant cut 2	0.317 (0.543)	1.373 (0.746)	0.61 (0.518)	1.841 (0.954)	0.115 (0.651)	1.122 (0.731)	0.922 (0.598)	2.514 (1.504)	0.179 (0.507)	1.196 (0.606)
Constant cut 3	3.208*** (0.552)	24.719*** (13.643)	3.479*** (0.575)	32.440*** (18.660)	3.201*** (0.614)	24.561*** (15.091)	3.478*** (0.620)	32.387*** (20.082)	2.498*** (0.502)	12.157*** (6.109)
Observations	1,233	1,233	972	972	927	927	852	852	1,227	1,227
Weighted observations	134,500	134,500	89,500	89,500	93,000	93,000	85,000	85,000	94,500	94,500