**The Measurement of Social Connectedness and its Relationship to Wellbeing**

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Disclaimer

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# Executive summary

Social connections play an important role across many aspects of people’s lives, from finding employment and getting advice on important decisions, to receiving support during difficult times and having someone to enjoy life and relax with. There is a growing body of evidence showing the importance of these networks to health and wellbeing, but there is a need to better understand and quantify the effect these relationships have in New Zealand and how they could be supported to increase their effectiveness.

The Ministry of Social Development (MSD) commissioned this paper as part of the Families and Whānau Wellbeing Research Programme. It is intended to serve as a foundation for future work exploring how social connectedness affects resilience and wellbeing for New Zealanders and how the development and effectiveness of these networks might be supported by government action. With this review, we hope to better understand:

* the different elements that constitute social connectedness,
* how social connectedness affects wellbeing, and
* how to best measure social connectedness.

This paper presents a conceptual framework for social connectedness and its relationship to wellbeing, based on a review of the literature. Key indicators for social connectedness are proposed, informed by the conceptual framework, as well as an overview of common measurement approaches. Subsequently, primary data sources on social connectedness in New Zealand are summarised and their content is related back to the conceptual framework. Finally, recommendations are made for further research development.

## The conceptual framework

Three core elements of social connectedness are distinguished by: socialising, social support, and sense of belonging. A large body of research shows how these components of social connectedness affect people’s wellbeing, including their subjective wellbeing, physical and mental health, labour market outcomes, and educational outcomes. The exact way in which social connectedness influences wellbeing depends on additional factors such as the social norms in one’s network, the strength of one’s social identity, and one’s personality type. Certain groups of people appear to be at risk of lower social connectedness outcomes, including young adults and older people, people with low socio-economic status, people from dysfunctional family backgrounds, single parents, people living with poor health or a disability, and people living alone.

## Best practice in measurement

Internationally, survey measurement of people’s behaviour and experiences is the most common way to assess levels of social connectedness. However, many of the social connectedness survey techniques used in scientific research have practical limitations for use in large-scale population-based surveys. Therefore, building on the literature review and conceptual framework, this paper proposes primary, secondary, and tertiary indicators for the three components of social connectedness. The primary indicators are limited in number and enable high-level monitoring of levels of social connectedness within and across groups in society. Additional secondary indicators are proposed that enable more in-depth analysis of the three components of social connectedness on a less frequent basis. Lastly, tertiary indicators are proposed that can offer further value depending on the particular research question at hand.

## Data availability in New Zealand

In New Zealand, the New Zealand General Social Survey (NZGSS) and its rotating module on Social Networks and Support (ongoing) are the primary data sources on social connectedness. Other valuable data sources include the New Zealand Time Use Survey (ongoing), the Youth2000 National Youth Health Survey Series (2001 – ongoing), Growing Up in New Zealand (2008 – ongoing), Te Kupenga (2013 – ongoing), the Youth Connectedness Project (2006 – 2008), the Dunedin Multidisciplinary Health and Development Study (1972 – ongoing) and the Life and Living in Advanced Age study (LiLACS NZ, 2010 – 2016). Key social connectedness and wellbeing variables in these surveys are summarised and related back to the developed conceptual framework for social connectedness.

## Recommendations for further research development

Based on the review of the literature on social connectedness and wellbeing and the measurement of social connectedness in New Zealand, this paper concludes with seven recommendations for further research development:

* Retain the ongoing inclusion of key social connectedness variables in the NZGSS Social Networks and Support module
* Gain more insight into the social connectedness of at-risk groups
* Increase our understanding of which ties matter most for whom in which circumstances
* Ensure the inclusion of hedonic and/or affective wellbeing measures in the upcoming NZGSS Time Use Module, as well as useful social classifications for Time Use Survey data
* Explore possibilities to analyse the impact of social connectedness on wellbeing in the New Zealand context
* Explore analytical tools to help clarify the bigger picture
* Include an additional indicator of sense of belonging in the NZGSS Social Networks and Support module, to ensure more comprehensive measurement.

# 1. Background

The importance of individual and community resilience and wellbeing is increasingly recognised by governments around the world. After a long-time focus on economic growth as the indicator of societal progress, there has been growing recognition of the importance of wider wellbeing outcomes, both internationally and in New Zealand (eg, Burton, 2018; Stiglitz, Sen & Fitoussi, 2009). The policy interest in wellbeing and resilience is further strengthened by trends of population growth, rising morbidity and societal ageing, which increase the overall burden of ill-being.

Social connectedness is a key driver of wellbeing and resilience. Socially well-connected people and communities are happier and healthier, and are better able to take charge of their lives and find solutions to the problems they are facing. MSD is therefore seeking to better understand:

* the different elements that constitute social connectedness,
* how social connectedness affects wellbeing, and
* how to best measure social connectedness.

This paper contributes to answering these questions by building a conceptual framework for social connectedness and its relationship to wellbeing, based on a review of the relevant literature. A description of the methodology used for the literature review is included in Appendix 1. The insights gained by the literature review are subsequently used to help identify whether there are any conceptual gaps in current measurement of social connectedness in New Zealand that need to be addressed, as well as any improvements to data quality that could be made. As such, this paper serves as a basis for a series of future projects aimed at:

* improving measures of social connectedness and their use in wellbeing monitoring and modelling across government, including future reviews of the Family Wellbeing Framework;
* better understanding the role of social connectedness in supporting resilience and wellbeing, identifying groups that tend to experience low levels of social connectedness, and finding ways to best support them.

## Outline of this paper

The remainder of this paper is organised as follows:

* Chapter 2 describes three core elements of social connectedness: socialising, social support, and sense of belonging
* Chapter 3 provides an overview of the scientific literature on social connectedness and its relationship to wellbeing. The findings of this literature review are summarised in the conceptual framework on page 11
* Chapter 4 outlines common measurement approaches for social connectedness, and proposes primary, secondary and tertiary indicators of social connectedness, building on the literature review and conceptual framework
* Chapter 5 describes key data sources on social connectedness in New Zealand and provides an overview of their social connectedness variables in relation to the conceptual framework
* Chapter 6 builds on the above analysis to offer recommendations for strengthening the measurement of social connectedness.

# 2. Three elements of social connectedness

This chapter describes three core elements of social connectedness: socialising, social support, and sense of belonging.

The literature on social connectedness covers a wide range of research disciplines, including sociology, psychology, epidemiology, criminology, and economics. Most studies within these disciplines start with the general notion of the importance of social connectedness and then zoom in on a specific component of it, to explore its relationship to their topic of interest. As a result, there is no generally accepted definition of the term ‘social connectedness’.

In its most narrow form, social connectedness refers to the social ties between people. This can be seen as a structural definition of social connectedness, which is often measured by such indicators as one’s number of friends and the frequency of contact with friends and family members. Nonetheless, many authors have argued that the quality of social relationships, rather than the number of contacts or frequency of contact per se, is equally, if not more, important to wellbeing (eg, Lin, Ensel & Vaughn, 1981; Mouw, 2003; OECD, 2011). The importance of this qualitative element of social connectedness is also recognised in MSD’s (2016, p. 216) definition, which describes social connectedness as “the relationships people have with others and the benefits these relationships can bring to the individual, as well as to society. (…) These relationships and connections can be a source of enjoyment and support. They help people to feel they belong and have a part to play in society.”[[1]](#footnote-1)

## Socialising, social support and sense of belonging

While there is no generally accepted definition of social connectedness, it is widely agreed that social connectedness is a multidimensional construct. Based on the review of the literature, three common components of social connectedness can be identified (see also Tough, Siegrist & Fekete, 2017): Socialising, Social support, and Sense of belonging. As the summary of the literature in Chapter 3 will show, these three components are important protective factors that support people’s wellbeing and resilience.

### Socialising

As social beings, we thrive on interactions with others to be and feel well (Hogg, 1992; Turner, Hogg, Oakes, Reicher & Wetherell, 1987) and research shows that activities are typically more satisfying when shared with others (Kahneman & Krueger, 2006). Socialising refers to the interaction between two or more individuals coming together (whether planned or unplanned) to have a good time and enjoy each other’s company. Examples of socialising include friends or family members spending time together, colleagues having lunch together, or neighbourhood residents having a street party (see also Bradburn, 1969).

### Social support

Social support refers to the support from people in one’s social network that is either provided or perceived to be readily available in times of need. A key difference between socialising and social support is that socialising refers to two or more individuals who come together as more or less equal partners. In contrast, social support refers to situations in which one person or group needs help to achieve an objective and another person or group offers resources to provide help (Dovidio, Piliavin, Schroeder & Penner, 2006). Social support is typically divided into subtypes which include emotional, instrumental, and informational support (cf. Chavis & Wandersman, 1990; Tough, Siegrist & Fekete, 2017; Unger & Powell, 1980; Weiss, 1982). Differentiating between these types of support is important, because different support types can have different effects in varying circumstances (eg, for different life events) and for various people (eg, younger versus older people). Also, the effects of different types of stressors may be mitigated, or buffered, by one support type rather than another (Schonfeld, 1991, p. 2).

* **Emotional support** refers to the amount of “love and caring, sympathy and understanding and/or esteem or value available from others” (Thoits, 1995, p. 55). Emotional support is most often provided by a confidant or intimate other, although less intimate ties can provide such support as well.
* **Instrumental support** focuses on help with practical things, such as financial assistance, lending items or help with child care responsibilities. House (1981) has referred to instrumental support as aid in kind, money or labour. Some authors have noted that instrumental support often carries an emotional meaning as well, by communicating to support recipients that they are cared for (eg, Semmer et al., 2008).
* **Informational support** refers to individuals who serve as information and referral sources (eg, housing or job referrals) or who provide advice on expert matters such as medical, legal, financial or technical advice.

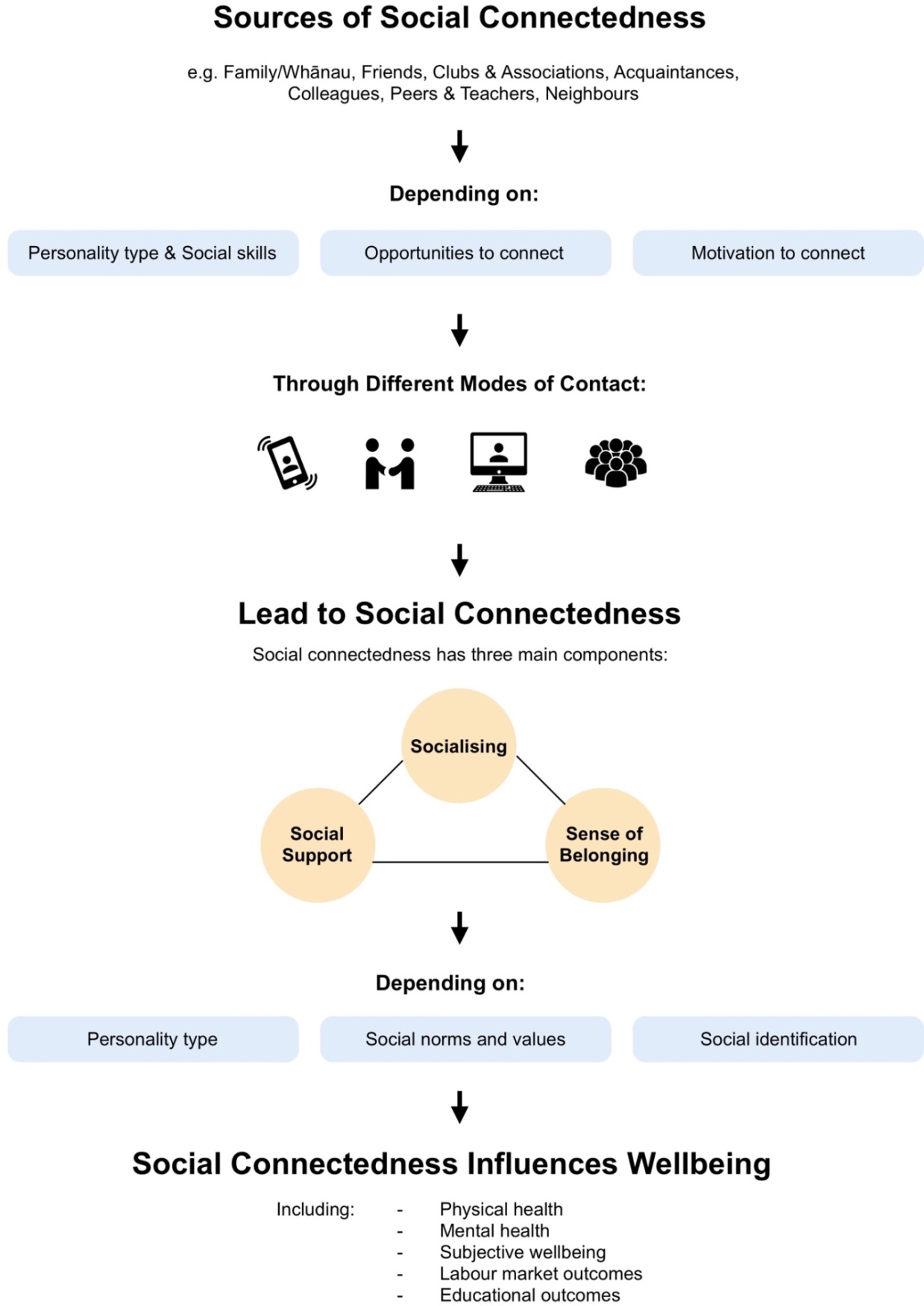
A second important distinction within social support is that between perceived support and received support. Some authors have posed that it is not necessarily the receipt of support that is critical, but firstly the belief that it is (or will be) available when needed, which is commonly referred to as perceived support. Many authors have found separate effects of perceived and received support on wellbeing outcomes, emphasising the need to distinguish between the two (eg, Rees & Freeman, 2007). In terms of explaining their differential effects, Helgerson (1993) has argued that the fact that support was received does not necessarily mean that needs were met. Other authors have posited that some types of received social support may in fact lower wellbeing by diminishing recipients’ sense of control and self-confidence (Fisher, Nadler & Whitcher-Alagner, 1982; Tough, Siegrist & Fekete, 2017), making them feel indebted (Gleason, Iida, Bolger & Shrout, 2003), or reinforcing dependency (Bolger & Amarel, 2007). In particular, behaviour signalling a negative emotional meaning while giving social support, for example, by giving ‘lectures’ (“I told you that this project would get you into trouble”) or reproaches (“How on earth could you forget to prepare for such a situation”), may undermine the value of social support for wellbeing (Semmer et al., 2008, p. 245-246). Haslam, Cruwys, Haslam and Jetten (2015) thus conclude that it is important that received social support enhances one’s sense of control and self-confidence.

### Sense of belonging

A sense of belonging is the feeling of being connected to and valued by other people. Whether it is sourced from family, friends, co-workers, club members, or a church community, people have an inherent desire to belong and be part of something greater than themselves (Baumeister & Leary, 1995; Maslow, 1943). Having a sense of belonging is a protective factor that strengthens people’s resilience. In contrast, feelings of loneliness are a risk factor and are argued to indicate a deficit in one’s sense of belonging. As Heinrich and Gullone (2006) write, when the need to belong is not satisfactorily met, feelings of loneliness tend to arise. Loneliness is a negative emotion of feeling disconnected (De Jong-Gierveld & Van Tilburg, 2006) and lacking people one feels close to (Dahlberg, 2007). Feeling lonely stirs up negative emotions in individuals by decreasing their sense of being valued as a relational partner and lowering self-esteem (Leary & Baumeister, 2000). It is important to note that loneliness is distinct from aloneness or the lack of social ties per se: a person who feels lonely might be surrounded by or connected to many people (none of whom satisfactorily fulfil his or her need to belong). At the same time, a person can be alone or have a limited number of social contacts without feeling lonely.

As depicted in Figure 1, the three core elements of social connectedness are interrelated. For example, socialising tends to strengthen individuals’ willingness to provide social support as well as their sense of belonging. At the same time, people are more likely to ask for or receive support from people they socialise with more often and feel more connected to.

Figure 1 Conceptual framework of social connectedness and its relationship to wellbeing

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## Sources, modes, and the transition to social connectedness

There are many different sources of social connectedness. As the OECD has described (2011, p. 170): *“People’s lives are made of countless social connections that vary in context and intensity: family, close friends, neighbours, colleagues, distant acquaintances – even a one-off interaction with a stranger in the street is a form of social contact.”*

Individuals can connect in many different ways. It commonly involves face-to-face as well as non-face-to-face interactions (eg, by mail, telephone and text messaging).

Moreover, in recent decades, technological developments have given rise to new ways of connecting to others, through the introduction of online communication tools.

Many authors have expressed concerns about whether these new types of social contact may result in more superficial online relationships at the expense of existing ‘real-world’ relationships with family and friends. Nonetheless, studies to date find both positive and negative effects on social connectedness.

Some authors have found that new technology simply provides an alternative social outlet (Grieve, Indian, Witteveen, Tolan & Marrington, 2013), with pre-existing non-electronic networks often forming the basis of the establishment of electronic-based networks (Subrahmanyam, Reich, Wacher & Espinoza, 2008). New communication technology has also been shown to encourage openness and sharing of emotions between people (Valkenburg & Peter, 2009).

Information technology, however, can also have anonymising, individualising effects, sometimes referred to as ‘being alone together’ (eg, Turkle, 2017) and concerns have been expressed about the influence of screen time on the development of social skills as well as the effects of cyberbullying (Aboujaoude, Savage, Starcevic & Salame, 2015).

As Figure 1 shows, the extent to which sources of social contact are turned into social connectedness through different modes of contact depends on several factors, including:

* individuals’ personality type and level of social skills
* their motivation to invest in the relationship
* the opportunities open to them to connect with others.

### Personality and social skills

The Big Five personality traits[[2]](#footnote-2) predict relationship success, with individuals high on extraversion, agreeableness, conscientiousness, and emotional stability faring better socially (for a review, see Ozer & Benet-Martinez, 2006). In contrast, neuroticism and low agreeableness consistently emerge as predictors of negative relationship outcomes, such as relationship dissatisfaction, conflict and dissolution (Karney & Bradbury, 1995). Similarly, social skills have been found important in determining people’s ability to access, construct, and maintain satisfying relationships and support networks (eg, Hansson, Jones & Carpenter, 1984).

### Motivation to connect

Humans have an intrinsic motivation to connect to others, based on their inherent need to belong to a group (see 2.1 ‘Sense of belonging’). An important factor that plays a role in further activating this intrinsic motivation is the ‘shadow of the future’. Game theory (eg, Axelrod, 1984) suggests that people’s willingness to invest in relationships is greater when the likelihood of encountering that same person again at a later point in time is bigger. The shadow of the future therefore plays an important role in determining people’s motivation to initiate and continue to invest in relationship building and in the development of initial trust and reciprocity.

### Opportunities to connect

A wide range of factors influence people’s opportunities to connect to others, including the types of activities that they participate in. For example, Scrivens and Smith (2013, p. 24) have noted that: *“Participation in the labour market and in civic engagement activities can change the size and composition of people’s networks, bringing them into contact with a much larger pool of potential contacts, with a greater diversity of backgrounds and interests”*. In contrast, if people spend more time on solitary activities rather than those shared with others, then they will have less time to invest in social connections. Other factors that influence opportunities to connect include cultural norms and ways of socialising as well as more policy-amenable factors, such as working hours, access to transportation, the built environment, material wellbeing, health status, crime levels and experienced safety and levels of trust in society (cf. Scrivens & Smith, 2013, p. 24).

## Resilience and deficits in levels of social connectedness

The three components of socialising, social support and sense of belonging form a resilience model of social connectedness, as they jointly support people’s wellbeing. In addition to the protective value of social connectedness, many studies have focused on groups at risk of low social connectedness and the effects on their wellbeing. These studies focus on a deficit model of social connectedness, including constructs such as social isolation (often conceptualised as a lack of socialising), a lack of social support, and feelings of loneliness. In this body of work, several groups are commonly identified to be at risk of low social connectedness outcomes. While further insight is needed into the extent to which these risks hold for certain components of social connectedness more than others, the sections below offer an overview of some of the frequent findings.

### Older people and young people

Older adults are commonly found to be at greater risk of social isolation and loneliness due to the many life changes that take place in later life, including retirement, bereavement and children moving away (Shankar, Rafnsson & Steptoe, 2015), which may lead to a loss of social roles (Ferraro, 1984). OECD indicators (2011) show that the share of older people who said they socialised with friends once a week was much lower (only 40%) compared to people of working age (61%) and youth (92%, OECD, 2011, p. 179). Loneliness is however not just confined to the older age group. Young people tend to show high levels of loneliness too (Victor & Yang, 2011). The U-shaped relationship between loneliness and age is confirmed by the 2016 New Zealand General Social Survey (NZGSS), which showed that 8.2% of young people (15-24 yrs) and 7% of older people (65+ yrs) reported that they felt lonely ‘most’ or ‘all of the time’, compared to approximately 5.5% of other New Zealanders (25-64 yrs, StatsNZ, 2017a).

### Socio-economic status

Studies further indicate a relationship between people’s social connectedness and their socio-economic status (including their education and income). Across OECD countries, the poor were twice as likely as the non-poor to never get together with friends or family from outside the household. In terms of social support, the OECD found that around 72% of people with only primary education and 73% of respondents in the bottom income quintile reported having someone to count on for help in times of need, compared to over 90% of those with secondary and tertiary education and in the upper income quintile (OECD, 2011, p. 179-180). For New Zealand, 2016 NZGSS data found that people on lower household incomes ($30,000 or less) were much more likely to experience frequent loneliness, with 9.9 % indicating that they felt lonely ‘most’ or ‘all of the time’ in the last four weeks, compared to a national average of 6.3% (StatsNZ, 2017a).

Wilson (1987) has posed that having close ties to people who are employed and who have a college education helps to provide access to social resources that can reduce social isolation amongst the poor (such as job networks and information about services). Yet, studies from the United States and Canada suggest that people with lower incomes tend to affiliate more, and experience a stronger sense of belonging to, people in a similar economically marginalised situation (Stewart et al., 2009) and tend to have more frequent contact within smaller and less diverse networks (Campbell & Barrett, 1992; Tigges, Browne & Green, 1998). Social activities that require money or fear of stigmatisation can lead people with low incomes to distance themselves from others (Stewart et al., 2009). As Zavaleta, Samuel and Mills (2017, p. 382) have concluded, “we should not take the existence of social support networks among the poor for granted or overlook the ways that economic policies and societal structures can enhance or erode these networks” (see also: Gonzalez de la Rocha, 2007; Samuel, Alkire, Zavaleta, Mills & Hammock, 2018).

### Family background

Family backgrounds are likely to influence people’s social connectedness outcomes as people’s first experiences with others, generally within their family or whānau, are fundamental for their social behaviour later in life (Kosse, Deckers, Schildberg-Hörish & Falk, 2017). Social connectedness is a key feature in identity development, including one’s definition of self in relation to others (Townsend & McWhirter, 2005). Attachment theory (Bowlby, 1969) describes how early patterns of social attachment shape individuals’ expectations, attitudes and behaviours in later relationships. Secure attachment forms a base from which infants and children can safely explore and venture forth. Attachment theory posits that these intimate bonds, created in childhood, form a secure base for solid attachment in adulthood and provide prototypes for later social relationships (Fonagy, 1996). Other authors have further argued that family backgrounds also influence people’s access to opportunities, through the networks of relationships passed on from parents to children (Scrivens & Smith, 2013; Wintrobe, 1995).

### Single parents

Loneliness and a lack of social support have been described as the social consequences of the single-parent family status. As Smith (1980, p. 75) has argued, the absence of one parent means “limited human resources, less potential for emotional support within the household, and reduced possibilities for assistance with various household and childcare tasks”. Data from the 2016 NZGSS (StatsNZ, 2017a) indeed indicates that single parents with children are more likely to experiences loneliness, with 8.8% of single parents indicating that they felt lonely ‘most’ or ‘all of the time’ in the last four weeks, compared to the national average of 6.3%. New Zealand analysis further suggests that single parents with young children have fewer family members and friends that they can count on for support (Timmins, 2017, p. 49).

### Poor health and disability

People with functional limitations or bodily impairments can be disadvantaged in their opportunities to participate in social life (Tough, Siegrist & Fekete, 2017). For example, among older populations, studies suggest that the loss of health or functional status as well as poor sight or hearing impairment is related to increased feelings of loneliness (Savikko, Routasalo, Tilvis, Strandberg & Pitkälä, 2005; Mullins, Elston & Gutkowski, 1996; Kramer, Kapteyn, Kuik & Deeg, 2002). In New Zealand, Hawkins-Elder, Milfont, Hammond and Sibley (2018) similarly found that people in poor health tended to experience more loneliness.

### Living arrangements

Several studies have considered how living arrangements, in particular living alone, affect social connectedness. People who live alone can lead very social lives and be more likely to participate in social events (Klinenberg, 2012). Nonetheless, Scandinavian studies suggest that living alone is a risk factor for loneliness among older people (Routasalo, Savikko, Tilvis, Strandberg & Pitkälä, 2006; Samuelsson, Andersson & Hagberg, 1998). The Australian Bureau of Statistics found that adults who lived alone had higher rates of mental health problems as well as higher levels of psychological distress, compared with those living in a household with at least one other person (ABS, 2003). The UK Office of National Statistics also found that living alone was negatively related to personal wellbeing, regardless of relationship status. Household types where two or more people lived together gave higher ratings for ‘life being worthwhile’ and ‘life satisfaction’ than those living alone (Oguz, Merad & Snape, 2013). Using 2014 NZGSS data, the 2017 Families and Whānau Status Report concluded that living with someone makes it easier to get some types of social support, such as help and support when sick with the flu or having someone to talk to when feeling down (Timmins, 2017, p. 53). Better understanding the impacts of living arrangements on social connectedness is important as the number of people living alone in New Zealand has been increasing and is projected to continue to grow (StatsNZ, 2016).

# 3. Social connectedness and wellbeing

This chapter provides an overview of the scientific literature on social connectedness and its relationship to wellbeing.

## An overview of research findings

A large body of research has explored the relationships between social connectedness and wellbeing. A common distinction is made in the literature between subjective and objective wellbeing:

1. **Subjective wellbeing** focuses on people’s personal experience of their own wellbeing. Research on subjective wellbeing distinguishes between three broad dimensions. *Evaluative or cognitive wellbeing* refers to global evaluations of satisfaction with life in general or specific areas of one’s life. *Hedonic or affective* wellbeing captures mood or feelings within a specific time period. *Eudaimonic wellbeing* relates to the satisfaction of basic psychological needs and self-determination (Dolan, Layard & Metcalfe, 2011).
2. **Objective wellbeing** is often broken down into a range of dimensions and is based on the importance of basic human needs to constitute wellbeing. It includes aspects such as material living standards, health, education, safety and social connectedness. Objective wellbeing can be captured through self-reporting (eg, self-reported health or housing quality) or through more objective measures (eg, income, mortality rates or housing quality inspection data).

### Social connectedness and subjective wellbeing

Already in 1969, Bradburn found that social involvement[[3]](#footnote-3) was one of the strongest correlates of positive emotions (see also Lelkes, 2010; Helliwell, Barrington-Leigh, Harris & Huang, 2010). More recent evidence indicates that close and supportive relationships are not just correlates of wellbeing but have a causal effect. For example, longitudinal analysis has shown that high levels of perceived support lead to increases in life satisfaction (Adriaansen, Van Leeuwen, Visser-Meily, Van den Bos & Post, 2011). Similarly, research on widows (Lucas, Clark, Georgellis & Diener, 2003) and divorced people (Clark, Diener, Georgellis & Lucas, 2004) shows substantial declines in subjective wellbeing right before and after the loss of a significant other. As Diener and Seligman (2002) concluded from their studies on happiness, no variable is sufficient for happiness, but good social relationships are necessary. Analysis of British Household Panel Survey data (Richards, 2016) further indicates that socialising and social support make a larger difference to life satisfaction in times of financial stress.

### Social connectedness, physical health, and mortality

In 1979, Berkman and Syme published the results of their seminal study linking social connectedness to mortality. Their findings showed that people who lacked social and community ties[[4]](#footnote-4) had higher mortality rates than those who were well-connected, even after statistically controlling for physical health, health behaviours (eg, smoking), health practice, and use of health services. Their findings were confirmed by many subsequent studies (see reviews by Berkman, Glass, Brissette & Seeman, 2000; Cohen, 1988; House, Landis & Umberson, 1988; Seeman, 1996; Uchino, 2004, 2006), leading researchers to conclude that a lack of connectedness predicts early death as much as major health risk behaviours like smoking (Cacioppo & Patrick, 2008).

The Dunedin Multidisciplinary Health and Development Study (the Dunedin longitudinal study) has been one of the first studies linking childhood social isolation[[5]](#footnote-5) to adult health outcomes and found that childhood social isolation had persistent and cumulative effects on poor adult health, also after controlling for a wide range of other risk factors such as low childhood socio-economic status, low childhood IQ, childhood obesity, health-damaging behaviours and exposure to stressful life circumstances (Caspi, Harrington, Moffit, Milne & Poulton, 2006).

As Cohen (2004) suggests, social relationships have the capacity to get ‘under our skin’ in ways that shape the biological processes that are detrimental to health. One means through which social connectedness is argued to inﬂuence physical health and mortality is by relieving harmful levels of stress (Knox & Uvnas-Moberg 1998; Turner-Cobb, Sephton, Koopman, Blake-Mortimer & Spiegel, 2000). Supportive networks are argued to help control the body’s response to heightened arousal and stress (Uchino, 2006), thereby buffering the adverse effects of stress on coronary arteries, gut function, insulin regulation, and the immune system. For example, in studies of patients with HIV, those who had less emotional support at the study baseline measurement were found to have fewer helper T-cells[[6]](#footnote-6) in subsequent years to combat the disease (Theorell et al., 1995).

A second group of authors has argued that it is the damaging effects of social isolation and loneliness, rather than the protective effects of social support, that is the cause of these ﬁndings. Social isolation and loneliness are stressors in their own right, increasing neuroendocrine responses and cardiovascular reactivity, which has the effect of suppressing immune function (Cohen, 2004).

A third group of authors has focused on the way in which social connectedness leads to more functional and adaptive coping styles (Cohen & Wills,1985) and better self-regulation. For instance, in a series of six experiments Baumeister, DeWall, Ciarocco and Twenge (2005) showed that being socially excluded or rejected[[7]](#footnote-7) inhibits people’s ability to self-regulate. Participants who were exposed to social exclusion were less likely to engage in healthy behaviour, quit sooner on a frustrating task and were less able to focus their attention.

### Social connectedness and mental health

There is abundant cross-sectional and longitudinal evidence that social support and a sense of belonging are negatively related to depression and poor psychological health (eg, Auerbach, Bigda-Peyton, Eberhart, Webb & Ho, 2011; Cockshaw & Shochet, 2010; Hughes et al., 2014; Nolen-Hoeksema & Ahrens, 2002; Power, 1988). As Peirce, Frone, Russell, Cooper and Mudar (2000) describe, believing that support is available if needed may cause people to spend less time worrying about life's problems and daily hassles, thereby reducing the experience of anxiety and depression. Moreover, the perception that one is loved and esteemed by others helps to foster one's sense of mastery. Vinokur and van Ryn (1993) nonetheless found that the benefits of social support to mental health are limited to positive, pleasant interactions, and that social relationships characterised by conflict, criticism, and undermining are harmful to mental health. Their findings also indicated that, in practice, social support and social undermining[[8]](#footnote-8) are not the opposite poles of the same factor. Instead, close relationships are often marked by a variety of supportive and undermining patterns.

Analysis of New Zealand data has specifically focused on the causality in the relationship between social connectedness and mental health and found that social connectedness[[9]](#footnote-9) was a stronger and more consistent predictor of mental health year-on-year than mental health was of social connectedness (Saeri, Cruwys, Barlow, Stronge & Sibley, 2018).

While the impact that social relationships have on mental health is seen across all age groups, loneliness and social isolation are speciﬁc risk factors for depression in older adults (Cacioppo, Hughes, Waite, Hawkley & Thisted, 2006). Cruwys, Dingle, Haslam, Haslam, Jetten and Morton (2013) investigated longitudinal data from the English Longitudinal Study of Ageing and found that participation of older people in social group activity was not only protective against the development of depression in healthy participants but also preceded recovery and reduced the risk of relapse among those with a history of depression.

Other research has investigated the role that social relationships play in protecting against cognitive decline in older people. For example, Bennett, Schneider, Tang, Arnold and Wilson (2006) followed healthy older people who, on first contact, showed no signs of Alzheimer’s disease pathology. Yet, at post-mortem examination years later, they found greater evidence of tangle density (a marker of Alzheimer’s disease) among those who had smaller social support networks[[10]](#footnote-10), indicating that people with larger social support networks enjoy better cognitive health and are less vulnerable to progressive decline (Haslam, Haslam & Jetten, 2014). The size of these effects is found to be considerable. In a sample of over 6,100 older people in the longitudinal Chicago Health and Aging Project, Barnes, Mendes de Leon, Wilson, Bienias and Evans (2004) found that the rate of cognitive decline was reduced by 39% for those people who had the greatest social network size. This was reduced even further, by 91%, where people actively participated with others in those networks. These relations remained after controlling for socio-economic status, cognitive activity, physical activity, depressive symptoms, and chronic medical conditions.

Similarly, analysis of participants in the longitudinal US Health and Retirement Study (*N* = 16,638) over a six-year period suggests that social connectedness delays memory loss. Memory loss among the least socially connected[[11]](#footnote-11) worsened at twice the rate over the six-year period compared to the most connected (Ertel, Glymour & Berkman, 2008).

Results based on the Australian Longitudinal Study of Ageing (Giles, Anstey, Walker & Luszcz, 2012) also confirm the protective effect of supportive social network size[[12]](#footnote-12) on memory loss.

### Social connectedness and employment outcomes

The study of social capital in the labour market has stressed the advantages that individuals can derive from their networks in finding a job (Aguilera, 2002; Burt, 1992; Montgomery, 1991). Social capital theory presents a view of social connectedness as an asset held by individuals and communities. In *The Strength of Weak Ties*, Granovetter (1973) theoretically differentiated between the strong ties that bind us to close friends or family and the weak ties that connect us with acquaintances. He posited that weak ties[[13]](#footnote-13) are crucial in providing the broadest range of job information as it is these sorts of ties that enable jobseekers to tap into information that would otherwise be out of reach. Those closest to us tend to be privy to similar sorts of information, as more people know each other in the same social circle. In contrast, weak ties have their own personal networks and consequently provide access to information and resources beyond those available in our own social circle.

Studies using data from individual firms on the hiring process have indeed found that applicants who were referrals from current employees had higher rates of receiving job offers than other applicants (Fernandez, Castilla & Moore, 2000; Fernandez & Weinberg, 1997; Petersen, Saporta & Seidel, 2000).

Other authors have argued that it is not the number of contacts per se but the quality and quantity of the social resources that are accessed through using contacts that matters (Lin, Ensel & Vaughn, 1981; Mouw, 2003).

In lower socio-economic groups, the information provided by weak ties does not necessarily constitute a real broadening of opportunity (Granovetter, 1983, p. 208-09).

Consistent with this interpretation is the finding of Lin, Ensel and Vaughn (1981) that weak ties have positive effects on occupational status only when they connect one to high-status individuals.

### Social connectedness, adolescent social adjustment, and educational outcomes

A pioneering study by Resnick and colleagues (1997) found that family and school connectedness[[14]](#footnote-14) were powerful predictors of adolescent maladjustment, including their psychological distress, aggressiveness and drug use. These results were confirmed by subsequent longitudinal studies, which showed that having good family, school (teacher and peer) and wider social connectedness is associated with better educational and wellbeing outcomes in later years and less problem and health risk behaviours (eg, Yaoran, Allen & Casillas, 2017; Klem & Connell, 2004; McNeely & Falci, 2004). Bond et al. (2007) found in their longitudinal study of over 1,800 secondary school students, that study participants with low school connectedness[[15]](#footnote-15) were at elevated risk of anxiety and depressive symptoms, regular smoking, drinking, and using marijuana in later years.

Moreover, the likelihood of completing school was reduced for those with either low school connectedness, poor social connectedness outside of school, or both.

In terms of explaining the relationship between social connectedness and educational performance, psychological experiments show that people’s ability to think intelligently drops when they feel socially excluded[[16]](#footnote-16), particularly for more complex cognitive tasks (Baumeister, Twenge & Nuss, 2002; see also Williams, 2001).

Other studies indicate that peer relationships and group membership are associated with greater interest in and more enjoyment of school, while students who do not have such social relationships tend to be less engaged with school (Anderman & Freeman, 2004; Hymel, Comfort, Schonert-Reichl & McDougald, 1996). Pittman and Richmond (2007) found that college students who reported a greater sense of belonging at a college level had higher levels of self-worth. McNeely and Falci’s (2004) analysis of data from the US Longitudinal Study of Adolescent Health found that adolescents who perceived that their teachers were fair and cared about them – referred to as teacher support – were less likely to engage in problem and health risk behaviours.

## The different ties that matter

The above results indicate that the three elements of social connectedness play an important role in maintaining and promoting wellbeing and resilience.

An important question for public policy aiming to increase resilience through social connectedness is what a healthy form and amount of social connectedness looks like.

While the above research clearly indicates that more is generally better than less, the exact amount and form of social connectedness that is most beneficial to wellbeing and resilience depends on a wide range of factors. For example, personality differences are reflected in different experienced needs for socialising, social support and sense of belonging. These needs often even differ for the same person, depending on their current life circumstances. For example, the need to belong and the impact of feeling socially excluded may be more pronounced in early adulthood when people are finding their place in society. Similarly, life changes (eg, illness, ageing or becoming a new parent) often bring new challenges with them and therefore likely increase the need for social support.

Research also suggests that not all ties are equal in promoting wellbeing in different areas for different people and that some types of social connections are more beneficial in certain situations than others. For instance,, this paper has already touched on the common distinction that is made between strong and weak ties (see ‘Social connectedness and employment outcomes’ above).

Strong ties describe bonds between people who share common background characteristics. Bonding social connections are often generated in tightly cohesive communities where many people know many other people in the group (called ‘network closure’). Strong ties are an important source of emotional and instrumental support and help fulfil individuals’ need to belong (Thoits, 2011). The strong trust and shared norms and values that are inherent in strong ties encourage mutual care and belonging between network members. Bonding connections, such as family ties and friendships, often function as a form of informal social insurance. The strong bonds and reputational effects that come with network closure raise members’ sense of obligation to uphold their part of the informal contract while trusting that others will do the same.

Despite the importance of strong ties as a source of belonging and emotional and instrumental support, the high levels of trust and strong norms that are inherent in strong ties can also foster groupthink and conformity and can isolate groups from wider society. Many authors have thus pointed at the danger of social exclusion and fragmentation when strong bonds within groups jeopardise connections to the wider society (Catell, 2004; Komter, 2001). When strong norms within groups develop at the expense of more generalised identities and sentiments, the danger is that “people may come to exist in small worlds – close and closed communities – as a result of which they do not share values, understandings and commitments with or to the wider society (and its constituent social groups) of which they are a part” (Kearns & Forrest, 2000, p. 1001).

Contrary to strong ties, weak ties are cross-cutting and connect people with different background characteristics. Many researchers have noted how weak connections to other networks offer benefits to individuals. For example, above this paper has described the strength of weak ties in finding a job. Weak ties provide people with access to information and resources beyond those available in their direct social circle. Such informational advantages increase individuals’ exposure to upcoming opportunities and their ability to develop innovative solutions to existing problems (Burt, 1992; Gargiulo & Benassi, 2000; Hargadon & Sutton, 1997).

Unfortunately, the advantages of some people’s connections to opportunity-rich social networks tend to come at a cost to others who do not have these connections. Wilson (1996) has noted that a defining feature of being poor tends to be that one is not a member of certain social networks and institutions that could be used to secure good jobs and good quality housing. He posited that social isolation exacerbates the consequences of poverty by reducing access to education and employment opportunities. A lack of access to such networks can systematically exclude people from opportunities and resources that are more commonly available to others in society, thereby constraining their wellbeing.

Other studies also shine a light on the way that different types of social connections matter for different people, for different wellbeing outcomes, in different situations.

Haslam, Haslam and Jetten (2014) examined the separate contribution that group and one-on-one social interaction made to the cognitive functioning of older people, drawing on three waves of data from the English Longitudinal Survey of Ageing. While, intuitively, often a large focus is placed on the importance of strong bonds and one-on-one relationships, they found that group activities were especially protective against cognitive decline and that this effect was more impactful with increasing age, with the more socially engaged 80-year-olds performing cognitively like the 70-year-olds. These findings are remarkably similar in different cultural contexts around the world. For example, using longitudinal data of over 4,600 older Taiwanese, Glei and colleagues (2005) found that older people with wider social engagement (eg, based on participation in clubs and associations and doing volunteer work) failed fewer cognitive tasks three years later. In contrast, individual relationships with family and friends were not associated with the same positive cognitive outcomes. In Israel, Litwin (2001) derived five network types for older Israelis and examined the relationship between these network types and morale in old age. Litwin similarly found that respondents in diverse[[17]](#footnote-17) or friends’ networks reported the highest morale, while those in exclusively family or restricted networks had the lowest. Glei et al. (2005) have posited that one explanation for these findings is that social participation in groups and in wider social networks is more likely to be voluntary, whereas interactions within more restricted personal social networks may be overshadowed by the one-sided burden of care. Wider and group-based social activities may also place higher demands on cognitive functioning.

In contrast, for adolescents, findings by Garnefski and Diekstra (1996) suggest a dominant role of perceived family support in affecting adolescent wellbeing and behaviour. In their study of 476 Dutch high school students, a negative perception of the family appeared to be strongly related both to emotional and behavioural dysfunction, with an accumulating effect found for multiple negatively perceived social environments (including a negative perception of school and peers).

In a longitudinal study of Korean middle school children, Song, Bong, Lee and Kim (2015) also found that support from parents predicted the widest variety of adolescent motivation and achievement indexes. Parental emotional support was most beneficial, predicting stronger mastery goals, weaker performance-avoidance goals, lower test anxiety, and higher academic achievement than any other type of support. Similar results have been found for New Zealand students. Based on longitudinal data of over 2,000 students who participated in the New Zealand Youth Connectedness Project (YCP, 2006-2008), Jose and Pryor (2010) concluded that family connectedness was the most powerful predictor of young people’s psychological health.

Different social ties and different components of social connectedness thus matter for different wellbeing outcomes, for different people and in different situations. Gaining a deeper understanding of the specific types of social relationships that matter most for certain groups, can help inform policy interventions that aim to improve the wellbeing and resilience of these groups.

## Factors impacting on the relationship between social connectedness and wellbeing

The impact of social connectedness on wellbeing is likely to be further influenced by the social norms and values within one’s social environment and the extent to which one identifies with others (see Figure 1). Personality plays a role here too, as some people feel a stronger need for or place a relatively higher value on social connectedness than others (eg, Yoon & Lee, 2010).

### Social norms and values

Social ties can be an asset as well as a liability for wellbeing, depending on the social norms and values in the group that one identifies with. As Woolcock and Narayan (2000, p. 226) have described, “most parents, for example, worry their teenage children will ‘fall in with the wrong crowd’ and that peer pressure and a strong desire for acceptance will induce them to take up harmful habits” . The influence of network members has been documented with respect to a wide range of behaviours and outcomes, including drinking behaviour (Gaughan, 2006), eating behaviour (Robinson, Thomas, Aveyard & Higgs, 2014), academic performance (Lomi, Snijders, Steglich & Torló, 2011), substance use (Osgood et al., 2013) and delinquency and crime (Weerman, 2011). Erickson (1988) has suggested that under conditions of ambiguity, people obtain normative guidance by comparing their attitudes with those of a reference group of similar others (see also Marsden & Friedkin, 1994). Similarly, based on their analysis of Dunedin longitudinal study data, Olsson, McGee, Nada-Raja and Williams (2013) concluded that the development of social identities that support healthy ways of relating to oneself, others and the world is a potentially important mechanism linking social connectedness to later wellbeing.

### Social identification

Social identity theory (Tajfel & Turner, 1986; Turner & Reynolds, 2010) posits that other people and groups influence our thoughts, emotions, and behaviour more strongly when, and to the extent that, they are internalised as part of our self-concept. Increasingly, the contribution of social identification – defined as the sense of self that people derive from their membership with various groups – is gaining prominence, due to its capacity to explain why not all relationships are beneficial for wellbeing and why we seek engagement and support from particular people but not others (Haslam, Cruwys, Haslam & Jetten, 2015, p. 3).

# 4. Measuring social connectedness

This chapter outlines common measurement approaches for social connectedness, and proposes primary, secondary and tertiary indicators of social connectedness, building on the literature review and conceptual framework.

Following the growing recognition of the importance of social connectedness in affecting individuals’ wellbeing outcomes and the move towards more evidence-based policy development, government agencies are looking for ways to improve data collections on this topic. At this stage however, there is little standardisation in the measurement of social connectedness (Zavaleta, Samuel & Mills, 2017; OECD, 2011). This is partly due to the fact that measurement instruments for social connectedness stem from a wide range of disciplines and have been developed in relation to many different social problems. Moreover, measurement approaches applied in scientific research on social connectedness are often not suitable for the measurement of social connectedness in large-scale population-based surveys, as will be described in more detail below.

This chapter firstly provides an overview of different methods used for measuring social connectedness, including the applicability of these approaches in a public policy context. Subsequently, primary, secondary and tertiary indicators are proposed for each of the three components of social connectedness, informed by the literature review presented in Chapters 2 and 3.

## Overview of methods used for measuring social connectedness

### Administrative data and online databases

Administrative data refers to information collected primarily for administrative (not research) purposes. Large-scale administrative data on social connectedness is limited to such variables as marital or partnership status, intermarriage rates, or the density of clubs, associations or voluntary organisations in a given area. Extensive online databases on social connectedness now also exist, following the rise of online social networking.

Scrivens and Smith (2013, p. 56) note that social networking sites, such as Facebook and Twitter, may provide an alternative source of data on the extent and nature of people’s personal relationships, if handled with appropriate respect for privacy and anonymity (see also Tach & Cornwell, 2015, p. 268). For example, some researchers have used anonymised data on the number of friendship links on Facebook as an indicator of social connectedness between states and between US counties and foreign counties (Bailey, Cao, Kuchler, Stroebel & Wong, 2017). While such data may be of interest for specific research questions, they offer limited conceptual coverage for the overall measurement and monitoring of levels of social connectedness within a public policy context.

### Survey data

Acknowledging the limitations of administrative data and online databases, the 2009 Stiglitz Commission on the Measurement of Economic Performance and Social Progress (Stiglitz, Sen & Fitoussi, 2009) has argued that meaningful indicators of social connections need to be based on surveys of people’s actual behaviour. Within this context, many authors have noted that the measurement of the quality of social relationships is equally important as the structure of these relationships.

A long-time criticism of research on social connectedness is that often relationship content is assumed from structure (Antonucci & Jackson, 1990; Berkman, 1986; House, Landis & Umberson, 1988). For example, in the social capital literature, the existence of weak ties that connect people to other networks is often inferred from membership in voluntary organisations.

As the OECD (2011, p. 172) describes, ideally, a set of indicators of social connections should describe a range of different relationships, as well as the quality of those relationships and the resulting outcomes for people (ie, emotional and financial support, job opportunities, less social isolation).

Three commonly used techniques to measure social connectedness as part of survey measurement include: social network analysis, psychometric measurement scales, and resource and position generators.

### Social network analysis

Social network analysis is used by many social and other researchers to gain insight into the structure of social ties and the patterns of relationships. Social networks, or ‘sociograms’, are constructed by surveying members of a group about their relationships

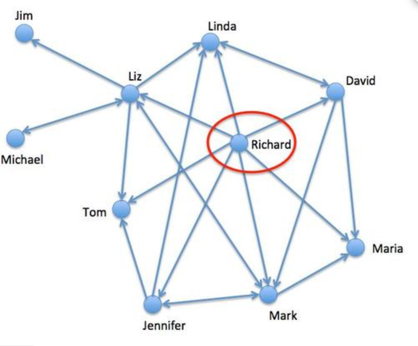
with others.

Figure 2 Example of a sociogram

Once data has been collected on the majority of relationships within the social network, sociograms can be drawn in which people are represented as nodes, and relationships or ties are represented as lines. The relationships or ties can mean a wide range of things, such as friendship relations, social support relations or communication flows in organisations. Based on the network structure, different indicators can be calculated such as the degrees of separation, the number of cliques, or the number of bridges between social networks.

While social network analysis offers valuable insights into social connectedness and its relationship to wellbeing, most techniques require (as much as possible) for the whole network to be interviewed in order to draw reliable sociograms. This requirement limits the applicability of social network analysis in the context of national population-based surveys.

### Psychometric measurement scales

Several psychometric scales have been developed to measure social connectedness. For example, the UCLA Loneliness Scale, a 20-item questionnaire measuring feelings of social isolation and dissatisfaction with one’s social interactions (Russell, 1996), is one of the most frequently used measures of loneliness in the scientific literature. Other commonly used measurement scales include (see Appendix 2 for an overview):

* The 12-item Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet & Farley, 1988)
* The Social Connectedness Scale, focused on measuring belongingness, by Lee and Robbins (1995)
* De Jong-Gierveld and Van Tilburg’s 6-item scale for overall, emotional and social loneliness.

These developed scales often focus on single dimensions of social connectedness (eg, social support or belonging), rather than the multidimensional concept as a whole. Moreover, many of these scales include a relatively large number of questions, which limits their applicability within large-scale population-based surveys, in which competition for interview time is high as it needs to be divided across a wide range of information needs. The majority of these scales also use repetitive question formats to enhance internal consistency and scale reliability. Such repetitive questionnaire design tends to go against the objective of national population-based surveys to minimise respondent burden as well as their budgetary and space constraints (see also Tach & Cornwell, 2015, p. 262).

### Resource and position generators

Social capital and social support theories share the core notion of social resources (Richards, 2016, p. 513). Resource and position generators (eg, Van der Gaag & Snijders, 2005) have been developed by social capital researchers to examine the extent to which access to others who possess valuable resources or who occupy important positions influences wellbeing outcomes such as occupational status (eg, Lin & Dumin, 1986). As Tach and Cornwell (2015, p. 262) explain, position generators query respondents about their access to people in important positions, whereas resource generators ask about people’s access to theoretically relevant resources, such as social support, money, or information (eg, “Do you know anyone who can give legal advice?”). These measurement instruments usually consist of a series of questions to cover different resources that are thought to be important. Sometimes follow-up questions are asked about the strength of the respondent’s relationship with the person who has the specific resource or position.

Lengthy position and resource generators can be found in academic studies. The Survey on the Social Networks of the Dutch (SSND), for example, asked about respondents’ connections to people in 30 different occupations (Röper, Völker & Flap, 2009). In national population-based surveys, resource generators are more common than position generators and tend to include fewer questions. Short resource generators are frequently used to gain insight into people’s access to emotional, instrumental and informational support, including in the NZGSS (see Section 5.1). The 2008 Canadian GSS module on Social Networks (Statistics Canada, 2010) also included a more lengthy position generator, asking whether people knew men or women in 16 different professions[[18]](#footnote-18), to gain insight into the socio-economic diversity of people’s networks.

### Commonly used indicators in national population-based surveys

In their review of national population-based social surveys, Scrivens and Smith (2013, pp. 43-49) found that common indicators of social connectedness in national population-based surveys include:

* frequency and mode of social contact
* size, composition and diversity of social networks
* satisfaction with and feelings about personal relationships
* sources of personal relationships and support
* perceived and received social support
* time spent on social activities (through time use surveys).

## Primary, secondary and tertiary indicators for the three components of social connectedness

Informed by the literature review presented in Chapters 2 and 3 of this paper and the resulting conceptual framework on page 11, this section proposes primary, secondary and tertiary indicators for the measurement of the three components of social connectedness (see Table 1 for an overview). The proposed primary indicators enable high-level monitoring of levels of social connectedness within and across groups in society. They provide a helicopter view of social connectedness by monitoring levels of socialising, social support, and sense of belonging. To ensure regular measurement of these primary indicators, they need to be small enough in number to ensure their inclusion in relevant New Zealand population-based surveys. In contrast, the secondary indicators are larger in number and can be measured at longer time intervals to enable more in-depth analysis of the three components of social connectedness and their relationships to wellbeing. Lastly, the value of the tertiary indicators depends on the specific research question at hand. They are not critical in the monitoring of social connectedness, but can provide important insights depending on the topic of interest.

Table 1 outlines the proposed indicators for the measurement of social connectedness, which are discussed in more detail below.

Table 1 Proposed primary, secondary and tertiary indicators of social connectedness

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Primary indicators** | **Secondary indicators** | **Tertiary indicators** |
| **Socialising** | * Frequency of contact with family/ whānau or relatives (who don’t live with the respondent) * Frequency of contact with friends (who don’t live with the respondent) * Perceived amount of quality time spent with key family members * Perceived amount of quality time spent with friends | * Satisfaction with amount of contact with family, friends and others * Frequency of contact with others (in addition to family and friends, eg, neighbours, members of clubs or associations, etc) * Membership of clubs or associations | * Time spent on socialising * Primary mode of contact (incl. face-to-face/ non-face to face) * Diversity in one’s network of friends  (eg, with regard to socio-economic status, age, sex and ethnicity) |
| **Social support** | * Perceived ease of access to emotional support * Perceived ease of access to instrumental support | * Perceived ease of access to informational support * Primary sources of social support (first point of call) * Physical proximity of sources of social support * Approximate size of perceived social support network * Received support, including:   + Primary sources of received social support   + Physical proximity of primary sources of received support   + Experienced helpfulness of received support   + Unmet support needs | * Time spent on providing/ receiving social support |
| **Sense of belonging** | * Frequency of feeling lonely * Wider sense of belonging to New Zealand society (proxy measure: generalised trust) | * Wider sense of belonging to New Zealand society (by measuring people’s sense of belonging to a range of different groups) |  |

### Socialising

As socialising can take many different forms, the frequency of contact with family and friends are commonly used as the primary indicators for socialising. They are also key indicators to identify people with very minimal or no social contact (often referred to as social isolation). However, as the frequency of contact with family and friends provides little information about the quality of these socialising relationships, it is suggested two additional indicators – the perceived amount of quality time spent with key family members as well as friends – are used to capture this quality dimension. The proposed secondary indicators include wider social contacts, such as contacts with neighbours and membership of clubs and associations, as well as satisfaction with the amount of contact with family, friends and others. In addition, several tertiary indicators may be relevant depending on the research question at hand. For example, there may be a specific interest in exploring the diversity within people’s friendship networks or potential changes in the modes through which people socialise (eg, face-to-face versus non-face-to-face) and their impacts on wellbeing.

### Social support

For social support, the proposed primary indicators focus on levels of emotional and instrumental support, as the literature review indicates that these are key types of support that help people to get by. These two indicators enable high-level monitoring of whether people’s basic needs for social support are being met. While considered important, the level of informational support has been included as a secondary indicator. Informational support helps people to get ahead rather than to get by. Moreover, while emotional and instrumental support can be generalised more easily, types of informational support that are beneficial to wellbeing are more likely to differ between people, partly depending on the life-stage they are in[[19]](#footnote-19). Therefore, informational support is difficult to capture in a single headline indicator. The secondary indicators for social support further focus on better understanding people’s primary sources of social support, the physical proximity of these support sources and the size of people’s support network. Moreover, the secondary indicators include measurement of received social support and its experienced helpfulness, to complement data on perceived social support. Time spent on providing and receiving social support is included as a tertiary indicator and may be of interest for specific research aims.

### Sense of belonging

Most of the measurement of people’s sense of belonging focuses on the deficit end of the spectrum, that is, on feelings of loneliness. A lot of people feel lonely some of the time, therefore at-risk groups are often defined based on feeling lonely ‘most’ or ‘all of the time’. In addition to this primary indicator of loneliness, it is important to assess whether the sense of belonging that people gain from their personal networks is balanced by a wider sense of belonging to New Zealand’s broader society and its diverse social groups, to prevent isolation within fragmented and closed communities (see Section 3.2). A possible proxy indicator for this sense of belonging to the wider society is people’s generalised trust in others.

As Figure 3 shows, ideally infrequent feelings of loneliness are accompanied by high levels of generalised trust in others, indicating a sense of belonging within one’s personal networks as well as the wider society. In contrast, frequent feelings of loneliness together with low levels of generalised trust in others are undesirable as they suggest feelings of isolation from one’s personal network as well as a sense of alienation from society more in general. The two remaining categories in the matrix figure are undesirable too. Infrequent feelings of loneliness, accompanied by low generalised trust in others, suggest a risk of isolation within a closed community. Lastly, frequent feelings of loneliness accompanied by high generalised trust in others, pose risks to individual wellbeing, but are nonetheless unlikely to cause issues of fragmentation in society.

Figure 3 Balance between sense of belonging to one’s personal network and New Zealand’s wider society.

|  |  |  |  |
| --- | --- | --- | --- |
|  | | **Generalised trust in others** | |
| **Low** | **High** |
| **Feelings of loneliness** | **Frequent  (‘most’ or ‘all of the time’)** | Feelings of isolation from one’s personal network as well as society more in general | Feelings of isolation from one’s personal network, but general sense of belonging to the wider society |
| **Infrequent (‘some’, ‘a little’, ‘none of the time’)** | Risk of isolation within fragmented communities with individuals who have a high sense of belonging to their personal network, but lack a sense of belonging to the wider society | A sense of belonging within one’s personal network as well as the wider society |

As an alternative indicator for the balance between people’s sense of belonging to their personal networks as well as society more generally, the 2016 NZGSS has measured people’s sense of belonging to a range of different groups, including one’s family, neighbourhood, the company or organisation one works for, one’s religious or spiritual group, one’s ethnic group, the region one lives in, New Zealand as a whole, and any other countries (0 ‘no sense of belonging’ … 10 ‘very strong sense of belonging’). As it is a relatively lengthy measure, this measure is proposed in Table 1 as a secondary indicator. No tertiary indicators for sense of belonging have been identified.

# 5. Measurement of social connectedness in New Zealand

This chapter describes key data sources on social connectedness in New Zealand and provides an overview of their social connectedness variables in relation to the conceptual framework.

Several New Zealand surveys and studies have focused on gaining more insight into social connectedness and its relationship to the wellbeing of New Zealanders.

The NZGSS and New Zealand Time Use Survey (NZTUS) are key data sources for reporting on social connectedness at a national level and also provide official statistics on social connectedness for specific groups of interests (eg, based on age, household composition, income and education level).

The longitudinal designs of the Dunedin Multidisciplinary Health and Development Study (1972 – ongoing) and Growing Up in New Zealand (2008 – ongoing) offer further insight into the causal links between social connectedness and wider health and wellbeing outcomes[[20]](#footnote-20).

The Youth2000 Surveys (2001, 2007, 2012, in preparation for 2018), the Youth Connectedness Project (2006, 2007, 2008), Te Kupenga, and Life and Living in Advanced Age (LiLACS NZ, 2010-2016) provide data on social connectedness and its relationship to wellbeing for specific groups of interest.

## The New Zealand General Social Survey (NZGSS)

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| Survey population: | New Zealand’s usually resident population, aged 15 years and over, residing in private households |
| Sample size: | Approximately 8,500 |
| Response rate: | 79% on average from 2008 to 2016 |
| Survey waves: | Every two years, from 2008 onwards |

In New Zealand, the NZGSS is the primary information source for measures of social connectedness. Since 2008, every two years, the NZGSS takes a snapshot of the wellbeing of people in New Zealand.

The survey interviews over 8,000 New Zealanders aged 15 years and over on their experiences and circumstances across a wide range of life domains, including social connectedness, physical and mental health, material living standards, paid work, housing and the physical environment, safety and security, civic and human rights, culture and identity, and overall subjective wellbeing.

The NZGSS interview takes approximately 45 minutes, around 25 minutes of which is allocated to the survey’s primary content. This primary content is repeated at each survey iteration.

Since 2014, each NZGSS survey also includes a rotating module that takes approximately 20 minutes to complete. The rotating modules enable more in-depth data collection on themes of that are of high interest to public policy and for those themes to be explored in relation to the wide range of wellbeing outcomes in the NZGSS.

### NZGSS primary content indicators

Table 2 provides an overview of the NZGSS primary content indicators that are relevant to social connectedness.

The primary indicators that have been suggested for the three elements of socialising, social support and sense of belonging (see Table 1) are largely covered by the NZGSS primary content.

In terms of socialising, the NZGSS includes measures of frequency of contact, rather than the amount of quality time spent with key family members and friends. These ‘quality time’ measures are nonetheless part of the NZGSS Social Networks and Support module. The representative sample design of the NZGSS and its large sample size warrant its use as a high-quality source of official statistics. The cross-sectional design enables monitoring of levels of social connectedness for the New Zealand population over time. In addition, the survey provides insight into differences in social connectedness between different groups in society and allows identification of groups at risk of low levels of connectedness.

The cross-sectional nature of the NZGSS, however, does not lend itself to analysing the impact of social connectedness on wellbeing, as causal pathways cannot be inferred. Nonetheless, the recent addition of NZGSS data to the Integrated Data Infrastructure (IDI)[[21]](#footnote-21), managed by Statistics New Zealand (StatsNZ), may enable the identification of causal relationships between social connectedness (as measured through the NZGSS) and later wellbeing outcomes captured in the IDI (eg, labour market, education and health outcomes), going forward.

Table 2 Overview of NZGSS primary content indicators on social connectedness

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| **Socialising** |
| * **Frequency of contact with family or relatives** who don’t live with the respondent [talked in person; had video conversations; talked over the telephone; had written conversations] (every day; at least once a week; at least once a fortnight; at least once in the last four weeks; not at all) * **Frequency of contact with friends** who don’t live with the respondent [talked in person; had video conversations; talked over the telephone; had written conversations] (every day; at least once a week; at least once a fortnight; at least once in the last four weeks; not at all) * **Satisfaction with amount of contact with family or relatives** who don’t live with the respondent (too much contact; about the right amount of contact; not enough contact) * **Satisfaction with amount of contact with friends** who don’t live with the respondent (too much contact; about the right amount of contact; not enough contact) |
| **Social support** |
| * **Ease of access to emotional support** (“Suppose you felt down or a bit depressed and wanted to talk with someone about it. (…) How easy or hard would it be to talk to someone?” (very easy; easy; sometimes easy/ sometimes hard; hard; very hard) * **Ease of access to instrumental support** (“Suppose you urgently needed a place to stay. (…) How easy or hard would it be to ask someone you know to stay with them?” (very easy; easy; sometimes easy/ sometimes hard; hard; very hard) |
| **Sense of belonging** |
| * **Frequency of feeling lonely** (none of the time; a little of the time; some of the time; most of the time; all of the time) |
| **Wellbeing outcomes** |
| * Including: Subjective wellbeing (life satisfaction, perception of life being worthwhile, physical health, mental health, educational qualifications, labour force status) |

### NZGSS rotating module – Social Networks and Support

The Social Networks and Support module, one of the NZGSS’s rotating modules, was first administered in 2014. This rotating module complements the NZGSS primary content indicators on social connectedness.

As can be seen from Table 3, the Social Networks and Support module offers a wealth of data on social connectedness, closely aligned with the three elements of socialising, social support and sense of belonging.

In line with OECD recommendations (OECD, 2011, p. 183; Scrivens & Smith, 2013, p. 57), the rotating module provides more detail on the different sources and types of social support and also collects data on ‘perceived’ as well as ‘received’ social support.

In addition, it captures data on the physical proximity of key sources of support, as well as unmet support needs and the experienced helpfulness of the social support that was provided.

The module provides valuable information for policy makers about the importance of different sources of social support and the accessibility of support networks for different groups of people.

Table 3 Overview of variables in the NZGSS Social Networks and Support module

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| **Sense of belonging** |
| * **Frequency of feeling lonely** in the last four weeks (none of the time; a little of the time; some of the time; most of the time; all of the time)   Note: The NZGSS question explicitly recognises the distinction between being alone and feeling lonely by starting with the following introduction: “People who have contact with family and friends can still feel lonely sometimes, while those who have little contact may not feel lonely at all”. |

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| **Mode of contact** |
| * **Main way of staying in contact with supportive family members** who do not live with the respondent (talking in person; video conversations; telephone; written communication) * **Main way of staying in contact with supportive friends** who do not live with the respondent (talking in person; video conversations; telephone; written communication) * **Main way of staying in contact with supportive neighbours** (talking in person; video conversations; telephone; written communication) * **Main way of staying in contact with members of association(s)** the respondent belongs to (talking in person; video conversations; telephone; written communication) * **Use of social networking sites** to stay in contact with **supportive family members** (yes/ no) * **Use of social networking sites** to stay in contact with **supportive friends** (yes/ no) |

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| **Diversity in friends’ networks** |
| * Proportion of **friends** who are the **same age** as the respondent (none; a few; about half; most; all) * Proportion of **friends** who are the **same sex** as the respondent (none; a few; about half; most; all) * Proportion of **friends** who are the **same ethnicity** as the respondent (none; a few; about half; most; all) * Proportion of **friends** who have about the **same level of income** as the respondent (none; a few; about half; most; all) |

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| **Socialising** |
| **Family and household relationships**   * Perceived amount of **quality time with partner** (too much, about right amount, not enough) * Perceived amount of **quality time with child(ren)** (too much, about right amount, not enough) * Self-rating for **getting along with other people in the household** (0 extremely badly … 10 extremely well) * Number of times **everyone in the household ate a meal together** in the last seven days (00 … 99)   **Frequency of contact with others**   * **Frequency of contact** in the last four weeks with **supportive family members** who do not live with the respondent [talked in person; had video conversations; talked over the telephone; had written conversations] (every day; at least once a week; at least once a fortnight; at least once in the last four weeks) * **Frequency of contact** in the last four weeks with **supportive friends** who do not live with the respondent [talked in person; had video conversations; talked over the telephone; had written conversations] (every day; at least once a week; at least once a fortnight; at least once in the last four weeks) * **Frequency of contact** in the last four weeks with **supportive neighbours** (every day; at least once a week; at least once a fortnight; at least once in the last four weeks) * **Frequency of contact** in the last four weeks with **members of clubs or associations** that the respondent is a member of (every day; at least once a week; at least once a fortnight; at least once in the last four weeks)   **Satisfaction with amount of social contact with others**   * **Satisfaction with amount of contact with supportive family** who do not live with the respondent (too much contact; about the right amount of contact; not enough contact) * **Satisfaction with amount of contact with supportive friends** who do not live with the respondent (too much contact; about the right amount of contact; not enough contact) * **Satisfaction with amount of contact with supportive neighbours** (too much contact; about the right amount of contact; not enough contact) * **Satisfaction with amount of contact with members of clubs or associations** that the respondent is a member of (too much contact; about the right amount of contact; not enough contact)   **Membership of associations**   * Whether the respondent is a **member of any groups, clubs or organisations** [church, religious or spiritual group; sports club or group; hobby club or interest group; neighbourhood/community association or group; political party, organisation or group; volunteer organisation or group; professional association or trade union; other group, association or club; not a member of any clubs, groups or organisations] * **Number of groups, clubs or organisations** that respondent belongs to (0 … 99) * Whether the **participation** in the group(s), club(s), or organisation(s) is **entirely online** (yes/no) |
| **Perceived support – General** |
| * **Which family members** help and support the respondent (partner/spouse; parent/s; brothers and/or sisters; children; uncles, aunts and/or cousins; in-laws; other family members; no family who provide help or support; don’t like to ask family members for help or support) * **Number of family members** who provide support to the respondent (0 … 99) * **Number of friends** who provide support to respondent (0 … 99) * **Physical proximity of family members who provide support** (the same house or flat; same neighbourhood; same town/ city/ rural area; different region in New Zealand; overseas) * **Physical proximity of friends who provide support** (same house or flat as respondent; same neighbourhood; same town/ city/ rural area; different region in New Zealand; overseas) |

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| **Perceived support – Emotional support** |
| **Who would the respondent turn to** if he/ she…   * felt down or a bit depressed and wanted to talk with someone about it. * unexpectedly got some really good news and wanted to share this with someone? * (a family member I live with; a family member I do not live with; someone else I live with; a friend who doesn’t live with me; a neighbour; a work colleague; a professional; an organisation; someone else; I have no one to ask for help; I would not ask for help)The **physical proximity** of the person who is first point of call (same neighbourhood as respondent; same town/ city/ rural area; different region in New Zealand; overseas) * The **perceived ease** of asking that person for help (very easy; easy; sometimes easy, sometimes hard; hard; very hard) |

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| **Perceived support – Instrumental support** |
| **Who would the respondent turn to** if he/ she…   * went away and needed help with things like collecting mail, looking after pets, or checking the home * had the flu and had to stay in bed for a few days and needed help * needed to borrow $2,000 in an emergency * urgently needed a place to stay   (a family member I live with; a family member I do not live with; someone else I live with; a friend who doesn’t live with me; a neighbour; a work colleague; a professional; an organisation; someone else; I have no one to ask for help; I would not ask for help)   * The **physical proximity** of person who is first point of call (same neighbourhood as respondent; same town/ city/ rural area; different region in New Zealand; overseas) * The **perceived ease** of asking that person for help (very easy; easy; sometimes easy, sometimes hard; hard; very hard) |

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| **Perceived support – Informational support** |
| **Who would the respondent turn to** if he/ she…   * needed help finding a job * inherited some shares in a company and needed advice on what to do with those shares   (a family member I live with; a family member I do not live with; someone else I live with; a friend who doesn’t live with me; a neighbour; a work colleague; a professional; an organisation; someone else; I have no one to ask for help; I would not ask for help)   * The **physical proximity** of person who is first point of call (same neighbourhood as respondent; same town/ city/ rural area; different region in New Zealand; overseas) * The **perceived ease** of asking that person for help (very easy; easy; sometimes easy, sometimes hard; hard; very hard) |

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| **Received support** |
| * Whether the respondent has experienced **any big life changes** in the last 12 months (eg, changes to health or the health of someone close to them; changes in personal or family relationships; changes in employment status)   For the change that had the biggest impact on the respondent’s life:   * The **significance** of this key event for the respondent (0 not at all significant … 10 very significant) * Whether the key event was mostly **positive or negative** for the respondent (mostly positive; neither positive nor negative; mostly negative) * **Types of support received** following the key event (emotional or moral support; information or advice; financial support; practical support; other support; no support) * Who was the **first person who provided support** (partner / spouse; parent; brother or sister; son or daughter; other family member; non-family member you live with (eg, flatmate, boarder); friend I don’t live with; neighbour; member of a group, club or organisation you belong to; professional; organisation; other) * **Physical proximity** of the first person who provided support (same house or flat as the respondent/ same neighbourhood as respondent; same town/ city/ rural area; different region in New Zealand; overseas) * **Ease of getting support** from that person (very easy; easy; sometimes easy, sometimes hard; hard; very hard) * **Experienced helpfulness** of support provided (0 it did not help … 10 it was very helpful) * Who were **all the people who provided support** [emotional or moral support; information or advice; financial support; practical support; other support] (a family member I live with; someone else I live with (eg, a flatmate, boarder etc); a family member I do not live with; a friend I do not live with; a neighbour; a member of a club I belong to; a professional; an organisation; other) * **Unmet need for support**: Was there any other type of help or support that you needed, but did not get during [the life change]? (yes/no). What support was that (text entry) |

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| **Background indicators** |
| * **Satisfaction with living alone** (0 completely dissatisfied … 10 completely satisfied) * Whether **spouse or partner lives in another household** (does not include ex-partners or ex-spouses) (no; yes, same neighbourhood as respondent; yes, in the same town / city / rural area as respondent; yes, in a different region in New Zealand to respondent; yes, overseas) * **Number of years** that the respondents has lived in his/her **current neighbourhood** (0-99) |

The 2015 StatsNZ release *Social networks help New Zealanders deal with change* focused on responses to the questions on received support. The report explored the changes people experienced during the previous 12 months, their impacts, and who they reached out to for support. The report showed that:

* 7 in 10 New Zealand adults experienced at least one change that had a major impact on their lives in the last 12 months.
* Changes in health circumstances were the most commonly reported life change, followed by changes in finances and relationships.
* 3 in 5 of those who experienced a major life change used family for support. People were over four times more likely to turn to family for support first than either friends or professionals.
* 1 in 5 people did not access any support during a period of change in their life. Older people (65 years and over) were more likely to not get help during a life change than young people.
* People were most likely to use the support of professionals for changes that involved the care of a sick or disabled person (27%), and changes in their health status or the health of someone close to them (30%).
* Emotional support was the most common type of support that people received, regardless of age.

## The New Zealand Time Use Survey (NZTUS)

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| **Survey population:** | New Zealand’s usually resident population, aged 12 years and over, residing in private households. |
| **Sample size:** | 9,159 individual respondents in 2009/10 |
| **Response rate:** | 72% for both survey waves to date |
| **Survey waves:** | 1998/99 and 2009/10. A new Time Use rotating module is scheduled for the 2020 NZGSS |

The 1998/99 and 2009/10 NZTUSs consisted of three parts: an interviewer-administered household questionnaire and person questionnaire; a two-day (48 hour) diary; and a diary interview. Within the diary, information was captured on time spent on social activities. Moreover, the 2009/10 survey specifically collected information on who the respondent was with during each activity, with the aim of providing new information on social connectedness.

Time Use Survey data complements NZGSS data by providing information on time spent on social activities. NZTUSs have to date captured very limited data on wellbeing outcomes related to social connectedness. StatsNZ is currently assessing the feasibility of running the NZTUS as a rotating module onto the 2020 NZGSS. While this will enable analysis of the relationships between time spent on social activities and the range of wellbeing domains in the NZGSS, it should be noted that the primary wellbeing indicators that are of interest for Time Use Surveys are hedonic or affective wellbeing measures (see Section 3.1 ‘Social connectedness and subjective wellbeing’), rather than the wellbeing measures that are currently included in the NZGSS. Hedonic and affective measures capture moods or feelings within a specific time period, instead of the more general subjective and objective wellbeing measures that are currently included in the NZGSS.

Including additional hedonic or affective wellbeing measures in the NZGSS Time Use module can provide further insights into the extent to which different kinds of social activities are experienced as pleasant or unpleasant and how they relate to people’s mood or feelings at the time. This provides an additional lens on the experienced quality of social interactions. For example, respondents could rate the activities captured in their diary on a scale ranging from ‘very unpleasant’ to ‘very pleasant’. Similarly, respondents could answer affect measures such as the Positive Affect Negative Affect Schedule (PANAS)[[22]](#footnote-22) after a diary event took place.

A key strength of the NZTUS is that, to date, it has interviewed respondents aged 12 years and over. As part of its feasibility assessment, StatsNZ is currently exploring whether this younger group of respondents can be included in the NZTUS if it is run as a rotating module onto the 2020 NZGSS, as the NZGSS normally interviews New Zealanders aged 15 years and over. If the Time Use rotating module were to interview people aged 12 and over, it would provide a unique opportunity to gain further insight into the social connectedness of young people, including their time spent on social activities with family members, school friends, non-school friends and others. As described above (see Section 3.1 ‘Social connectedness, adolescent social adjustment and educational outcomes’), young people are at risk of frequent feelings of loneliness and their social connectedness is a key protective factor for their wellbeing and educational outcomes.

## Dunedin Multidisciplinary Health and Development Study[[23]](#footnote-23)

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| **Survey population:** | Children born at the Queen Mary Maternity Centre in Dunedin who were still living in the wider Otago region three years later |
| **Sample size:** | 1,037 at baseline (1972/73) |
| **Retention rate:** | 95% at the age 38 assessment (2010-2012) |
| **Survey waves:** | Birth (1972/73), followed up at age 3, 5, 7, 9, 11, 13, 15, 18, 21, 26, 32, 38 (2010-2012) |

The Dunedin Multidisciplinary Health and Development Study (often referred to as the Dunedin longitudinal study) is an internationally recognised, long-running cohort study of 1,037 people born between 1 April 1972 and 31 March 1973 in Dunedin.

They were studied at birth (1972/73) and then followed up and assessed at the age of three when the longitudinal study was established.

Since then they have been assessed every two years until the age of 15, then at ages 18 (1990-91), 21 (1993-94), 26 (1998-99), 32 (2003-2005), and 38 (2010-2012).

The study members are currently being assessed at age 45 (2017-2019) and the research team hopes to continue further assessments in the future.

During an assessment, study members are brought back to Dunedin from wherever in the world they live. They participate in a day of interviews, physical tests, dental examinations, blood tests, computer questionnaires and surveys.

Sub-studies of the Dunedin Study include the ongoing Parenting Study which focuses on the Dunedin study members and their first three-year-old child. In addition, the Next Generation Study focuses on the offspring of Dunedin study members as they turn 15 and looks at the lifestyles, behaviours, attitudes and health of today's teenagers, and aims to see how these have changed from when the original study members were 15 (in 1987–88).

The Dunedin longitudinal study has a very high retention rate, with 95% retention at the last ‘age 38’ assessment between 2010 and 2012. Over 1,200 papers, reports, book chapters and other publications have been produced using findings from the study.

The Dunedin longitudinal study has somewhat more limited conceptual coverage of the different elements of social connectedness identified in this paper. Nonetheless, it includes key indicators on social isolation and social support at different stages throughout the study, as well as detailed information on family and partnership relationships.

The main advantage of the longitudinal design is that it provides unique insights into the dynamics of family connectedness, as well as the influence of family and peer relationships on later wellbeing outcomes. Social connectedness items covered in the survey include[[24]](#footnote-24):

* Family environment while growing up (cohesion, conflict, independence, etc)
* Childhood social adjustment (well-adjusted, inhibited, under-controlled, aggressive)
* Childhood social relationships (measured at 5,7, 9 and 11 years of age, by parents and teachers who completed two items that were part of the Rutter Child Scales: child... “tends to do things on his/her own; is rather solitary” and “is not much liked by other children”)
* Adolescent inventory of peer attachment (15 years of age – assesses the extent to which adolescents feel integrated with their peers, for example, “I feel alone or apart when I am with friends” and “friends are concerned about my wellbeing”)
* Adult access to social support (how many people “make you feel liked or loved”, “can comfort you or calm you down”, “can you trust to keep the things you talk about private”, and “can you talk to when you are feeling down or blue”)
* Adult number and quality of partner relationships, including conflict resolution tactics.

Wellbeing outcomes in the study focus on physical and mental health as well as emotional and behavioural problems.

## Growing Up in New Zealand

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| **Survey population:** | 6853 parents of children recruited from greater Auckland, Counties Manukau and Waikato District Health Board areas. The focus of the study is the children – their mothers are interviewed in all waves with children interviewed beginning at 8 years. |
| **Sample size:** | 6853 mothers of children at baseline which was reduced to 2,000 participants in 2016 due to a lack of funding. In May 2018, new government funding was announced for the survey to increase its sample size again. |
| **Response rate:** | > 90 % up until the 4.5 years interview |
| **Survey waves:** | Before birth, 9 months, 2 years, 4.5 years, 6 years, 8 years |

The longitudinal study Growing Up in New Zealand was started in 2008 by the University of Auckland's Centre for Longitudinal Research – He Ara ki Mua. It plans to follow approximately 7,000 children from before birth until they are young adults at the age of 21.

The study aims to provide new information about what shapes children’s early development and how interventions might be targeted at the earliest opportunity to give every New Zealand child the best start in life.

To date, parents have been interviewed before their children's birth, and when the children were 9 months, 2 years, 4.5 years and 6 years of age. At each interview, the study asks about the child's health and wellbeing, family/whānau life, education, psychological development, neighbourhood and environment, and culture and identity.

The participant children are now 8 years old and study interviewers are currently in the field for the 8-year data collection wave. It will be the first time the study is interviewing the children themselves.

The Growing Up in New Zealand study currently has a strong focus on family social connectedness. Given the young age of the Growing Up in New Zealand study cohort, opportunities to analyse the impact of social connectedness on later wellbeing outcomes is limited at this stage compared to the Dunedin longitudinal study. Nonetheless, it is a rich source of information on New Zealanders’ social connectedness in the early years of life and an important sequel to the Dunedin longitudinal study, providing data on a more recent birth cohort.

Social connectedness variables in the study include:

* main caregivers for the child
* parent-child interactions (eg, comforting, showing sympathy, apologising, using physical punishment)
* childhood exposure to tension, conflict, and violence in the relationships of caregivers
* parent-teacher relationships and parental involvement in school
* child’s social skills development (through survey questions as well as observation tasks).

In addition, a wide range of parental and child wellbeing variables are collected, including children’s and parents’ physical and mental health, their educational outcomes and parents’ labour market outcomes.

## The Youth2000 National Youth Health Survey Series

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| **Survey population:** | Secondary school students from over approximately a third of all high schools in New Zealand |
| **Sample size:** | Approx. 10,000 each survey iteration, total of 28,000 students over the three survey waves |
| **Response rate:** | 81% of invited schools and 72% of invited students on average over the three survey waves |
| **Survey waves:** | 2001 // 2007 // 2012 // in the process of securing funding for 2018 |

The Youth2000 survey series was run in 2001, 2007 and 2012, by the Adolescent Health Research Group at the University of Auckland. The research group hopes to conduct a fourth wave of the survey in 2018, depending on available funding.

As Clark and colleagues (2013) describe, the survey series asks a large sample of New Zealand secondary school students questions on a wide range of topics that contribute to the health and wellbeing of young people in New Zealand. These include questions about ethnicity and culture, physical health, food and activities, substance use, sexual health, injuries and violence, home and family health, school achievement and participation, neighbourhood environment, spirituality and access to healthcare.

Around 100 randomly selected secondary schools throughout the country are invited to take part (approximately a third of all high schools in New Zealand). Subsequently about 20% of the year 9–13 students at each school are randomly selected and surveyed. Each year the researchers have aimed to survey about 10,000 students throughout New Zealand. The survey is completed during school time and takes about an hour to complete. Those students who agree to take part answer the questions on small hand-held computers/tablets. Each student has their own device and can read the questions off the screen and hear them read aloud through headphones. As part of the survey a research assistant also measures each student’s height and weight.

The Youth2000 surveys include a wide range of questions on social connectedness, as well as health and wellbeing outcomes and protective and risk factors (for a full overview, see the Adolescent Health Research Group, 2012).

As Table 4 shows, the questions in the Youth2000 surveys cover all three elements of social connectedness (socialising, social support and sense of belonging).

Based on the sample design, the large sample size of the survey and the relatively high response rate, the survey provides valuable insights into the social connectedness of adolescents, a group shown to be at risk of high levels of loneliness (see Section 2.3 ‘Resilience and deficits in levels of social connectedness’)

Table 4 Overview of social connectedness variables in the Youth2000 Surveys

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| **Socialising** |
| **Family connectedness:**   * How much do you and your family have fun together? * How do your family members get along? * How do you view your relationships with your family? * Do you get to spend enough time with you mum/dad? (If not, why not?) * Do you get to spend enough time with your other family members/relatives who do not live with you?   **Friends, peers and associational membership:**   * Background characteristics of friends * Do you belong to any school sports teams? * Do you belong to any clubs or teams at school other than sports teams (eg, musical or singing group, cultural club, library group) * Do you belong to a group, club or team which is not run by your school? * Do you get along with your teachers? |

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| **Wellbeing outcomes** |
| * Including: Educational outcomes, physical health, mental health, oral health, sexual health, use of health care, food consumption, sports and physical activities, cultural wellbeing, safety and security, employment (paid and unpaid), cigarette, drugs and alcohol consumption, gambling, driving behaviours, violence and anti-social behaviours, involvement with police and gangs. |

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| **Social support** |
| **Family connectedness:**   * How much of the time is your mum/dad warm and loving towards you? * How much do you feel the following people care about you: [mum (or someone who acts as your mum), dad (or someone who acts as your dad), brothers or sisters, other family members]?   **Friends and school peers:**   * Do you have a friend or friends that you can talk to about anything? * How much do you feel your friends care about you? * How much do you feel that people at school care about you (like teachers, coaches or other adults)? * Do you do activities to help others at school (eg, peer support, tutoring, coaching, being a leader, helping others with work) |

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| **Sense of belonging** |
| * How much of the time do you **feel close to your mum/ dad**? * Do you **feel** like you are **part of your school**? |

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| **Other, including:** |
| **Bullying:**   * In the last 12 months how often have you been bullied in school? * What was the reason you were bullied? (you may answer as many as apply) * In the last month, how many times have you not gone to school because you were afraid someone might hurt, tease or bully you?   **Experienced fairness and discrimination:**   * How often do the teachers at your school treat students fairly? * Have you ever been treated unfairly (eg, treated differently by a teacher because of your ethnicity or ethnic group?)   **Volunteering:**   * Do you give your time to help others in your community (eg, help out on the Marae or church, belong to a volunteer organisation such as Greenpeace)? |

## The Youth Connectedness Project

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| **Survey population:** | Young people attending North Island schools, between 10 and 15 years old at baseline |
| **Sample size:** | A total of 1,774 participants completed all three measurement occasions (overall attrition rate of 16.8%) |
| **Response rate:** | 76.5% of invited schools |
| **Survey waves:** | 2006 // 2007 // 2008 // 2013 |

The Youth Connectedness Project (YCP) was a longitudinal study run by Victoria University of Wellington, focused on young people’s connections to families, schools, peers and communities. The study followed over 1,700 young people (between 10 and 15 years old at baseline), over three consecutive years (2006, 2007, and 2008).

The fourth study wave occurred after a hiatus of five years (in 2013) and suffered from significant attrition because of the passage of time and loss of contact details.

Participants were recruited from 78 schools located in New Zealand’s North Island in a stratified random sampling approach. After obtaining school and parental consent as well as adolescent assent, questionnaires were administered at the same time each year via laptop computers in participants’ schools in the presence of research assistants.

The study has collected valuable information on how connected young people feel to their families, schools, peers, and communities, as well as on the kinds of things young people get up to during and after school hours, and their experienced wellbeing, including feeling good, well-supported, and hopeful for the future.

Social connectedness variables in the study include (for a more detailed overview see Jose, Ryan & Pryor, 2012):

* Family connectedness (11-item scale including 5 family cohesion items, 2 family identity items, and 4 family mutual activities items)
* School connectedness (6-item scale, including 3 items assessing student relationships with teachers)
* Peer connectedness (7 items examining relationships with peers at school, happiness with number of close friends, and support from friends)
* Community connectedness (4 items adapted from the Sense of Community Index (Chipuer & Pretty, 1999)).

## Te Kupenga

|  |  |
| --- | --- |
| **Survey population:** | Usually resident Māori population of New Zealand, living in occupied private dwellings on 2013 Census day (5 March 2013) and aged 15 years or older |
| **Sample size:** | 5,549 individuals in 2013 |
| **Response rate:** | 74% in 2013 |
| **Survey waves:** | 2013 // 2018 (in process) |

In 2013, StatsNZ carried out Te Kupenga, the first Official Statistics survey of Māori wellbeing.

Te Kupenga collected information on a wide range of topics to give an overall picture of the social, cultural, and economic wellbeing of Māori in New Zealand, as well as the health of the Māori language and culture.

The sample population for Te Kupenga included all individuals who identified with Māori ethnicity or indicated Māori descent on the 2013 Census form. Following a stratified, random selection process, selected participants were offered the choice to complete the survey in either te reo Māori or English, and were able to switch from one language to the other if necessary. Interviews were conducted using computer-assisted personal interviews and lasted an average of 40 minutes.

The second iteration of Te Kupenga is currently in progress, with StatsNZ aiming to interview 8,000 individuals of Māori descent and/or ethnicity, following the 2018 Census.

Social connectedness variables in Te Kupenga include:

* Contact with family and relatives
* Satisfaction with the amount of contact with whānau
* Social support
* Cultural support
* Loneliness
* Experienced discrimination.

In addition, the survey includes specific information on whānau connectedness and wellbeing, as well as cultural connectedness, including:

* Self-assessed whānau wellbeing
* Whether things are getting better or worse for the respondent’s whānau
* Respondent’s definition of whānau
* Extent to which whānau members get along with one another
* Ancestral or tribal knowledge and connectedness (eg, connection to marae and tūrangawaewae)
* Te reo Māori language proficiency and use
* Connection to contemporary Māori culture.

Wellbeing indicators in Te Kupenga include overall life satisfaction, sense of control over life’s outcomes, participation in paid and unpaid work, self-assessed health outcomes, material living standards, and housing outcomes.

## Life and Living in Advanced Age (LiLACS NZ)

|  |  |
| --- | --- |
| **Survey population:** | Māori and non-Māori aged 80-90 and 85+, respectively, at baseline |
| **Sample size:** | 937 individuals at baseline (2010) |
| **Retention rate:** | Approximately 57%[[25]](#footnote-25) |
| **Survey waves:** | 2013 // 2018 (in process) |

*Te Puāwaitanga o Ngā Tapuwae Kia Ora Tonu,* the survey of Life and Living in Advanced Age (LiLACS NZ) was started in 2010 by the School of Population Health at the University of Auckland. The last three surveys waves were co-funded by the Ministry of Health. LiLACS NZ is a longitudinal cohort study that aims to determine the predictors of successful advanced ageing and to understand the trajectories of health and wellbeing in advanced age in a Māori and non-Māori New Zealand sample.

As Table 5 shows, the survey has captured data across the three elements of social connectedness, with a relatively strong focus on social support. In addition, the survey has collected a wide range of wellbeing indicators, including physical and mental health, cognitive functioning, health service utilisation, material wellbeing, involvement in paid and unpaid work, and cultural wellbeing (see Hayman et al., 2012 for an overview of survey content). Despite the relatively small sample size and the challenge of retaining survey participants in this age group, LiLACS provides very recent data on key social connectedness variables and their effects on wellbeing outcomes for another group at risk of low social connectedness outcomes (see Section 2.3 ‘Resilience and deficits in levels of social connectedness’).

Table 5 Overview of social connectedness variables in the LiLACS NZ Surveys

|  |
| --- |
| **Socialising** |
| * Social network structure * Satisfaction with contact with family and friends |
| **Social support** |
| * Availability of instrumental support * Sources of instrumental support * Availability of emotional support * Sources of emotional support * Unmet instrumental and emotional support needs * Experience of social support provider (depending on respondent consent) |
| **Sense of belonging** |
| * Frequency of feeling lonely (‘never feel lonely’ … ‘always feel lonely’) * Feeling understood by family and friends |
| **Wellbeing outcomes** |
| * Including: Physical and mental health, cognitive functioning, health service utilisation, material wellbeing, involvement in paid and unpaid work, and cultural wellbeing. |

# 6. Recommendations for further research development

The overview of the literature on social connectedness and wellbeing, and its measurement in New Zealand, leads to the following recommendations for further research development.

## Retain the ongoing inclusion of key social connectedness variables in the NZGSS Social Networks and Support module.

The NZGSS Social Networks and Support module is a primary source of information on social connectedness in New Zealand. StatsNZ has suggested merging the 2014 Social Networks and Support module and the 2016 Civic and Cultural Participation module into one new rotating module for NZGSS 2022 (StatsNZ, 2017b). While this will enable a more frequent data collection (six-yearly), the key indicators of social connectedness (as proposed in Table 1) need to be retained in the merging process.

## Gain more insight into the social connectedness of at-risk groups

The literature review has highlighted several groups that are at risk of low social connectedness outcomes. It is important to monitor levels of social connectedness for these groups and to gain further insights into more specific risk and protective factors that influence their social connectedness outcomes and can help support their wellbeing outcomes. For example, information on older people’s social connectedness, including the ways in which they receive support for activities they are unable to do for themselves and their experience of the helpfulness of the support they receive, is important given New Zealand’s ageing population and the need to dovetail professional and social support networks. Similarly, gaining further insight into the social connectedness of younger people is crucial, particularly given New Zealand’s high youth suicide rate and research suggesting that protective factors for youth suicide include parent connectedness as well as perceived support from friends and non-parental adults (Borowsky, Taliaferro & McMorris, 2013; see also Fortune et al., 2010).

Specialised studies such as Youth2000 and LiLACS NZ are important data sources for further research on the social connectedness of young adults and older people. In addition, and to ensure ongoing data collection for these at-risk groups, it could be explored whether a limited amount of additional questions for at-risk groups could be added to the NZGSS Social Networks and Support module. For example, for single parents, a small number of questions could be added to ask about their unmet support needs. Similarly, several questions could be added for younger people about their connectedness to their parents, school peers and teachers. The advantage of adding a limited number of questions for subpopulations in the NZGSS module is that it has a relatively small impact on overall interview time. Nonetheless, the feasibility of adding questions may be constrained if the Social Networks and Support module is merged with the Civic and Cultural Participation module, unless the interview time for the NZGSS were to be lengthened to 60 minutes for these merged NZGSS waves[[26]](#footnote-26).

## Increase our understanding of which ties matter most for whom in which circumstances

Section 3.2 of this paper has shown that different ties matter for different groups of people in different situations. Better understanding primary sources of effective support can help inform policies aimed at improving wellbeing outcomes. Longitudinal studies, such as the Dunedin longitudinal study, offer particular strengths here, as they can demonstrate which types of relationships influenced better wellbeing outcomes. In contrast, in cross-sectional designs such as the NZGSS, the effectiveness of social support can only be judged based on the respondent’s experience, rather than the resulting wellbeing outcome.

## Ensure the inclusion of hedonic and/or affective wellbeing measures in the upcoming Time Use Module, as well as useful social activity classifications for Time Use Survey data

The scheduled Time Use Module provides a unique opportunity to gain more insight into time spent on social activities by different groups of interest. Including questions about hedonic and/or affective wellbeing would enable analysis of the extent to which different social activities are experienced as pleasant or unpleasant, and whether activities that are done with someone else are more or less pleasant than those that are done alone. To do so, it is important that the classifications used make meaningful distinctions between different kinds of social activities. For example, it would be valuable if a distinction could be made between socialising activities and social support activities. It would also be useful if a distinction could be made between the three different support types and whether the respondent was providing the support or receiving the support. As much as possible, it would also be helpful if a distinction could be made between who the respondent spends time with (eg, resident family members, non-resident family members, school friends, non-school friends, work colleagues, etc).

## Explore possibilities to analyse the impact of social connectedness on wellbeing in the New Zealand context

The cross-sectional nature of the NZGSS does not lend itself to analysis of the impact of social connectedness on wellbeing. Nonetheless, the Dunedin longitudinal study contains a wealth of data on social connectedness as well as health and wellbeing outcomes. Sub-studies of the Dunedin longitudinal study, such as the Next Generation and Parenting studies, also enable analysis of how family social connectedness in one generation influences parenting behaviours, family social connectedness and wellbeing outcomes of the subsequent generation. Linking NZGSS social connectedness data to data on subsequent wellbeing outcomes in the IDI also enables analysis of the effects of social connectedness on wellbeing in New Zealand.

## Explore analytical tools to help clarify the bigger picture

Currently, the large number of variables on social connections (eg, with family, friends, neighbours and associational members) increases the complexity of analysing network data in relation to wellbeing. Classification of network types (eg, based on conceptual analysis or as identified through cluster analysis) could help simplify analysis of how certain types of networks relate to wellbeing outcomes of interest. For example, Litwin (2001) used Israeli Central Bureau of Statistics data to explore the effects of different network types on the morale of older people. Using cluster analysis, he derived five network types: 1) friends-focused networks; 2) family-focused networks; 3) neighbourhood-focused networks; 4) diverse networks; and 5) restricted networks (minimal social contact). He found that older respondents in diverse or friends-focused networks reported the highest morale, while those in family-focused or restricted networks had the lowest morale.

## Include an additional indicator of sense of belonging in the Social Networks and Support module, to ensure more comprehensive measurement

Currently, ‘feelings of loneliness’ is the primary indicator in the NZGSS that captures people’s sense of belonging (or the lack thereof). A wider indicator of sense of belonging has however been developed for the 2016 NZGSS Civic and Cultural Participation module. This indicator measures people’s sense of belonging to a range of different groups, including one’s family, neighbourhood, the company or organisation one works for, one’s religious or spiritual group, one’s ethnic group, and the region one lives in, New Zealand as a whole, and any other countries (0 ‘no sense of belonging’ … 10 ‘very strong sense of belonging’). This newly developed sense of belonging measure could enrich the current data set on Social Networks and Support, as it puts someone’s sense of belonging (or lack thereof) into a wider context. If the two modules end up being merged (see first recommendation above), this additional variable would be of particular interest in relation to the existing Social Networks and Support data. If the modules remained unmerged, it would be worthwhile to explore the feasibility of adding this variable to the Social Networks and Support module.

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# **Appendix 1: Methodology**

To complement the literature on social connectedness known to the author and ensure a comprehensive literature review, an additional literature search was carried out. This additional literature search focused on original articles published in English on the topic social connectedness from 1985 to 2018, using the combinations of search terms as shown in Table 6.

Table 6 Overview of search terms used for literature search

|  |  |  |
| --- | --- | --- |
| **Search term 1** | **Search term 2** | **Search term 3** |
| Social connectedness | Wellbeing/ well-being | New Zealand |
| Social cohesion | Health | Overview / review |
| Social support | Housing (outcomes) | Best practice |
| Belongingness/ sense of belonging | Resilience | Public policy |
| Social capital | Material wellbeing |  |
| Social integration | Job/ employment/ labour market outcomes |  |
|  | Subjective wellbeing/ life satisfaction/ happiness |  |
|  | Public policy |  |
|  | Getting by/ getting ahead |  |
|  | Measurement/ measure/ scale |  |

The literature search used the following databases: Embase, CINAHL, Medline, PsycINFO, PubMed, Scopus, Web of Science, The Hub (a database of NZ-based grey literature) and Gov.uk (a database of UK-based grey literature). The initial literature search based on the search terms in Table 6 yielded a total of 232 articles. The abstracts of these publications were scanned, and ultimately a total of 22 publications were selected to complement the review, based on the following criteria:

|  |  |
| --- | --- |
| * *Relevancy* | Is the paper relevant in addressing the research questions? |
| * *Quality* | As much as possible, the paper should be peer-reviewed and from a reputable journal |
| * *Generalisability* | As much as possible, the findings of the study should be generalisable to New Zealand (based on the size, origin and type of study population and the societal context that the study was based on) |
| * *Recency* | More recent papers were preferred to ensure an up-to-date review. |

# **Appendix 2: Commonly used social connectedness scales**

Note: Use of these scales requires permission from authors. No specific scales have been found for the measurement of levels of socialising.

## Commonly used ‘social support’ measurement scales

### The Multidimensional Scale of Perceived Social Support – Zimet, Dahlem, Zimet & Farley (1988)

Instructions: We are interested in how you feel about the following statements. Read each statement carefully.   
Indicate how you feel about each statement.   
  
Circle the “1” if you Very Strongly Disagree   
Circle the “2” if you Strongly Disagree   
Circle the “3” if you Mildly Disagree   
Circle the “4” if you are Neutral   
Circle the “5” if you Mildly Agree  
Circle the “6” if you Strongly Agree   
Circle the “7” if you Very Strongly Agree

1. There is a special person who is around when I am in need.
2. There is a special person with whom I can share my joys and sorrows.
3. My family really tries to help me.
4. I get the emotional help and support I need from my family.
5. I have a special person who is a real source of comfort to me.
6. My friends really try to help me.
7. I can count on my friends when things go wrong.
8. I can talk about my problems with my family.
9. I have friends with whom I can share my joys and sorrows.
10. There is a special person in my life who cares about my feelings.
11. My family is willing to help me make decisions.
12. I can talk about my problems with my friends.

## Commonly used ‘sense of belonging’ measurement scales

### The UCLA Loneliness Scale – Russell (1996)

The UCLA Loneliness Scale is a 20-item questionnaire measuring general feelings of social isolation and dissatisfaction with one’s social interactions. The scale is also available in a shortened 10-item version – the Revised UCLA Loneliness Scale.

Instructions: Indicate how often each of the statements below is descriptive of you.   
C indicates “I often feel this way”  
S indicates “I sometimes feel this way”   
R indicates “I rarely feel this way”  
N indicates “I never feel this way”

1. I am unhappy doing so many things alone
2. I have nobody to talk to
3. I cannot tolerate being so alone
4. I lack companionship
5. I feel as if nobody really understands me
6. I find myself waiting for people to call or write
7. There is no one I can turn to
8. I am no longer close to anyone
9. My interests and ideas are not shared by those around me
10. I feel left out
11. I feel completely alone
12. I am unable to reach out and communicate with those around me
13. My social relationships are superficial
14. I feel starved for company
15. No one really knows me well
16. I feel isolated from others
17. I am unhappy being so withdrawn
18. It is difficult for me to make friends
19. I feel shut out and excluded by others
20. People are around me but not with me

### The Social Connectedness Scale – Lee and Robbins (1995)

Instructions: Circle the answer that shows how much you agree or disagree with each of the following statements - (1 = Strongly agree … 6 = Strongly disagree)

1. I feel disconnected from the world around me.
2. Even around people I know, I don’t feel that I really belong.
3. I feel so distant from people.
4. I have no sense of togetherness with my peers.
5. I don’t feel related to anyone.
6. I catch myself losing all sense of connectedness with society
7. Even among my friends, there is no sense of brother/sisterhood.
8. I don’t feel that I participate with anyone or any group.

### Scale for Overall, Emotional and Social loneliness – De Jong-Gierveld & Van Tilburg (2006)

In this 6-item scale, three statements are made about ‘emotional loneliness’ and three about ‘social loneliness’. Social loneliness (SL) occurs when someone is missing a wider social network and emotional loneliness (EL) is caused by missing an “intimate relationship”.

1. I experience a general sense of emptiness [EL] (Yes/ More or less/ No)
2. I miss having people around me [EL] (Yes/ More or less/ No)
3. I often feel rejected [EL] (Yes/ More or less /No)
4. There are plenty of people I can rely on when I have problems [SL] (Yes/ More or less/ No)
5. There are many people I can trust completely [SL] (Yes/ More or less/ No)
6. There are enough people I feel close to [SL] (Yes / More or less / No)

### General Belongingness Scale – Malone, Pillow & Osman (2011)

The items are scored using a 7-point Likert-type rating choice format, ranging from strongly disagree to strongly agree.

**Acceptance/Inclusion**

1. When I am with other people, I feel included
2. I have close bonds with family and friends
3. I feel accepted by others
4. I have a sense of belonging
5. I have a place at the table with others
6. I feel connected with others

**Rejection/Exclusion** (items are reverse-scored)

1. I feel like an outsider
2. I feel as if people do not care about me
3. Because I do not belong, I feel distant during the holiday season
4. I feel isolated from the rest of the world
5. When I am with other people, I feel like a stranger
6. Friends and family do not involve me in their plans

1. This paper focuses on the benefits of social connectedness to individual wellbeing. For an overview of the benefits of social connectedness to societal wellbeing, please see Frieling (2018). [↑](#footnote-ref-1)
2. Openness to experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism [↑](#footnote-ref-2)
3. Bradburn’s measure of social involvement included getting together with friends, being in touch with family members and taking part in clubs or associations. [↑](#footnote-ref-3)
4. Berkman and Syme developed a Social Network Index (SNI) based on a self-reported questionnaire, which focused on four types of social connections: marital status (married/ unmarried); sociability (number and frequency of contacts with children, close relatives, and close friends); church group membership (yes/ no); and membership in other community organizations (yes/ no). [↑](#footnote-ref-4)
5. The childhood social isolation measure was based on average scores on two items (Child … “tends to do things on his/her own; is rather solitary” and “is not much liked by other children”) that were completed by children’s parents and teachers when they were 5, 7, 9 and 11 years old. [↑](#footnote-ref-5)
6. Helper T-cells play an important role in the regulation of immune responses. [↑](#footnote-ref-6)
7. In the experiments, feelings of social exclusion or rejection were manipulated in different ways. For example, study participants first completed a short questionnaire after which part of the group of participants was randomly assigned to receive feedback that, ostensibly on the basis of their responses to the questionnaire, they would likely end up alone in life. In other experiments, study participants performed a get-acquainted task, after which they were asked to rate which people they would like to work with individually. By random assignment, half of the people were afterwards told that no one had expressed an interest in working with them. [↑](#footnote-ref-7)
8. Vinokur & van Ryn (1993, p. 350) defined social undermining as behaviors directed toward the target person that display (a) negative affect (anger or dislike), (b) negative evaluation of the person in terms of his or her attributes, actions, and efforts (criticism), and (c) behaviors that make difficult or hinder the attainment of instrumental goals. [↑](#footnote-ref-8)
9. In the study by Saeri, Cruwys, Barlow, Stronge and Sibley (2018), social connectedness was modelled as a latent variable based on the following three items “*I know that people in my life accept and value me*”, “*I know that people around me share my attitudes and beliefs”*, and “*I feel like an outsider*” (reversed), with a response range of 1 (*very inaccurate*)to 7 (*very accurate*). [↑](#footnote-ref-9)
10. To construct a measure of the size of one’s supportive social network, on first contact, participants were asked about the number of children they had and saw monthly. They were asked about the number of relatives (besides their spouse and children) and other close friends to whom they felt close, with whom they felt at ease, who they could talk to about private matters, and who they could call upon for help, and how many of these people they saw monthly. Based on these measures, social network size was calculated based on the number of these individuals seen at least once per month. [↑](#footnote-ref-10)
11. Social connectedness was assessed by marital status, volunteer activity, and frequency of contact with children, parents, and neighbours.  [↑](#footnote-ref-11)
12. A social network score was calculated as the sum of scores on four social network types: children, relatives, friends, and confidant network scores. The children network combined information on the number of children, proximity of children, and frequency of personal and phone contact with children. The relatives network was calculated from the number of relatives (apart from spouse and children) the participant felt close to, and the frequency of personal and phone contact with these relatives. The friends network captured the number of close friends, personal contact, and phone contact. The confidant network reflected the existence of confidants and whether the confidant was a spouse. [↑](#footnote-ref-12)
13. Tie strength is commonly measured using social network analysis (see Section 4.1 of this paper), as well as by using indicators such as ‘perceived closeness’ or ‘intensity of contact’ (Marsden & Campbell, 1984). [↑](#footnote-ref-13)
14. Parent-family connectedness was measured by self-reported closeness to mother and/or father, perceived caring by mother and/or father, satisfaction with relationship to mother and/or father, and feeling loved and wanted by family members. School connectedness was measured by feeling that teachers treat students fairly, feeling close to people at school, and feeling part of school. [↑](#footnote-ref-14)
15. The school connectedness measure covered commitment to school (eg, “Doing well in school is important to me”); relationships with teachers (eg, “Teachers at this school are fair”); relationships with peers (eg, “I like the other students in my classes”); opportunities to participate (eg, “At my school, students have a lot of chances to help decide and plan things”); and belonging (eg, “I feel I belong in this school”). A total of 20 items were summed to create a school connectedness score. To examine the effect of low and very low connectedness, categories were defined based on the quintiles of the baseline (Year 8) data. [↑](#footnote-ref-15)
16. See footnote 7 for the manipulations of social exclusion and rejection used in the experiments. [↑](#footnote-ref-16)
17. The networks that Litwin (2001) labelled ‘diverse’ had the widest variety of sources of potential support. Its members were largely married and had children and enjoyed very frequent contact with children, friends, and neighbours, as well as attending the synagogue to a moderate degree. [↑](#footnote-ref-17)
18. Including: social workers; fire-fighters; food or beverage servers; labourers in landscaping or grounds maintenance; managers in sales, marketing or advertising; computer programmers; instructors or leaders in recreation and sport; security guards; engineers; farmers; nurses; janitors or caretakers; accountants or auditors; graphic designers or illustrators; delivery or courier drivers; early childhood educators or assistants; sewing machine operators; and carpenters. [↑](#footnote-ref-18)
19. For example, information about upcoming job vacancies is most relevant to those who are looking for work or for new job opportunities. Instead, other people may benefit more from information about types of services available to support their needs. [↑](#footnote-ref-19)
20. The Christchurch Health and Development Study may provide additional information on these causal links – however specific information on social connectedness variables included in the study was not found online. [↑](#footnote-ref-20)
21. StatsNZ’s Integrated Data Infrastructure (IDI) is a large research database containing de-identified microdata about people and households. [↑](#footnote-ref-21)
22. Watson, Clark & Tellegen (1988) [↑](#footnote-ref-22)
23. Source: https://dunedinstudy.otago.ac.nz/studies [↑](#footnote-ref-23)
24. See <https://dunedinstudy.otago.ac.nz/studies/dunedin-study-data-directories>, for a full overview [↑](#footnote-ref-24)
25. No response rate was found on the LiLACS NZ webpage. The percentage of 57% is based on Dyall et al. (2013). [↑](#footnote-ref-25)
26. From the 2014 NZGSS questionnaire it is currently also unclear whether the ‘informational support’ question about availability of help with finding a job is asked of elderly people too. If so, this question could perhaps be replaced by a more meaningful question for this age group. See: http://archive.stats.govt.nz/survey-participants/a-z-of-our-surveys/general-social-survey/nzgss-questionnaires.aspx [↑](#footnote-ref-26)