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Research

Profile of ethnicity, living arrangements and loneliness amongst older adults in Aotearoa New Zealand: A national cross-sectional study

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Objective: *To explore the patterns of living arrangements, ethnicity and loneliness amongst older adults (aged 65+ years) living at home.*

Methods: *National interRAI-HC (International Residential Assessment Instrument-Home Care) assessments conducted between 1 September 2012 and 31 January 2016 were analysed. Analysis focused on the associations between loneliness and both ethnic groups and living arrangements.*

Results: *There were 71 859 eligible participants, with average age 82.7 years, comprising Māori (5%), Pasifika (3%), Asian (2%) and European/Other (89%) ethnic identification. Most stated that they were not lonely (79%), but those living alone were more likely to be lonely (29%) than those living with others (14%) ($P < 0.05$). Amongst those living alone, significant differences in the likelihood of being lonely emerged between ethnic groups ($P < 0.05$).*

Conclusions: *Ethnic identification and living arrangements were significantly associated with the likelihood of loneliness for those having an interRAI-HC assessment. Efforts to reduce the negative impacts of loneliness need a nuanced approach.*

Policy Impact: Loneliness is common for older people who had International Residential Assessment Instrument-Home Care assessment, and patterns of loneliness appear to relate to living arrangements and ethnicity. Data from comprehensive geriatric assessments could be used to identify large numbers of people with loneliness, to monitor changes over time and to develop culturally appropriate public health strategies to overcome loneliness and social isolation.

Practice Impact: This information highlights risk factors for those who are lonely. This will raise awareness of who to screen when doing clinical assessments.

Key words: *ethnicity, living arrangements, loneliness, Māori, older adult.*

Introduction

International researchers across disciplines agree that reduced social engagement and particularly loneliness in old age are worldwide issues with negative health, well-being and mortality effects [1–4]. Some studies in this extensive literature also show that older people's living arrangements can contribute to these negative outcomes [5,6]. In addition, there is an acknowledged gap in the international literature in terms of how older people's ethnic identity and background affect their feelings of loneliness. It is also unclear how ethnicity and feelings of loneliness are associated with older people's living arrangements [7–10]. Three considerations drive interest in this knowledge gap in Aotearoa New Zealand. First, a recognition that Māori, as Aotearoa New Zealand's indigenous people, have been differently affected from other ethnic groups by colonisation, and by the ongoing effects of globalisation [11]. Therefore, any policy developments and health services relating to the growing numbers of older people generally must consider the different needs of older Māori and other ethnic groups [12]. Second, an increase in transnational migration is broadening the ethnic diversity in the developed world communities, with Aotearoa New Zealand becoming increasingly multi-ethnic; in the 2013 Census, 16% of the population identified with two or more ethnicities [13]. A third consideration concerns the general ageing of the Aotearoa New Zealand population and the growing numbers of older Māori and those of other ethnicities with the ensuing health provision implications for these older people [13].

There is also ongoing debate in the research literature on whether two key concepts (loneliness and social isolation)

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are independent processes or whether the emotional state of loneliness provides a mechanism through which social isolation affects health [14–17]. Many studies contend that loneliness and social isolation are distinct concepts. As Valtorta and Hanratty [18; p.518] in their review of international multidisciplinary literature stated: 'Individuals can be lonely without being socially isolated; experience both loneliness and isolation; or be socially isolated without feeling lonely'.

The separation of loneliness and social isolation informs our approach to this project as we undertook a secondary analysis of loneliness, living arrangements and ethnicity in older New Zealanders who have had community health assessments [19].

In their recent integrative review, Wright St Clair et al. [20] included several New Zealand research projects using various measures of social isolation and loneliness, based on different population samples. These included The Life and Living in Advanced Age Cohort Study (LiLACS NZ) with Māori and non-Māori New Zealanders [11], and the New Zealand Longitudinal Study of Ageing, which surveyed older people aged between 54 and 70 years. The latter study found the strongest predictor of both physical and mental ill health was loneliness [21]. Wright St Clair et al. conclude that researchers and practitioners must be cognisant of the diverse ethnic make-up of national studies, as varying prevalence of loneliness by ethnicity has implications for practice and intervention. While the negative effects of reduced social engagement and loneliness are well established in the research literature, this paper begins to explore these factors in a unique database of older people being assessed for community-based support services.

Aotearoa New Zealand is the first country in the world to implement a universal standardised comprehensive geriatric assessment for all community-dwelling older people who are being considered for access to publicly funded community services or residential care – the interRAI-HC, (International Residential Assessment Instrument-Home Care). The 236-item electronically recorded assessment encompasses all aspects of an older person's life including physical, psychological and cognitive domains. The interRAI-HC has been developed by a multidisciplinary network of clinicians and academics from over 10 countries, including extensive consultation in Aotearoa New Zealand with Māori. The purpose of the interRAI-HC is to standardise the assessments and care of older adults across Aotearoa New Zealand, with the potential to link to multiple other sources of data. This has created a researchable data set that is almost unparalleled across the globe, on which this paper draws [19]. This paper aimed to use the data from a comprehensive geriatric assessment to profile ethnicity, living arrangements and loneliness amongst older adults in Aotearoa New Zealand.

Methods

The national total of interRAI-HC assessments conducted between 1 September 2012 and 31 January 2016 provided a raw database of comprehensive demographic, health and support needs information of 105 502 assessments. The 1.5-hour interRAI-HC assessment is usually completed in the person's home and records responses to 236 standardised items, including several directly related to social engagement. This population gave informed consent for their information to be used for research, and the study was executed according to the New Zealand Ministry of Health's Health and Disability Ethics Committee standards [22]. After applying exclusion criteria as outlined in Figure 1, the participant flow diagram, the records of 71 859 interRAI-HC first assessments were available for analysis [23].

Three main items from the interRAI-HC data set were analysed in this initial exploration:

1 Respondents were offered a range of seven living arrangements to indicate their living situation: Living alone, living with: Spouse only, spouse and others, adult child, other relatives, siblings and non-relatives.
2 Participants could select three ethnic identifications from a range of five ethnic categories: European, Māori, Pasifika, Asian and 'other'. Here, ethnicity was coded using a single priority classification for those with multiple identifications with Māori having priority coding, followed by Pasifika, Asian and European/Other [24].
3 Older persons' responses to the assessment statement 'says or indicates that he/she feels lonely'.

Statistical analysis

After an initial demographic picture of the population was drawn, comparisons were made using cross-tabulations of these three items. Descriptive analyses, ANOVA and chi-squared tests of significance were undertaken, in which a level of $\alpha = 0.05$ was used to define statistical significance.

Ethics

Clearance for this study was approved by the Ministry of Health's Health and Disability Ethics Committees (14/STH/140) and only included de-identified data provided by those who had consented to its use for planning and research purposes.

Results

The initial demographic picture of the 71 859 older people assessed showed that their mean age was 82.7 years (SD 7.5 years), of whom 61% were women. Important age group and sex differences were evident. Table 1 shows the age range of these older people by ethnicity. One-way ANOVA indicated a significant difference in mean age by ethnicity ($F = 847.06$, d.f. = 4, 71854, $P < 0.001$).

Figure 1: Participant flow diagram.

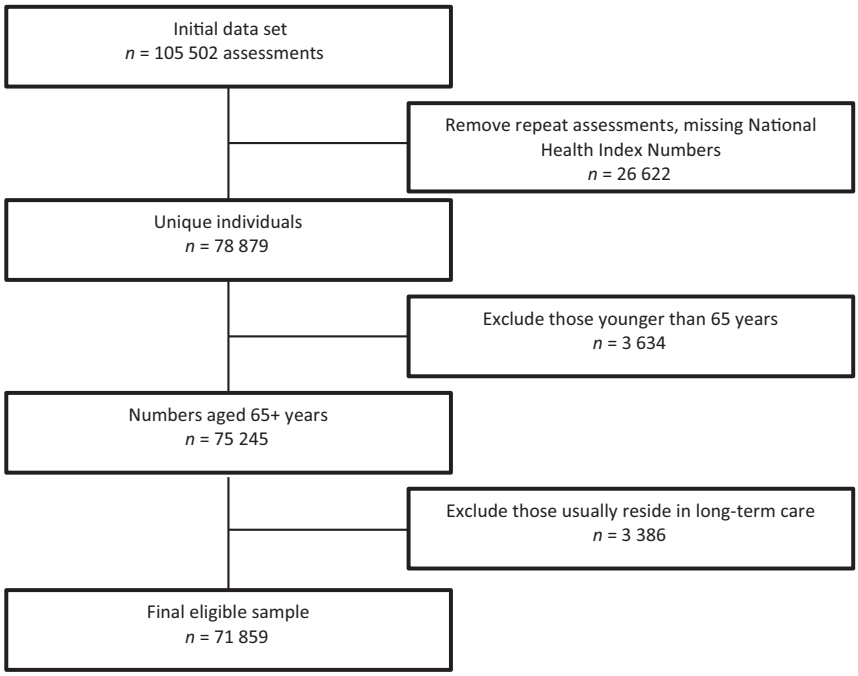

Table 1: Numbers, mean age (in years), standard deviation and age range by ethnic groups (n = 71 859)

Ethnicity	Total number	Mean age	SD	Range
Māori	3897	77.4	6.9	65.0–102.7
Pasifika	2225	78.3	7.0	65.1–100.1
Asian	1658	80.4	7.0	65.0–103.5
European/Other	64 079	83.2	7.4	65.0–106.0

SD, standard deviation.

Table 2: Distribution of living arrangements and feelings of loneliness by ethnic identification (n = 71 859)

	Māori, *n* (%)	Pasifika, *n* (%)	Asian, *n* (%)	European/ Other, *n* (%)
Living arrangement (lives with)				
Alone	1485 (38)	348 (16)	299 (18)	33 480 (52)
Spouse only	768 (20)	339 (15)	404 (24)	21 245 (33)
Spouse and others	265 (7)	401 (18)	285 (17)	1495 (2)
Child(ren)	931 (24)	850 (38)	547 (33)	5492 (9)
Parent/ Guardian(s)	3 (0.1)	3 (0.1)	1 (0.1)	26 (0)
Sibling(s)	72 (2)	28 (1)	11 (1)	309 (1)
Relative(s)	296 (8)	231 (10)	78 (5)	700 (1)
Non-relative(s)	77 (2)	25 (1)	32 (2)	1331 (2)
Living arrangements (alone vs with other) and feelings of loneliness				
Alone/Lonely	395 (10)	83 (4)	116 (7)	9657 (15)
Alone/Not lonely	1090 (28)	265 (12)	183 (11)	23 818 (37)
With others/ Lonely	411 (11)	298 (13)	260 (16)	3940 (6)
With others/ Not lonely	1999 (51)	1577 (71)	1094 (66)	26 643 (42)

Ethnicity

The ethnic breakdown showed that 88% (63 535) identified as European, 5% (3897) as Māori, 3% (2225) as Pasifika, 2% (1658) as Asian and 1% (544) as 'other' ethnicity. For the purpose of our analysis, 'other' was combined with European resulting in a small increase to 89% (64 079) European/Other. When proportions in each ethnic group were compared with the 2013 Census data on people aged 65+ years, the distribution in each data set was similar, with European older adults dominant in the ethnic proportions in both [25].

Living arrangements

Overall, just over half (36 247) lived with others (50%). Of those living with others, 32% (22 756) lived with a spouse or partner only and 11% (7820) lived with a child.

Ethnic groups and living arrangements

Table 2 presents living arrangements by ethnic group. Two seemingly related patterns emerged. First, while 50% of those assessed lived alone, European/Other showed the highest representation of this living arrangement at 52%, compared with 38% of Māori, 18% of Asian and 16% of Pasifika.

Second, within the six 'living with others' categories, 33% of Europeans lived with their spouse only, followed by 24% of Asian, 20% of Māori and 15% of Pasifika. Non-European ethnic groups were more concentrated in extended family arrangements; for example, 38% of Pasifika lived with an adult child followed by Asian at 33%, Māori at 24% and European at 9%.

Ethnic groups and loneliness

A significant association was found between ethnicity and loneliness (Pearson's $\chi^2 = 26.07$, d.f. = 4, $P < 0.001$).

Pasifika people reported being the least lonely (n = 283, 17%), while Asian people reported being the most lonely (n = 376, 23%).

Feeling lonely and living arrangements

The majority (79%, 56 671) of those assessed indicated that they were not lonely; however, one in five (21%, 15 160) reported feelings of loneliness. We cross-tabulated self-reported loneliness against the three primary living situations outlined above.

This comparison showed that 29% of those who lived alone acknowledged being lonely and 14% of those sharing their living situation with others in any capacity also indicated that they were lonely. Further investigation of those in the 'living with others' categories highlighted that 20% of those living with a child were lonely and 11% of those living with their spouse only were lonely (χ^2 = 9593.02, d.f. = 28, $P < 0.001$).

Comparing ethnic group living arrangement patterns and feelings of loneliness

Our initial cross-tabulation of 'feeling lonely' with living arrangements and ethnicity showed a complex picture with some useful comparisons, as Table 2 shows. First, similar proportions of Māori were lonely whether living alone (10%) or living with others (11%). In contrast, approximately four times the proportion of Pasifika were lonely living with others (13%), than living alone (4%). As older Pasifika people mostly lived with others, this could be of some importance. In a similar way, twice the proportion of older Asian people were lonely when they lived with others (16%) than living alone (7%). Finally, more than twice the proportion of European/Other older adults were lonely when living alone (15%) than when living with others (6%); in addition, a higher proportion of this group overall lives alone.

In summary, almost half of older people assessed lived alone, most were European (reflecting the ethnic distribution observed in the 2013 Census), and over 75% said they did not feel lonely. Ethnic group household compositions showed that a higher proportion of European/Other lived alone or with their spouse, while higher proportions of Pasifika and Asian people tended to live intergenerationally, with a child or with a spouse and child. Older Māori assessed appear to have a pattern of living arrangements that are more similar to Europeans than to Asian or Pasifika older adults, at least in the proportions of those living alone or with others. Divergent from the European pattern, however, was the finding that those older Māori living with others were more likely to live with an adult child than with a spouse.

When comparing the living arrangements of those who were identified as lonely, a greater proportion lived alone compared with those in other living situations. Further investigation of those living with others showed a higher proportion (20%) of those living with an adult child were lonely than those living with their spouse (11%). Ethnic comparisons also yielded the unexpected finding that Pasifika and Asian older adults were more likely to be lonely if they lived with others than if they lived alone.

Discussion

This is a large database giving valuable insights into the health and social circumstances of older adults in Aotearoa New Zealand. Given that loneliness features in the literature as a substantial contributor to health problems, our large data set enables us to look at the occurrences of loneliness in relation to ethnicity and living arrangements of current health service users, which enhances the implications and potential usefulness to service providers [5,6,9,10,26]. Findings from current service users can offer insights for further research as well as guiding immediate clinical service strategies, which of course is the primary object of interRAI-HC assessment.

There are four important caveats arising from the analysis and results.

First, there was a limitation in the generalisability of the results because at this stage of the research process, no potential confounding factors (i.e. depression, cognition, age, sex and other markers of health status) that could influence these variables and subsequent results have been included in the analysis. However, there are noteworthy points in the findings so far. A useful example is that of older people assessed who lived alone (35 612), 29% were reported as feeling lonely, which in view of our large data set equates to 10 256 people. Further research is needed to explore other confounding factors and possible regional patterns to inform service provision.

A second feature, which is unavoidable but nonetheless important, is that although the data set replicates the 2013 Census ethnic distribution, any cross-tabulation of 'feeling lonely' with living arrangements, and ethnicity in particular, requires care. This particularly applies to other non-European ethnic groups in this data set because of their relatively low numbers [23]. This risk is offset however, by the overall size of the database, which underpins the significance levels found.

Difficulty in comparing unequal ethnic group proportions was avoided in the LiLACS Study, which specifically recruited two equal-sized cohorts of advanced aged Māori and non-Māori to establish predictors of successful advanced ageing. Enrolling equal-numbered cohorts enabled equal explanatory power to their main analyses, an advantage that most interethnic research using general population ethnic proportions does not usually have [11].

A third feature and a prime focus of this paper is that little international research explores how loneliness is

experienced by older indigenous adults and older adults from non-European ethnic backgrounds. The few researchers who focus on ethnicity have pointed out that cultural meanings and ethnic background shape all human experience and that older people's interpretation and experiences of loneliness, as well as their living circumstances, are culturally determined [8,27].

The fourth potential limitation of this study is the binary variable used to measure perceived loneliness. While this measure is necessarily subjective, trained clinical assessors utilise available information in addition to the participants' responses, including that within and external to the comprehensive assessment, to make informed ratings. While response options to this question may be seen as overly coarse or blunt, the question usefully captures a domain often ignored in population health research. The question also facilitates subgroup comparisons. Moreover, this variable characterisation has been usefully employed elsewhere [28]. Nonetheless, more sophisticated measures exist and are needed for a more nuanced investigation into loneliness and what it constitutes [20].

At first glance, the picture that emerges of these variables within the interRAI-HC data set confirms the relationships between living arrangement and ethnicity, and ethnicity and loneliness, that may be influenced by individualistic or collective cultural values, and degree of acculturation. While Māori culture is very much collective in orientation, a lengthy history of continuous, first-hand contact with Europeans has resulted in significant demographic and structural changes that have affected related cultural practices, evident perhaps in living arrangements and perceptions of family and social relationships. Such acculturation and social effects may be less evident in more recent migrant groups, including Pasifika and Asian families/communities [29].

The finding that feelings of loneliness were highest amongst Asian older adults, particularly those who lived with others, appears to contradict the assumptions that collectivity or interdependence and cohabitation guard against social isolation and the absence of companionship or meaningful relationships. Those who live alone may well enjoy social or cultural contact outside of the home environment that mitigates feelings of loneliness, and conversely, those who live with other extended family members may experience social isolation or loneliness nonetheless [11].

The findings in this study have implications for services provided to older adults, particularly in the light of the significant contribution that loneliness, irrespective of living arrangement, is known to make towards health and well-being [30]. This study confirms that ethnic group membership and culture have a significant bearing on older adults' expectations of social and family relationships, which can result not only in differential living arrangements, but also in differential experiences of those living arrangements. The relative benefits of functional as compared to structural social support (size and frequency compared with quality or perceived value of social contacts), as well as culturally specific support, need to be explored for non-European ethnic groups.

Conclusion

This observational study provides a baseline for future research. The findings related to ethnicity, living arrangements and loneliness are largely consistent with extant research; however, some of the ethnic differences observed generate further questions. As the older people in Aotearoa New Zealand is growing and becoming more ethnically diverse, greater consideration of the significance and impacts of ethnic background, indigeneity or location within a dominant culture in the lives and well-being of older people seems a relevant approach for further research. Building on a unique national comprehensive assessment database will allow closer examination of the health outcomes associated with loneliness after taking into account the effect of confounding factors such as falls and incontinence.

New Zealand policy means that interRAI-HC assessments are repeated when patient care needs change. This provides an outstanding opportunity for future longitudinal studies so that factors that increase or reduce loneliness, and how ethnicity and living arrangements contribute, can be more clearly understood. These studies will inform researchers, policy advisors and clinicians around the changing needs of this rapidly growing older people.

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