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Age, ethnicity, life events and wellbeing among New Zealand women

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Abstract

By the year 2030, 19–21 per cent of the population of New Zealand (NZ) is projected to be aged 65 and over. Like many countries, life expectancy in NZ differs by gender but also ethnicity: in 2019, life expectancy for Māori (indigenous) women was 77.1 years compared with 84.4 years for non-Māori women. If Māori and NZ European women are to flourish in later life, examining the factors associated with their wellbeing is paramount. The current study draws on the Life Course Perspective to explore how wellbeing is associated with age-related life events among mid- to later-life NZ women. The women in this study (N = 19,624) are participants in the 2018 wave of the New Zealand Attitudes and Values Study, a national probabilistic 20-year longitudinal study (mean age = 55.62; Māori = 10.8%, NZ European = 89.2%). We found that stressful life events were negatively associated with life satisfaction but positively associated with meaning in life. Māori women exhibited lower levels of life satisfaction but there were no ethnic differences for meaning in life; however, Māori and NZ European women showed different patterns of significant correlates associated with meaning in life. Findings highlight the necessity of an intersectional approach to the study of mid- to later-life wellbeing and the utility of measuring wellbeing in more than one way within NZ's unique cultural-historical context.

Keywords: midlife-to-older women; wellbeing; life events; ethnicity; New Zealand

Introduction

Ageing populations are a worldwide phenomenon, and New Zealand (NZ) is no exception. In 2020, the proportion of the NZ population aged over 65 was 16 per cent; by 2030, the projection is for 19–21 per cent of the population to be 65+ (Stats NZ Tatauranga Aotearoa, 2020). Life expectancy at birth differs between the indigenous peoples of NZ (Māori) and European New Zealanders (those classified as NZ European in the NZ Census), and varies by gender: in both ethnicity groups, women tend to live longer than men. Life expectancy for Māori women in

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2019 was 77.1 years compared with 84.4 years for NZ European women (Stats NZ Tauranga Aotearoa, 2019). Māori women also differ on social support, income and health (Dulin *et al.*, 2011; Sibley *et al.*, 2011; Yon and Crimmins, 2014; Houkamau, 2016; New Zealand Treasury Analytics and Insights Team, 2018). Additionally, given the history of European–Māori relations and the history of racism towards Māori, older Māori women may have experienced a lifetime of poorer health care through limited access and substandard quality health care (Harris *et al.*, 2012), as well as fewer education and employment opportunities (Houkamau, 2010, 2016). The current study builds on previous research to examine the correlates of wellbeing among mid- to later-life NZ Māori and NZ European women. Specifically, we provide new insights concerning women's wellbeing by examining potential differences in levels of hedonic and eudaimonic wellbeing among NZ women by ethnicity and age, and how life events and other correlates relate to wellbeing.

This study draws from the Life Course Perspective (Elder, 1994; Settersten, 2003), which posits that life trajectories are fashioned by personal histories and social circumstances within certain contexts, such as gender or ethnicity (Crosnoe and Elder, 2002). The four central themes of this perspective – the study of lives as reflective of socio-historical contexts, the timing of lives, the idea of linked lives and human agency – lend themselves to the examination of women's wellbeing. For example, women's lives are often less temporally or financially linear than men's lives, particularly concerning expectations for balancing career (work histories) and family (caring responsibilities; Settersten *et al.*, 2020), which can affect later-life financial and psychological wellbeing.

Age and wellbeing

Wellbeing and age are closely related. Previous research has outlined the U-shaped curve of wellbeing in adulthood, with both younger and older adults exhibiting higher levels of wellbeing than middle-aged adults (Blanchflower and Oswald, 2008; Steptoe *et al.*, 2015; Stone *et al.*, 2020). While no definitive explanation for the U-shaped relationship between age and wellbeing has emerged (Stone *et al.*, 2020), suggestions include the idea that midlife is a time when unattainable goals from early adulthood are reassessed due to increases in wisdom, or individuals learn to value their remaining years after witnessing the deaths of friends and colleagues (Steptoe *et al.*, 2015). Increased family and career responsibilities have also been identified as markers of decreased wellbeing among young-midlife adults (Umberson *et al.*, 2010), with increased wellbeing from midlife onwards linked to launching children and redirection of energy to other pursuits (Mitchell and Helson, 1990; Gorchoff *et al.*, 2008). Relatedly, Stone *et al.* (2020) found that decreases in family and friend strain are directly related to post-midlife increases in wellbeing. One theory in particular, Socioemotional Selectivity Theory (Carstensen, 1992), which states that older adults choose to maximise wellbeing through emotionally positive interactions with close others, has been linked to the increase in wellbeing after midlife (Steptoe *et al.*, 2015; Stone *et al.*, 2020).

Using data from the 2008 New Zealand General Social Survey, the U-shaped pattern was replicated among NZ adults aged 15–98 (Brown *et al.*, 2012), with income,

unemployment, health status and social contact as factors associated with life satisfaction. Other studies of NZ adults have found differences in correlates of wellbeing in later life. In a study of older adults surveyed between 2010 and 2016, Szabó *et al.* (2021) found that trajectories of quality of life were associated with economic living standards; those in the low and improving quality-of-life trajectory tended to be relatively younger, Māori and with better economic wellbeing. Additionally, Wright-St Clair *et al.* (2012, 2017) found differences in the types of self-identified pleasurable activities between Māori and non-Māori men and women aged 75 and older. Māori nominated extended family activities as important, whereas non-Māori nominated recreation and leisure activities, thus highlighting diversity in the correlates of age-related wellbeing, and revealing ‘fundamental ethnic divergences in preferences for active aging’ (Wright-St Clair *et al.*, 2017: 434).

Researchers have recognised the need to assess wellbeing in older adults in multiple ways, emphasising that hedonic wellbeing and eudaimonic wellbeing are essentially different (Steptoe *et al.*, 2015). Hedonic wellbeing has been characterised as ‘seeking pleasure and comfort’ (Huta and Ryan, 2010: 735) or having high levels of positive affect and satisfaction with life (Serrat *et al.*, 2018). Eudaimonic wellbeing is concerned with judgements of meaning and purpose in life; as Ryff (2014: 23) observes, it captures ‘core aspects of what it means to be human: that is ... as articulated by Aristotle over 2,000 years ago, to pursue the highest good that is within us’. In recent research, Newton (2022) found that for Canadian men and women, the nature of retirement (planned or unplanned) was consistently related only to life satisfaction (hedonic wellbeing) and not meaning in life (eudaimonic wellbeing), suggesting that global evaluations of wellbeing in relation to certain age-related events might not give a thorough picture of wellbeing, even after the passage of time.

Life events and wellbeing

Luhmann *et al.* (2012: 594) define life events as ‘time-discrete transitions that mark the beginning or the end of a specific status’, such as change in marital status (married to divorced) or work status (employed to retired). Researchers have found that the relationship between perceived *negative* life events (divorce, death of spouse, unemployment) and subjective wellbeing is stronger and more persistent than the link between *positive* life events and wellbeing (e.g. marriage; Lucas, 2007; Luhmann *et al.*, 2012). Both lifetime prevalence and recent (within a year) prevalence of negative life events have demonstrated negative associations with life satisfaction for older adults (Krause, 1994, 2004).

Research using data from the New Zealand Attitudes and Values Study (NZAVS) found that older adults (aged 65+) reported higher rates of events related to work and social issues occurring in the past year than midlife (30–64) and younger (18–29) adults (Howard *et al.*, 2022). Prevalence of life events also differed by gender and ethnicity; e.g. Māori people reported higher occurrences of death events (e.g. death of a family member or friend) than European people, with Māori women reporting higher rates of death, relationship and health events compared to Māori men. In addition, wellbeing was lower for traumatic and

relationship events, as well as events related to discrimination and gender identity and sexuality (Howard *et al.*, 2022). While the current study also uses NZAVS data, we focus on mid- to later-life Māori and NZ European women, and the relationships between age-related stressful life events and wellbeing as indexed by life satisfaction and meaning in life.

Ethnicity and wellbeing

From the early 1800s, the Māori people were colonised by the British, although they had lived in NZ for centuries prior. Pre-colonial Māori society was communal and tribally based (Houkamau, 2010: 182). The Treaty of Waitangi was intended to be a contract between Māori and British representatives (Anderson *et al.*, 2006); although Māori did not cede sovereignty over NZ, the British assumed it after the Treaty was signed by Māori chiefs and representatives of the Crown in 1840. Despite Māori resistance, Britain eventually gained political power and sovereignty over all of NZ (Walker, 2004).

Although NZ has seen considerable social and cultural integration, Māori have resisted full assimilation into their coloniser's culture for over 200 years (Walker, 2004). In contemporary NZ society, Māori and Europeans show different cultural orientations: collective *versus* individual (respectively), and a relationship initially defined by power differentials. While there is more recent recognition of Māori culture's distinctiveness as integral to NZ as a country, as Harding *et al.* (2011) comment, without Māori culture, NZ would be a purely colonial outpost; many Māori people do not have the same political and economic power as most Europeans.

Early settlers brought infectious diseases that were previously unknown to Māori, who still have lower levels of health, life expectancy and income compared to Europeans. Differential exposure to infectious diseases has been used to explain current disparities in life expectancy based on the morbidity hypothesis (Yon and Crimmins, 2014): increased life expectancy at older ages can be attributed to lifetime reduction in chronic exposure to infectious disease/inflammation, so that low illness rates in early life lead to lower mortality rates later in life. Māori adults have higher rates of cancer, diabetes, and cardiovascular and respiratory diseases than non-Māori adults (New Zealand Ministry of Health, 2015), often because they live in 'deprived geographical areas' with poor health-care access (Stephens *et al.*, 2022: 748), or they receive substandard health care compared to Europeans due to racism and discrimination for these same medical conditions (Houkamau, 2016). Previous research has shown that Māori score relatively low on physical and mental health (Dulin *et al.*, 2011), which are both related to lower life satisfaction (Brown *et al.*, 2012). Māori also earn less, on average; NZ \$24.72 per hour *versus* \$30.09 per hour (New Zealand Treasury Analytics and Insights Team, 2018). Attention to these differences is essential when examining the wellbeing of Māori and Europeans, due to their diverse experiences and the need to 'consider cultural and group differences, and their intersections, in different contexts' (Stephens *et al.*, 2022: 760).

Social support, whether from family, friends or community, has important consequences for older adults' wellbeing (Brown *et al.*, 2012; Birditt and Newton, 2016; Pocnet *et al.*, 2016), but perhaps particularly for Māori (Dulin *et al.*, 2011). In a

qualitative study of Māori aged 66–79, Butcher and Breheny (2016) found that attachment to place, including family, provided a base for later-life wellbeing, suggesting that the concept of social support and its relationship to wellbeing might mean different things for Māori and Europeans. Additionally, evidence for the relationship between wellbeing and comparative material disadvantage for Māori is provided by Sibley *et al.* (2011), who found that Māori not only scored lower than Europeans on a measure of personal wellbeing (standard of living, health, life achievements, personal relationships, safety, feeling part of a community and future security), but their level of wellbeing further decreased between 2005 and 2009 during the global financial crisis. While there is certainly a relationship between childhood socio-economic status and later-life health that is moderated by ethnicity, this relationship is also moderated by gender (Stephens *et al.*, 2022).

Gender and wellbeing

Although women tend to live longer than men, they often do so with higher rates of disease and disability (Crimmins and Beltrán-Sánchez, 2011) and the consequences of constrained life paths due to expectations for care-giving, lower wages and intermittent work histories. Married women's health also tends to be better than non-married women's health, often due to improved economic and psychosocial resources (Newton *et al.*, 2014), although the benefits to wellbeing depend on the quality of the marriage. Compared with the literature concerning men's experiences of ageing, less is known concerning women's experiences of ageing (Borrero and Kruger, 2015; Carney, 2018), and even less is known about older NZ women's experiences of ageing. One exception is the finding that although economic living standard is associated with mental health for older NZ men, everyday discrimination is associated with mental health for older NZ women (Yeung and Breheny, 2016).

Moreover, Māori women might experience ageing differently to their European counterparts, particularly in terms of health (Stephens *et al.*, 2022) and income disparities (Houkamau, 2010). While older Māori women make up a small percentage of the NZ population, they comprise one of the lowest socio-economic groups in NZ (Houkamau, 2010: 192). Houkamau also illuminates the sociohistorical factors that shape Māori women's identities in three different age cohorts: from growing up within the context of acceptance of traditional Māori culture (Māori women aged 60–75), through alienation from it (ages 35–60) to a return to pride in Māori heritage (ages 18–35).

The present study

The present study examines two types of wellbeing, hedonic (life satisfaction) and eudaimonic (meaning in life), and their correlates in a sample of NZ women (Māori and European) aged 40 years and over. Based on the literature reviewed, we expect differences in levels of both hedonic and eudaimonic wellbeing by age, ethnicity, and negative or stressful life events (Lucas, 2007; Brown *et al.*, 2012; Luhmann *et al.*, 2012; Pocnet *et al.*, 2016; Howard *et al.*, 2022). However, because examining potential ethnic differences in correlates of outcomes – whether different

or similar – is also informative, we compare the associations of covariates with wellbeing between the two groups (Māori and NZ European women), such as differences in health (Yon and Crimmins, 2014; Stephens *et al.*, 2022) and social support (Butcher and Breheny, 2016). Specifically, we hypothesise that:

- Hypothesis 1: Age will be related to life satisfaction and meaning in life, such that older women will exhibit higher levels of both compared with midlife women.
- Hypothesis 2: Ethnicity will be related to both types of wellbeing; specifically, Māori women will exhibit lower levels of both types of wellbeing than NZ European women.
- Hypothesis 3: Frequency of stressful life events will be negatively related to both types of wellbeing.

We make no specific hypotheses for potential ethnic differences in the relationships of correlates to wellbeing but explore these associations for both Māori and NZ European women.

Method

Sample

The NZAVS is a national probabilistic 20-year longitudinal study of social attitudes, personality and health outcomes of more than 60,000 New Zealanders. The NZAVS began in 2009 and is based on a simple random sample of adults from the NZ electoral roll, with regular boosters to maintain sample representativeness over the years (Sibley, 2021). The Time 10 (2018) NZAVS, from which the current study's data are drawn, contained responses from 47,951 participants (18,010 retained from one or more previous wave). In total, 2,964 participants were retained from the Time 1 (2009) sample (a retention rate of 45.5%) and 14,049 participants from Time 9 (2017; a retention rate of 82.3% from the previous year). The final Time 10 sample included a booster sample of 29,293 participants recruited from the NZ electoral roll to increase sample size and diversity. Participants in the current study were included if they were female, aged 40 and older, and identified as either Māori or NZ European. Total sample size was 19,624, with Māori $N = 2,117$ (10.78%) and NZ European $N = 17,507$ (89.22%); only those participants who provided full data for gender, ethnicity and age were included in the sample. Table 1 provides sample demographics.

Measures

Wellbeing

Two measures of wellbeing were used as dependent variables in this study: hedonic wellbeing, measured using the Satisfaction With Life Scale (Diener *et al.*, 1985), and eudaimonic wellbeing, indexed by the Meaning in Life Questionnaire (Steger *et al.*, 2006).

Life satisfaction. The mean of two items from the Satisfaction With Life Scale (Diener *et al.*, 1985) was used to measure hedonic wellbeing: 'I am satisfied with

Table 1. Sample demographics and ethnic differences for all variables

	Total sample	Māori	European	
	<i>Mean values (standard deviations)</i>			<i>t</i>
Age (continuous)	55.62 (8.55)	54.03 (8.30)	55.81 (8.56)	9.05**
Health	5.40 (1.26)	5.03 (1.38)	5.44 (1.24)	12.85**
Household income (median, NZ \$)	90,393	79,500	95,000	10.61**
Social support	6.13 (1.08)	6.06 (1.21)	6.14 (1.06)	2.94**
Total life events	0.50 (0.71)	0.68 (0.82)	0.48 (0.69)	10.69**
Life satisfaction	5.44 (1.67)	5.29 (1.25)	5.46 (1.16)	6.07**
Meaning in life	5.66 (1.08)	5.66 (1.13)	5.66 (1.08)	0.01
	<i>Percentages</i>			<i>χ²</i>
Age (dichotomous):				
40–65	88.40	90.88	88.10	14.30**
65+	11.60	9.12	11.90	
Relationship status:				
Single	25.52	35.85	24.23	128.62**
Partnered	74.48	64.15	75.77	

Notes: Total N = 19,624; N for European women: 16,329–17,507; N for Māori women: 1,924–2,117. For health and social support, response options ranged from 1 (poor) to 7 (excellent); for life satisfaction and meaning in life, response options ranged from 1 (disagree) to 7 (agree); thus, higher values indicate more positive responses. Significance level: ** $p < 0.01$.

my life’ and ‘In most ways my life is ideal’. Participants were asked to rate their agreement from 1 (disagree) to 7 (agree); alpha for the scale was $\alpha = 0.76$, with mean = 5.44 (standard deviation (SD) = 1.67).

Meaning in life. The mean of two items from the Meaning in Life Questionnaire (Steger *et al.*, 2006) was used to measure meaning in life: ‘My life has a clear sense of purpose’ and ‘I have a good sense of what makes my life meaningful’. Responses were again rated from 1 (disagree) to 7 (agree); $\alpha = 0.70$, mean = 5.66 (SD = 1.08).

Residual plots for both wellbeing outcomes were checked; both life satisfaction and meaning in life were normally distributed.

Life events

Life events occurring in the past year were measured and coded using the Broad Inventory of Specific Life Events (BISLE), developed for the NZAVS (Howard *et al.*, 2022). The BISLE first asks participants whether a series of 15 ‘probe’ events have occurred in the past year (*e.g.* retirement, divorce), followed by an open-ended section asking participants ‘Have we missed anything important, or would you like to provide more detail about your experiences?’ The BISLE uses a hierarchical coding scheme, and codes 590 different life events at the most specific level (Level 3) based on participant’s open-ended responses. These are then merged with the

probe events and nested within 141 broad event categories (Level 2) and then again into 22 general life event domains at the broadest level (Level 1).

The current study included six categories of significant life events from the BISLE that can be considered negative or stressful: death, divorce, work-related events, illness, change in living situation and accident (with various subcategories within each category). Death was the highest frequency event category, experienced by 22 per cent of the sample; this was followed by work-related events (11.53%), illness (9.52%), divorce (3.6%), change in living situation (2.86%) and accident (2.72%). Each category was recoded for presence of any type of subcategory event within it, and a summed score of all stressful life events was calculated for each participant. Scores ranged from 0 to 6, mean = 0.50.

Ethnicity

Participants were asked to which ethnic groups they belonged from a choice of Māori (the indigenous peoples of NZ), NZ European, Samoan, Cook Island Māori, Niuean, Chinese, Indian, Tongan and 'Other'; only those women who identified as solely NZ European (coded as '0') or Māori (coded as '1') were included in the current sample. Of the total sample (N = 19,624), N = 2,117 (10.78%) were Māori and N = 17,507 (89.22%) were NZ European (for further information on the sampling procedure, *see* Sibley, 2021).

Covariates

Following previous research findings, age, household income, relationship status, health and social support were included in analyses (Dulin *et al.*, 2011; Yon and Crimmins, 2014; Birditt and Newton, 2016; Stephens *et al.*, 2022).

Age. Participants' ages ranged from 40.00 to 95.51. Age was dichotomised for most analyses for two reasons: although mandatory retirement in NZ was abolished in 1999 (Pond *et al.*, 2010), New Zealanders are still eligible for pensions (Superannuation payments) beginning at age 65; additionally, researchers have historically considered midlife to encompass ages 40–65, and 65+ as later life (Hutchison, 2015). Thus, age was coded as 1 (40–64.99) and 2 (65+).

Household income. Participants were asked what they expected their annual household income from all sources (before tax) to be for the 2018 financial year. Responses ranged from NZ \$0 to \$4,000,000, with a median of \$90,393.

Relationship status. Participants were asked to indicate their current marital status from these choices: married, civil union/*de facto*/partnered, divorced or permanently separated, widow or widower, single. In the current study, widow, widower, divorced, permanently separated and single were combined to reflect 1 = single; married, civil union/*de facto*/partnered were combined to reflect 2 = partnered.

Health. Health was measured using a single item taken from the MOS 36-item short-form health survey (SF-36; Ware and Sherbourne, 1992): 'In general, would you say your health is...', with ratings from 1 (poor) to 7 (excellent). The mean for this sample was 5.40 (SD = 1.26).

Social support. Three items from the Social Provisions Scale (Cutrona and Russell, 1987) were used to measure perceived social support; specifically, 'There are people I can depend on to help me if I really need it', 'There is no one I can

turn to for guidance in times of stress' (reverse scored) and 'I know there are people I can turn to when I need help'. Again, participants rated their agreement from 1 (poor) to 7 (excellent); mean = 6.13 (SD = 1.08), $\alpha = 0.78$.

Analysis plan

Analyses were conducted using IBM SPSS software, version 27. Correlations ascertained relationships between variables. Hierarchical linear regressions were conducted to understand relationships between predictors (ethnicity, age and stressful life events) and wellbeing outcomes (life satisfaction and meaning in life) for the total sample (Hypotheses 1 and 3). Covariates were entered in step 1, with life events entered in step 2, and the interaction term in step 3. To test Hypothesis 2 concerning ethnic differences in levels of wellbeing, *t*-tests were conducted. We used separate ethnic group hierarchical linear regressions to explore our research question regarding the potential differences in the correlates of life satisfaction and meaning in life between Māori and European women.

Results

Table 1 displays demographics, both by total sample and separately by ethnicity (age, health, household income, relationship status). Pearson correlation coefficients for all variables (total sample) are presented in Table 2. Of note, age was positively related to both life satisfaction and meaning in life at the $p < 0.01$ level, $r = 0.07$ and $r = 0.08$, respectively. All other variables were related to the two wellbeing outcomes in expected directions: health, income and social support were positively related to wellbeing, whereas number of stressful life events was negatively related to wellbeing, $r = -0.14$, $p < 0.01$ (life satisfaction), and $r = -0.07$, $p < 0.01$ (meaning in life).

Our first hypothesis concerned the relationship between age and wellbeing. The results for the regression analysis with life satisfaction as the outcome are shown in Table 3, where the final model was significant, $F(8, 16,969) = 1,144.00$, $p < 0.01$, and 35 per cent of the variance in life satisfaction was associated with this model. Age was significantly related to life satisfaction, $\beta = 0.08$, $p < 0.01$, such that older women exhibited higher levels than midlife women. The regression analysis for meaning in life as the outcome was also significant, $F(8, 17,039) = 778.63$, $p < 0.01$, with 27 per cent of the variance in meaning in life associated with this model (Table 4). Age was also significantly related to meaning in life, $\beta = 0.05$, $p < 0.01$; older women scored higher than midlife women.

Table 1 displays results pertinent to Hypothesis 2, where we expected that Māori women would exhibit lower levels of wellbeing. Results show differences between Māori and NZ European women in levels of life satisfaction, $t(19,490) = 6.07$, $p < 0.01$, Cohen's $d = 0.15$ (indicating a small effect size), but no difference between ethnicities in levels of meaning in life. However, in regression analyses that included stressful life events and covariates (see Tables 3 and 4), ethnicity and age \times ethnicity were only significantly related to meaning in life and not significantly related to life satisfaction. Figure 1 shows that for Māori women, level of meaning in life did not change by age group, but for NZ European women, increased age was associated with higher levels of meaning in life.

Table 2. Relationships between continuous variables (total sample)

Measure	1	2	3	4	5	6	7
1. Age (continuous)	-	-	-	-	-	-	-
2. Health	-0.01	-	-	-	-	-	-
3. Household income	-0.21**	0.16**	-	-	-	-	-
4. Social support	0.03**	0.24**	0.09**	-	-	-	-
5. Total number life events	0.07**	-0.22**	-0.13**	-0.07**	-	-	-
6. Life satisfaction	0.07**	0.43**	0.18**	0.46**	-0.14**	-	-
7. Meaning in life	0.08**	0.32**	0.09**	0.46**	-0.07**	0.60**	-

Notes: Pearson correlation coefficients are presented. N ranges from 17,608 to 19,619.

Significance level: ** $p < 0.01$.

Table 3. The relationship of age, relationship status, health, income and life events to life satisfaction

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β
Ethnicity	0.03	0.02	0.01	0.04	0.02	0.01	0.12	0.09	0.03
Age	0.28**	0.02	0.08**	0.28**	0.02	0.08**	0.29**	0.02	0.08**
Relationship status	0.41**	0.02	0.15**	0.40**	0.02	0.15**	0.40**	0.02	0.15**
Health	0.28**	0.01	0.31**	0.28**	0.01	0.30**	0.28**	0.01	0.30**
Household income	0.00**	0.00	0.07**	0.00**	0.00	0.07**	0.00**	0.00	0.07**
Social support	0.39**	0.01	0.36**	0.39**	0.01	0.36**	0.39**	0.01	0.36**
Life events				-0.04**	0.01	-0.02**	-0.04**	0.01	-0.02**
Ethnicity × Age							-0.08	0.08	-0.02
ΔR^2						0.00**			0.00
R^2		0.35**			0.35**			0.35**	

Notes: Ethnicity: 0 = European, 1 = Māori. Age: 1 = 40–65, 2 = 65+. Relationship status: 1 = single, 2 = partnered. SE: standard error. Both unstandardised (*B*) and standardised (β) regression coefficients are presented. β represents the predicted change in the number of standard deviations of life satisfaction for an increase of one standard deviation of the independent variable. Significance level: ** $p < 0.01$.

Table 4. The relationship of age, relationship status, health, income and life events to meaning in life

Variable	Model 1			Model 2			Model 3		
	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β
Ethnicity	0.11**	0.02	0.03**	0.11**	0.02	0.03**	0.30**	0.09	0.09**
Age	0.16**	0.02	0.05**	0.16**	0.02	0.05**	0.17**	0.02	0.05**
Relationship status	0.17**	0.02	0.07**	0.17**	0.02	0.07**	0.17**	0.02	0.07**
Health	0.18**	0.01	0.21**	0.18**	0.01	0.21**	0.18**	0.01	0.21**
Household income	0.00*	0.00	0.01*	0.00*	0.00	0.02*	0.00*	0.00	0.02*
Social support	0.41**	0.01	0.41**	0.41**	0.01	0.41**	0.41**	0.01	0.41**
Life events				0.02*	0.01	0.02*	0.02*	0.01	0.02*
Ethnicity \times Age							-0.18*	0.08	-0.06*
ΔR^2					0.00*			0.00*	
R^2		0.27**			0.27**			0.27**	

Notes: Ethnicity: 0 = European, 1 = Māori. Age: 1 = 40–65, 2 = 65+. Relationship status: 1 = single, 2 = partnered. SE: standard error. Both unstandardised (*B*) and standardised (β) regression coefficients are presented. β represents the predicted change in the number of standard deviations of meaning in life for an increase of one standard deviation of the independent variable. Significance levels: * $p < 0.05$, ** $p < 0.01$.

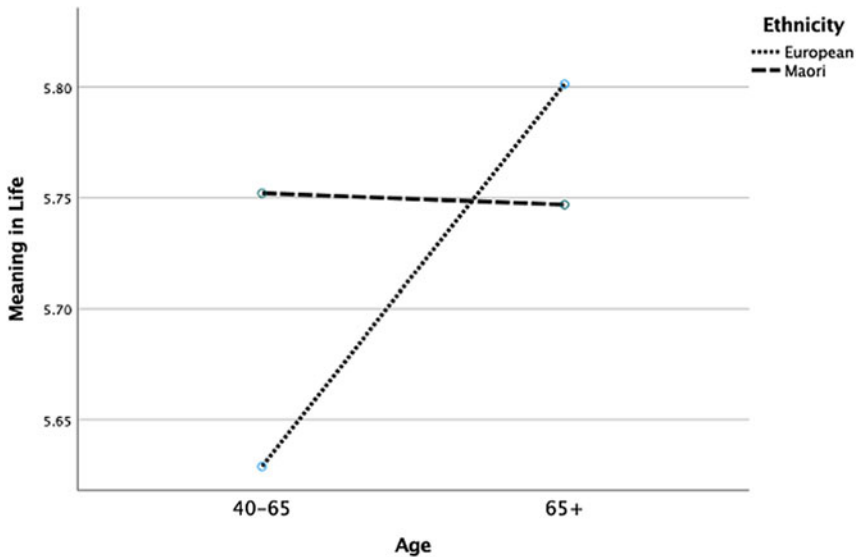


Figure 1. Moderation by ethnicity of the relationship between age and meaning in life.

Tables 3 and 4 also show the results for Hypothesis 3: number of stressful life events was negatively associated with life satisfaction, $\beta = -0.04$, $p < 0.01$ (Table 3) and positively associated with meaning in life, $\beta = 0.02$, $p < 0.05$ (Table 4).

Following on from the significant findings of between-group differences in meaning in life (Table 4), we ran separate regressions to explore differences by ethnicity in the associations between age and meaning in life (and covariates) for Māori (Table 5) and NZ European (Table 6) women. Results showed a different pattern of correlates and covariates for the two ethnicities. For Māori women, the final model was significant, $F(6, 1,775) = 92.38$, $p < 0.01$, with only health, $\beta = 0.20$, $p < 0.01$, and social support, $\beta = 0.40$, $p < 0.01$, significantly related to meaning in life. Results for NZ European women mirrored those for the total sample, $F(6, 15,259) = 953.11$, $p < 0.01$, with all correlates significantly related to meaning in life. The variance associated with meaning in life in these models was 24 per cent (Māori women) and 27 per cent (NZ European women).

To sum up: we found support for Hypothesis 1, in that age was positively related to life satisfaction and meaning in life for the total sample, as expected. Hypothesis 2 was only partially supported: Māori women reported lower levels of life satisfaction than NZ European women, but there was no difference by ethnicity in levels of meaning in life. Hypothesis 3 was also only partially supported: number of stressful life events exhibited the expected negative association with life satisfaction but a *positive* association with meaning in life. Results from the examination of ethnic differences in the relationship between age and wellbeing showed that Māori and NZ European women exhibited different associations between age and meaning in life, as well as different patterns of significant correlates. For Māori women, age was not associated with meaning in life, although health and social support were; for NZ European women, all correlates, including age, were significantly associated with meaning in life.

Table 5. The relationship of age, relationship status, health, income and life events to meaning in life for Māori women

Variable	Model 1			Model 2		
	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β
Age	-0.02	0.08	-0.01	-0.02	0.08	-0.01
Relationship status	-0.00	0.05	0.00	0.00	0.05	0.00
Health	0.16**	0.02	0.20**	0.16**	0.02	0.20**
Household income	0.00	0.00	0.01	0.00	0.00	0.01
Social support	0.38**	0.02	0.40**	0.38**	0.02	0.40**
Life events				0.01	0.03	0.01
ΔR^2					0.00	
R^2		0.24**			0.24**	

Notes: The full model is shown. Age: 1 = 40–65, 2 = 65+. Relationship status: 1 = single, 2 = partnered. SE: standard error. Both unstandardised (*B*) and standardised (β) regression coefficients are presented. β represents the predicted change in the number of standard deviations of life satisfaction for an increase of one standard deviation of the independent variable.

Significance level: ** $p < 0.01$.

Table 6. The relationship of age, relationship status, health, income and life events to meaning in life for European women

Variable	Model 1			Model 2		
	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β
Age	0.18**	0.02	0.05**	0.18**	0.02	0.05**
Relationship status	0.20**	0.02	0.08**	0.20**	0.02	0.08**
Health	0.18**	0.01	0.21**	0.18**	0.01	0.21**
Household income	0.00*	0.00*	0.02*	0.00*	0.00	0.02*
Social support	0.42**	0.01	0.41**	0.42**	0.01	0.41**
Life events				0.03*	0.01	0.02*
ΔR^2					0.00*	
R^2		0.27**			0.27**	

Notes: The full model is shown. Age: 1 = 40–65, 2 = 65+. Relationship status: 1 = single, 2 = partnered. SE: standard error. Both unstandardised (*B*) and standardised (β) regression coefficients are presented. β represents the predicted change in the number of standard deviations of meaning in life for an increase of one standard deviation of the independent variable.

Significance levels: * $p < 0.05$, ** $p < 0.01$.

Discussion

The current study examined life satisfaction (hedonic wellbeing) and meaning in life (eudaimonic wellbeing) in a national sample of mid- to later-life Māori and NZ European women, with particular focus on the role of negative age-related life events and ethnic differences. As a group, the women exhibited the same

relationship between age and the two types of wellbeing. However, ethnic group differences emerged for this relationship, particularly for analyses of meaning in life: for Māori women, the relationship between age and meaning in life remained stable, with only two correlates significantly associated with meaning in life (health, social support) compared to all six correlates for NZ European women. This finding suggests that while meaning in life is important, particularly for older women, its correlates and how it manifests vary by ethnicity. Overall, given global ageing population trends and women's life expectancies, these results provide important insights into the factors related to later-life wellbeing for NZ women.

Findings are consistent with international research concerning the age-related U-shaped curve of wellbeing (Blanchflower and Oswald, 2008; Brown *et al.*, 2012; Stone *et al.*, 2020), at least for life satisfaction; meaning in life did not show this pattern for Māori women. Previous research concerning age-related wellbeing has tended to focus on life satisfaction, affect (*e.g.* happiness), anxiety and depression, so perhaps expecting the same trajectory for meaning in life was unfounded. Future replication studies of the current study's analyses would be useful in this respect. Blanchflower and Oswald (2008) suggest that the U-shape exists through adaptation to lost goals, selection effects (happy people live longer than unhappy ones) or reflection on one's fortune at out-surviving others with age. There might be other mechanisms at play for meaning in life, perhaps in the areas of social networks and health (as suggested by our findings), particularly for those who are forced to come to terms with adversity earlier in their lives or on a continuing basis. Indeed, our results are consistent with previous findings concerning comparatively lower personal wellbeing for Māori women (and men) compared to their NZ European counterparts (Sibley *et al.*, 2011).

Our results are also consistent with research concerning the relationship between negative life events and wellbeing (Pocnet *et al.*, 2016; Howard *et al.*, 2022) although, again, not consistently for Māori women. Perhaps the age-related nature of some life events (*e.g.* death of a loved one) represents an opportunity for reflection and re-evaluation of life, particularly for older adults, thus explaining their positive association with meaning in life. Compared to other factors, however, for both Māori and NZ European women, negative life events contributed in a relatively minor way to both types of wellbeing. This finding mirrors the findings of Pocnet *et al.* (2016) that, while life events made a relatively small contribution to quality of life, perceived social support made a far greater contribution. Perhaps individual differences or personal resources (income, unemployment, health status and social contact; Brown *et al.*, 2012) and societal circumstances (Diener *et al.*, 2018) are more strongly associated with hedonic than eudaimonic wellbeing, particularly in the long term.

The current study's findings regarding the consistent importance of social support for both hedonic and eudaimonic wellbeing for Māori women also reinforce the large body of scholarship on the importance of social support in later life (for a brief review, see Birditt and Newton, 2016), particularly for older women who might also be widowed and depend on friends and community for support. Another important factor to consider when reviewing the ethnic differences in our results is the possibility of different interpretations of the constructs involved, including social support. For example, Butcher and Breheny (2016) comment that

family provide social support for Māori, and Dulin *et al.* (2012: 618) mention that Māori 'tend to view family and community as intertwined'. Thus, the idea of social support might manifest in qualitatively different ways for Māori, and perhaps also relate to community activities, such as informal volunteering; *i.e.* unpaid work in their communities, caring for grandchildren or extended family members. For Māori, volunteering constitutes 'unpaid activity performed out of sympathy and caring for others in accordance with cultural principles' (Dulin *et al.*, 2012: 619). Volunteering may be an important mechanism for making meaning in life for Māori, given that volunteering can moderate the relationship between lower economic living standards and happiness (Dulin *et al.*, 2012). Relatedly, differing motivations can explain similar patterns of findings: Hamley *et al.* (2020) found that, while Māori and NZ Europeans both exhibited in-group bias, for Māori the bias was related to ethnic identity; for NZ Europeans, social dominance theory played a greater role. Thus, the similar association found between social support and well-being for both Māori and NZ European women might be based on different meanings for similar constructs and could be useful to explore further.

The findings in the present study add to our understanding of the Life Course Perspective (Elder, 1994; Settersten, 2003), which emphasises the importance of considering personal sociohistorical contexts, timing of lives, linked lives and human agency when examining individuals' lives. For the women in this study, levels of wellbeing were related to both age and ethnicity, and were based within lives lived during a certain period of time in NZ.

Limitations and future directions

Whereas the current study's large sample size allows for the detection of small effects, such as the difference in the relationship between age and meaning in life for Māori and NZ European women, the study's strengths are balanced by its limitations, mainly in terms of participant characteristics and the constructs not included in the study. Our choice to focus on mid- to later-life NZ women, given that women's life trajectories can be non-linear compared to men's lives (Settersten *et al.*, 2020; Stephens *et al.*, 2022), means that the sample is not representative of all middle-aged and older New Zealanders. Indeed, we also excluded women who identified as Asian, Pacific and those who may identify as 'Other' in our survey measure. However, the relative proportion of Māori (10.8%) and NZ European (89.2%) women within the current sample closely resembles the total NZ population of Māori (10.5%) and NZ European (89.5%) women aged 40 and over (Stats NZ Tatauranga Aotearoa, 2018). The cross-sectional nature of the study also limits conclusions concerning the impact of negative life events, due to both a lack of information on both baseline wellbeing and time since life event, which may affect levels of post-event wellbeing (Lucas, 2007). Future research using data from multiple waves of the NZAVS would give a sense of longitudinal trajectories.

The potential limitation of measures used also needs to be addressed. Both wellbeing measures consisted of two items; while their alpha reliabilities were acceptable in the current study, using multi-faceted measures of life satisfaction and meaning in life would provide a broader and more reliable view of both constructs.

Moreover, measures of social support and wellbeing were not specifically designed for Māori perceptions of wellbeing that capture cultural differences in what is perceived as foundational to wellbeing. For example, the measures we used asked respondents to evaluate their wellbeing as individuals; however, a Māori view of wellbeing is holistic in nature and extends far beyond an individual focus, and includes spiritual, environmental and social influences (Durie, 1998). Therefore, wellbeing is multi-dimensional, and measures that focus on the wellbeing of individuals are limited for capturing this broader perspective. Further research is needed to ensure validity for assessing these constructs from a Māori perspective. Additionally, we include a one-item subjective measure of health in the current study; inclusion of a more comprehensive health measure, such as physician-diagnosed ailments (cardiovascular and respiratory health, cancer and diabetes), would provide an objective measure of health, particularly since these diseases have higher rates for Māori compared to European adults (New Zealand Ministry of Health, 2015), and particularly for women (Stephens *et al.*, 2022). Inclusion of measures concerning health-care access and quality of treatment (Houkamau, 2016) would also be beneficial to disentangling health disparities.

There are also a number of individual difference constructs that we did not include that would provide a more comprehensive examination of the correlates of wellbeing. Lucas (2007) points to personality as being associated with adaptation to life events. For example, adding measures of resilience, coping or control beliefs could illuminate, as Ryff (2014: 24) comments, ‘the capacity of some to experience and sustain their wellbeing ... despite the challenges that life presents them, be they loss events, social inequalities, unexpected traumas or living in a sometimes hostile world’, and broaden our knowledge of how older adults are able to cope adequately with loss or chronic illness (Yeung and Breheny, 2016). Older adults’ wellbeing can be maintained through volunteering (Dulin *et al.*, 2012), spirituality and/or religiosity (Highland *et al.*, 2022), and cultural connection and social identity (Houkamau *et al.*, *in press*). Additionally, the fact that the survey was written in English may also be considered a limitation: although nearly all Māori speak English as their first language, having the survey translated to *te reo Māori* (the Māori language) would be a more inclusive approach and potentially reach a broader swathe of the Māori population.

Future avenues of study might include exploring wellbeing based in Carstensen’s (1992) Socioemotional Selectivity Theory, as Stone *et al.* (2020) suggest. For instance, Pond *et al.* (2010) found the ‘maximisation of life’ pathway was one approach to retirement precipitated by others’ illness and death; the concept of priming the sense of an ending can be a potent reminder to live life to the fullest during one’s remaining lifetime (Fung and Carstensen, 2006). Additionally, activity-linked wellbeing, a less global measure of wellbeing, could provide useful information on the short-term mechanisms that maintain wellbeing for older adults by measuring positive and negative affect during everyday activities (socialising, exercising, running errands; Smith *et al.*, 2014; Ryan *et al.*, 2017).

The current study examined relationships between age, ethnicity and wellbeing among NZ women aged 40 and over. While the frequency of negative life events was less strongly associated with wellbeing than expected, other correlates (health, social support) showed relatively strong relationships to life satisfaction and

meaning in life for both Māori and NZ European women. Divergences by ethnicity on the associations between age, relationship status, household income, life events and meaning in life were also found. Taken together, study findings add to the growing body of research regarding ageing and wellbeing in NZ.

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