AGEING WELL

Kia eke kairangi ki te taikaumātuatanga

2019 AGEING WELL YEAR IN REVIEW

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INTRODUCTION

Ageing Well - *Kia eke kairangi ki te taikaumātuatanga* - is one of eleven National Science Challenges (NSC) identified by the New Zealand Ministry of Business, Innovation, and Employment (MBIE). These NSC are used to direct science investment on issues that matter to all New Zealanders. The vision underpinning the Ageing Well National Science Challenge (AWNSC) is *to add life to years for all older New Zealanders*. In articulating this vision, the AWNSC recognizes increases in life expectancy have not been matched by an increase in healthy life expectancy. AWNSC has established a bibliography of New Zealand research on older adults (2000-2018). This paper is a continuation of same activity, presenting a summary of 127 New Zealand-authored, peer-reviewed articles published 1 January to 31 December 2019.

METHODS

Search strategy

A systematic search for relevant publications was conducted, informed by the *Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA)* guidelines[1]. The following electronic databases were searched: Ovid Medline, Web of Science Core Collection, and Scopus. The keywords were (*ageing* OR *old adults* OR *old people* OR *elder* OR *kaumātua*) AND (*New Zealand* OR *Māori* OR *Aotearoa*) AND (*health* OR *wellbeing* OR *care* OR *frailty* OR *palliative* OR *spirituality* OR *religion* OR *housing* OR *loneliness* OR *community* OR *culture* OR *migrant* OR *fall* OR *stroke* OR *nutrition* OR *physical activity* OR *mental health* OR *peer education* OR *income* OR *retirement* OR *transport* OR *lifecourse* OR *equity* OR *medication* OR *pain*). The keywords were revised from the ones used in the Year in Reviews 2017 and 2018 (conducted by AWNSC) to better reflect the ageing research areas in New Zealand. Table 1 presents the search strategy.

Table 1. Search strategy for the Year in Review 2019

Ovid Medline	**Web of Science & Scopus**
1. aging/ or aging.mp. or ageing.mp. 2. old* adult*.mp. 3. old* people.mp. 4. elder*.mp. 5. Kaumatua.mp. 6. 1 or 2 or 3 or 4 or 5 7. New Zealand.mp. or New Zealand/ 8. Maori*.mp.	1. aging OR ageing OR "old* adult*" OR "old* people" OR elder* OR Kaumatua 2. "New Zealand" OR Maori* OR Aotearoa 3. #1 AND #2 AND PUBYEAR = 2019 4. health* OR wellbeing OR well-being 5. “home care agencies” OR “home care services” OR “hospice care” OR “dental care for aged” OR “advance care

[1] Page M J, McKenzie J E, Bossuyt P M, Boutron I, Hoffmann T C, Mulrow C D et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews BMJ 2021; 372 :n71 doi:10.1136/bmj.n71

9. Aotearoa.mp.
10. 7 or 8 or 9
11. 6 and 10
12. limit 11 to yr="2019 -2019"
13. health*.mp.
14. wellbeing.mp.
15. well-being.mp.
16. 13 or 14 or 15
17. Home Care Agencies/ or Home Care Services/ or Hospice Care/ or Dental Care for Aged/ or Advance Care Planning/
18. caregiver*.mp. or Caregivers/ or Caregiver Burden/
19. carer*.mp.
20. caregiving.mp.
21. 17 or 18 or 19 or 20
22. Frailty/ or Frail Elderly/ or Geriatric Assessment/ or frail*.mp.
23. Palliative Care/ or palliative.mp. or "Hospice and Palliative Care Nursing"/ or Palliative Medicine/
24. Terminal Care/ or dying.mp.
25. 23 or 24
26. spiritual*.mp. or Spirituality/ or Spiritual Therapies/
27. Religion.mp. or Religion/ or "Religion and Psychology"/
28. home.mp.
29. housing.mp. or Housing/ or Housing for the Elderly/
30. residential.mp.
31. 28 or 29 or 30
32. “social isolation”.mp. or Social Isolation/
33. “social* connected*”.mp.
34. loneliness.mp. or Loneliness/
35. lonely.mp.
36. 32 or 33 or 34 or 35
37. communit*.mp.
38. Culture/ or cultur*.mp.
39. migrant*.mp.
40. Accidental Falls/ or fall*.mp.
41. stroke*.mp. or Stroke Rehabilitation/ or Stroke/
42. nutrition.mp.
43. “physical activit*”.mp.
44. Exercise/ or exercis*.mp
45. 43 or 44
46. “mental health”.mp. or Mental Health/
47. psychological.mp.
48. 46 or 47

planning” OR caregiv* OR “caregiver burden” OR carer*
6. “frail elderly” OR frail* OR “geriatric assessment”
7. "palliative care" OR palliative OR "hospice and palliative care nursing" OR “palliative medicine” OR "terminal care" OR dying
8. spiritual* OR “spiritual therapies”
9. religio*
10. home* OR hous* OR "housing for the elderly" OR residential
11. "social isolation" OR "social* connected*" OR loneliness OR lonely
12. communit*
13. cultur*
14. migrant*
15. "accident* fall*" OR fall*
16. stroke* OR "stroke rehabilitation"
17. nutrition
18. "physical activit*" OR exercis*
19. “mental health” OR psychological
20. "peer education" OR "peer group*"
21. income OR employment OR work OR volunteer*
22. retir*
23. transport OR mobility
24. lifecourse OR “life course”
25. “socioeconomic factors” OR equality OR “healthcare disparities” OR “health equity” OR equity
26. “medication errors” OR “medication adherence” OR medication* OR “medication reconciliation” OR prescription* OR “prescription drug misuse” OR “prescription drugs” OR “prescription drug overuse” OR prescrib* OR “drug prescriptions” OR polypharmacy
27. pain
28. #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27
29. #28 AND #3

49. "peer education".mp. 50. Peer Group/ or "peer group"*.mp. 51. 49 or 50 52. Income.mp. or Income/ 53. Employment/ or employment.mp. 54. Work/ or work.mp. 55. volunteer*.mp. 56. 52 or 53 or 54 or 55 57. Retirement/ or retir*.mp. 58. transport.mp. 59. mobility.mp. 60. 58 or 59 61. lifecourse.mp. 62. "life course".mp. 63. 61 or 62 64. Socioeconomic Factors/ or equality.mp. or Healthcare Disparities/ 65. Health Equity/ or equity.mp. 66. 64 or 65 67. Medication Errors/ or Medication Adherence/ or medication*.mp. or Medication Reconciliation/ 68. prescription*.mp. or Prescription Drug Misuse/ or Prescription Drugs/ or Prescription Drug Overuse/ 69. prescrib*.mp. 70. Prescriptions/ or Drug Prescriptions/ 71. polypharmacy.mp. or Polypharmacy/ 72. 67 or 68 or 69 or 70 or 71 73. pain.mp. or Pain/ 74. 16 or 21 or 22 or 25 or 26 or 27 or 31 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 45 or 48 or 51 or 56 or 57 or 60 or 63 or 66 or 72 or 73 75. 12 and 74	

Inclusion criteria

Only articles published in English and on humans were selected. Since the purpose of this research activity was to generate a bibliography of research in the ageing area conducted in New Zealand, no filters were placed based on the type of publications provided full texts are available. Articles identified in the search underwent a series of screening processes. Firstly, duplicate articles were removed. Assistant Research Fellow (Dr Lizhou Liu) independently selected and screened articles for potential eligibility based on titles and abstracts, and full texts. Consensus on inclusion was reached by discussion with secondary reviewer (Professor Louise Parr-Brownlie). After screening, articles were categorized under different subheadings. Both authors of this review were not blinded to the journals or authors of the included studies.

Categorisation

In a slight modification to the process used in previous years, publications were assigned to one or more of 18 categories, to reflect the primary relevance of the publication. Assignment to more than one category was used conservatively. In addition to the relevant categories, an ethnicity category (Māori, Pacific, Asian) was also assigned, if the publication *primarily* reported on one of these broad ethnic groups.

RESULTS AND DISCUSSION

Study selection

Figure 1 summarises the study selection process. The search strategy identified 1144 articles. After duplicate removals, 818 articles were screened by title and abstract. The full text of 131 articles were then assessed for eligibility, with 127 articles finally included in this Year in Review.

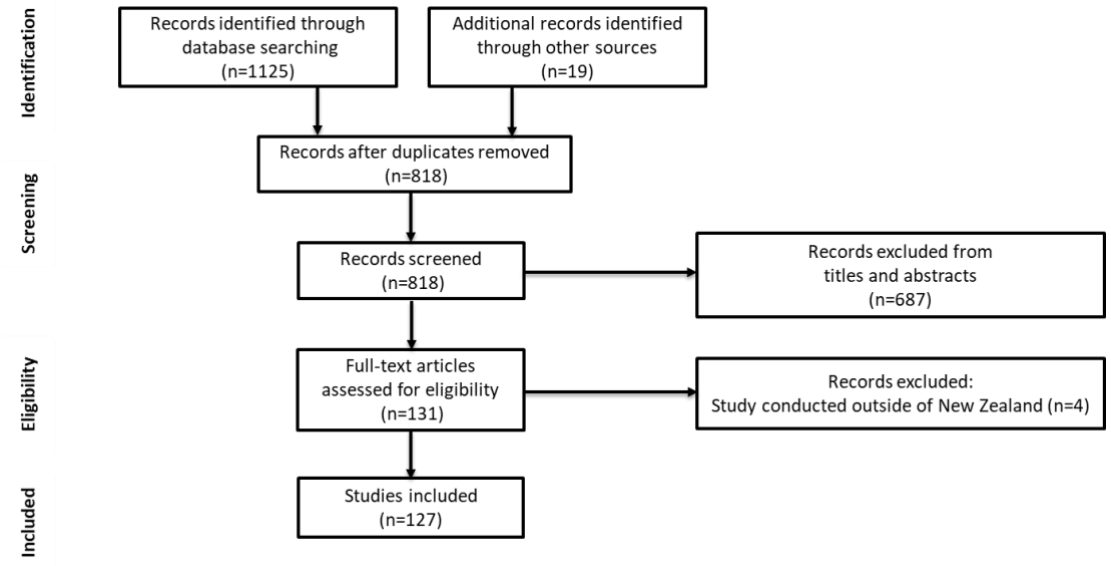

Figure 1. Study selection process

Table 2 summarises assignment of the 127 publications to the 18 relevant categories.

Table 2. Classification of publications

Category	Number of publications*	References
Bones and joints	8	(1-8)
Cardiovascular conditions	2	(9, 10)
Central nervous system conditions	14	(11-24)
End-of-life and palliative care	9	(10, 15, 25-31)
Frailty, balance, falls	6	(32-37)
Health and social services	13	(6, 24, 28, 38-47)
Health, wellbeing and quality of life	10	(48-57)

Category	Number of publications*	References
Health workforce	15	(14, 18, 26, 29, 30, 58-67)
Housing	6	(68-73)
Living and care facilities	14	(18, 25, 26, 28, 31, 58, 74-81)
Mental health	5	(38, 82-85)
Nutrition	6	(19, 79, 86-89)
Other conditions	17	(33, 67, 74, 75, 81, 90-101)
Prescribing	11	(4, 11, 85, 102-109)
Social connection	10	(72, 77, 110-117)
Transport and built environment	3	(118-120)
Work and finances	4	(121-124)
Not otherwise classified	3	(125-127)
* 127 unique publications are classified, with 25 being assigned to two categories and one to three categories.		

Bones and joints

A national population cross-sectional study consisting of 45,046 home care clients aged 65 years and older found that risk factors for hip fractures were similar to international work, and could be identified using the New Zealand version of the interRAI home care assessment (1).

In a small study, the Charlson Comorbidity Index was demonstrated to be a useful tool for predicting mortality 1-year post-injury in the patient cohort. Other variables, including common laboratory markers, can also be used for risk stratification to initiate timely multidisciplinary management and prognostic counselling for patients and family members (2).

A retrospective cohort study found that people who lived in greener neighbourhoods took fewer opioids, and lived longer following hip arthroplasty. The authors suggested that improving access to natural environments may be an effective component of a postsurgical recovery programme (3).

A national population-based study was carried out to evaluate the association between the Drug Burden Index (DBI) and hip fractures, after correcting for mortality and multiple potential confounding factors. Increasing DBI was associated with a higher likelihood of fractures after accounting for the competing risk of mortality and adjusting for confounders (4).

A retrospective cohort study evaluated post-operative mortality rates and trends over time for patients with fractured neck of femur at Waitematā District Health Board. Mortality rates following surgery for fractured neck of femur have significantly improved over recent years. Reduced time-to-theatre is associated with decreased inpatient, 30-day and one-year mortality outcomes (5).

To enhance understanding of access to rehabilitation services in Australian and New Zealand acute care facilities for older adults living with dementia and/or living in residential aged care facilities following a hip fracture, an online survey of 40 health professionals and interviews

with five geriatricians and five rehabilitation physicians were conducted. The study revealed that development of consistent decision criteria and pathways for access to hip fracture rehabilitation could provide a standard approach to access rehabilitation, particularly for patients with cognitive impairment and/or who reside in residential aged care facilities (6).

The risk factors for mortality of pyogenic vertebral column osteomyelitis was explored in Waikato Hospital. An increase in age and the number of vertebra were found to elevate the 1-year mortality risk (7).

The use of opioid analgesics over three years before and after total joint replacement surgery in New Zealand was described. Opioid analgesia prescribing was reduced following joint replacement surgery, although many patients remained long-term opioid users. Avoiding unnecessary pre-operative opioid use and limiting opioid use for post-operative pain management, where appropriate, could help reduce the risk of potentially ineffective or harmful long-term opioid use in the patients (8).

Cardiovascular conditions

An analysis evaluated clinical outcomes of the fully repositionable and retrievable Lotus Valve System in patients with bicuspid aortic valves enrolled in the RESPOND post-market registry. This analysis showed that data from the RESPOND registry demonstrated good clinical and echocardiographic outcomes up to 1 year post-implantation in patients with bicuspid aortic valves using the Lotus Valve (9).

A review provided an informed perspective on cardiovascular disease and palliative care needs among Māori New Zealanders. The review acknowledged that a major barrier for Māori families was engaging with the health system's biomedical approach when holistic care was preferred. The review recommended cultural safety training for health and cardiovascular professionals to strengthen rapport building and communication skills necessary for effective engagement and communication. In addition, increasing the Māori palliative care workforce and introducing cultural safety training for health professionals would help to bridge the gap (10).

Central nervous system conditions

Dementia and cognitive impairment

In a cross-sectional study, the prevalence and predictors of prescribing potentially inappropriate medications (PIMs) in a nationwide cohort of community dwellers with dementia requiring complex care needs were examined. PIMs are prescribed frequently in older adults with dementia (11).

In a pilot study, the modified Lifestyle for Brain Health scale quantifying dementia risk was introduced to a sample of 304 eligible self-selected participants. Older adults in this study did not have adequate knowledge about dementia risk and protective factors. However, they reported optimism about modifying risks through lifestyle interventions (12).

The interRAI-Home Care data set was analysed using a non-parametric method for testing seasonal distribution of cognitive and depression scale scores. The study findings, limited to the Southern Hemisphere, demonstrated a lack of seasonality in cognitive performance and impairment in older adults in New Zealand (13).

A focus group was conducted with a group of bilingual Asian health care professionals to explore public attitudes towards dementia in Asian communities in New Zealand, the stigma of dementia, and how best to develop culturally appropriate services for Asian people and families living with dementia. Findings show that much work is needed to destigmatise dementia in New Zealand Asian communities, through education, public awareness, and the availability of readily accessible services that can meet their cultural and language needs (14).

An exploratory qualitative study of 23 people who have been carers or provided support for a family member with dementia who had died in the last five years. There was the potential for families to be well prepared for when they needed to make decisions for the person with dementia based on everyday conversations that had taken place within families and throughout life. This study also reported that more innovative approaches to making a will and power of attorney may provide an important vehicle for expressing advanced care wishes (15).

A study interviewed 26 family members of people living with dementia about their experiences of supporting an admission to an acute hospital unit in New Zealand. This study provided evidence that family members are a resource that may be unrecognised, untapped and unsupported in the event of hospitalisation of people with dementia (16).

Māori understandings of dementia, its causes, and ways to support a whānau member with dementia were investigated in a focus group study. It was concluded that whānau are crucial for the care of a kaumātua with dementia, along with promoting healthy wairua for all. Whānau urgently need information to assist their knowledge building and to empower meeting the needs of whānau affected by dementia (17).

Patient-centred training needs of health care assistants who provide care for people with dementia were examined in 49 facilities across New Zealand. The results confirmed that the education provided did not sufficiently focus on these more complex skills. Provision of education that acknowledges the increased complexities of their carer role needs to be provided (18).

The methodology of the REACH (Researching Eating, Activity and Cognitive Health) study that would be used to investigate associations between dietary patterns, cognitive function and metabolic syndrome, accounting for a range of covariates was reported (19).

A review of dementia-friendly community initiatives showed that people with dementia are at the centre of dementia-friendly initiatives, and these foster social inclusion. Collaborations and partnerships enhance development of dementia-friendly communities. However, a lack of

resources and difficulty ensuring representation of marginalised groups provided challenges (20).

Parkinson's disease

A survey explored current medicine administration practices of people with Parkinson's disease in New Zealand. It revealed that medicine administration is complex and challenging for people with Parkinson's disease. The development of educational packages for people with Parkinson's disease, their carers and health professionals are much needed (21).

Stroke

A clinical audit measured outcomes from 284 patients with acute stroke using the Dysphagia in Stroke Protocol. The study reported that simply implementing cough reflex testing in dysphagia management may not be sufficient to improve patient outcomes, and the true variable of influence may be applying test results to inform patient care. There is a strong case to support the use of a structured protocol if cough reflex testing will to be implemented in clinical practice (22).

A cross-sectional study determined the association of gout with the risk of hypertension and diabetes mellitus in stroke patients. Findings showed that gout may be independently associated with an increased risk of hypertension and diabetes mellitus in patients with stroke. Māori show a greater risk of diabetes mellitus associated with a gout diagnosis compared to other populations. This finding highlights the need for further research with Māori stroke survivors and other indigenous populations (23).

An audit determined current local community stroke rehabilitation practice and compared this to guideline recommendations. It was found that there were delays in providing an initial community rehabilitation appointment and insufficient therapy intensity when comparing audit results to New Zealand Guideline expectations. As a result of this audit, recommendations for service improvements have been made (24).

End-of-life and palliative care

A prospective staff survey of resident deaths in 61 representative long-term care facilities across New Zealand found that symptoms in the last week and month of life did not vary by diagnosis. However, sub-group planned contrast analyses found those with dementia and chronic illnesses experienced more physical distress during the last weeks and months of life than those with cancer (25).

A mixed-methods study evaluated the factors predicting the confidence of palliative care delivery by long-term care staff. The study concluded that organisational leadership should use multiple strategies (e.g. power-sharing, increased opportunities for mentorship) to improve staff palliative care delivery confidence (26).

A qualitative study of family understandings of good end-of-life care in hospital for people dying in advanced age reported that families were highly satisfied with the concrete actions that clinicians working in acute hospitals integrated into their practice to deliver end-of-life care (27).

A mixed-methods case study investigated how care is delivered to patients admitted-to-die in an aged residential care facility. The study showed that aged residential care facilities are not set up or staffed to provide specialist palliative care of those admitted-to-die. A specific model of care that is funded appropriately is required (28).

A survey on the level of agreement among New Zealand and Australian doctors' decisions when using Advance Care Directives to guide treatment decisions for older patients revealed that the agreement level varies by vignette complexity, Advance Care Directives content, speciality and seniority of doctors (29).

A study explored how pre-clinical students make sense of their participation in the provision of end-of-life care within community settings. It was concluded that in-depth reflection may facilitate the links between experience-based learning and students' emerging ideas about their own professional identities, but the underlying mechanisms need further exploration (30).

A study using resident data from a sample of 51 hospital-level aged residential care facilities in New Zealand found that there are differences in the quality of end-of-life care given in aged residential care based on size, ownership model, and chain affiliation (31).

A review provided perspectives on living and dying with cardiovascular disease in New Zealand among Māori. Conclusions of this study have been reported in page 8 in this review under *Cardiovascular conditions* (10).

Decisions about end-of-life care for people with dementia were investigated in an exploratory qualitative study. Conclusions of this study are reported in page 9 in this review under *Central nervous system conditions - Dementia and cognitive impairment* (15).

Frailty, balance and falls

A retrospective review study found that patients with traumatic odontoid fractures from falls were significantly more frail in comparison with any other mechanisms of injuries, with worse short- and long-term outcomes (32).

A study that estimated the health gain, health system costs and cost-effectiveness of cataract surgery for the New Zealand older population concluded that expedited cataract surgery appears very cost-effective. Routine cataract surgery is very cost-effective, and its value is largely driven by the falls prevention benefits (33).

The associations between frailty and clinical outcomes in very old patients in intensive care units (ICU) were examined in a population-based cohort study in New Zealand and Australia. Many very old critically ill patients are frail, and frailty is associated with considerably poorer health outcomes. Routine screening of older ICU patients for frailty could improve outcome predictions and inform intensive care and community health care planning (34).

Three types of fall prevention exercise programmes for an old population (a peer-led group-based one, a home-based one, and a commercial one) were modelled to investigate their cost-effectiveness. The study showed that implementing all of these exercise programmes for fall prevention in older people can produce considerable health gain, but the home-based version is likely to be the most cost-effective (35).

A qualitative study investigated the perceptions of older adults in a New Zealand towards the term "frail". It was suggested that health professionals should shift their focus on clinical encounters with older patients away from the deficits of frailty and towards independence, resilience and autonomy. Frail older adults often reject the term frailty when used about themselves, therefore, using this term in communication may have negative consequences (36).

The study protocol of a randomised controlled trial (RCT), which examined the impact of a complex intervention consisting of the Senior Chef (nutrition) and/or SAYGO (strength and balance exercise) programmes to prevent progression of frailty in pre-frail older adults, was reported (37).

Health and social services

A survey on specialist mental health care for older adults in New Zealand showed that national consistency in data collection and service delivery is needed. Further investigations are needed to understand the needs of people with prior mental health service contact (38).

A RCT evaluated the effectiveness of a post-acute care model (patients discharged from hospital and referred to a supported discharge team) for older people following injury. The study reported that the supported discharge team can provide an important role in reducing hospital length of stay and readmissions of older people following an injury, and in helping with the transition from hospital to home (39).

Semi-structured interviews with 40 patients-participants were conducted to offer providers advice on how to support patient self-management. It was concluded that providers who establish relationships with patients can support them to self-manage and improve health outcomes. Delivery of the Practical Reviews in Self-Management Support taxonomy components, in the absence of a relationship, are unlikely to be either acceptable or effective. Providers need to be aware that social determinants of health can constrain patients' options to self-manage (40).

A study described perioperative geriatric medicine services in New Zealand and Australia, and to explore geriatricians' views on the need for, and challenges in providing, perioperative care. Although geriatricians believed they should provide proactive collaborative care for older surgical patients, only a few hospitals currently provide these services. Funding streams for these services and further research to determine the best models of care are needed (41).

A retrospective observational study was carried out to determine the proportion of older patients who planned to receive or attended post-discharge secondary care (PDSC) after acute hospitalization and the association with undesirable outcomes. In patients aged ≥75 years in New Zealand, a “planned PDSC” at discharge or “attended PDSC” after an acute hospitalization was not associated with emergency department presentation, long-term care admission and death within 90 days after discharge (42).

A commentary paper described the Australia and New Zealand Emergency Laparotomy Audit-Quality Improvement (ANZELA-QI) study, which will gather large scale data of hospital-level information to enable clinicians to reduce variations in management. The ANZELA-QI study will help establish the role of collaborative models of care and the need for perioperative care teams (43).

The protocol for a RCT evaluating the effectiveness of modulating frontal EEG alpha oscillations during maintenance and emergency phases of general anaesthesia to improve early neurocognitive recovery in older patients was reported (44).

A retrospective study described inpatient healthcare-associated bloodstream infections (HABSI) in older adults and explored whether urinary catheters (presence/insertion/removal) were related to HABSI events. Findings showed that catheter-associated HABSI may be avoidable and potential preventative strategies were discussed (45).

A qualitative descriptive study entailed interviews with caregivers and older adults with multimorbidity receiving community based primary health care in Canada and New Zealand. Attributes of good care extend beyond disease management, and further research on implementation barriers and facilitators is required (46).

A literature review explored the economic benefits of technology use a for managing the “grey tsunami” that has commenced in New Zealand. It showed that technology is beneficial, especially for positive ageing. A significant reason for it hardly being used is the lack of thorough studies that demonstrate its cost-effectiveness. Studies have shown that even the simplest form of technology such as a phone call, mobile health application or a pedometer can be effective (47).

Healthcare professionals were recruited to explore their views on access to rehabilitation services for older adults living with dementia or in a residential aged care facility following a hip fracture. Conclusions of this study have been reported in page 8 in this review under *Bone and joint* (6).

The current local community stroke rehabilitation practice was examined in a service audit. Conclusions of this audit are reported in page 10 in this review under *Central nervous system conditions – Stroke* (24).

Characteristics of palliative care for patients admitted to die in a New Zealand aged residential care facility were described. Conclusions of this study have been reported in page 11 in this review under *End-of-life and palliative care* (28).

Health, wellbeing and quality of life

A paper described the development processes of a 'tuakana-teina' (elder sibling-younger sibling) peer education programme to help kaumātua support other kaumātua experiencing transitions in later life (48). A study protocol for using this programme to help Māori kaumātua work through later-stage life transitions was reported (49). Social determinants and communication correlates of health-related quality of life for kaumātua involved in this programme were identified. These findings have important theoretical and practical implications for positive ageing (50).

A study explored the impact that older adult engagement in natural environments had on age-related health conditions, their responses to the changes, and identified the types of nature connections and greenspaces available to and prioritised by older adults. Nature connection opportunities are valued by nearly all adults irrespective of age and health. Accessible opportunities to engage with natural environments nearby and in the home environment should be available to all adults irrespective of health and accommodation type (51).

The health and wellbeing of older Asian immigrants in New Zealand were reviewed. A multitude of challenges in maintaining health and wellbeing confronted these older Asian immigrants; nevertheless, they created strategies to respond and positively influence their health following later-life migration (52).

A qualitative study explored the experiences of extended longevity as perceived by centenarians (people over 100 years of age). This study provided further insights into the existing literature on longevity and, through the narratives of the centenarians, has demonstrated the value of Erikson's psycho-social stages of development and Tornstam's theory of gerotranscendence when considering positive ageing (53).

Semi-structured interviews were conducted to investigate psychological strengths from community dwelling older adults. This study highlighted the challenges older adults had to identify their own strengths. However, the study demonstrated how narratives can be one way of uncovering psychological strengths with older adults (54). The research team also explored community-dwelling older adults' approaches to enhancing their psychological wellbeing. Older adults have a range of strategies or practices that they use to enhance their wellbeing.

However, wellbeing is not a static concept and it is important to recognise the influence of health, social and environmental factors as enablers and enhancers of wellbeing (55).

Indicators relating to ageing and health among veterans and non-veterans, and factors associated with subjective wellbeing of older New Zealand veterans were identified in a study. It was reported that older veterans do not differ greatly on indices of health and ageing from their non-veteran peers. Results supported previous findings that lower mental and physical health is associated with lower subjective wellbeing for veterans (56).

A qualitative study interviewed 20 community-dwelling people of advanced age (≥85 years) to explore insights about the ways older people maintain quality of life and health. The findings emphasised the need to move away from a narrow focus on problems to working together with people in advanced age to offer a more holistic approach that encourages and enhances adaptation and flexibility, rather than rigid and counterproductive coping patterns (57).

Health workforce

A study investigated environmental factors (temperature, humidity, noise, and lighting) in nurse offices and resident lounges in aged residential care facilities in New Zealand and compared them with international standards. The study indicates that nurses and healthcare assistants are working in environmental conditions that partially impede the health and safety of nursing staff, and could adversely affect their nursing care for residents in aged residential care facilities (58).

Data from Wave 4 of LiLACS NZ, a longitudinal study of Māori and non-Māori New Zealanders of advanced age, showed that gender and ethnicity are interwoven in caregiving and care receiving. Demographic differences and cultural expectations in both areas must be considered in policies for carer support (59).

A paper described older New Zealand-based Filipino female migrants' narratives around the care work they do for their families and the care arrangements they desire in old age to investigate links between individual narratives and the discourses around care work and aging (60).

A paper analysed a photographic essay of older adults and workers in a nursing home environment, as a day-in-the-life documentary photographic essay *Who cares* that published in *Kai Tiaki, Nursing New Zealand in 2006*. This paper illustrated the way in which older people care work is made invisible through complex social processes involving sight, and site-related contemporary visual and spatial practices of elder care (61).

Interviews were carried out to explore registered nurses' experiences, feelings and attitudes towards the interRAI-Long-Term Care Facilities (interRAI-LTCF), which is a web-based assessment tool designed to comprehensively assess older adults (≥65 years) living in aged residential care. Overall registered nurses supported the use of interRAI-LTCF as a

comprehensive assessment tool. Duplication in data entry, insufficient training, and the annual tests caused stress and negative feelings for registered nurses (62).

A longitudinal study including New Zealand and Australian healthcare professionals found that knowledge about sarcopenia is limited among healthcare professionals who attended a professional development event. Retention of knowledge remains a challenge to be addressed (63).

The psychiatry of old age specialist training programs in Australia, New Zealand, the United Kingdom, and Mexico were described. Much work is needed to better coordinate psychiatry of old age specialist training positions, workforce development, and service delivery to ensure there is a sufficient supply of old age psychiatric specialists to meet the mental health needs of older adults in different countries in the coming years (64).

A descriptive study explored the experiences of work stress for support workers in New Zealand residential facilities. The findings extended current knowledge about support-workers' work stress by identifying the challenges relating to the lack of recognition of their role and expertise, the unintended consequences of person-centred care and the challenges faced by migrant support-workers (65).

New Zealand registered social workers' perceptions of older adults' alcohol use and the influence these perceptions had on their alcohol assessment processes were explored in a qualitative study. The implications and recommendations arising from the findings are critical for social work education, training and supervision. Furthermore the finding need to be used develop an 'evidenced informed' model of practice, which moves away from a single to multi-hypothesis assessment approach and from perception based to standardised questions (66).

A qualitative study examined the perspectives of caregiving for older people with intellectual disability and those of their family. Caregiving was informed by transitions across the life course. The theoretical model informs complex, trans-generational relationships that impact decision-making for people with a long-term condition (67).

A qualitative study by a group of Asian health care professionals explored public attitudes towards dementia in Asian communities in New Zealand, the stigma of dementia, and how best to develop culturally appropriate services for Asian people and families living with dementia. Conclusions of this study have been reported in page 9 in this review under *Central nervous system conditions - Dementia and cognitive impairment* (14).

A paper reported the experiences of health care assistants caring for people at end-of-life, identified the skills required and examined the education provided against these skills. Conclusions of this study have been reported in page 9 in this review under *Central nervous system conditions - Dementia and cognitive impairment* (18).

A two-phase qualitative study investigated the factors that predict the confidence of palliative care delivery in clinical staff in long-term care. Conclusions of this study have been reported in page 10 in this review under *End of life and palliative care* (26).

A vignette-based study determined decision-making patterns when using Advanced Care Directives for older patients in Australia and New Zealand. Conclusions of this study have been reported in page 11 in this review under *End of life and palliative care* (29).

Junior medical students' reflections on end-of-life care were explored using their written essays. Conclusions of this study have been reported in page 11 in this review under *End-of-life and palliative care* (30).

Housing

A study exploring older renters' experiences on Waiheke Island illustrated the complexity of home, community and identity-related aspects of island life. Participants' experiences of islandness were influenced by multifaceted precarities in their personal situations and the broader island community (68).

In light of housing affordability concerns, older people's experiences of renting within a context of enduring home-ownership norms and aspirations were examined. Older tenants' housing pathways and experiences illuminate ways in which precarity can disrupt opportunities for ageing well and ageing in place (69).

A qualitative study investigated how housing-related precarities may impact upon experiences of ageing and home during later life. Results showed that experiences of renting and ageing can be complicated and compromised in diverse ways by interrelated aspects of precarity and resilience related to housing, community, health, financial and personal circumstances (70).

An analysis of pooled data from three consecutive, annual New Zealand Health Surveys found that rental tenure is associated with poorer health. This will have implications for policy and services in meeting the diverse care and support needs of older people. Higher rates of renting among Māori and Pacific people and older females means that these groups are particularly vulnerable to any negative impact of renting on health (71).

A study investigated housing tenure as a factor moderating the effects of loneliness and socio-economic status on quality of life over a two-year period for older adults. Findings indicate that owners capitalise on their material and financial resources more than tenants in terms of their quality of life. In addition, home-ownership can act as a protective factor against the harmful effects of emotional loneliness in old age (72).

A qualitative case study approach examined living experiences of 10 older people living in local-authority rental housing in New Zealand and two custodians of those houses. The study

found that elements of specific interior spaces, spatial configuration, accessibility, outdoor, light, privacy and safety and social aspects need to be considered for wellbeing (73).

Living and care facilities

Aged care facilities

Access and barriers to oral health care for dependent elderly people living in rest homes were examined in a qualitative study. The study revealed that finance is a challenge as dental care is not publicly funded and many residents rely on limited income. Recommendations include policy changes to better fund oral health, specific oral health training for rest home staff, provision of mobile dental services to rest homes and the inclusion of gerontology in the dental school curriculum (74).

Using national data from the Older People's Oral Health Survey, residual dentition among older New Zealanders living in residential aged care facilities was explored. Having various degrees of tooth loss was normal, with the upper tooth-bound saddles against any partially dentate lower combination most common, and limited to females. An edentulous maxilla opposed by some remaining teeth in the mandible was observed in over one-quarter of the population, and most common among Māori and those who were older. Maxillary prostheses were much more common than mandibular ones. Dental care older people in aged residential care is likely to be complicated by the wide range of dentition configurations (75).

A cross-country comparative analysis compared publicly available information on aged care systems in seven countries (Australia, Canada, Japan, New Zealand, Switzerland, United Kingdom, and United States) to determine the degree of transferability for research on aged care between these countries. Efforts to improve the health, wellbeing, and quality of care for older people continue to be hampered by the overall paucity of consistently reported standardized data to enable valid international comparisons (76).

The influence of social factors on admission to aged residential care facilities was evaluated by using a national comprehensive geriatric assessment database in New Zealand. All four social factors remained significantly associated with aged residential care admission, namely: living alone, negative social interactions, perceived loneliness, and carer stress (77). Using the largest national database to date, competing-risk regression analysis showed that screening for hearing loss among community-living older adults is unlikely to impact on aged residential care admission rates (81).

A study interviewed 15 older Filipinos to understand the living and care arrangement plans of older Filipino immigrants in New Zealand. The study results have implications for service delivery within the New Zealand aged residential care sector. Due to an increasing number of older Filipino immigrants requiring care, aged residential care facilities must ensure their care models meet the needs of this growing group of older people (78).

A cross-sectional study observed the cascade of nutrient loss from meals planned, versus provided and subsequently consumed by older people in residential care. Not all planned and served food and beverages are consumed contributing to potential multiple nutrient deficiencies including energy and protein in the majority of aged-care residents (79).

Training needs of patient-centred care among health care assistants who provide care for people with dementia in aged care facilities were explored. Conclusions of this study have been reported in page 9 in this review under *Central nervous system conditions - Dementia and cognitive impairment* (18).

A study compared symptoms before death in long-term care for those with cancer, dementia or chronic illness. Conclusions of this study have been reported in page 10 in this review under *End-of-life, palliative care* (25).

Predictors of palliative care delivery confidence specific to long-term care staff were explored in a mixed method study. Conclusions of this study have been reported in page 10 in this review under *End-of-life, palliative care* (26).

The situation of palliative care in a New Zealand aged residential care facility when patients are admitted to die was described. Conclusions of this study have been reported in page 11 in this review under *End-of-life, palliative care* (28).

A study described the impact of facility size, ownership model and provider on resident comfort, and symptom management at the end of life stage. Conclusions of this study have been reported in page 11 in this review under *End-of-life, palliative care* (31).

Workplace environments for nurses and healthcare assistants in New Zealand aged residential care facilities were examined. Conclusions of this study have been reported in page 15 in this review under *Health workforces* (58).

Retirement villages

A case study explored how residents experience inclusion and exclusion, and sense of community within an urban retirement village. The authors identified that social connections were often fragile, and existing social group memberships were key to shared community experiences and a sense of belonging. Residents who found themselves on the social fringes, particularly as newcomers or through health decline, were at risk of marginalisation, stigma, and social exclusion. Further, the study identified that the design and layout, and tensions in the structure of the resident-management relationship potentially hinder inclusiveness and sense of community (80).

Mental health

The interRAI-Home Care assessment was used to characterise rates of hoarding disorder amongst older New Zealanders. Hoarding disorder rates are in line with published

international data. But, identifying a hoarding disorder with the interRAI is not straightforward and should be validated in future studies (82).

A study evaluated the impact of the Canterbury earthquakes on the mental health of older people by examining dispensing patterns of psychotropic medication. The study found that the February 2011 Canterbury earthquake caused a short-term increase in dispensing of anxiolytics and sedative/hypnotics, and no longer-term dispensing patterns were observed (83).

Sociodemographic, environmental and diagnostic characteristics of older community residents with schizophrenia were presented in a cross-sectional study. The results showed that this group continues to experience social disadvantage into older age, which requires policy-makers to ensure that services are tailored to the high social needs of these individuals (84).

A retrospective observational case-series analysis reported that clozapine could be used safely and effectively in older patients for a wider range of indications and at lower doses than younger patients. Data collected on the cause of death in older patients who were ever prescribed clozapine was problematic, and more research into this area is required (85).

District Health Boards were surveyed to determine mental health service delivery and funding models for adults aged 65 and older. Conclusions of this study have been reported in page 12 in this review under *Health and social services* (38).

Nutrition

A RCT demonstrated that doubling the recommended protein intake in older males over 10 weeks only caused a limited impact on circulating metabolites (86).

A paper summarised the main scientific results achieved and the recommendations derived from the Joint Action Malnutrition in the Elderly (MaNuEL) Knowledge Hub. The hub was established to extend scientific knowledge, strengthen evidence-based practice, build a sustainable, transnational network of experts and harmonize research and clinical practice in the field of protein–energy malnutrition in older persons (87).

A MaNuEL study described malnutrition prevalence using harmonized definitions in older adults from different settings. Prevalence for different criteria varied between and within the settings, which might be explained by varying functional status. The criteria used strongly affect prevalence. It may be preferable to look at each criterion separately because they may indicate a specific nutritional problem (88).

A RCT explored the regulation of amino acid transporters and sensors in response to a high protein diet in old men. A diet of twice the recommended daily allowance for 10 weeks did not affect fasting mammalian target of rapamycin complex 1 signalling, but increased total

ribosomal protein S6 and might improve muscular translational capacity to maintain muscular mass (89).

The study protocol for a cross-sectional study investigating the associations between dietary patterns, cognitive function and metabolic syndrome in older adults was reported. Conclusions of this study have been reported in page 9 in this review under *Central nervous system conditions* (19).

The decay pathway of nutrient intake from planned menu through to consumption of residents in an aged care facility was investigated. Conclusions of this study have been reported in page 19 in this review under *Living and care facilities* (79).

Other conditions

Hearing

A qualitative study examined the barriers to accessing hearing care services among older Pacific Island people in New Zealand. Financial, structural and cognitive barriers dissuaded older Pacific people from accessing hearing care services. It was recommended that modifiable barriers need to be eliminated or minimised to enable people to readily receive the hearing care assistance they need (91).

Hearing ability was not a risk factor for admission to aged residential care of older persons in New Zealand. Conclusions of this study have been reported in page 18 in this review under *Living and care facilities* (81).

Oral health

The relationships between oral health and general health indicators were explored in three international longitudinal databases including a sample from New Zealand (n=15,012). The results pointed out the need of the inclusion of oral health assessment and advice from dentists or oral health practitioners into the multidisciplinary conversation. In addition, identifying older people with oral health problems is essential in order to provide treatment and monitoring (90).

An exploratory study accessed New Zealand rest home managers' opinions on access and barriers to oral health care for rest home residents. Conclusions of this study have been reported in page 18 in this review under *Living and care facilities* (74).

A study described the residual dentition among older New Zealanders living in residential aged care facilities. Conclusions of this study have been reported in page 18 in this review under *Living and care facilities* (75).

Other

Demographic trends (1995–2014) in a major New Zealand trauma centre were examined. Older patients bring a greater burden of co-morbidities, and trauma admission of older

patients has almost doubled over 20 years, including severe trauma. Yet, despite this, mortality has decreased. Integration of services into the new Auckland City Hospital in 2003, as well as improving trauma and medical care, may be possible explanations for the positive outcomes (92).

A national cross-sectional study provided an epidemiological profile of communication disabilities among older adults with complex needs. Communication disability is common among older adults. Māori, Pacific and Asian people, males and those who were older were more likely to have at least some communication disability compared to their European/other, female and younger counterparts (93).

A longitudinal cohort observational study examined baseline quality of life factors characteristics of participants enrolled prospectively. Health related quality of life factors were correlated with clinical characteristics of dialysis outcomes in a group of New Zealanders aged 65 years of age or older. Participants were either on dialysis or have been educated about dialysis (94).

The Vitamin D Assessment study, a large RCT from New Zealand, demonstrated that serum 25-hydroxyvitamin D levels were not associated with chronic pain. These results do not support a role for low vitamin D status in the prevalence of chronic pain in older adults (95).

The risks of major bleeding events in older people using antithrombotics were examined. Results showed that dual antiplatelet therapy use was associated with an increased risk relative to non-use of any antithrombotics in intracranial bleeding and gastrointestinal bleeding. The increased bleeding risk relative to non-use of any antithrombotics was highest with triple therapy use for intracranial bleeding and gastrointestinal bleeding (97).

A qualitative study using a constructivist grounded theory approach examined perspectives of caregiving for older people with intellectual disability and their family. Conclusions of this study have been reported in page 16 in this review under *Health workforce* (67).

Peripheral artery diseases

A RCT evaluated the effectiveness of heat therapy versus supervised exercise therapy for peripheral arterial disease. The results indicated that heat therapy can improve functional ability and has potential as an effective cardiovascular conditioning tool for individuals with peripheral arterial disease (98).

A feasibility study evaluated the safety and efficacy of the Serranator device in patients with peripheral artery disease in superficial femoral and popliteal arteries. Serranator is a safe and efficacious angioplasty balloon catheter system. This new design provides an exciting potential for optimizing vessel preparation and aiding drug delivery (99).

Respiratory conditions

An international review that included a New Zealand study evaluated the current epidemiological and financial burden of pertussis in older adults to discuss the potential value of a booster vaccination in this population. There is a good rationale to advocate for a booster pertussis vaccination throughout life to prevent pertussis infection and its transmission, especially in adults aged over 50 years (96).

A qualitative study interviewed health professional stakeholders and patients with severe Chronic Obstructive Pulmonary Disease (COPD) to determine the barriers and enablers to the provision of accessible high-quality COPD care in Southern New Zealand. Patients with severe COPD experience multilevel barriers to accessing healthcare in the New Zealand system, from diagnosis to advance care planning. Barriers need to be addressed by local health services if this group of patients are to receive high-quality care (101).

Vision

A retrospective review discussed the cataract surgery in Hauora Tairāwhiti (Gisborne District Health Board) and the need for improving access for Māori people (100).

A study explored the health gain, health system costs and cost-effectiveness of cataract surgery for old New Zealanders aged over 65 years. Conclusions of this study have been reported in page 11 in this review under *Frailty, balance and falls* (33).

Prescribing

A study examined the feasibility of implementing a deprescribing intervention (a proposed intervention that can help to minimise polypharmacy whilst potentially improving several health outcomes in older people) that utilises a patient-centred pharmacist-led intervention model to address major deprescribing challenges. This patient-centred deprescribing approach, demonstrated a high uptake of deprescribing recommendations and success rate. After 6 months, significant benefits were noted across a range of important health measures including mood, frailty, falls and reduced adverse reactions (102).

A retrospective nationwide cross-sectional study emphasised the identification of factors associated with the prescription of potentially inappropriate medications (PIM) during the first completed comprehensive geriatric assessment. Targeted strategies to reduce modifiable factors associated with the prescription of PIMs in subsequent assessments has the potential to improve medication management in older adults (103). Determinants of prescribing PIMs in a nationwide cohort of community dwellers with dementia receiving a comprehensive geriatric assessment were examined. Conclusions of this study have been reported in page 8 in this review under *Central nervous system conditions - Dementia and cognitive impairment* (11).

A study determined the level of potentially inappropriate prescribing (PIP) for octogenarians and examined the association between PIP, hospitalisation and mortality at 12-months follow-up. This study highlighted the importance of carefully considering all indicated medicines when

deciding what to prescribe. Further follow-up is necessary to determine the long-term effects of PIP on mortality and hospitalisation (109).

The prevalence of older people's polypharmacy and medication use across dependency levels was explored using a national sample of patient-level medication data. The study reported that polypharmacy and hyperpolypharmacy are common among older people, regardless of dependency level, and pain may be undertreated (104).

A meta-analysis evaluated the pooled estimate of central nervous system (CNS) medicines use in aged care homes. The review concluded that the overall use of CNS drugs varied among countries, with studies from Australia-New Zealand reporting the lowest use of CNS drugs. The criteria for prescribing CNS drugs in clinical practice should be evidence-based. Citeria should be used to support clinical judgement and patient safety, not to prohibit the use of the listed medications (105).

A systematic review of pharmacist-led medicines review services in New Zealand was conducted. Further investigation is needed to understand whether the development of culturally safe pharmacist-led medicines review services, responsive to community identified needs, can help to achieve equity in health outcomes for Māori older adults (106). The protocol of a feasibility study on a pharmacist-led medicines review intervention in community-dwelling older Māori adults was reported (107).

The prescribing pattern of clozapine in older adults in a standard older adult mental health setting was explored using a case-note review. The results showed that clozapine may be a safe and valuable treatment option for older adults with treatment-resistant schizophrenia and psychosis associated with Parkinson's disease and Lewy body dementia; doses can be low while remaining effective (108). A retrospective observational case-series analysis provided additional data concerning the safety, effectiveness and local prescribing trends of clozapine in elderly patients. Conclusions of this study have been reported in page 20 in this review under *Mental health* (85).

The association between drug burden index and hip fracture among older adults was investigated in a national population-based study. Conclusions of this study have been reported in page 7 in this review under *Bones and joints* (4).

Social connection

Using New Zealand interRAI-Home Care data from 2012 to 2016, the geographic distribution of the interRAI-Home Care cohort was examined. The study findings did not diverge greatly from prior research on older people and loneliness in rural areas. Observations of regional differences regarding rurality and socioeconomic status were not large (110).

A qualitative study explored the views of older adults' use of the terminology 'elder orphans', and the implications of using this term in health and social care systems. The use of 'elder

orphan' within healthcare was considered, and participants preferred it to be used contextually, and targeted towards appropriate health and social care services within and outside hospital-care settings (111).

A qualitative study explored the experiences of elder orphans living independently in the community with no immediate or close family support. The study offered insights on how existing informal networks influenced elder orphans' consideration of advance plan. Moreover, the findings have identified the extent that an informal support network has been received by elder orphans (112).

A comparative qualitative study outlined the meanings of loneliness and social isolation from the perspective of four ethnically diverse groups of older adults (Māori, Pacific, Asian, and New Zealand European). The study concluded that older people describe complex and culturally nuanced understandings and experiences of social isolation and loneliness. More culturally appropriate services, greater mental-health support and more service provision on weekends and evenings are needed (113).

Social isolation and loneliness among older Asian migrants in New Zealand were explored in a mixed-methods qualitative study. The study showed that older Asian migrants experienced high levels of isolation and loneliness at least at some points in their migrant lives. The participants revealed multiple ways of coping with lonely and isolated experiences in their limited social network, and these individual strategies allow recommendations on how best to reduce older migrants' social isolation and loneliness in the New Zealand context and beyond (114).

A secondary analysis of a study exploring how Chinese, Indian and Korean late-life immigrants participated in New Zealand society summarised three notions: being unsettled, feeling side-lined and being oriented towards social connectedness. A mood of loneliness coloured these late-life immigrants' resettlement experiences in New Zealand (115).

Longitudinal analysis of the relationship between purposes of internet use and wellbeing through loneliness and social engagement among older adults highlighted that internet use can support older adults' wellbeing, however, not every form of engagement impacts wellbeing the same way. These findings would inform the focus of interventions that aim to promote wellbeing (116).

Thirty-one sexual and gender minority people between the ages of 60 and 80 were interviewed about their experiences of social connectedness, stigma, and discrimination. Implications include a need to incorporate intersectional perspectives when working with both older adults and members of the LGBTQ+ community. Social work practitioners also need to consider the multifaceted and compounding identities of their clients with diverse experiences (117).

The moderating role of housing tenure on the effects of loneliness and socio-economic status on quality of life in old age were examined. Conclusions of this study have been reported in page 17 in this review under *Housing* (72).

A study investigated the influence of social factors on aged residential care admissions in a national home care assessment database of older adults. Conclusions of this study have been reported in page 18 in this review under *Living and care facilities* (77).

Transport and built environment

A cross-sectional study (n=675) sought perspectives of family members of drivers aged over 65 years enrolled in a longitudinal study. Most (80%) felt that families, as well as older drivers, would be adversely affected by driving cessation. Families identified accessible local information and services, alternative transport, and community-based programs for drivers and families as the assistance most needed (118).

In a position paper, the authors explored potential wellbeing implications for an ageing population of a transition to automated vehicles and consequent social and spatial shifts in the context of New Zealand (119).

A cross-sectional study described characteristics of New Zealand older adults who are no longer driving; their health, activity patterns, and mobility/transport practices. Older New Zealand former drivers studied were mostly female, widowed, and living alone. Very few had planned ahead for driving cessation, and when it did occur, transport was heavily dependent on private cars driven by others (120).

Work and finances

A longitudinal investigation with older New Zealanders explored the association between retirement and physical health benefits. Findings indicated that retirement can be beneficial for those with poor health and limited resources. For the wealthy and healthy, retirement does not necessarily affect health. Universal superannuation initiatives may partly address inequalities experienced by older persons in poor health and socio-economic circumstances prior to retirement (121).

A study used multi-criteria decision analysis techniques to understand the relative attractiveness of retirement policy reforms in New Zealand. Findings revealed that a policy that raises taxes to prefund the government retirement income scheme would be supported by a majority of people of all ages and income groups, and would be more popular than a policy that raises the age of eligibility. The results suggest multi-criteria decision analysis has considerable potential to help policymakers develop policies that are aligned with people's preferences (122).

A survey examined the conditions under which retention and engagement of older workers could be enhanced, together with the potential for perceptions of age discrimination to negatively influence these outcomes. Implications for human resource management practice include the importance of providing organisational support for older workers along with protections from age bias and discrimination (123).

The retirement policy changes between the Labour-led government and the National-led government were described. The author concluded that the National-led government's retirement policy legacy was one of stagnation not innovation (124).

Not otherwise classified

A paper described a workshop process conducted to guide funding priorities for the AWNSC. Actively engaging older adults and community stakeholders in setting research priorities provided a unique opportunity to understand the key areas older adults think are important for future research (125).

Safety of blood donation in older individuals, and their contribution to the blood supply of five countries were evaluated. It was concluded that exclusion solely based on older age appears to be unwarranted based on safety concerns such as donor reactions. Healthy older individuals can continue to safely donate and make a significant contribution to the blood supply past arbitrary age limits (126).

A synopsis of the 5th New Zealand Influenza Symposium highlighted the advantages of influenza vaccination for older adults in reducing declines in cognitive and physical health. Research findings from influenza surveillance, future of influenza vaccines and the influenza promotional campaign presented at the symposium were summarised (127).

Ethnicity

In addition to classification into primary categories, when relevant, publications were assigned to a broad ethnicity category (Māori, Pacific, Asian). Many publications involved, or were relevant to one or more ethnic groups, but the ethnicity category was used only when the publication was *primarily* addressing one of these groups (Table 3).

Table 3. Publications relative primarily to a broad ethnic group

Ethnicity	Number of publications	References
Māori	8	(10, 17, 48-50, 100, 106, 107)
Pacific	1	(91)
Asian	6	(14, 52, 60, 78, 114, 115)

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