REVIEW ARTICLE

Grey nomads with diabetes self-management on the road – a scoping review

AUTHORS

Anita De Bellis[1] RN, PhD, Senior Lecturer *

Christine H McCloud[2] PhD, Academic

Jane Giles[3] RN, CDE, Advanced Clinical Lead

Marc Apolloni[4] BPharm, Grad Dip Comm Pract Pharm, Grad Cert Primary Health Care (Diabetes Management and Education), Assistant Director

Wendy Abigail[5] RN, PhD, Senior Lecturer, wendy.abigail@flinders.edu.au

Pauline Hill[6] RN, PhD, Course Coordinator

Liam McClory[7] Medical Student

CORRESPONDENCE

*Dr Anita De Bellis anita.debellis@flinders.edu.au

AFFILIATIONS

[1, 2, 5, 6] College of Nursing and Health Sciences, Flinders University, GPO Box 2100, Adelaide, SA 5001, Australia

[3] Diabetes Service, Rural Support Service – SA Health, King William Street, SA 5000, Australia

[4] Pharmacy Guild of Australia, South Australian Branch, Fullarton, SA 5063, Australia

[7] College of Medicine and Public Health, Flinders University, GPO Box 2100, Adelaide, SA 5001, Australia

ETHICS APPROVAL

A review paper only; the project of the study topic has recieved ethics Approval from FUSA SEBREC

ABSTRACT:

Introduction: This scoping literature review explored the characteristics and behaviours of a subset of Australia's older population: 'grey nomads', many who live and travel with type 1 or 2 diabetes mellitus. Grey nomads are people aged more than 55 years, who travel in caravans or motorhomes for extended periods of time around rural and remote areas of Australia. Grey nomads are challenging the established view of ageing in Australia by their lifestyle choices, which include social and economic contribution, independence and furthering of personal fulfilment. However, some evidence suggests that grey nomads experience health issues while in rural locations, which exerts a significant burden on already under-resourced Australian rural health services. This review seeks knowledge on grey nomads' self-management of diabetes while travelling, with the aim of understanding their experiences and identifying support services and strategies that would facilitate improved self-management. Furthermore, this review seeks knowledge of how Australia's rural and remote health services support the nomads with diabetes and the influence of this burgeoning population on such services.

Methods: A scoping review methodology provided the methods to map the current evidence concerned with this broad and complex topic. A systematic six-step framework was adopted: identifying the research question; identifying relevant literature; selecting studies; charting the findings; collating, summarising and reporting results; and a final consultation.

Results: The grey nomads in this review travelled long distances through the often-harsh Australian countryside where they sought, privacy, isolation, self-sufficiency and a closeness with nature.

Although their motivations included life- and health-enhancing experiences, most grey nomads travelled with at least one chronic health condition, which they did not consider as a barrier to adopting a grey nomad lifestyle. However, many were under-prepared for their health needs when in rural or remote Australia. Specific literature concerning grey nomads and self-management of diabetes was not found but salient aspects of diabetes self-management were identified and included a well-developed relationship with their diabetes healthcare provider; a relationship that relied on ongoing communication and support. When travelling, the ability to form or sustain supportive relationships with local health care providers was limited due to sparseness of rural services and the perceived transient nature of the relationship. Increasingly, grey nomads utilised digital technology via telemedicine or social media sites for information and advice on health issues. The local pharmacies in rural and remote locations were also identified as sources of support and services.

Conclusion: The literature showed that the grey nomad population had a similar distribution of chronic illness, including diabetes, to that of the general Australian population, but very little was published about how they self-manage conditions when in remote locations where healthcare services were limited. The emerging roles of digital technology and development opportunities for pharmacists offer new and innovative avenues to support grey nomads with diabetes while travelling in rural and remote Australia.

Keywords:

Australia, diabetes mellitus, extended practice pharmacist, grey nomads, self-management, social media, telehealth.

FULL ARTICLE:

Introduction

Australia in the 21st century is a time of population ageing and a revisioning of what it means to be older, evidenced as increased longevity, high levels of disposable income and embracing of active healthy lifestyles[1,2]. While new models of ageing are emerging that highlight productivity and capacity, there continues to be a growth of chronic illness in the Australian population, specifically diabetes mellitus (type 1 or 2), where the incidence of this condition has tripled over the past 25 years[2]. This scoping literature review explores the characteristics and behaviours of a subset of Australia's older population: grey nomads, many who live and travel with diabetes. Grey nomads are people older than 55 years, who travel in caravans or motorhomes for extended periods of time around Australia[3-5]. Grey nomads are challenging the established view of ageing in Australia by their lifestyle choices, which include social and economic contribution, independence and furthering of personal fulfilment[6,7]. Some evidence suggests that grey nomads experience health issues while in rural locations and that there is a significant burden on an already under-resourced rural health services[8,9]. Specifically, this review seeks knowledge on grey nomads self-management of diabetes while travelling, with the aim of understanding their experiences and identifying support services that facilitate improved self-management. This scoping review is guided by the six-step process recommended for methodological soundness by Levac et al[10].

Background

The phenomenon of an ageing Australian population is a dominant challenge to Australian society, government and fiscal

wellbeing[11,12]. Australia's ageing population is attributed to ongoing low birth rates, an increase in life expectancy[2] and is consistent with demographic changes in most developed countries[13]. From 2020 and beyond, Australia has fewer children under 15 years, and an increase of people aged 65 years and older[2]. Population demographics influence demand for support, services and infrastructure and exert a significant and evolving pressure on government fiscal policies and planning[14].

Much of the planning and understanding of future health service requirements is grounded in prevailing views of population cohorts and aims to match population needs with services and infrastructure[12].

Of relevance to this article is the pervasive view of post-retirement as a time of dependence and burden, which has evolved from the characteristics of the pre- and post-war generations. However, this view fails to recognise the positive and changing social script of ageing occurring in the 21st century, epitomised by the grey nomads who travel independently seeking destinations and experiences for extended periods of time, often despite personal limitations of health and finances[7].

Australians are embracing the grey nomad lifestyle in rapidly increasing numbers, and this cohort is estimated to be 28% of the Australian domestic tourism population[15]. The COVID-19 pandemic has seen the overseas tourism market, valued at over A$65 billion, grind to a halt in Australia[16-20]. It is likely in the post COVID-19 era that domestic tourism including the grey nomad population will rapidly increase, along with a concomitant demand for services in rural and remote locations of Australia[21]. Grey nomads are known to have an incidence of chronic disease consistent with that of the general population[22], and understanding the characteristics, social and health needs of this mobile group of older travellers is imperative to fostering continued healthy ageing on which local, state and national government planning and service provision can be based. Of specific interest to this review are the experiences and capacity of grey nomads with diabetes to self-manage when in remote locations, where services and support are often limited.

Methods

Scoping review

Scoping reviews are relatively new to the field of literature reviews and have seen increasing popularity as they serve the combined purpose of summarising current health knowledge, clarifying a specific research question and identifying gaps in the literature[10]. The method was first proposed by Arskey and O'Malley[23] and has been clarified and strengthened by a number of authors[10,24,25]. The methodology, now recommended as a six-step framework[10],

has framed the processes of this review.

1. Identifying the research question and aim
2. Identifying relevant literature
3. Selecting studies
4. Charting the data
5. Collating, summarising and reporting results
6. Final consultation

Valaitis et al[26] state that methodological rigour of a scoping review is enhanced with a research team from diverse disciplines[26]. To enhance the rigour of this study, the research team included nurse practitioners, diabetes nurse educators, nurse researchers, a medical student, a pharmacist and community representatives, all bringing their diverse understanding and perspective of the research topic. The review process commenced with a clear identification of the topic of interest under a population, concept and context framework, which guided the scope, processes and objectives of the review.

Identifying the research question and aim

The population of this review were Australian grey nomads with diabetes who travel independently in their own caravan or motorhome for extended periods of time. The concept and context of interest were self-management of diabetes while travelling, and travelling in rural remote areas of Australia. Flowing from the now identified framework, the developed research question of this scoping review was:

What are the self-management behaviours of grey nomads with diabetes when preparing for and travelling through rural and remote locations of Australia?

Identifying relevant literature

Key words are an integral part of developing a search strategy that explores the literature and in this review included 'grey nomads', 'diabetes mellitus', 'self-management', 'rural and remote locations'. Key words inform the development of search terms, which were separated into three search concepts and variants (Table 1).

After key words and field limiters had been identified, the search commenced. Separated by the three search concepts, the search included the healthcare specific databases of Medline, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Scopus and Ageline. The population of this study for concept 1 (grey nomads) was a straightforward search with limited search results. However, concept 2 (phenomenon of interest: diabetes and self-management) identified a large number of articles. After all relevant literature had been identified, the research team reviewed the studies for final inclusion. Figure 1 identifies the search process and outcomes.

Table 1: Distribution of retrieved articles by concept, theme, subthemes and authors

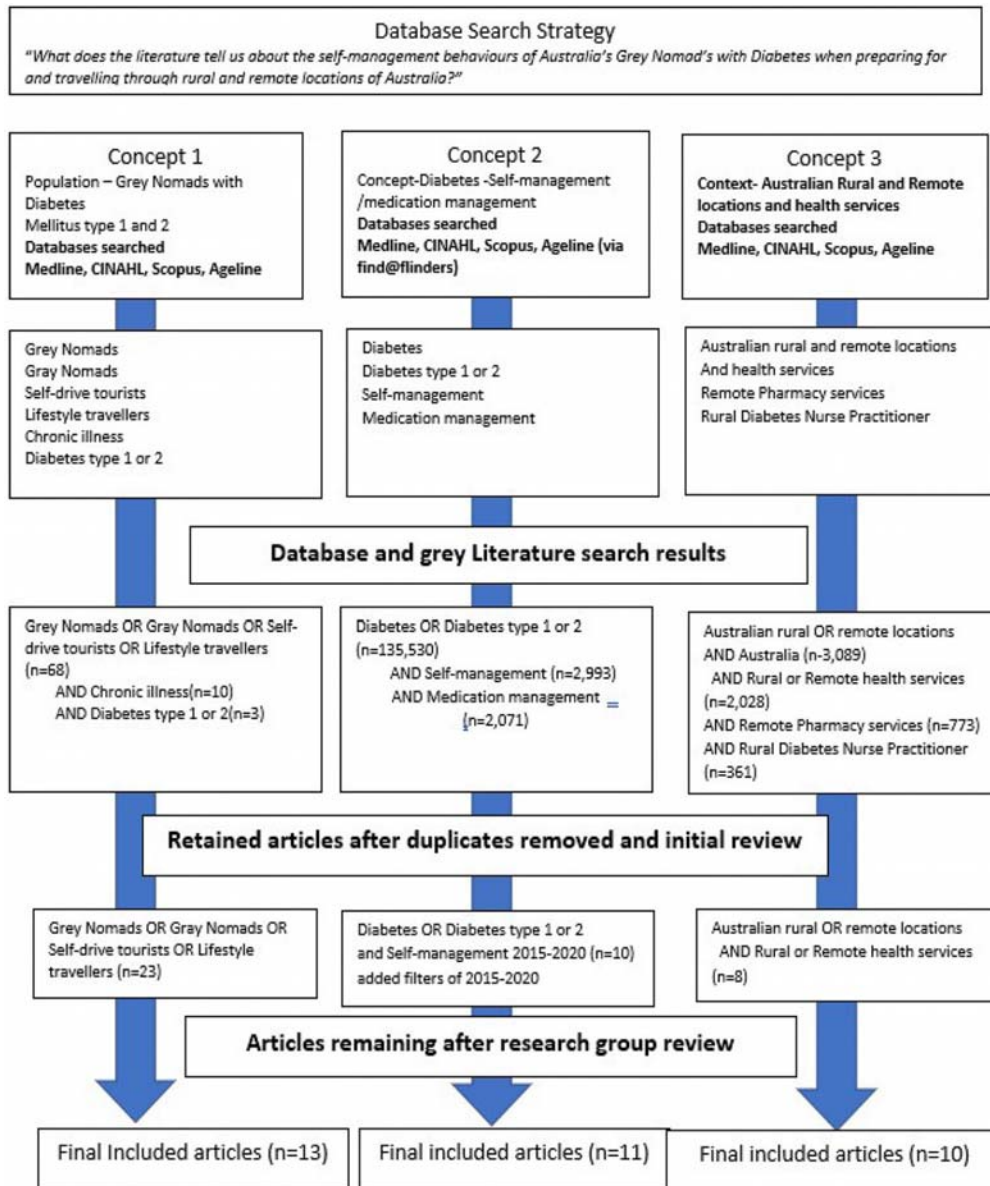| Concept 1: Population	Concept 2: Phenomenon of interest	Concept 3: Context
Grey nomads Grey nomads Grey nomads with diabetes type 1 or 2 Australian self-drive tourists Lifestyle travellers Limited to 2000–2020 English language Full text available Australia	Diabetes self-management Medication management Self-care Routine screening Limited to 2000–2020 English language Full text available Australia	Rural Australia Remote locations Rural or remote health services Remote pharmacy services Rural diabetes nurse practitioner Limited to 2000–2020 English language Full text available Australia

Database Search Strategy
"What does the literature tell us about the self-management behaviours of Australia's Grey Nomad's with Diabetes when preparing for and travelling through rural and remote locations of Australia?"

Concept 1
Population – Grey Nomads with Diabetes
Mellitus type 1 and 2
Databases searched
Medline, CINAHL, Scopus, Ageline

Concept 2
Concept-Diabetes -Self-management /medication management
Databases searched
Medline, CINAHL, Scopus, Ageline (via find@flinders)

Concept 3
Context- Australian Rural and Remote locations and health services
Databases searched
Medline, CINAHL, Scopus, Ageline

Grey Nomads
Gray Nomads
Self-drive tourists
Lifestyle travellers
Chronic illness
Diabetes type 1 or 2

Diabetes
Diabetes type 1 or 2
Self-management
Medication management

Australian rural and remote locations
And health services
Remote Pharmacy services
Rural Diabetes Nurse Practitioner

Database and grey Literature search results

Grey Nomads OR Gray Nomads OR Self-drive tourists OR Lifestyle travellers (n=68)
AND Chronic illness(n=10)
AND Diabetes type 1 or 2(n=3)

Diabetes OR Diabetes type 1 or 2 (n=135,530)
AND Self-management (n=2,993)
AND Medication management = (n=2,071)

Australian rural OR remote locations AND Australia (n-3,089)
AND Rural or Remote health services (n=2,028)
AND Remote Pharmacy services (n=773)
AND Rural Diabetes Nurse Practitioner (n=361)

Retained articles after duplicates removed and initial review

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Grey Nomads OR Gray Nomads OR Self-drive tourists OR Lifestyle travellers (n=23)

Diabetes OR Diabetes type 1 or 2 and Self-management 2015-2020 (n=10) added filters of 2015-2020

Australian rural OR remote locations AND Rural or Remote health services (n=8)

Articles remaining after research group review

Final Included articles (n=13)

Final included articles (n=11)

Final included articles (n=10)

Figure 1: Search strategy and outcomes

Selecting studies

On completion of the search, 41 articles were identified for inclusion. Consistent with the methods of a scoping review framework, the identified articles were sent to members of the research team to review. Of the 41 articles retrieved, seven were excluded based on limited relevance to the identified research concepts. The remaining 34 articles were scrutinised for clarity of content[23,26]. Table 2 displays the distribution of the articles across the concepts and themes. Note that some articles spanned more than one concept.

Charting the data

Mapping of the data is a crucial step in the analysis of the included literature. In this review, it was guided by the process described by

Rosas and Kane for enhanced representational validity and reliability[27]. Concept mapping provides the methods for rigorous reduction, organisation and interpretation of large volumes of data[28] into a display of the interconnectedness of the parts of the overall concepts. Where very large numbers of articles on a topic exist, coalescence of concepts is a synergistic process that makes sense of the vast and disparate data obtained. The analysis of the data of this review was aided by the use of NVivo v12 (QSR International; https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home), where themes and subthemes were identified and coded across all retrieved articles (Table 2).

Collating, summarising and reporting results

Concept 1 described the grey nomad population, their characteristics and motivation. Concept 2 focused on self-management of diabetes and identified aspects considered to be barriers to diabetes self-management. Concept 3 contextualised the Australian rural and remote locations. This provided insight into the unique and relevant context that had a major impact on grey nomads' capacity to self-manage their diabetes, as it was an environment where healthcare services were limited, and help was often not accessible.

Results

Who are the grey nomads?

All articles provided a definition of 'grey nomads' as travellers aged more than 55 years who were travelling for extended periods of time independently in a recreational vehicle, caravan, motorhome or campervan. This cohort, constituting 2% of the total Australian population[4,22] frequently stayed in some of the most remote locations within the vast Australian hinterland[3-5,7,9,22,29-33].

Grey nomads were considered heterogeneous and mostly heterosexual white Anglo-Australian couples who were retired from the workforce. It was also reported that most grey nomads lived with at least one chronic health condition including diabetes[4,9,32,34,35].

Grey nomads did not consider themselves as 'tourists', but as lifestyle travellers who sought personal freedom and valued the ethos of privacy, individualism and environmental responsibility[4,9,32,34]. Many sought warmer climates in the colder months, often travelling long distances to very remote areas where campsites chosen offered privacy, isolation, self-sufficiency and a closeness with nature[30,32,34]. The journeys undertaken by grey nomads varied in length from a few weeks to many months or years. Pickering found experienced grey nomads considered themselves to be in a state of 'continual and continuing journeying', interrupted briefly with stays at home[32].

Grey nomads were found to generally travel for long periods, seeking experiences rather than destinations, with an estimated 20% of grey nomads travelling continuously for more than 2 years[7,30]. Australian grey nomads' motivation was attributed to a desire to seek life- and health-enhancing experiences[7,30,32], avoiding organised tours or resort style accommodations. They frequently sought rural and remote locations and aspired to healthy lifestyles and choices[1]. While grey nomads' motivation was often seen as travel for health[2,30,32], studies identified an incidence of chronic illness that aligned with the broader Australian population[3,22,29]. Despite the estimated incidence of chronic disease in the grey nomad population, a pre-existing illness was not considered a barrier to adopting the lifestyle and it was estimated that 8% of the grey nomad population lived and travel with diabetes[33].

Grey nomads and health

Compounding the presence of chronic disease, extended travels by grey nomads often exhausted their physical capacity in environments where healthcare support and services were limited and the impact of transient populations added a significant burden to local communities and services[3,9,22,33]. Grey nomads were found to hold a belief that their lifestyle kept them active, healthy and exerted a positive influence on their mental health[22]. However, Halcomb et al identified that approximately 8% of the study population returned early from travel due to ill health[22]. Other studies described grey nomads seeking health services from local providers[3,9,33]. This finding concurred with the experiences of diabetes educators in rural or remote areas[5]. While the grey nomad journey offered the opportunity for a healthy lifestyle, grey nomads were found to have a higher than recommended consumption of alcohol, higher levels of obesity and a lower-than-average quality of life score across both the physical and social relationship domains[22].

Grey nomad preparation for travel

Many grey nomads spent long periods of time planning their trip, destinations, equipment and the supplies required[4,32]. However, planning for health and healthcare requirements was found by a number of studies to be limited or inadequate[3-5,9,22,30,31,33]. This inadequate preparation resulted in high utilisation of local health services and was most evident in the lack of adequate medication to last the trip[9,22,33]. Healthcare summaries were rarely carried[5] and the use of technology for health information transfer was suboptimal due to poor uptake of such technology in the grey nomad population[22]. Conversely, some studies identified that grey nomads were aware of the need for health preparedness and sought advice from their local healthcare practitioner prior to travel, which included a health summary and adequate medications for the journey[3].

The need for preparedness was evident in the findings of Obst et al that 21–32% of grey nomads experienced a medical emergency while travelling[31], and a lack of access to healthcare services in remote locations often led grey nomads to seek assistance from local emergency services, which often struggled to accommodate the influx of transient older populations[4]. The capacity of grey nomads to manage their chronic conditions was challenged by poor access, fragmented health care, limited resources for medications and a reliance on self-awareness to identify deteriorating health conditions[3,5,35].

The sparse literature concerned with grey nomads with diabetes

failed to answer the question of this review and it was identified that the choices and destinations grey nomads made, coupled with the incidence of chronic disease, placed the responsibility and self-management of health and health care almost solely with the grey nomad. Thus, it was important for grey nomads and healthcare professionals to have a clear understanding of the characteristics and tools required for effective self-management. This need was especially important for people with diabetes where care and management were constant and lifelong, and where poor self-management can lead to the early development of associated complications and comorbidities. Information technology, e-health and electronic records may have a role in the preparation for travel for grey nomads with diabetes.

Diabetes self-management

Diabetes is known to contribute to 10% of deaths in Australia and, when inadequately managed, results in out-of-target blood glucose levels, an increase in related complications, poorer quality of life and a higher risk of diabetes-related death[2,36]. Central to the management of diabetes types 1 and 2 was the capacity of individuals to self-manage their condition, including managing their diet, lifestyle modifications, blood glucose monitoring and medications. Self-management, lifestyle and behavioural choices are key factors in successful diabetes management[36-41]. Reviewed articles identified essential elements of diabetes self-management as a capacity to problem solve, collaborative goal setting, motivation, time management, eHealth literacy, social support decision-making, appropriate resource utilisation, forming a partnership with a healthcare provider and taking necessary actions[36,38-42]. It was the relationship between healthcare providers and patient that was consistently identified as a cornerstone for the development of self-management skills and empowered patients through a well-developed capacity to 'identify, access and make use of appropriate resources' and thus control and manage their condition[37,41,42]. While the necessary skills and attributes for self-management are well known, many papers described barriers to self-management that included a lack of communication and support from healthcare providers, insufficient education, financial issues, the influence of the chronicity of the condition on mental health and a lack of motivation to self-manage[36-43].

Barriers to diabetes self-management

The importance of the healthcare provider–patient relationship in the development of self-management skills was clear in many of the reviewed concept two studies. Specific findings of poor relationships included having limited time with healthcare providers where questions could be asked and information exchanged, a lack of access to services, a dominance of healthcare providers' views leading to an unbalanced relationship where the patient felt devalued, decision-making was not collaborative, initial education provided at diagnosis was found to be limited, and ongoing education was sparse with some providers found to be

reluctant to refer patients to self-management education programs[37,39,42]. Dao et al identified that some people lacked understanding of the seriousness of diabetes and the potential consequences of poor management, which led to apathy with treatment and poor motivation for self-care[39].

The barriers to self-management have currency for grey nomads with diabetes, who are frequently away or out of contact with their healthcare provider, often for months or years at a time[33,35]. The capacity for grey nomads to develop meaningful relationships with healthcare providers along their travel routes was limited by not only the time spent in a location, but also access to services in areas of remote Australia where services were already limited and stretched[4,9,22,33]. These findings raise the question of how well grey nomads were managing their diabetes while travelling and who was providing the support and education required for effective self-management. With the advent of information technology and e-health, self-management of grey nomads with diabetes could be enhanced and more supported.

Rural and remote Australia and healthcare services

Disparities between health services in metropolitan and rural areas have been well documented: people living in rural or remote areas have significantly reduced access to healthcare services and overall health status[34,44,45]. The disparities have been attributed to geographic remoteness and small populations with low socioeconomic status, which leads to longstanding service provision issues of 'workforce shortages and maldistribution, difficulties with recruitment and retention, and inadequate access to and availability of appropriate services'[44]. Adding to the difficulties are resource limitations where delivery of quality care is hampered by a lack of equipment, space and expertise[45].

Traditional models of care provision are based on population size, which results in many smaller communities being without on-site services, or there are long distances to reach appropriate care[44,45]. Seasonal variations in population add further complexity and burden[35,43], as small communities are not equipped for the influx of grey nomads, and recruitment of additional staff to meet the demand is difficult[4,9,33,34]. Grey nomads travel to locations with sparse and stretched healthcare resources, often with the expectations that healthcare services will be available[3], and have described healthcare experiences of lack of access, long waits for appointments and lack of investment by healthcare providers due to their short-lived residence in a community[4,9,33]. Fragmentation of care was reported to occur when there is a need for multiple healthcare providers and when medical history, treatment plans, access to past results, medications and links to health records were unavailable[3]. Spending long periods of time in a discontinuous health environment has the potential for serious health repercussions: access, continuity and engagement with healthcare providers are cornerstones of self-management in diabetes. This highlights the need for rigorous trip planning and the innovative use of resources that enhance engagement and continuity of care.

Table 2: Review concepts, themes and subthemes

Concept	Major theme	Subthemes	Authors [ref. no.]
Concept 1: The grey nomad population (n=14)	Understanding the grey nomad population	Definition – GN (n=7) GN characteristics (n=7) GN population statistics (n=4) Motivation (n=6)	Abigail et al, 2016 [29]; Calma et al, 2018 [3]; Cridland, 2008 [4]; Davies, 2011 [25]; De Bellis et al, 2020 [5]; Halcomb et al, 2015 [22]; Higgs and Quirk, 2007 [1] Hillman, 2013 [30]; Hungerford et al, 2016 [35]; Obst et al, 2008 [31]; Pickering, 2004 [32]; Raven, 2016 [9]; Tate et al, 2006 [33]
	Health	Chronic disease in older Australians (n=7) Diabetes mellitus – GN (n=3) GN – travelling lifestyle, physical activity and healthy lifestyles (n=7)	Calma et al, 2018 [3]; Cridland, 2008 [4]; Halcomb et al, 2015 [22]; Higgs and Quirk, 2007 [1]; Hillman, 2013 [30]; Pickering, 2004 [32]; Raven, 2016 [9]; Tate et al, 2006 [33]
	Context	Destination choices and travel characteristics (n=3) Increasing burden on local services (n=4)	Calma et al, 2018 [3]; Cridland, 2008 [4]; De Bellis et al, 2020 [5]; Hillman, 2013 [30]; Pickering, 2004 [32]; Raven, 2016 [9]; Tate et al, 2006 [33]
	Preparation	Pre-travel healthcare preparation (n=8) Managing illness on the road (n=2) Health – GN medical emergency (n=4)	Calma et al, 2018 [3]; Cridland, 2008 [4]; De Bellis et al, 2020 [5]; Halcomb et al, 2015 [22]; Higgs and Quirk, 2007 [1]; Hillman, 2013 [30]; Raven, 2016 [9]; Tate et al, 2006 [33]
Concept 2: Diabetes mellitus and self-management (n=10)	Diabetes mellitus	Definition and incidence (n=5)	AIHW, 2018 [2]; Dao et al, 2019 [39]; Mitchell et al 2011 [43]; Teljeur et al, 2017 [38]
	Definition of self-management and skills needed	Self-management of diabetes – definition and skills (n=6) Diabetes – behaviour/lifestyle changes (n=4) Diabetes – motivation (n=4) Diabetes – resource utilisation Telehealth/education/support (n=3)	AIHW, 2018 [2]; Calma et al, 2018 [3]; Dao et al, 2019 [39]; Henderson et al [37]; Lepard et al 2015 [41] Mitchell et al, 2011 [43]; Schaffler et al, 2018 [40]; Teljeur et al, 2017 [38]; Withnall, 2017 [42]
	Barriers to self-management	Communication/ perception (n=3) Education (n=7) Financial (n=3) Healthcare practitioner support (n=5) Chronicity and mental health (n=4)	Adu et al, 2019 [36]; Dao et al, 2019; [39]; Hou et al, 2018 [49]; Lepard et al, 2015 [41]; Mitchell et al, 2011 [43]; Teljeur et al 2017 [38]; Withnall, 2017 [42]
		Technology and diabetes healthcare provision (n=6)	Adu et al, 2019 [36]; Dao et al, 2019 [39]; De Bellis et al, 2020 [5]; Hou et al, 2018 [49]; Hungerford et al, 2016 [35]; Teljeur et al, 2017 [38]
Concept 3: Australian rural and remote context (n=12)	Access	Location (n=4) Resource limitations (n=5) Burden on local services (n=4)	Davies, 2011 [34]; De Bellis et al, 2020 [5] Hungerford et al, 2016 [35] Paliadelis et al, 2012 [39]; Wakerman and Humphreys, 2019 [45]
		Care disconnect – established provider and local service provision (n=2)	Calma et al, 2018 [3]; De Bellis et al, 2020 [5]
	Technology	General use (n=3) Use in healthcare provision (n=9)	Adu et al, 2018 [36]; Calma et al, 2018 [3]; Dao et al, 2019 [39]; Darley et al, 2017 [46]; Hungerford et al, 2016 [35]; Lepard et al, 2015 [41]
	Pharmacy	Role of pharmacy in self-management of diabetes (n=3)	De Bellis et al, 2020 [5]; Mitchell et al, 2011 [43]; Teljeur et al, 2017 [38]

AIHW, Australian Institute of Health and Welfare. GN, grey nomad.

Discussion

The review found that grey nomads were a significant mobile population, many of whom had chronic health conditions including diabetes. Self-management was identified as important in preventing the complications of diabetes, especially when travelling in rural and remote regions of Australia. Many barriers have been identified, including a lack of access to equipment, medications and services in rural and remote areas. Although preparation for travel was generally done well by grey nomads, the reviewed studies identified that health preparation was overlooked. Grey nomads were often underprepared to self-manage their diabetes according to rural and remote diabetes educators[5], and it is suggested that information technology and e-health could contribute to better self-management of diabetes for grey nomads, by enhancing access to their own general practitioner or diabetes nurse educator. Furthermore, rural, and remote pharmacists, as well as registered nurses, could have a role in providing information, education, medications and services to grey nomads with diabetes.

Virtual communication programs and cloud-based repositories of information have overcome the confines of rural and remote regions and the limitations of geographic isolation[35,46]. Telemedicine, social media, the internet and virtual communication have added a significant and important avenue for increasing continuity of care for grey nomads with diabetes as they travel away from their healthcare provider into regions of inadequate services. Early studies of grey nomads use of the internet and social media found that grey nomads were reluctant to embrace technology-based communication[4,32]. More recent studies, however, have found that grey nomads use of the internet, SMS

and virtual communication for information gathering and staying connected with family and friends was rapidly increasing[35,46]. The COVID-19 pandemic has seen a rapid increase in the provision and uptake of telemedicine and is a promising new resource for continuity of health care in the grey nomad population. Digital technology has added new sources of support for people with diabetes via tools that have been found to enhance self-management, with alerts for medications, recording of blood glucose levels and providing encouragements to enhance motivation that overcome constraints such as access and time[36,47]. Digital technology and a willingness to communicate using information technology, evident throughout COVID-19, enables stronger communication with established supports, irrespective of location. However, the plethora of information now available online requires a capacity to appraise the information obtained, and not all who can access the internet have such capacity[39]. Thus, the importance of dedicated and managed e-health sites is imperative to ensure continuity and reliability of care and advice.

Although there is a rapid uptake of digital information seeking, De Bellis et al found the local pharmacy was often the first port of call when grey nomads with diabetes needed assistance[5]. Community pharmacies are the most frequently accessed and accessible health support, with over 458 million individual patient visits recorded annually[48]. The Seventh Community Pharmacy Agreement supports consumer access to Pharmaceutical Benefits Scheme subsidised medicines, the National Diabetes Services Scheme and community pharmacy programs across Australia. Pharmacists can offer advice on medications, diet, foot care, blood glucose monitoring and equipment issues[49]. Rural and remotely located pharmacists offer an important resource in the support and management of grey nomads with diabetes. Further research into electronic resources, information and education for grey nomads themselves, as well as healthcare professions, can be recommended to help grey nomads self-manage their diabetes while on the road.

Conclusion

This review aimed to answer the question 'What are the self-management behaviours of grey nomads with diabetes when preparing for and travelling through rural and remote locations of Australia?' The review has explored and mapped the major concepts of who grey nomads are, the sentinel aspects of diabetes self-management and the impact of being rural and remote on services and support for grey nomads with diabetes and their self-management. The literature determined the grey nomad population had a similar distribution of chronic illness, including diabetes, but very little was known about how they self-manage their condition when in remote locations where healthcare services were limited. The emerging roles of digital technology, increased and expanded use of telemedicine and the developmental opportunity for pharmacists offer new and innovative avenues to support grey nomads with diabetes while travelling.

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