

ARTICLE

'Just another day': the lived experience of being a hundred years old for ten New Zealanders

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Abstract

The aim of this study was to gain an understanding of the experiences of extended longevity as perceived by centenarians. Centenarians (people over 100 years of age) are the fastest growing group of the ageing population in developed countries. Ten centenarians aged between 100 and 106 years, living in the Lower North Island of New Zealand, participated in the study. The biographical narrative interpretive method of inquiry guided data collection through face-to-face interviews, and thematic analysis was subsequently undertaken. Four themes were identified: (a) 'becoming a centenarian: 'Just another day'; (b) 'growing up in a privileged environment' that revealed four sub-themes: 'having freedom and choice', 'being loved and nurtured', 'living healthy lifestyles' and having 'good education prospects'; (c) 'unique opportunities in adult life'; and (d) 'positive ageing and celebration of longevity'. The centenarians spoke nonchalantly about their experience of turning 100 and positive personalities were prominent features of the participants, who all expressed a sense of acceptance and satisfaction with life and contentment with living in the present, a feature throughout their lives that was ongoing and at an intergenerational level. This study has 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.

Keywords: centenarians; longevity; biographical narrative interpretive method; Erikson; Tornstam; gerotranscendence

Introduction

There are currently 125 million people globally aged 80 years and over, and this is expected to increase to approximately 434 million by the year 2050 (World Health Organization (WHO), 2017). The projection is that around 80 per cent of the 80 years and older population will be living in low- and middle-income earning countries as opposed to previous trends of an increased number of 80 year olds and over living in developed countries (WHO, 2017). New Zealand's current life expectancy at birth is 83.2 years for females and 79.5 years for males, both estimates above

those for the Organisation for Economic Co-operation and Development countries (Ministry of Health, 2016). The worldwide increase in average lifespan between the 19th and 21st centuries has been due to the decline in childhood death rates (WHO, 2011). This decline links to improvements in living conditions and lifestyles such as sanitation, improved medical access and care, prevention of many common diseases, introduction of vaccines and discovery of antibiotics (Christensen *et al.*, 2009; Vina and Borras, 2010; WHO, 2011; Sebastiani and Perls, 2012).

The centenarian population (people over 100 years of age) is expected to increase ten-fold globally between 2010 and 2050 (Vaupel, 2010; WHO, 2011). The classification of this population is divided into categories depending on their age. A centenarian is a person who has reached the age of 100; individuals aged 105–109 years are referred to as semi-supercentenarians and individuals aged 110 years and over as super-centenarians. Super-centenarians are a very rare group of individuals; the term applies to this group of individuals because they have reached an age that was previously identified as being unattainable (Willcox *et al.*, 2008). These individuals are the fastest growing population age group in developed countries (Magnolfi *et al.*, 2007; Terblanche, 2015a, 2015b). Female centenarians continue to dominate this trend and live an average of five years longer than their male counterparts (Magnolfi *et al.*, 2007, 2009; Vina and Borras, 2010; WHO, 2011; Terblanche, 2015a, 2015b). Male centenarian numbers have been growing faster than female centenarian numbers; however, there is still a ratio of 19 male centenarians for every 100 female centenarians (Terblanche, 2015a, 2015b). Despite this gender bias, male centenarians have a greater compression of morbidity to end of life and therefore are better off cognitively and physically when compared to their female counterparts (Evert *et al.*, 2003; Perls and Terry, 2003).

Extreme longevity has become an important topic of research for many in gerontology. There are numerous empirical studies on extreme longevity. These have predominantly focused on biological factors in specific populations that influence longevity using quantitative methods of inquiry and aimed at testing hypotheses (Miller *et al.*, 2010; Randall *et al.*, 2010; Hensley *et al.*, 2012; Sebastiani and Perls, 2012; Kim, 2013; Sachdev *et al.*, 2013; Rahman-Filipiak *et al.*, 2015; Scelzo *et al.*, 2018). There is, however, a paucity of qualitative research on the lived experience of being 100 years and over (Freeman *et al.*, 2013; Jopp *et al.*, 2016; Scelzo *et al.*, 2018). Study of the lived experience of centenarians is a topic that needs wider exploration, particularly of the subjective and constructive meanings of extreme longevity using theoretical approaches to explain these experiences (Martin *et al.*, 2015). Martin *et al.* (2015) reviewed theoretical perspectives that applied to successful and positive ageing and related concepts. The authors place Erikson's psycho-social stages of development (Erikson, 1950, 1963, 1982) and Tornstam's theory of gerotranscendence (Tornstam, 1989, 1994, 1997, 2005, 2011) within the historical context of culturally embedded value systems, including faith and spirituality, as does Yount (2009). Regarding this study, both Erikson and Tornstam offered a lens in which to interpret the data on experiences of centenarians who were well enough to reflect on their life experiences. These two approaches offer useful insights into how centenarians may view successful or positive ageing (Martin *et al.*, 2015), from their personal perspective. We review these theories in more detail in the Discussion section of this paper.

Methodology

Biographical narrative interpretive method

The biographical narrative interpretive method was used to undertake this study. The core assumptions underpinning this method are intentionally broad-based where the entire life story of an individual, or group of individuals, both its beginning and construction in the present, are considered and where the focus is both on personal meaning and on wider socio-cultural processes and historical contexts (Rosenthal, 2003). The strategy that is adopted endeavours to analyse three interrelated facets: biography (person's life story); narrative (how he or she tells it) and interpretation (constructions of meanings and social interpretation) of individual life stories (Corbally and O'Neill, 2014). This approach encourages narration of biographical experiences according to how the participants feel and what they find relevant. It assists in exploring reasons for individuals to narrate their life stories in the way they do (Corbally and O'Neill, 2014) and enables a reflection on nuances of human experiences as they play out in the individual's consciousness (Ross and Moore, 2014). This approach aims to draw and interpret narratives for qualitative analysis and evaluation. This is achieved by linking individual subjectivity of 'the lived life' and the 'told story' (Chamberlayne *et al.*, 2000). Samples are typically small, however, the ability of this method to generate rich and meaningful data compensates for the small sample size (Jones, 2002; Braun and Clarke, 2006).

Recruitment of participants for this study was through word of mouth and by searching through local newspapers for articles related to the celebration of hundredth birthdays. We were dealing with a very small population sample of individuals. The 2013 census reported 558 centenarians living in New Zealand (Stats New Zealand, 2013) and the area in which individuals were recruited was a small region of New Zealand. Local papers provided names of residential facilities where the prospective participants currently resided. The facility manager or senior clinical staff was contacted and asked to invite potential participants to participate in the study; if agreement was forthcoming, the centenarian was approached directly. Participants who had hearing and speech impairment were offered assistive devices; centenarians who had severe sensory and cognitive defects and could not recount their stories were excluded from the study. Ethical approval was gained from the University Human Ethics Committee (ethics approval: 20994). Ten participants, seven women and three men, were recruited to the study. Interviews lasted 45–90 minutes and were audio-recorded and transcribed verbatim.

Following Rosenthal and Fisher-Rosenthal's (2004) approach to narrative data analysis, we used a combination of re-construction of each of the participants' narrated stories about their experiences of reaching 100 years of age and thematic analysis (Braun and Clarke, 2006). The purpose was to re-construct biographical meaning of experiences into the chronological sequence in which they occurred. Biographical narrative interpretive method normally requires a repeated cycle of interviews as analysis is undertaken and collaborative interpretation – between participant and researcher – is carried out. However, due to our concerns not to overburden the centenarians with repeated interviews, we augmented the methodology by applying thematic analysis as proposed by Braun and Clarke (2006). Both investigators read and coded all transcripts, noted and discussed themes, and identified

relevant quotes representing themes. All participants were given pseudonyms to protect confidentiality.

Findings

Four themes identified characterise both the chronological order of each life and the common or shared significant stages across all participants' lives. Firstly, 'becoming a centenarian' was 'Just another day' which epitomised their attitudes and responses to a life. The theme, 'Growing up in a privileged environment', revealed how all of the centenarians recalled having a 'happy' childhood, growing up in environments that included, 'having freedom and choice', 'being loved and nurtured', 'living healthy lifestyles' and having 'good education prospects'. The third theme addresses their adult life and their belief that they had experienced a 'privileged' lifestyle that led to 'unique opportunities in adult life'. In the fourth theme, the stage of very old age, (becoming 100 years of age) reflected a period of successful ageing for the centenarians where they celebrated 'positive ageing and longevity'. In keeping with the biographical narrative interpretive method, these are depicted as a construction where narrative about the beginning is also embedded in the present and where the focus is both on personal meaning and on wider socio-cultural processes and historical contexts.

Becoming a centenarian: 'Just another day'

The centenarians spoke nonchalantly about their experience of reaching the age of 100. They described this phenomenon as being 'no different' to any other day, and did not consider this milestone as an achievement or a significant life-changing experience. They all shared the same view about their birthday, referring to it as 'Just another day': 'it's just like every day, it comes along and there you are'; 'there was no flash of lightning or anything'; 'just like a normal day'; 'it's no different from being 99'; 'I think it's just another day of the week, it's just about the same as any other day'; 'well I don't know that there is anything really special about it'; 'just an ordinary day, just an ordinary day'.

This approach epitomised their attitudes and responses to the lives they had lived in which their narratives demonstrated emotions of delight, happiness, achievement and appreciation for life and all that it had brought to them. The narratives reflected an insouciant manner that appeared to have been a feature throughout their lives. The birthday itself was viewed as of no great importance to the centenarians; what was most pleasing was very much related to the present moment and the opportunity that it presented for them to have their family around them:

Family all gathered and made it a very happy occasion and ... they were there from the babies and the little ones and I quite enjoyed having them. I did enjoy it you know. I didn't think I would but I really did ... of course they arranged a beautiful spread ... quite good fun. (Mira)

The celebration arrangements for the 100th birthday were, in the main, organised by their family and friends, although some had been involved in the party

preparations. Two participants wanted to do something more innovative to celebrate their birthday, in Helen's case:

I just said when I'm a hundred I'll dance on the table. I didn't think I was going to live to a hundred. And of course I did you see and there's the jersey ... And then they jacked it up that I'd do it outside, that's the table outside ... That's what I like, fun being happy. (Helen)

They all demonstrated wisdom and insight into their own ability to participate in the practicalities of what is traditionally an important milestone and celebratory event. Drawing on individual observation of other such proceedings, and a very contemporary understanding and grasp of technology, Mary was very much in control of the arrangements for her party:

I knew that a party or luncheon or anything else would just be beyond me and I went to someone else's hundredth party, we have a lovely party and she slept in a corner. And I didn't want to do that so I was very pleased when I came up with what I called a 'Skypeathon'. Well I decided that I would do that, I wouldn't have any visitors and so I circulated my relatives and friends and said no visitors, no emails, no presents and please observe this and don't, well of course they took no notice. They didn't visit, that's good but they did, I said I will be online on two hours on three different days and just Skype me and if you haven't got a computer ring me up. And so some sent emails but they did Skype and it was very good because the first two callers were people I worked with and they got together and I saw and heard them drink my health so that started it off. (Mary)

Growing up in a privileged environment

The use of the expression 'privileged' highlights the participants' comparatively favourable upbringing in terms of social and economic circumstance during their childhood. They all believed that they had been advantaged and lucky in many ways, through highly supportive family networks which allowed them to make sound lifestyle choices.

Having freedom and choice

The freedom to explore nature and learn through positive and practical advice from their family, based on trust and care, had helped them to build their confidence and had contributed to their unruffled attitude towards life: 'We did the things children do. My parents put us first definitely. They gave us a very happy childhood'; 'We had a very happy childhood. You know full of people who loved us and we loved them and no bickering'.

Although participants reported happy and generally unrestricted childhood experiences, they all also reported a sense of strictness within a supportive environment. Their parents and other family members promoted and displayed exemplary behaviour. This, they believed, had contributed to shaping their personalities through promoting discipline and respectful characteristics:

Well I think that we were brought up to know to do and behave ourselves and I think that has probably helped me through life. I think that I've been polite and understanding but I suppose you could say that should be normal. I think we're lucky our parents were fairly strict and we didn't run wild in that sense. (Mike)

All participants had happy childhood memories that they cherished. There was a sense of satisfaction, pride and laughter in their voices as they absorbed themselves in retelling their stories and each individual had retained aspects of some very specific moments of their lives:

I went on the edge of one of the swamps that were there – they hadn't been drained and there was water in them just about that deep and the whole of the area where it was, was full of tiny frogs that had just developed their legs. Oh I can still remember so many you know. There must have been a hundred down there. I could ride the old cart horse if I wanted. (Joy)

Being loved and nurtured

Female participants specifically mentioned their mothers playing an important role in their lives in regard to nurturing. Some female participants also spoke of having strong bonds with their fathers. On the other hand, male participants referred to their parents in general as being loving and caring. Such close and trusting relationships enabled them to have positive role models in their lives and to become positive role models themselves. These nurturing relationships were reflected in the way the participants had attended to their own children and grandchildren. The relationships had gone a full cycle whereby their adult children were now very involved in the care of their hundred-year-old parent: 'My family [have] always been good to me ... my daughter's very good to me'; 'I think my daughter has been marvellous to us. And our two sons are very good. I couldn't thank them all enough'; 'I'm very lucky I was with both my children they were very good to me'.

Living healthy lifestyles

Participants acknowledged that their parents had a reasonably high income, based on their judgement of relative wealth during their childhood. They all mentioned having a backyard garden, which provided a constant supply of fresh vegetables and fruit. Some participants talked about having cows and hens for milk and eggs, and all had childhood experiences of home-cooked meals that had been prepared by their parents. They all attributed their extended longevity to good nutrition and having home-cooked meals as a child:

My mother had a big vegetable garden, she always grew plenty ... I had lots of vegetables of all sorts and mum also kept fowls so dad built two quite big fowl houses and she had 20 or 30 chooks [chickens] and so there was always plenty of eggs and stacks of milk. Not much cream because they took it off the milk, which reduced its value at the factory, so dad was keen on ... and he didn't like cream much either I think. But Mum grew a nice plum tree and she grew strawberries and grew loganberries on the vine and passionfruit so we had plenty of fruit and vegetables always. (Joy)

Good education prospects

All participants were supported and encouraged to take up education of some type by their parents and grandparents. Their privileged upbringing was also reflected by them having the opportunity for alternatives such as studying in a private school during an era when the Great Depression was having a huge financial impact on many other families. It was evident that the importance of education was a priority of their parents, but this was tempered with genuine parental concern and interest in the overall wellbeing of their children, which the centenarian participants linked to their subsequent longevity:

Well my grandparents said I should go and get educated so I was brought over to New Zealand [from South Africa]. (Bill)

I was always, not unhealthy, but I always had nasty colds in the winter and was a bit of a sickly child and dad thought well it was far better for me to go to the secondary school just round the corner instead of having to get on the bus and go to college in town. So I was one of a few that was able to go [there] which was a private school and of course he had to pay fees but he was earning money then and he didn't mind. (Alice)

Unique opportunities in adult life

The freedom of choice, being loved and nurtured, living healthy lifestyles and having good education and occupational prospects continued into the adult lives of the centenarians. As in their childhood, all participants had various, but also unique, opportunities as adults. They all worked and earned a living at some stage of their adult lives. Most of the women gave up work after being married while some continued to work while raising children and running a household. Participants said they were able to make lifestyle choices such as good eating habits, building an active lifestyle and maintaining active roles in their chosen community clubs and organisations. Connie's career, as an accountant, was an example of a woman who worked in a highly regarded profession and one that was not common among women of the time; Connie recognised that her intelligence and privileged background contributed to her sound education and achievements. Three of the seven women participants had careers as shorthand typists, which was considered one of high status, as a career that required passing exams and acquiring a high standard of skill. Helen and Alice talked about following women in their family as role models who had also made the career choice of shorthand typist.

The men in the study became well established in their careers and had secure well-paid jobs. Bill and Mike were both in the air force in the Second World War. Bill studied to become a lawyer after the war and Mike went back to work for the same engineering firm that he had worked for prior to the war. After the war, they both remained in their jobs until they retired. On the other hand, for Cyril, the Great Depression affected his career choices. He was dismissed from his office job, so he joined the police force and remained there for 25 years.

Participants also reported some happy memories relating to the Second World War, particularly social gatherings and the influence of the Americans using New

Zealand as a base during the Pacific War conflict. The harbours at Auckland, Wellington, Christchurch and Dunedin all had extensive coastal defences as protection against potential invasion of New Zealand, and the Americans had committed to the defence of both Australia and New Zealand during the Pacific War conflict (Wilkins, 2016). The centenarians, who were Wellington based, were in their youth during this period and they viewed the presence of the American base as an opportunity that provided for community gatherings and a chance to meet people from other countries. This would not have been a normal occurrence if the war had not been in progress:

Part way through the war the Americans arrived to take control of the islands so that the Japanese didn't invade us. So we had a good life, social as well because the Americans had plenty of money and they were always looking for girls to go to dances and things and you could always go. We would be told there was a dance on in the Majestic Cabaret and if we would go along to partner the Americans or the New Zealanders, if there were New Zealanders. But most of the social life was with the Americans there for a while because New Zealanders were all overseas. (Alice)

Eight of the participants married and remained with the same partners throughout their marriages. The two who remained single were women. They both had very different reasons for remaining single. Most significantly, the 12,000 New Zealanders who died during the Second World War contributed to the lack of potential partners for that generation of women. However, both centenarians displayed an air of independence about the choices they had made and were content with their decisions:

I was in a town that had young medical students and every other man went away, all our potential husbands disappeared into the war zone and most of them didn't come back. So there were a whole lot of people left unmarried but I don't think I would have made a good wife anyway so it didn't matter. (Mary)

All participants attributed their lifestyle choices as influencing their longevity. This included having an active lifestyle, healthy nutrition, minimal alcohol intake, a sound routine and supported living. They led active lifestyles as adults well into their old age. Apart from volunteer work in retirement (retirement age was 65 years for both genders in New Zealand since 1898, and this was the age at the time of retirement for our participants), participants spoke about keeping up with their physical activity in later life through small regular walks and taking part in activities such as music groups. For some this choice was a means of ensuring healthy living and for others it was a means of being able to socialise with people having the same interests:

Well I suppose there was the general way of life that's allowed me to live on. I've been kept very fit, I used to walk a lot and I kept very fit and I think that's helped me live longer. (Bill)

After I left school I joined a tennis club and played tennis. I enjoyed tennis, I didn't excel myself really but I enjoyed it and then in my old age I played bowls and I did very well at bowls and I enjoyed the bowling club. Some of the days at the bowls was the happiest of my life because I was having exercise and meeting with other women and we were a lovely crowd. (Alice)

Good routine. Good food of course and good routine. I'm a great person for routine I think that's important ... Just the correct thing to do you know, get up at the same time and go to bed at the same time. Yes, I think that's very important, well it was to me. (Helen)

Positive ageing and celebration of longevity

Eight of the participants resided in a residential care home and two of them lived in a supported environment where they were part of a group of tenants. They believed that the assistance provided to them by residential facility staff, their neighbours and family members during later years of their lives had contributed to their longevity:

I honestly think living here [residential care facility] has helped me live to be a hundred ... You know if anything went really wrong somebody would come to your aid. (Connie)

She [Cyril's next-door neighbour] is like a daughter to me. She comes in here, checks me over, makes sure I've got everything, takes me to the doctor and takes me out. (Cyril)

The acceptance of changes related to ageing was very noticeable, not just by physical changes but also in how the participants thought and felt about themselves, others around them and their life journeys. The equanimity they demonstrated appeared to have been a personality trait that they had throughout their lives. They had all experienced deaths of close family and special friends, and these they accepted as part of living. They all articulated that they were not troubled by the thought of their own death; all hoped to die peacefully in their sleep and were clear about not wanting to be resuscitated: 'The quicker the better and no one's to mourn. I didn't want to be a hundred, I wanted to die beforehand'; 'It's going to happen sometime. I've got to face facts I'm not going to live forever'; 'I'm quite happy to slide away. In fact I have been for a long time because there's nothing left in life for me now'; 'I don't worry about it because I think well that it's like a plant that dies that's how I look on myself as a plant it just dies'.

Due to their longevity, the centenarians had outlived many of their friends and peers. They were philosophical about this, recognising that it was inevitable due to their age. There was a sense of acceptance of grief and loss, and they had integrated grief and loss as part of living and managed these poignant moments through individual rationalising:

Well most of my friends died long ago that's sad – one after another has gone and that means I've got no old friends I've got new ones you know but they're not the same as people who have known you all your life but you just have to carry on. The

longer you live other people don't live as long and therefore you've seen them all die which is sad ... That's life. Nothing more I can say about that. (Connie)

Bill spoke of no longer having many friends, and of not making new friends, however, he expressed this in a way that demonstrated that he was untroubled by this absence in his life:

They've all died off now. I don't really have any friends ... Well they die off and you don't make new ones ... I don't really make friends now. (Bill)

All participants had accepted their physical changes as part of a normal ageing process. Even though they admitted to 'slowing down', they had adapted well to physical changes that had occurred due to ageing. The centenarians had found ways to overcome these and in doing so maintained their independence and positive views about life: 'I try to have a little walk every afternoon around the corridors just to keep me moving, it doesn't take more than a few minutes but it does keep me moving'; 'I do know I forget things especially when I'm wanting, you know I have to write them down now'; 'I'm quite happy being slow and sometimes I'm slow on purpose so that I don't fall or rush in where I shouldn't'.

The position of the centenarians in relation to ageing was analogous with and in many ways reflected their path in life. There was a sense of acceptance and satisfaction with life. It was clear that they were happy and content with living in the present. They did not have any concerns about the future, however, their reminiscence narrative about their past was one of an overall contentment with all that they had experienced throughout life, and not one of them expressed their past lives in any negative or damaging context.

Discussion

In respect to case-to-case transfer (transferability), our study confirms other qualitative studies on centenarians that have specifically investigated the narrated experiences of centenarians (Pascucci and Loving, 1997; Archer *et al.*, 2005; Power *et al.*, 2006; Darviri *et al.*, 2009; Hutnik *et al.*, 2012; Manning *et al.*, 2012; Freeman *et al.*, 2013; Wong *et al.*, 2014; Holston and Callen, 2017; Scelzo *et al.*, 2018). Attaining extended longevity was seen as 'just another day', expressed in a number of different ways in most of the above studies, and was linked to specific lifestyles and life satisfaction. The four themes identified in a hermeneutic phenomenological study by Freeman *et al.* (2013), 'lifestyle choices, community and environment, goal setting and attainment, and attitude towards life', closely reflect those found in our study participants. The importance of food and nutrition was emphasised more by our participants than those in the Freeman *et al.* (2013) study, where the New Zealand centenarians viewed wholesome food as one of the key factors contributing to their longevity. Participants in the 1997 research by Pascucci and Loving also attributed their longevity to good wholesome food and clean living, part of which included no alcohol consumption. Our participants commented that they rarely consumed alcohol, and credited this with contributing to their longevity. The qualitative descriptive study on centenarians growing up on an

Appalachian farm by Holston and Callen (2017) also put emphasis on eating healthy garden-fresh produce and having ample milk and butter, produced on the farm, as contributing to longevity. For participants in Scelzo *et al.* (2018), who were rural dwelling, 'love of the land' was also a significant factor in the lives of the centenarians. The importance of a good family life and supportive community relations was a common finding in other qualitative studies (Power *et al.*, 2006; Wong *et al.*, 2014; Holston and Callen, 2017; Scelzo *et al.*, 2018), as was hard work and physical exercise during childhood (Holston and Callen, 2017; Mackowicz and Wnek-Gozdek, 2017; Scelzo *et al.*, 2018). Similar to our study, without exception, the participants in the Scelzo *et al.* (2018) study emphasised their deep-rooted work ethic. Participants in the Freeman *et al.* (2013: 724) study also attributed: 'Good clean living and hard work ... is another reason for our longevity'.

The only study that supports the strong emphasis we found on 'being loved and nurtured', as a significant factor attributed to becoming a centenarian, is that of Scelzo *et al.* (2018). In their theme, 'bond with family and religion', participants reported on the importance of close family relationships; we 'loved each other a lot and helped each other'.

Education, high income and better physical health has been linked to higher cognitive function and successful ageing, with the acknowledged probability that successful agers are successful individuals throughout their entire lives (Lupien and Wan, 2004; Jopp *et al.*, 2016). All individuals in the study came from sound economic backgrounds and some of them had been very high achievers and continued to have high cognitive functions at an extreme age. The significance of attainment of a higher education was similar to those in Holston and Callen (2017) and Archer *et al.* (2005), but not identified by Freeman *et al.* (2013). In the Hong Kong study of six centenarians, most participants perceived their working life as the most important factor in their life and retired at very old ages (Wong *et al.*, 2014).

The narrated self-evaluation of the centenarians in this study, also established in the other qualitative studies, demonstrated positive ageing for the participants that could also be related to their personality profiles where they took a philosophical approach to life throughout their lives. Although participants in the Power *et al.* (2006) study also attributed their longevity to 'good genes' and 'good luck'. Successful ageing is determined by having an emphasis on social interaction, life satisfaction and wellbeing (Crosnoe and Elder, 2002; Jopp *et al.*, 2016). Social interaction, although limited in our study participants, was significant in all of the other qualitative studies. For our participants this held deeper meaning for them as they aged where they tended to change their social relationships and generally had fewer social ties, although these ties became more meaningful to them, as found by Hutnik *et al.* (2012).

Eight of the ten participants lived in a residential facility. Some studies have found that the survival rate of individuals living in a residential facility is lower than that compared with the general population (Wilson, 1997; Rothera *et al.*, 2002; Wallace and Prevost, 2006). On the other hand, Willcox *et al.* (2008) established that high-quality long-term care could be linked to living beyond the age of 100 and attaining the status of supercentenarian. This was the premise held by the

centenarians in this study – that relocation and transition to either a residential facility or a semi-supported environment had had a positive impact on them and they credited this to their reaching the age of 100 years.

Erikson and Tornstam

Two theoretical positions also inform the findings from this study: Erikson's (1950, 1963, 1982) theory on psycho-social stages of development and Tornstam's (1989, 1994, 1997, 2005, 2011) theory of gerotranscendence. The findings particularly reflect a number of Erikson's stages and specifically his eighth stage (Erikson, 1982) and transcendence in later life, where he draws on his own experiences; Tornstam also drew on Erikson's eighth stage in the development of his theory of gerotranscendence (Yount, 2009).

Erikson's theory emphasises the role of society and culture on an individual's development. The first five positive stages of childhood psycho-social development, that is: basic trust, autonomy, initiative, competency and identity, were evident in the centenarians. They experienced parents and other family members who loved and nurtured them during their childhood. These features have a critical role in the early developmental stages of a child's life (Schwartz *et al.*, 1995; Huang and Elo, 2009; Smith *et al.*, 2009). As we found, the highly nurturing environment our centenarians experienced during childhood also included a level of strictness where clear boundaries were in place during childhood, supporting the premise that the ability to provide care and yet have boundaries that are positively reinforced enable a child to build strong characteristics and positive personality traits (Schwartz *et al.*, 1995). Autonomy, within Erikson's (1950, 1963) framework, occurs when parents encourage children to explore their limits and abilities in a supported environment where failure is not criticised and gaining a sense of independence is promoted, praised and nurtured by their parents, grandparents and older siblings (Svetina, 2014). The centenarians manifested autonomy and independence that was instilled in them during their childhood years.

Erikson's (1950, 1963) fifth stage – positive psychological development of identity – is a stage where children are growing up to find their own place in society. The constructive and supportive environments that the centenarians grew up in as children were the foundation of this later positive stage. Identity, in Erikson's theory, also deals with finding the productive meaning of life. The centenarian's narratives demonstrated that they all had a strong sense of identity and were confident about their productiveness throughout life on all levels and at all stages.

The successful establishment and maintenance of positive connections and strong personal relationships was a robust indication of these centenarians' progression through Erikson's positive stages of psycho-social development (stage six); and the clear intergenerational nurturing that occurred within their families (stage seven) (Erikson, 1982). This advancement promoted an ease of transition into Erikson's (1982) eighth and final stage of psycho-social development: ego-integrity. Development of ego-integrity leads to the virtue of wisdom in older age and provides a sense of accomplishment and all the centenarians had attained some form of ego integrity. Erikson defined this as an individual coming to an acceptance of his or her life and satisfaction with his or her past in all its triumphs and failures;

positive personality characteristics lead the individual to a stage of wisdom whereby they are able to look back at life events with a feeling of satisfaction, peace and gratitude. At this stage, the individual reaches an acceptance of his or her life and is satisfied with their life's journey (Erikson, 1982) and this position was manifested in the approach the centenarians took in regard to their 100th birthday. They demonstrated a relatively 'carefree' attitude towards their experiences of living to 100. Becoming a centenarian was seen as an ordinary event that held no great importance. Participants looked back at their life with a sense of contentment, comradeship and wisdom with fortitude, resilience and no regrets (Svetina, 2014).

There was a sense of satisfaction with life that was also comparable to Tornstam's (1989, 1994, 1997, 2005, 2011) theory of gerotranscendence. As Tornstam himself states, his theory of gerotranscendence can be very closely related to Erikson's final and eighth stage of human psycho-social development. There are three levels to the theory of gerotranscendence: the cosmic level, the self, and the social and individual relations (Wadensten and Carlsson, 2001).

The centenarians displayed evidence of gerotranscendence and had achieved some of these levels. The cosmic level of transcendence allows that individuals have a universal view of life, do not find particular pleasure in materialistic items but delight in simple things such as watching nature (Tornstam, 1989; Read *et al.*, 2014). None of our participants referred specifically to the importance of 'God' and spirituality in their lives, as found by others (Archer *et al.*, 2005; Manning *et al.*, 2012; Mackowicz and Wnek-Gozdek, 2017; Scelzo *et al.*, 2018). However, in keeping with Tornstam (1989), the centenarians lived in the present moment – a position closely linked to spirituality – they did not worry about the future or the past and had a diminished fear of death and dying. The importance of living in the here and now, as contributing to their happiness, has been reported in other centenarian studies (Power *et al.*, 2006; Manning *et al.*, 2012; Mackowicz and Wnek-Gozdek, 2017), where religious beliefs and spirituality (Pascucci and Loving, 1997) were identified as contributing to their durability. Furthermore, accepting the aged body as a normal progression of the ageing process, also known as body transcendence (Tornstam, 1989), was a feature of the centenarians in our study.

It was notable that all of the participants talked about past events with a sense of acceptance and recognised that challenges were all part of living. This is supported in other studies where the oldest of the old have a remarkable sense of satisfaction and acceptance of events and develop coping mechanisms that enabled them to continue to overcome stresses in life (Jopp and Rott, 2006; Darviri *et al.*, 2009; Hutnik *et al.*, 2012; Wong *et al.*, 2014; Mackowicz and Wnek-Gozdek, 2017; Scelzo *et al.*, 2018). This position is also supported in a study measuring anxiety and depression, independence in activities of daily living (ADLs) and quality of life of a convenience sample of centenarians in Australia by Richmond *et al.* (2011). These authors found that anxiety and depression was relatively non-existent, and that most of the centenarians described high quality of life despite, for some, considerable deterioration in functional ability as a result of the ageing process, and having high dependency on others for their everyday tasks.

The final level of Tornstam's (1989) theory refers to social and individual relations. It enables an individual to have a positive shift in thinking about life, change

of views and meanings of social relationships to family and society. One example of a shift in meanings is around relationships with others. The centenarians had, over the years, become more selective about engaging with others. They all recognised a diminished circle of friends, but were philosophical about this and preferred relationships with a few people that held deeper meaning rather than having and developing new relationships with others around them. They also described increased affiliation with future generations and their close family members. This was also in keeping with Erikson's (1982) seventh stage where intergenerational nurturing occurred within their families. The centenarians enjoyed being in their own company, adding to the theory of 'positive solitude'. This is not because they lacked possibilities but more about the choices they made around the importance of social relationships in their later years of life (Tornstam, 1997). Furthermore, 'emancipated innocence' (Tornstam, 2005) was evident in the centenarians as they were able to break away from social role expectations and conventions. The centenarians had less concern about how other people and society perceive them (Tornstam, 1997), such as dancing on the table at their 100th birthday party or arranging a 'Skypeathon'.

Study limitations

All participants were of white European descent and the effects of different cultures and ethnicity within New Zealand on extended longevity was not explored in this study. This is due to Māori and Pacific Islanders having a shorter lifespan (Dulin *et al.*, 2011; Ministry of Health, 2014, 2015, 2016). The average life expectancy for Māori males is 73.0 years and for Māori females is 77.1 years (Ministry of Health, 2015), with overall mortality rates higher for Māori than for non-Māori at all ages (Ministry of Health, 2014) as Māori and Pacific people are less likely to contact primary health-care services due to associated cost (Ministry of Health, 2016). However, research suggests that ageing processes are modifiable and that people in countries with long life expectancies, which includes New Zealand, are living longer without severe infirmity or frailty (Christensen *et al.*, 2009). This is upheld in an analysis by Woodward and Blakely (2014) who use historical data to show that the number of Māori and non-Māori centenarian New Zealanders will increase in line with data provided by the Office for National Statistics (2018) in the United Kingdom. Our lack of Māori participants may simply be a reflection of the region in which the study was undertaken and lower Māori population generally in that region.

Of note, one of the only studies on centenarians in New Zealand by Wilkinson and Sainsbury (1998) comparing centenarians in New Zealand and the United States of America (USA) using census-based data indicated that the centenarian population in New Zealand was over-represented by the European ethnic group. However, they found that African Americans were over-represented in the US centenarian population. Centenarian disparities in racial and ethnic groups is a potentially rich area for more robust qualitative research to be undertaken.

Participants in this study were all generally in good health, by their perspective, and the majority only required minimal assistance for their ADLs. This leads to a

healthier sample and therefore stories may be told in a more positive light. In addition, aged individuals who more readily volunteer to participate in studies are generally more educated, in better physical health and have a higher income (Lupien and Wan, 2004). It could also explain the positive stories and personality traits noted in this group. Skewing of the sample, also known as selection bias, is well known in the study of the oldest-of-old, as it is easier to recruit healthier participants in this age range (Willcox *et al.*, 2008).

Conclusion

This study has demonstrated how centenarians may be notably content and happy with their life journeys, and appreciative of their good health, supportive family members and residential facility staff who looked after them on a daily basis. The ability to obtain a higher sense of being and acceptance of ageing with a positive outlook on the past, present and future events was not a coincidence in these centenarians. The centenarians attributed their physical and emotional wellbeing to the social support and emotional security provided by close family members, as well as good nutrition and an active lifestyle. The study has provided further insights into longevity and through the narratives of the centenarians has demonstrated the value of the theoretical positions of both Erikson and Tornstam. Further research with more direct focus and specific explication of these theoretical approaches during data collection needs to be undertaken.

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